# E C O T O X

## ECOTOXicology Database System

## ECOTOX Code Appendix

Prepared for

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NOTE: All code additions to the ECOTOX code appendices are forwarded monthly to EPA for approval.

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# Appendix A. Carrier CAS Numbers

| Chemical Name | CAS # |
|---|---|
| Acetate | 71501 |
| Acetic acid | 64197 |
| Acetone ( 2-Propanone) | 67641 |
| Acetonitrile | 75058 |
| Aerosol OT (Sodium salt) | 577117 |
| Agar | 9002180 |
| Arachis oil | 8002037 |
| Butyl dioxitol | 112345 |
| Benzene | 71432 |
| Cadmium Chloride | 10108642 |
| Cadmium Sulfate | 10124364 |
| Cod Liver Oil | 8001692 |
| Cottonseed Oil | 8001294 |
| Corn Oil | 8001307 |
| Cornstarch | 9005258 |
| Cyclosol 63 | 89072606 |
| Diesel oil | 68334305 |
| 1,4-Dioxane | 123911 |
| DMF, N,N-Dimethylformamide | 68122 |
| DMSO, Dimethyl Sulfoxide | 67685 |
| Emulphor | 9004982 |
| Ethanol (or Ethyl alcohol - absolute alcohol) | 64175 |
| Ether | 60297 |
| 2-Ethoxyethanol | 110805 |
| Ethylene Glycol Monomethyl Ether (2-Methoxyethanol) | 109864 |
| Fish Oil | 8016135 |
| Fuel Oil | 68476299 |
| Gelatin | 9000708 |
| Gum acacia | 9000015 |
| Gum tragacanth | 9000651 |

HCL, Hydrochloric Acid ..... 7647010
Hexane (also, N-Hexane) ..... 110543
HNO3, Nitric Acid (HNO3; H2SO4,R)-Purity Character (Sulphuric Acid,R) ..... 7697372
Isopropanol (2-Propanol) ..... 67630
Iron Sulfates ..... 10124499
Lactose ..... 63423
Methanol (Methyl alcohol) (CH30H) ..... 67561
Methoxyethanol (or 2-Methoxyethanol) ..... 109864
Methylcellulose ..... 9004675
Methylene Chloride ..... 75092
Methyl ethyl ketone ..... 78933
Mineral oil ..... 8012951
NAHCO3, Sodium Bicarbonate ..... 144558
NAOH, Sodium Hydroxide ..... 1310732
N,N-Dimethylformamide (or Dimethylformamide) ..... 68122
Nitric Acid ..... 7697372
Olive Oil ..... 8001250
Peanut Oil ..... 8002037
Pentane ..... 109660
Petroleum ether ..... 8030306
Polyethylene Glycol (2-Propanol) ..... 25322683
Polysorbate 80 (Tween 80) ..... 809005656
Potassium Hydroxide (KOH) ..... 1310583
Propane (Propylene glycol) ..... 57556
2-Propanol Isopropanol (or Isopropanol)-Isopropyl alcohol ..... 67630
Propylene Glycol ..... 57556
Safflower Oil ..... 8001238
Saline ..... 7647145
Salt ..... 7647145
Sesame Seed Oil ..... 8008740
Sodium Chloride (Salt, Saline)(Na Cl) ..... 7647145
Sodium Sulfate ..... 7757826
Soybean Oil ..... 8001227

Starch ..... 9005258
Sucrose ..... 57501
Sulfuric Acid ..... 7664939
Sunflower Oil ..... 8001216
Tergitol NPX ..... 9016459
Toluene (or Methylbenzene) ..... 108883
Toxisol FLC ..... 12738920
Trichloroacetic Acid ..... 76039
Triethylene Glycol ..... 112276
Trimethylene Glycol ..... 504632
Trioactanoin ..... 538238
Triton-X100 ..... 9002931
Tween 40 ..... 9005667
Tween 80 (Polysorbate 80) ..... 9005656
Water ..... 7732185
Vegetable oil ..... 68956683
Velsicol ..... 2307495
Xylene ..... 1330207

# Appendix B. Chemical Grade Codes

| | |
|---|---|
| AASG | Atomic Absorption Spectrometry Grade |
| ACS | American Chemical Society Grade |
| AG | Agricultural Grade |
| ACG | Agrochemical Grade |
| AN | Analar Grade |
| AL | Analysis Grade |
| A* | Analytical Grade |
| A or GU | Analytical or Guaranteed Grade |
| A or R* | Analytical or Reagent Grade |
| A or S | Analytical or Spectrophotometric Grade |
| A or T* | Analytical or Technical Grade |
| AN or R | Analar or Reagent Grade |
| AR* | A.R. Grade (Analytical Reagent Grade) |
| B | Biological Grade |
| CT | Certified Grade |
| CG | Chemical Grade |
| CH | Chromatographic Grade |
| CL | Clinical Grade |
| C | Commercial Grade |
| C or AN | Commercial or Analar Grade |
| DG | Distilled in Glass Grade |
| DIS | Distol Grade |
| DS | Dry Standard Grade |
| EM | Eastman Grade |
| EL | Electrophoresis Grade |
| ER | ExcelaR Grade |
| EX | Experimental Grade |
| EXT | Extra Grade |

| | |
|---|---|
| F | Field Grade |
| FFL | Free flowing Grade |
| FG | Feed grade |
| FO | Formulated Grade |
| GC | Gas Chromatography Grade |
| GR | GR Grade |
| GU | Guaranteed Grade |
| GUR | Guaranteed Reagant Grade |
| HPLC* | High Performance Liquid Chromatography Grade |
| HG | Histological Grade |
| I | Industrial Grade |
| L | Laboratory Grade |
| MK | Merck Grade |
| MRG | Merck Reagent Grade |
| ME | Monsanto Electrical Grade |
| NAF* | National Formulary Grade |
| NP | Normapur Grade |
| NR | Not Reported |
| OP | Optima |
| PA | Proanalysis Grade |
| PAN | Pestanal Grade |
| PAG | Pesticide Analysis Grade |
| PST | Pesticide Grade |
| PRG | Pesticide Residue Grade |
| PH | Pharmaceutical Grade |
| PRA* | Practical Grade |
| PR | Production Grade |
| PG* | Pure Grade |
| PFG | Purified Grade |
| R* | Reagent Grade |
| RFG | Reference Grade |
| RE | Research Grade |

| | |
|---|---|
| RE or A | Research or Analytical Grade |
| RS | Residue Grade |
| SC | Scintillation Grade |
| SG | Sigma Grade |
| SO | Solvent Grade |
| SPC | Spectrochemical Grade |
| SZ | Sensitizer Grade |
| S | Spectrophotometric Grade |
| TA | Technical Acid Grade |
| TAR* | Technical or Analytical or |

| | |
|---|---|
| | Reagent Grade |
| T* | Technical Grade |
| T or P | Technical or Purified Grade |
| T or PU* | Technical or Pure Grade |
| TIS | Tissue Culture Grade |
| ULV | ULV Grade |
| UP | Ultrapure Grade |
| USP* | United States Pharmacopeia Grade |
| UV | Ultraviolet Grade |
| UVS | Uvasol Grade |

* Code as “A” for concentration type for organic chemicals for AQUIRE

# Appendix C. Chemical Formulation Codes

| | |
|---|---|
| AE | Acid Equivalent |
| AI | Active Ingredient |
| ASL | Aerosol |
| ASG | Agricultural Suspension |
| ARST | Analytical Reference Standard |
| AQ | Aqueous Solution |
| AS | Aqueous Suspension |
| AAPS | Atomic Absorption Primary Standard |
| CES | Capsule suspension |
| CP* | Chemically Pure |
| CRI | Chromatographically Impure |
| CRP | Chromatographically Pure |
| C | Commercial |
| CO | Concentrate |
| CR | Controlled Release |
| CRY | Crystal |
| DC | Detached Crystals |
| DSC | Dispersible concentrate |
| DG | Dispersible Granule (also known as “dry flowable”) |
| DP | Dispersible Powder |
| D | Dust |
| EC | Emulsifiable Concentrate |
| EF | Emulsifiable Formulation |
| ES | Emulsifiable Solution, Agent |
| EG | Emulsified Granular |
| E | Emulsion |
| EN | Encapsulated |
| FFO | Field Formulated |
| FCASS | Fisher Certified Atomic |

| | |
|---|---|
| | Absorption Standard |
| FK | Flake |
| FF | Flowable Formulation |
| FG | Finely Ground |
| FO | Formulated |
| FS | Flowable concentrate for seed treatment |
| GCR | Gas Chromatograph Standard |
| GS | Gaseous |
| G | Granule, Granular |
| GU | Guaranteed |
| HG | Heavy Granular |
| LD | Liquid |
| LDCO | Liquid concentrate |
| MO | Miscible Oil |
| N | Nanograde |
| ND | Neutralized, Desensitized |
| NF | Nonionized Form |
| NR | Not Reported |
| OC | Oil Concentrate |
| OD | Oil Dispersion |
| OS | Oil Soluble |
| ODA | Organic Dispersal Agent |
| PAR | Particulate |
| PEL | Pellet |
| PO | Powder |
| PRE | Prepared in Lab |
| PS* | Primary Standard |
| PA | Pro Analsi Quality |
| PU | Pure, Purissium or Puris |
| PF* | Purified |

| | |
|---|---|
| RC | Recrystallized |
| RST* | Reference Standard |
| RF | Registered Formulation |
| SRF | Slow Release Formulation |
| SD | Solid |
| S | Solution |
| SC | Suspension concentrate |
| SF | Sand Formulated |
| SG | Soluble Granule |
| SO | Soluble Concentrate |
| SP | Soluble Powder |
| SPCO | Spray Concentrate |
| SPL | Spray Liquid |
| SPO | Spray Powder |
| ST | Standard |
| STD | Standard Solution for AA |

| | |
|---|---|
| TC | Technical product |
| UD | Unneutralized, Desensitized |
| ULV | Ultra-Low Volume, also Ultra-Low Volume Concentrate or Liquid |
| V/V | Volume per Volume |
| W/V | Weight per volume |
| WG | Water Dispersible Granule |
| WMC | Water Miscible Concentrate |
| WS | Water Soluble |
| WSC | Water Soluble Concentrate |
| WP | Wettable Powder or Water dispersible powder |
| WSS | Wettable Solid |
| WHO | World Health Organization |
| W/W | Weight per weight |

* Code as “A” for concentration type for organic chemicals for AQUIRE

# Appendix D. Radiolabel Isotope Codes

| | |
|---|---|
| Ag-110 | Silver |
| Am-241 | Americium |
| As-73 | Arsenic |
| As-74 | Arsenic |
| As-76 | Arsenic |
| B-10 | Boron |
| Ba-133 | Barium |
| Be-7 | Beryllium |
| C-12 | Carbon |
| C-13 | Carbon |
| C-14 | Carbon |
| Cd-109 | Cadmium |
| Cd-113 | Cadmium |
| Cd-115 | Cadmium |
| Ca-45 | Calcium |
| Cf-252 | Californium |
| Ce-144 | Cerium |
| Cl-36 | Chlorine |
| Cm-244 | Curium |
| Co-60 | Cobalt |
| Co-64 | Cobalt |
| Co-57 | Cobalt |
| Cr-51 | Chromium |
| Cs-137 | Cesium |
| Cs-134 | Cesium |
| Cu-64 | Copper |
| Cu-63 | Copper |
| Cu-65 | Copper |
| Eu-152 | Europium |
| F-18 | Fluorine |
| I-131 | Iodine |

| | |
|---|---|
| Fe-59 | Iron |
| H-3 | Hydrogen (Tritium) |
| Hg-197 | Mercury |
| Hg-203 | Mercury |
| I-125 | Iodine |
| I-131 | Iodine |
| Mn-54 | Manganese |
| N-15 | Nitrogen |
| Ni-59 | Nickel |
| Ni-63 | Nickel |
| Np-235 | Neptunium |
| NR | Not Reported |
| P-32 | Phosphorus |
| Pb-210 | Lead |
| Pb-203 | Lead |
| Po-208 | Polonium |
| Po-210 | Polonium |
| Pu-239 | Plutonium |
| Pu-237 | Plutonium |
| Ra-226 | Radium |
| Ru-106 | Ruthenium |
| S-35 | Sulfur |
| Sb-125 | Antimony |
| Se-75 | Selenium |
| Sn-113 | Tin |
| Sr-90 | Strontium |
| Sr-85 | Strontium |
| Tc-95 | Techninium |
| Tc-99 | Technicium |
| Te-128 | Tellurium |

| | |
|---|---|
| Tl-115 | Thallium |
| Th-232 | Thorium |
| Th 238 | Thorium |
| U-238 | Uranium |
| U-232 | Uranium |
| U-235 | Uranium |

| | |
|---|---|
| V-48 | Vanadium |
| V-49 | Vanadium |
| Yes | Unknown radiolabel |
| Zn-65 | Zinc |

# Appendix E. Organism Source Codes

| **Code** | **Definition** |
|---|---|
| CBC | **C**aptive **b**reeding **c**olony |
| COM | **Com**mercial source |
| DOM | **Dom**estic strain |
| GAM | **Gam**e farm strain |
| GOV | **Gov**ernment agency source |
| LAB | **Lab**oratory strain |
| MLT | **M**u**lt**iple Sources |
| NR | **N**ot **r**eported |
| WLD | **Wild** strain |

# Appendix F. Lifestage Codes (at beginning of exposure)

## I. Organism lifestage codes

| Code | Description | Definition |
|---|---|---|
| AD | Adult | |
| AL | Alevin | |
| BL | Blastula | |
| CC | Cocoon | |
| CO | Copepodid | |
| CP | Copepodite | |
| CS | Cleavage stage | |
| CY | Cyst | |
| EG | Egg | |
| EL | Elver | |
| EM | Embryo | |
| EY | Eyed stage, eyed embryo | |
| FI | Fingerling | |
| FT | Froglet | |
| FY | Fry | |
| GA | Gastrula | |
| GE | Gestation | |
| GL | Glochidia | |
| GM | Gamete | |
| IG | Imago | |
| IM | Immature | |
| IN | Instar | |
| IT | Intermolt | |
| JV | Juvenile; fledgling, hatchling, weanling | |
| LC | Lactational | |
| LE | Egg laying | Egg laying stage of oviparous animals. (http://en.wikipedia.org/wiki/) |
| LP | Larva-pupa | |
| LR | Prolarvae | |
| LV | Larvae | |
| LO | Lobes | |
| MA | Mature | |

| Code | Description | Definition |
|---|---|---|
| ME | Megalopa | |
| ML | Morula | |
| MO | Molt | |
| MX | Multiple | |
| MY | Mysis | |
| NB | New born | |
| ND | Naiad | |
| NE | Neonate | |
| NH | New, newly, or recent hatch | |
| NL | Neurala | |
| NR | Not reported, unknown | |
| NU | Nauplii | |
| NY | Nymph | |
| OO | Oocyte, ova | |
| PA | Parr | |
| PC | Pre-hatch | |
| PD | Pre-molt | |
| PE | Post emergence | |
| PG | Post spawning | |
| PI | Post molt | |
| PJ | Pre-, sub-, semi-, near adult, or peripubertal | |
| PK | Post smolt | |
| PN | Post nauplius | |
| PO | Post hatch | |
| PP | Postpartum | In females, the period that is shortly after giving birth Also parturition. (http://www.ncbi.nlm.nih.gov) |
| PPU | Prepupal | Inactive stage in the development of some insects, between the larval and the pupal stages (http://wordnetweb.princeton.edu) |
| PQ | Pre-larvae | |
| PS | Pre smolt | |
| PT | Protolarvae | |
| PU | Pupa | |
| PV | Post larvae | |
| PW | Pre-spawning | |

| Code | Description | Definition |
|---|---|---|
| PY | Post embryo | |
| PZ | Protozoea | |
| SA | Subadult | |
| SC | Yolk-sac larvae, sac larvae | |
| SF | Sac fry, yolk sac fry | |
| SI | Sexually immature | |
| SM | Sexually mature | |
| SMT | Smolt | |
| SO | Sporeling | |
| SP | Sperm | |
| SR | Spore | |
| ST | Spat | |
| SU | Swim-up | |
| SW | Spawning | |
| TA | Tadpole | |
| TZ | Trophozoite | The feeding stage, also known as vegetative stage, of a protozoan (as distinct from reproductive or encysted stages).(http://cancerweb.ncl.ac.uk/omd/) |
| UY | Underyearling | |
| VI | Virgin | |
| YA | Young adult | |
| YE | Yearling | |
| YO | Young | |
| YY | Young of the year | |
| ZO | Zoea | |
| ZY | Zygote | |

## II. Plant lifestage codes

| Code | Definition |
|---|---|
| BS | Bud blast stage |
| EX | Exponential (Log)Growth Phase |
| FB | Mature, full-bloom stage (fruit trees) |
| FG | Female gametophyte |
| FO | Flower opening |

| Code | Definition |
|---|---|
| GP | Lag growth phase |
| GS | Germinated seed |
| IB | Incipient bud |
| MD | Mature dormant |
| MG | Male gametophyte |

| Code | Definition |
|---|---|
| MX | Multiple stages |
| MT | Mature, no specified stage |
| PB | Mature, post-bloom stage (fruit trees) |
| PH | Mature, pit-hardening stage (fruit trees) |
| RC | Rooted cuttings |
| RP | Mature reproductive |
| RST | Rootstock |
| SB | Shoot |
| SE | Scape elongation |
| SD | Seed |
| SG | Mature, side-green stage (fruit trees) |
| SL | Seedling |
| SN | Sapling |
| SY | Stationary growth phase |
| TC | Tissue culture callus |
| TU | Tuber |
| VG | Mature vegetative |

# Appendix G. Soil Type Codes

Standard Artificial Soils:

| | |
|---|---|
| OECD 1984 | Organization for Economic Cooperation and Development 1984 |
| OECD 1993 | Organization for Economic Cooperation and Development 1993 |
| EEC | Council of European Communities |
| ISO 1994 | International Standard Organization 1994 |

| **Standard Artificial Soil Characteristics** | | |
|---|---|---|
| Soil Type | Organic Matter | pH |
| OECD 1984 | 10 % peat | 6.0 |
| OECD 1993 | 10 % peat | 6.0 |
| EEC | 10 % peat | 6.0 |
| ISO 1994 | 10 % peat | 6.0 |

# Appendix H. Test Location Codes

| Code | Definition |
|---|---|
| **FieldA** | **Field, A**rtificial - a simulated or artificial field study is conducted in “an artificially bounded system that is a simplification of a specific ecosystem”, e.g. aviaries, pens, enclosures, outdoor pots |
| **FieldN** | **Field, N**atural - a natural field study is one “in which both the test system [...] and exposure to the stressor are ‘naturally’ derived”; e.g. sprayed agricultural field or orchard plots, field surveys. |
| **FieldU** | **Field, U**nable to determine whether natural or artificial setting |
| **Lab** | **Lab**oratory indoor setting, including environmental chamber, greenhouse, lath house, garden frame or indoor pots |
| **NR** | **N**ot **R**eported; unable to determine whether laboratory or field |

# Appendix I. Valid Duration Units

| Code | Definition |
|---|---|
| **s** | **s**econd |
| **mi** | **mi**nute |
| **h** | **h**our |
| **d** | **d**ay |
| **wk** | **w**eek |
| **mo** | **mo**nth |
| **yr** | **y**ea**r** |
| **lf** | lifetime; no associated numeric value |
| **NR** | time information **n**ot **r**eported |
| **alv** | **al**e**v**in |
| **abs** | until **abs**cission |
| **ac** | age class |
| **ant** | until **ant**hesis |
| **b0.25** | **0.25 b**loom stage |
| **blm** | **bl**oo**m** stage |
| **brd** | **Br**oo**d** or litter |
| **brs** | **br**eeding **s**eason |
| **bs** | **b**ud blast **s**tage |
| **bt** | to **b**oot s**t**age |
| **cd** | **c**olony **d**iameter |
| **cfs** | to **c**ommercial **f**lower **s**tage |
| **clv** | **cl**ea**v**age |
| **crs** | crab stage |
| **cs** | cell stage |
| **dd** | degree days |
| **dh** | degree hours |
| **dge** | days gestation |
| **dpe** | **d**ays **p**ost-**e**mergence |
| **dpfl** | **days post flowering** |
| **dph** | **d**ays **p**ost **h**atch |
| **dphv** | **d**ays **p**ost **h**ar**v**est |
| **dpf** | **d**ays **p**ost **f**ertilization |

| | |
|---|---|
| **dpn** | days post-natal |
| **dpo** | days post oviposition |
| dpm | days post-moult |
| **dpp** | days post planting/sowing |
| **dpr** | days post-release |
| **dpref** | days pre-fertilization |
| **dps** | days post spawn |
| **dpu** | days post-swim up |
| **dpw** | days post swimming |
| **dbh** | days pre-hatch |
| **ea** | to **ea**ring or heading |
| **eb** | **e**arly **b**loom stage |
| **ej** | egg to juvenile |
| **ep** | **e**gg to **p**upation |
| **eslk** | to **e**arly **s**i**lk** stage |
| **el** | nth **e**gg **l**aid |
| **em** | to **em**ergence |
| **epa** | egg to pre-adult |
| **eso** | **e**nd of **s**h**o**oting stage |
| **ey** | **ey**ed stage (time to eyed stage of fish eggs) |
| **f5** | **5**0% **f**lowering |
| **fb** | **f**ull **b**loom stage |
| **fd** | frond |
| **fi** | **f**lower **i**nitiation |
| **fl** | **fl**ower stage |
| **flg** | **fl**ed**g**ing |
| **fr** | to **fr**uit stage |
| **frt** | to fertilization |
| **fry** | **fry** |
| **fs** | **f**lowering **s**tage |
| **ge** | **ge**neration |
| **ges** | **ges**tation |
| **gm** | to **g**er**m**ination |
| **go** | gosner stage |
| **gs** | **g**rowing **s**eason |
| **gts** | gastrula stage |

| | |
|---|---|
| **hbf** | hours pre-fertilization |
| **hbh** | hours pre-hatch |
| **hpe** | hours post emergence |
| **hpf** | **h**ours **p**ost **f**ertilization |
| **hph** | **h**ours **p**ost **h**atch |
| **hpr** | hours post-release |
| **hv** | **h**ar**v**est |
| **ht** | until **ha**t**ch** |
| **i2** | **i**ntermolt to **2**nd molt |
| **ins** | instar |
| **it** | **i**n**t**ermolt to molt |
| **kh** | **k**nee-**h**igh stage |
| **lfd** | leaf drop |
| **lgp** | to lag phase |
| **log** | to log phase |
| **ls** | leaf stage |
| **ls4** | **4**-6 **l**eaf **s**tage |
| **ls6** | **6 l**eaf **s**tage |
| **ls9** | **9**-10 **l**eaf **s**tage |
| **LSI** | Larval Stage Index |
| **lva** | **l**ar**v**a to **a**dult |
| **lvp** | **l**ar**v**a to **p**upa |
| **ma** | to **ma**turity |
| **mpf** | minutes post fertilization |
| **mph** | minutes post hatch |
| **mopf** | months post-fertilization |
| **moph** | months post-hatch |
| **mopm** | months post-metamorphosis |
| **mopres** | months pre-smolt |
| **mopswm** | months post swim-up |
| **myp** | **My**sis to **p**ost-larvae |
| **nf** | **N**ieuwkoop-**F**aber-stage |
| **pan** | **pan**icling stage |
| **pd** | 1st **pod** set |
| **pgm** | post germination |
| **pm** | **p**ost **m**olt |

| | |
|---|---|
| **pr** | **pr**iming (The harvesting of ripened tobacco leaves) |
| **pro** | **pro**pagation stage |
| **rc** | **r**eady for **c**onsumption |
| **slk** | to **s**i**lk** stage |
| **sms** | **s**o**m**ite **s**tage |
| **so** | **s**h**o**oting stage |
| **spref** | seconds before fertilization |
| **spf** | seconds post fertilization |
| **sst** | substage |
| **stg** | stage |
| **su** | summer |
| **swm** | **sw**i**m**-up |
| tls | tiller stage |
| **tr** | 1st **tr**ifoliate leaf |
| **ts** | time to **t**a**s**sle |
| **ubi** | **u**ntil **bi**rth |
| **vg** | **v**e**g**etative stage |
| **wbh** | weeks pre-hatch |
| **wpe** | weeks post emergence |
| **wph** | weeks post hatch |
| **wphv** | Weeks pre harvest |
| **wps** | weeks post swim-up |
| **yc** | year class |
| **yph** | years post-hatch |
| **zm** | **z**oeae-**m**egalop |
| **zmy** | **z**oeae to **my**sis |
| **-n** | negative values represent pretreatment times |
| **-x** | pretreatment time unknown |
| **/** | NOT TO BE USED AFTER 10/15/99, USE QUALITATIVE CODES (ABOVE) INSTEAD: used when the duration is qualitative rather than quantitative; information is recorded as text in the Remarks (eg., 12th egg after hatch but not end of study) |

# Appendix J. Exposure Type Codes

| Code | Definition |
|---|---|
| **D**<br>see Appendix J.1 | **D**iet - exposure through consumption; includes diet and/or water intake; this code will be automatically assigned if one of the diet categories from Appendix J.1 is used |
| **I**<br>see Appendix J.2 | **I**njection -insertion of the toxicant into the skin, vessels, muscle, subcutaneous tissue, or any body cavity; this code will be automatically assigned if one of the injection categories from Appendix J.2 is used |
| **M**<br>see Appendix J.3 | **M**ultiple-exposure to the toxicant through two or more different routes. |
| see Appendix J.4 | **AQUIRE ONLY** Exposure Type Codes |
| **NR** | Exposure type is **N**ot **R**eported |
| **T**<br>see Appendix J.5 | **T**opical - exposure includes dermal, eggshell, immersion or soaking; this code will be automatically assigned if one of the topical categories from Appendix J.5 is used |
| **V**<br>see Appendix J.6 | En**v**ironmental - exposure includes field in situ and specific application types as well as incidental exposures; this code will be automatically assigned if one of the environmental categories from Appendix J.6 is used |

## Appendix J.1 Diet (D) Exposure Codes

| **Code** | **Definition** |
|---|---|
| **DT** | diet, unspecified |
| **FD** | chemical incorporated into the food |
| **DR** | chemical incorporated into drinking water |
| **CH** | choice of treated or untreated food or water |
| **GV** | Gavage (oral intubation) |

| | |
|---|---|
| **GE** | Gestational (Exposed during gestation) |
| **LC** | Lactation (Exposed via mother's milk) |
| **OR** | oral via capsule |

## Appendix J.2 Injection (I) Codes

| Code | Definition |
|---|---|
| IJ | injection, unspecified |
| IA | Intra-arterial (injected via the artery) |
| IB | Albumin injection |
| IC | Air sac (air cell) injection |
| ID | Intradermal (An intradermal injection is given into the skin) |
| IF | intramedial forebrain bundle |
| IG | intragastrical (injected directly into the digestive system) |
| IH | intrahemocoel |
| II | intrastriatal |
| IK | Intracranial |
| IM | intramuscular |
| IO | intra-amniotic |
| IP | intraperitoneal |
| IL | intra placental |
| IQ | Intraduodenal |
| IR | intraprostomial |
| IS | intrasegmentally (insects) |
| IE | intratesticular |
| IU | intraaccumbens |
| IV | intravenous |
| IW | Intraesophageal |
| IY | Intracardiac |
| IZ | Intra-spinal cord |
| OP | Osmotic pump, subcutaneous pump, peristalic pump, mini pump |

| | |
|---|---|
| SC | subcutaneous |
| SD | subdermal |
| YK | yolk |

## Appendix J.3 Multiple (M) Application Codes

| Code | Definition |
|---|---|
| MU | multiple routes between application groups (e.g. dermal and injection) |

## Appendix J.4 AQUATIC ONLY Exposure Type Codes

### Aquatic Lab Exposure Types (EXP TYP)

| **Code** | **Definition** |
|---|---|
| [C] | Topical Exposure (Use specific code from App. J.5) |
| [D] | Diet or Oral exposure (includes simultaneous diet and water exposure) (Use specific code from App. J.1) |
| F | Flow-through |
| [I] | Injection (Use specific code from App. J.2) |
| L | Leaching (used for leachate and sediment exposures, if water conc reported) |
| P | Pulse (intermittent or fluctuating dosing) |
| R | Renewal |
| S | Static (recirculating exposures are noted in Exp Design); algae tests where the time is <= 24 hr, static may be assumed, and coded as such by the reviewer |

### Aquatic Field Exposure Types (EXP TYP)

| **Code** | **Definition** |
|---|---|
| B | Tidal |
| [D] | Diet (Use specific code from App. J.1) |
| E | Lentic (static water system without measurable flow rate, e.g. ponds, lakes, troughs, irrigation ditches) |
| [I] | Injection (Use specific code from App. J.2) |

| Code | Definition |
|---|---|
| O | Lotic (flowing water system, e.g. streams) |

[ ] = Old code. The codes will require maintenance to update records with new codes.

## Appendix J.5 Topical (T) Application Codes

| Code | Definition |
|---|---|
| DM | dermal |
| FC | Filmcoating (dust free colored coating of seeds) |
| MM | immersion |
| OC | ocular |
| PC | percutaneous |
| SA | surface area dose |
| SH | eggshell |
| TP | topical, general |

## Appendix J.6 Environmental (V) Exposure Codes [Also used as Aquatic Field Test Application Type]

| Code | Definition |
|---|---|
| AE | aerial (unknown type) |
| AG | aerial-granular |
| AS | aerial spray application |
| CM | culture medium application |
| DA | direct application |
| DU | dusted |
| DW | dropwise application |
| EN | environmental, unspecified |
| FS | foliar spray |
| FU | fumigation |
| GG | ground granular |
| GM | growth medium application |
| GS | ground spray |
| HP | hydroponic solution application |
| HS | hand spray |
| IN | in situ |
| MI | misted |

| Code | Definition |
|---|---|
| MT | multiple routes within environmental exposures, e.g. Aerial spray and soil slurry to the same plots. |
| PR | present in soil |
| PT | painted |
| PU | pump |
| SO | dipped or soaked |
| SP | spray |
| SS | soil slurry |
| WA | watered |

# Appendix K. Application Frequency Codes

| Code | Definition |
|---|---|
| **ADL** | **Ad l**ibitum; without limit or restraint |
| **CON** | **Con**tinual; non-pulsed |
| **D/WK, 10-13WK** | X times per week for 10 to 13 weeks |
| **DLY** | **D**ai**ly**; dosing regime not specified |
| **DLY for X D** | Daily for X days |
| **DLY for 5 D** | Daily for 5 days |
| **DLY for 2 H** | Daily for 2 hours |
| **EOD** | **E**very **o**ther **d**ay |
| **E X D** | **E**very **X d**ays |
| **E X H** | **E**very **X h**ours |
| **E x H for 20 D** | Every X hours for 20 days |
| **E x MI** | Every x minutes |
| **E X WK** | **E**very **X w**eeks |
| **G per D** | **G**rams **per d**ay |
| **H** | Hour |
| **HED** | X hours every day |
| **X H E12H** | X hours every 12 hours |
| **X H E3D** | X hours every 3 days |
| **X H E5D** | X hours every 5 days |
| **X H E7D** | X hours every 7 days |
| **X H EOD** | X hours every other day |
| **X H per D** | X hours per day |
| **H/D for 8 D** | X hours per day for 8 days |
| **X H WKY** | X hours weekly |
| **X H, 2X/WK** | X hours, 2 times per week |
| **X H, 4X/WK** | X hours, 4 times per week |
| **X H, 5/WK** | X hours, 5 times per week |
| **X MI** | X minutes |
| **X MI E8H** | X minutes every 8 hours |
| **X MI EOD** | X minutes every other day |
| **X MI per D** | X minutes per day |
| **X MI, 1X/WK** | X minutes, 1 time per week |

| Code | Definition |
|---|---|
| **X MI, 2X/WK** | X minutes, 2 times per week |
| **X MI, 3X/WK** | X minutes, 3 times per week |
| **X MI, 5X/WK** | X minutes, 5 times per week |
| **IN** | **in** situ |
| **RES** | **Res**tricted |
| **STG** | **St**a**g**e |
| **WKY** | **W**ee**k**l**y** |
| **X** | Dosed **x** time(s) per study period; e.g. 1 time = 1X |
| **X,20 D apt** | x times 20 days apart |
| **XH/D,5D/WKfor3W** | X hours per day, 5 days a week for 3 weeks |
| **X E2D** | X times every 2 days |
| **X E 3.3-5 D** | X times every 3.3 to 5 days |
| **X E10D** | X times every 10 days |
| **X E 7-15 D** | X times every 7 to 15 days |
| **X for 1 H** | X times for 1 hour |
| **X for 1 MI** | X times for 1 minute |
| **Xfor10H,5D apt** | X times for 10 hours, 5 days apart |
| **X for 10 MI** | X times for 10 minutes |
| **X for 12 H** | X times for 12 hours |
| **Xfor12H,12H apt** | X times for 12 hours, 12 hours apart |
| **Xfor12H,24H apt** | X times for 12 hours, 24 hours apart |
| **Xfor12H,48H apt** | X times for 12 hours, 48 hours apart |
| **Xfor12H,4D apt** | X times for 12 hours, 4 days apart |
| **Xfor12H,6D apt** | X times for 12 hours, 6 days apart |
| **Xfor12H,7D apt** | X times for 12 hours, 7 days apart |
| **Xfor12H,8D apt** | X times for 12 hours, 8 days apart |
| **Xfor14D,14D apt** | X times for 14 days, 14 days apart |
| **X for 15 MI** | X times for 15 minutes |
| **Xfor1.5H,24Hapt** | X times for 1.5 hours, 24 hours apart |
| **X for 18 H** | X times for 18 hours |
| **X for 2 D** | X times for 2 days |
| **X for 2 H** | X times for 2 hours |
| **Xfor2H,24H apt** | X times for 2 hours, 24 hours apart |
| **X for 20 MI** | X times for 20 minutes |
| **X for 24 H** | X times for 24 hours |

| Code | Definition |
|---|---|
| **Xfor24H,11D apt** | X times for 24 hours, 11 days apart |
| **Xfor24H,12H apt** | X times for 24 hours, 12 hours apart |
| **Xfor24H,24H apt** | X times for 24 hours, 24 hours apart |
| **Xfor24H,48H apt** | X times for 24 hours, 48 hours apart |
| **Xfor24H,4D apt** | X times for 24 hours, 4 days apart |
| **Xfor24H,5D apt** | X times for 24 hours, 5 days apart |
| **Xfor24H,6D apt** | X times for 24 hours, 6 days apart |
| **Xfor24H,72H apt** | X times for 24 hours, 72 hours apart |
| **X for 3D** | X times for 3 days |
| **X for 3 H** | X times for 3 hours |
| **Xfor3H,15D apt** | X times for 3 hours, 15 days apart |
| **Xfor3H, 6D apt** | X times for 3 hours, 6 days apart |
| **Xfor3H,6H apt** | X times for 3 hours, 6 hours apart |
| **Xfor3H,24H apt** | X times for 3 hours, 24 hours apart |
| **Xfor3H,48H apt** | X times for 3 hours, 48 hours apart |
| **Xfor3H,96H apt** | X times for 3 hours, 96 hours apart |
| **X for 3.5 H** | X times for 3.5 hours |
| **X for 30 MI** | X times for 30 minutes |
| **X for 4 H** | X times for 4 hours |
| **Xfor4H,24H apt** | X times for 4 hours, 24 hours apart |
| **Xfor4H,4D apt** | X times for 4 hours, 4 days apart |
| **Xfor4H,7D apt** | X times for 4 hours, 7 days apart |
| **X for 48 H** | X times for 48 hours |
| **X for 5 H** | X times for 5 hours |
| **Xfor5H,3or5Dapt** | X times for 5 hours, 3 or 5 days apart |
| **X for 5 MI** | X times for 5 minutes |
| **X for 6 H** | X times for 6 hours |
| **Xfor6H,24H apt** | X times for 6 hours, 24 hours apart |
| **Xfor6H,48H apt** | X times for 6 hours, 48 hours apart |
| **Xfor6H,6D apt** | X times for 6 hours, 6 days apart |
| **Xfor6H,72H apt** | X times for 6 hours, 72 hours apart |
| **Xfor6H,96H apt** | X times for 6 hours, 96 hours apart |
| **X for 60 MI** | X times for 60 minutes |
| **X for 84 H** | X times for 84 hours |
| **X for 96 H** | X times for 96 hours |

| Code | Definition |
|---|---|
| **X in 12 H** | X times in 12 hours |
| **X in 14 D** | X times in 14 days |
| **X in 24-72 H** | X times in 24 to 72 hours |
| **X in 48 H** | X times in 48 hours |
| **X per FI** | **X** times **per f**lower **i**nitiation |
| **X per h** | **X** times **per h**our |
| **X per d** | **X** times **per d**ay |
| **X per wk** | **X** times **per w**ee**k** |
| **X/WK for 90 d** | X times per week for 90 days |
| **X per mo** | **X** times **per mo**nth |
| **X per yr** | **X** times **per y**ea**r** |
| **X per 12d** | **X** times **per 12 d**ays |
| **X per 14d** | **X** times **per 14 d**ays |
| **X per 24 H** | X times per 24 hours |
| **X per 2d** | **X** times **per 2 d**ays |
| **X per 2 wk** | **X** times **per 2 w**ee**k**s |
| **X per 3d** | **X** times **per 3 d**ays |
| **X per 4d** | **X** times **per 4 d**ays |
| **X per 5 D** | X times per 5 days |
| **X per 6 H** | X times per 6 hours |
| **X per 6 WK** | X times per 6 weeks |
| **X per D, 10 X** | X times per day, 10 times |
| **XperD for 3 D** | X times per day for 3 days |
| **XperD for 30 D** | X times per day for 30 days |
| **X/D for 6 D** | X times per day for 6 days |
| **XperD for 90 D** | X times per day for 90 days |
| **X per D, 1 WK** | X times per day for 1 week |
| **X per D, 5 D/WK** | X times per day, 5 days per week |
| **X per D, 6 D/WK** | X times per day, 6 days per week |
| **X/WK for 3 WK** | X times per week for 3 weeks |
| **X/WK for 4 WK** | x times per week for 4 weeks |
| **X per wk/10 wk** | X times per week per 10 weeks |
| **X D, 1X per H** | X days, one time per hour |
| **X S, 1** | X seconds, 1 time |
| **X, 1/11D** | X times, 1 time per 11 days |

| Code | Definition |
|---|---|
| **X, 1/3or4 D** | X times, 1 time per 3 or 4 days |
| **X, 1/3to 5 D** | X times, 1 time per 3 to 5 days |
| **X, 1X/D** | **X** times, **1 time** per **d**ay |
| **X, 1X/Y** | **X** times, **1 time** per **y**ear |
| **X,1 X per 15 D** | X times, 1 time per 15 days |
| **X, 1X/2D** | X times, 1 time per 2 days |
| **X,1X per 2to3D** | X times, 1 time per 2 to 3 days |
| **X, 1/2 to 4 WK** | X times, 1 time per 2 to 4 weeks |
| **X, 1X/2WK** | X times, 1 time per 2 weeks |
| **X, 1X/20 D** | X times, 1 time per 20 days |
| **X,1X per 3 D** | X times, 1 time per 3 days |
| **X, 1X per 3 WK** | X times, 1 time per 3 week |
| **X,1X per 4 D** | X times, 1 time per 4 days |
| **X, 1X/4WK** | X times, 1 time per 4 weeks |
| **X, 1X per9-13D** | X times, 1 time per 9-13 days |
| **X, 2X per D** | X times, 2 times per day |
| **X, 2X per WK** | X times, 2 times per week |
| **X, 4X per D** | X times, 4 times per day |
| **X, 5X per WK** | X times, 5 times per week |
| **X, 1 X E 15 D** | X times, 1 time every 15 days |
| **X, 2X in 14 H** | X times, 2 times in 14 hours |
| **X, 2 H apt** | X times, 2 hours apart |
| **X, 24 H per 14 D** | X times, 24 hours per 14 days |
| **X, 48 H apt E14D** | X times, 48 hours apart every 14 days |
| **X, 96 H apart** | X times, 96 hours apart |
| **NR** | **N**ot **R**eported |

# Appendix L. Exposure Media Codes

## Aquatic Media Type

| Code | Definition |
|---|---|
| FW | Fresh Water |
| SW | Salt Water |
| NR | Not Reported; unable to determine whether laboratory or field |

## Terrestrial Media Type

| Code | Definition |
|---|---|
| AGR | Agar |
| AQU | Aqueous |
| ART | Artificial soil (This includes soils that are created from individual soil components. For example, if clay, sand and organic matter are combined, as in OECD soils, these soils are coded as artificial.) |
| CUL | Culture Medium |
| FAB | Fabric or similar material (includes cotton balls, gauze, etc) |
| FLT | Filter paper |
| HUM | Humus |
| HYP | Hydroponic |
| LIT | Litter |
| MAN | Manure |
| MIN | Mineral soil |
| MIX | Media Mixture (with comment) |
| NAT | Natural soil (This includes natural soils that are amended with nutrients.) |
| NONE | No substrate |
| NR | Not reported |
| POP | Plaster of Paris |
| SED | Sediment |
| SLG | Sludge |
| UKS | Unspecified soil type |

# Appendix M. Control Type and Dose ID Codes

| Code | Definition |
|---|---|
| **B** | **B**aseline or background control: parameters of actual or representative test species measured before and after administration of test chemical, though not as part of the same test scenario. **Note TERRESTRIAL FULL DOSE RESPONSE DATA ONLY:** pretreatment values, collected during the same test scenario as the observed responses, are recorded as exposure concentrations with a negative exposure duration; not as baseline control parameters. |
| **C** | **C**oncurrent control: controls are run simultaneously with the exposure, e.g. in the laboratory where a chemical free test chamber is used or in field studies where the control data are obtained upstream from the exposure data; also includes field tests where the controls are run in a separate system, i.e. pond A and pond B or field A and field B but the ponds are in the same geographic area and have similar media. |
| **D** | Exposure **D**ose level identifier |
| **E** | **E**ndpoint link identifier |
| **H** | **H**istorical control: applicable to natural field system testing, data collected prior to exposure often during an independent long-term survey of the area; see also **B - B**aseline |
| **K** | Data for control is presented but without accompanying methodology to identify procedures used |
| **M** | **M**ultiple controls were reported, e.g. historic and concurrent |
| **NR** | **N**ot **r**eported; there is no information about presence or absence of controls in the publication |
| **O** | The '**O'** code should be used when a control is run in a different system (e.g. defined by different dilution water or soil properties) than the exposure treatments. This also includes laboratory studies where different solvents are used for control versus treatment (e.g. Water was used as a solvent for test compound, controls were injected with saline, or a blood sample from an unexposed female used for a control for an exposed male). |
| **P** | **P**ositive controls were used |
| R | Range of doses |
| **V** | Carrier or sol**v**ent; organisms exposed to carrier or solvent as the only control |
| **Z** | Author states that no controls were used in the study |

# Appendix N. Exposure Dose and Observation/Response Value Units

| | |
|---|---|
| **a-amino N/24h** | alpha aminonitrogen per 24 hours |
| **absrb** | absorbance |
| **act** | activity |
| **act/g pro** | activity per gram protein |
| **act/g TI** | activity per gram tissue |
| **activ/noactiv** | activated to non-activated ratio |
| **acts/3 mi** | acts per 3 minutes |
| **ad** | adults |
| **ad/jv** | adults per juvenile |
| **AE** | Acid equivalent; followed by the unit, e.g. AE kg/ha |
| **ae g/L** | acid equivalents grams per liter |
| **ae lb/100 gal** | acid equivalent pounds per 100 gallons |
| **ae lb/gal** | acid equivalent pounds per gallons |
| **ae mg/kg** | acid equivalents milligrams per kilograms |
| **ae mg/kg/d** | acid equivalents milligrams per kilogram per day |
| **ae mg/L** | acid equivalents milligrams per liter |
| **ae mg/org** | acid equivalents milligrams per organism |
| **ae ug/L** | acid equivalents micrograms per liter |
| **ae ug/ml** | acid equivalents micrograms per milliliter |
| **AI** | active ingredient; followed by the unit, e.g. AI kg/ha |
| **AI fl oz/ac** | active ingredient fluid ounces per acre |
| **AI g/cm** | active ingredient grams per centimeter |
| **AI g/cm of dbh** | active ingredient grams per centimeter of diameter breast height |
| **AI g/cm2** | active ingredient grams per square centimeter |
| **AI g/dn(Cyprus)** | Active Ingredient grams per dunam, dunum or donum (Cyprus1338m2) |
| **AI g/dn(Iraq)** | Active Ingredient grams per dunam, dunum or donum (Iraq 2500m2) |
| **AI g/dn(Std)** | Active Ingredient grams per dunam, dunum or donum (Std 1000m2) |
| **AI g/eu** | active ingredient grams per experimental unit |
| **AI g/ha** | active ingredient grams per hectare |
| **AI g/kg** | active ingredient grams per kilogram |
| **AI g/kg bdwt** | active ingredient grams per kilogram body weight |
| **AI g/kg plt** | active ingredient grams per kilogram pellet |
| **ai g/kg sd** | active ingredient grams per kilogram seed |
| **AI g/kg soil** | active ingredient grams per kilogram soil |
| **AI g/m** | active ingredient grams per meter |
| **ai g/m2** | active ingredient grams per square meter |
| **AI g/m2 canopy** | active ingredient grams per square meter canopy |
| **AI g/m3** | active ingredient grams per cubic meter |
| **AI g/ml** | active ingredient grams per milliliter |
| **AI g/10kg sd** | Active ingredient gram per 10 kilograms seed |
| **AI g/10 L** | active ingredient grams per 10 liters |
| **AI g/10 m** | active ingredient grams per 10 meter |
| **AI g/100 gal** | active ingredient grams per 100 gallons |

| | |
|---|---|
| **AI g/100 g sd** | active ingredient grams per 100 grams of seed |
| **AI g/100 kg** | active ingredient grams per 100 kilograms |
| **AI g/100 kg sd** | Active ingredient gram per 100 kilograms seed |
| **AI g/100 L** | active ingredient grams per 100 liters |
| **AI g/100 m** | active ingredient grams per 100 meters |
| **ai g/100m2** | active ingredient grams per 100 square meters |
| **AI g/100000 sd** | active ingredient grams per 100000 seed |
| **AI g/2 L/ha** | active ingredient grams per 2 liter per hectare |
| **AI g/2.5 cm dbh** | Active ingredient grams per 2.5 centimeter of diameter breast height |
| **AI g/25 ml/m** | active ingredient grams per 25 milliliters per meter |
| **AI g/3 ml/m** | active ingredient grams per 3 milliliters per meter |
| **AI g/300 L** | active ingredient grams per 300 liters |
| **AI g/305 m** | active ingredient grams per 305 meters |
| **AI g/378 L** | active ingredient grams per 378 liters |
| **AI g/379 L** | active ingredient grams per 379 liters |
| **AI g/500 g** | active ingredient grams per 500 grams |
| **AI gal/acre** | active ingredient gallons per acre |
| **AI kg/acre** | active ingredient kilograms per acre |
| **AI kg/fed** | AI kilograms per feddan, or faddan (1 feddan = 1.038 acres) |
| **AI kg/ha** | active ingredient kilograms per hectare |
| **AI kg/0.4 ha** | active ingredient kilograms per 0.4 hectares |
| **AI kg/100 L** | active ingredient kilograms per 100 liters |
| **ai kg/379 l** | active ingredient kilograms per 379 liters |
| **AI kg/100 kg sd** | active ingredient kilograms per 100 kilograms seed |
| **AI kg/1000 m** | active ingredient kilograms per 1000 meters |
| **AI kg/1122 L/ha** | active ingredient kilograms per 1122 liters per hectare |
| **AI kg/2338 L/ha** | active ingredient kilograms per 2338 liters per hectare |
| **AI kg/3.74 L/ha** | active ingredient kilograms per 3.74 liters per hectare |
| **AI kg/3741 L/ha** | active ingredient kilograms per 3741 liters per hectare |
| **AI L/42.1 L/ha** | active ingredient liters per 42.1 liters per hectare |
| **AI L/eu** | active ingredient liters per experimental unit |
| **ai l/ha** | active ingredient liters per hectare |
| **AI lb/acre** | active ingredient pounds per acre |
| **AI lb/100 ft2** | active ingredient pounds per 100 square feet |
| **AI lb/100 gal** | active ingredient pounds per 100 gallons |
| **AI mg/0.1 m2** | active ingredient milligrams per 0.1 square meters |
| **AI mg/1800 g** | active ingredient milligrams per 1800 grams |
| **AI mg/4.41 m2** | active ingredient milligrams per 4.41 square meters |
| **AI mg/cm2** | active ingredient milligrams per square centimeter |
| **AI mg/cm3** | active ingredient milligrams per cubic centimeter |
| **AI mg/d** | active ingredient milligrams per day |
| **AI mg/eu** | active ingredient milligrams per experimental unit |
| **AI mg/g** | active ingredient milligrams per gram |
| **ai mg/kg** | active ingredient milligrams per kilogram |
| **AI mg/kg bdwt** | active ingredient milligrams per kilogram body weight |

| | |
|---|---|
| **AI mg/kg bdwt/d** | active ingredient milligrams per kilograms body weight per day |
| **AI mg/kg d soil** | active ingredient milligrams per kilogram dry soil |
| **AI mg/kg fd** | active ingredient milligrams per kilogram food |
| **AI mg/kg/d** | active ingredient milligrams per kilogram per day |
| **ai mg/kg org** | active ingredient milligrams per kilogram organism |
| **ai mg/L** | active ingredient milligrams per liter |
| **ai mg/ml** | active ingredient milligrams per milliliter |
| **AI mg/m2** | active ingredient milligrams per square meter |
| **AI mg/org** | active ingredient milligrams per organism |
| **AI mg/sd** | active ingredient milligrams per seed |
| **AI mL/eu** | active ingredient milliliter per experimental unit |
| **AI ml/ha** | active ingredient milliliters per hectare |
| **AI ml/kg** | Active Ingredient milliliters per kilogram |
| **AI ml/kg diet** | Active Ingredient milliliters per kilogram diet |
| **AI ml/L** | active ingredient milliliters per liter |
| **AI ml/100 gal** | active ingredient milliliters per 100 gallons |
| **AI mL/100 L** | active ingredient milliliters per 100 liters |
| **AI ml/378 L** | active ingredient milliliters per 378 liters |
| **AI ml/500 g** | active ingredient milliliter per 500 grams |
| **AI ml/org** | active ingredient milliliter per organism |
| **AI ml/m2** | active ingredient milliliters per square meter |
| **AI ml/m2 canopy** | active ingredient milliliters per square meter canopy |
| **AI mM** | active ingredient milliMolar |
| **AI mol/kg** | Active ingredient moles per kilogram |
| **AI ng** | active ingredient nanograms |
| **AI ng/eu** | active ingredient nanograms per experimental unit |
| **AI ng/g** | active ingredient nanograms per gram |
| **AI ng/L** | active ingredient nanograms per liter |
| **AI ng/mg bdwt** | active ingredient nanograms per milligrams body weight |
| **AI ng/mL** | active ingredient nanograms per milliliter |
| **AI ng/org** | active ingredient nanograms per organism |
| **AI oz/25lbs bdwt** | active ingredient ounces per 25 pounds body weight |
| **AI oz/40 gal** | active ingredient ounces per 40 gallons |
| **AI oz/1000 ft** | active ingredient ounces per 1000 feet |
| **ai oz/bu sd** | active ingredient ounces per bushel of seed |
| **AI oz/cwt sd** | active ingredient ounces per hundredweight seed |
| **AI oz/100 lb sd** | active ingredient ounces per 100 pounds seed |
| **AI 0/00** | active ingredient parts per thousand |
| **AI ppb** | active ingredient parts per billion |
| **ai ppm** | active ingredient parts per million |
| **ai ml/100m2** | active ingredient milliliters per 100 square meters |
| **AI ug** | active ingredient micrograms |
| **AI ug/0.5 ul** | active ingredient micrograms per 0.5 microliters |
| **AI ug/10 ul** | active ingredient micrograms per 10 microliters |

| | |
|---|---|
| **AI ug/100 cm2** | active ingredient micrograms per 100 square centimeters |
| **ai ug/cm2** | active ingredient micrograms per square centimeter |
| **AI ug/cm2 diet** | active ingredient micrograms per square centimeters diet |
| **AI ug/g bdwt** | active ingredient micrograms per gram body weight |
| **AI ug/g dry fd** | active ingredient micrograms per gram dry food |
| **AI ug/g eu** | active ingredient micrograms per gram experimental unit |
| **AI ug/g org** | active ingredient micrograms per gram organism |
| **ai ug/g soil** | active ingredient micrograms per gram soil |
| **AI ug/L** | active ingredient micrograms per liter |
| **AI ug/mg bdwt** | active ingredient micrograms per milligram body weight |
| **AI ug/ml** | active ingredient micrograms per milliliter |
| **AI ug/org** | active ingredient micrograms per organism |
| **AI ul/L** | active ingredient microliters per Liter |
| **AI uM** | active ingredient microMolar |
| **AI %** | Active Ingredient percent |
| **AI % v/v** | active ingredient percent volume per volume |
| **AI % w/v** | active ingredient percent weight per volume |
| **AI % w/w** | active ingredient percent weight per weight |
| **AI %/786 L** | active ingredient percent per 786 liters |
| **AI %/ha** | active ingredient percent per hectare |
| **AI %/L** | active ingredient percent per L |
| **AI %/wt sd** | Active ingredient percent per weight seed |
| **ALB:YK** | albumen to yolk ratio |
| **amend:unamend** | ratio of amended to unamended treatments |
| **AU** | arbitrary units |
| **B'** | Chromatid break |
| **B''** | Isochromatid break |
| **BB unit** | BB unit |
| **b/ml** | billions per milliliter |
| **beats/mi** | beats per minute |
| **beats*ml/mi2** | beats * milliliter per square minutes |
| **bees/d** | bees per day |
| **BO:LI** | bone to liver ratio |
| **Bq** | becquerels |
| **Bq/g** | becquerels per gram |
| **Bq/L** | becquerels per liter |
| **Bq/kg** | becquerels per kilogram |
| **Bq/mg** | becquerels per milligram |
| **Bq/ml** | becquerels per milliliter |
| **Bq/org** | becquerels per organism |
| **births** | births |
| **bits** | bits |
| **BR:BL** | ratio of brain to blood |
| **branches/org** | number of branches per organism |
| **bt/mi** | beats per minute |
| **BU** | Bessey Units |
| **buds/org** | buds per organism |
| **bushels** | bushels |
| **bushel/acre** | bushels per acre |
| **burrows** | burrows |
| **C** | Centigrade, degrees |
| **cal** | calories |

| | |
|---|---|
| **cal/d** | calories per day |
| **castings** | earthworm castings |
| **casts/eu** | casts per experimental unit |
| **casts/m2/d** | casts per square meter per day |
| **casts/pl** | casts per plot |
| **cc** | cocoons |
| **cc O2 evolved** | cubic centimeters of oxygen evolved |
| **cc/ad** | cocoons per adult |
| **cc/10 ad** | cocoons per 10 adults |
| **cc/eu** | cocoons per experimental unit |
| **cc/cntr** | cocoons per container |
| **cc/org** | cocoons per organism |
| **cc/org/8wk** | cocoons per organism per 8 weeks |
| **cc/org/wk** | cocoons per organism per week |
| **cc/sad** | cocoons per surviving adult |
| **cc/unit** | cocoons per unit |
| **cells** | cells |
| **cells/1e+6** | cells per 1 X 10 +6 cells |
| **cells/50 mg** | cells per 50 milligrams |
| **cells/100 clm** | cells per 100 coelomocytes |
| **cells/area** | cells per area |
| **cells/mg TI** | cells per milligram tissue |
| **cell/mi x10x3** | cells per minute x10x3 |
| **cells/ml** | cells per milliliter |
| **cells/mm2** | cells per square millimeter |
| **cell/mm3** | cells per cubic millimeter |
| **cells/mm** | **cortex** cells per millimeter cortex |
| **cells/mm** | **folium** cells per millimeter folium |
| **cell:nuclei** | ratio of cells to nuclei |
| **cells/TI** | cells per tissue |
| **cell/u.a** | cells per unit area |
| **cellx10x2/ul** | cells x10x2 per microliter |
| **cell/8 srtl cel** | cells per 8 Sertoli cells |
| **cfu/mg** | colony forming units per milligram |
| **cfu/ml** | colony forming units per milliliter |
| **chem/d** | chemical per day |
| **CHLA:CHLB** | ratio of chlorophyll a to chlorophyll b |
| **CI** | color index |
| **Ci/L** | curies per liter |
| **Ci/mol** | curies per mole |
| **Ci/mmol** | curies per millimole |
| **clusters** | clusters |
| **clutches** | clutches |
| **cm** | centimeter |
| **cm/d** | centimeters per day |
| **cm/g soil** | centimeters per gram soil |
| **cm/g bdwt/h** | centimeters per gram bodyweight per hour |
| **cm H2O** | centimeters of water |
| **cm/cm3** | centimeters per cubic centimeter |
| **cm2** | centimeters squared |
| **cm2/kg** | centimeters squared per kilogram |
| **cm2/org** | centimeters squared per organism |
| **cm2/100bees** | centimeters squared per 100 bees |
| **cm3** | cubic centimeters |
| **cm3/0.7 ha** | cubic centimeters per 0.7 hectare |
| **cm3/4L** | cubic centimeters per 4 liters |
| **cm3/dm3** | cubic centimeters per cubic decimeter |
| **cm3/eu** | cubic centimeters per experimental unit |
| **cm3/fed** | cubic centimeters per feddan, or faddan (1 feddan = 1.038 acres) |
| **cm3/hL** | cubic centimeters per hectoliter |

| | |
|---|---|
| **cm3 O2/g/h** | cubic centimeters of O2 per gram per hour |
| **cm/wk** | centimeters per week |
| **cmol/kg** | centimoles of charges per kilogram |
| **cmol/kg d soil** | centimoles per kilograms dry soil |
| **cpm** | counts per minute |
| **cpm 1e-4** | counts per minute * 1 X 10-4 |
| **cpm X 1000** | counts per minute X 1000 |
| **cpm/1e+5 cells** | counts per minute per 1X10+5 cells |
| **cpm/cc** | counts per minute per cocoon |
| **cpm/g TI** | counts per minute per gram tissue |
| **cpm/L** | counts per minute per liter |
| **cpm/mg** | counts per minute per milligram |
| **cpm/mg DNA** | counts per minute per milligram DNA |
| **cpm/mg pro** | counts per minute per milligram protein |
| **cpm/mg RNA** | counts per minute per milligram RNA |
| **cpm/mg UA** | counts per minute per milligram uronic acid |
| **cpm/ml** | counts per minute per millimeter |
| **cpm/org** | counts per minute per organism |
| **CRB:BR** | ratio of cerebellum to brain |
| **CRM:BR** | ration of cerebrum to brain |
| **cRNA/mgRNA/DNA** | (counts per minute RNA per milligram RNA) per milligram DNA |
| **cwt/acre** | hundredweights per acre |
| **CWU** | CW units |
| **cyc/deg** | cycles per degree |
| **d** | day |
| **DB/mg pro** | lipid aliphatic double bounds per milligram protein |
| **dead:live** | ratio of dead to live organisms |
| **degree** | degree |
| **divisions/cell** | divisions per cell |
| **dm2** | decimeters squared |
| **dm3/ha** | cubic decimeter per hectare |
| **DNA:protein** | DNA to protein ratio |
| **DNA:RNA** | DNA to RNA ratio |
| **dpm** | disintegrations per minute |
| **dpm 1e-3/ml** | disintegrations per minute * 1 X 10-3 per milliliter |
| **dpm/167 mg TI** | disintegrations per minute per 167 milligrams tissue |
| **dpm/EU** | disintegrations per minute per experimental unit |
| **dpm/g** | disintegrations per minute per gram of tissue |
| **dpm/g*100** | disintegrations per minute per gram*100 |
| **dpm/800g soil** | disintegrations per minute per 800 grams of soil |
| **dpm/mg** | disintegrations per minute per milligram |
| **dpm/mg FA** | disintegrations per minute per milligram fatty acid |
| **dpm/mg GH** | disintegrations per minute per milligram growth hormone |
| **dpm/mg GH*100** | disintegrations per minute per milligram growth hormone*100 |
| **dpm/mg pro** | disintegrations per minute per milligram protein |
| **dpm/ml** | disintegrations per minute per milliliter |
| **dpm/n** | disintegrations per minute per N |
| **dpm treat:cntl** | ration of disintegrations per minute treated to control |
| **Draize score** | Draize score |
| **dS/m** | deciSiemens per meter |

| | |
|---|---|
| **e/100hd** | eggs per 100 hen days |
| **e/hd** | eggs per hen day |
| **e/org** | eggs per organism |
| **e/org/d** | eggs per organism per day |
| **e/org/wk** | eggs per organism per week |
| **ea/eu** | ears per experimental unit |
| **egg cap/org** | egg capsules per organism |
| **eggs** | egg(s) |
| **eggs/BDAY** | eggs per bird-day |
| **eggs/d** | eggs per day |
| **eggs/fm** | eggs per female |
| **eggs/fm/d** | eggs per female per week |
| **eggs/fm/wk** | eggs per female per week |
| **eggs/100 ad** | eggs per 100 adults |
| **eggs/8 wks** | eggs per 8 weeks |
| **eggs/org** | eggs per organism |
| **eggs/org/d** | eggs per organism per day |
| **egg/org/wk** | eggs per organism per week |
| **eggs/pair** | eggs per pair |
| **eggs/raft** | eggs per raft |
| **em/FM** | embryos per female |
| **eggs/fm/8 wk** | eggs per female per 8 weeks |
| **enz act** | enzyme activity or enzyme activity unit |
| **enz act/mg** | enzyme activity per milligram |
| **eq/l** | equivalents per liter |
| **eu** | enzyme unit |
| **EU/g** | enzyme unit (amount of enzyme needed to catalyze)/g |
| **failures** | failures |
| **FD:Gain** | ratio of weight of food consumed to weight gained |
| **FD:WTR** | food to water ratio |
| **female** | female |
| **FER** | feed efficiency ratio |
| **fl** | femtoliters |
| **fl oz/100 gal** | fluid ounces per 100 gallons |
| **fl oz/1000 ft** | fluid ounces per 1000 feet |
| **fl oz/1000 ft2** | fluid ounces per 1000 square feet |
| **fl oz/acre** | fluid ounces per acre |
| **FM:ML** | females to males ratio |
| **FT:PLC** | fetus to placenta ratio |
| **fet** | fetuses |
| **fetuses/litter** | fetuses per litter |
| **fg/org** | femtograms per organism |
| **final:initial** | ratio of initial parameter to final parameter |
| **fledge/pair** | fledglings per pair or young fledged per pair |
| **fm** | females |
| **fm/lit** | females per litter |
| **fmol** | femtomol |
| **fmol/mg** | femtomol per milligram |
| **fmol/mg pro** | femtomol per milligram protein |
| **fr** | frames (bees) |
| **FU/g** | fluorescence units per gram |
| **G'** | Chromatid gap |
| **G''** | Isochromatid gap |
| **g** | grams |
| **g food** | grams food |
| **g%** | gram percent |
| **g% w/v** | gram percent on a weight per volume basis |
| **g/0.25 acre** | grams per 0.25 acres |
| **g/0.5 m2** | grams per 0.5 meters squared |
| **g/100 cm3** | grams per 100 cubic centimeters |
| **g/100g** | grams per 100 grams |
| **g/100g BW** | grams per 100 grams body weight |
| **g/100g BW/d** | grams per 100 grams body weight per day |

| | |
|---|---|
| **g/100g bdwt/h** | grams per 100 grams per bodyweight/hour |
| **g/100g diet** | grams per 100 grams diet |
| **g/100g org** | grams per 100 grams organism |
| **g/100 g sd** | grams per 100 grams seed |
| **g/100kg org** | grams per 100 kilograms organism |
| **g/100 kg sd** | grams per 100 kilograms seed |
| **g/d/100 g bdwt** | grams per day per 100 grams body weight |
| **g/d/100kg org** | grams per day per 100 kilograms organism |
| **g/100 le** | grams per 100 leaves |
| **g/100 L** | grams per 100 liters |
| **g/100 m** | grams per 100 meters |
| **g/100ml** | grams per 100 milliliters |
| **g/100 sd** | grams per 100 seeds |
| **g/100 stl** | grams per 100 stolons |
| **g/1000 ft3** | grams per 1000 cubic feet |
| **g/1000 g** | grams per 1000 grams |
| **g/1000gr** | grams per 1000 grains |
| **g/1000 lb** | grams per 1000 pounds |
| **g/1600 org** | grams per 1600 organisms |
| **g/13.125 ft2** | grams per 13.125 square feet |
| **g/15 cm** | grams per 15 centimeters |
| **g/1.8kg sd** | grams per 1.8 kilograms seed |
| **g/2 L** | grams per 2 liters |
| **g/200 m2** | grams per 200 square meters |
| **g/2500cm2** | grams per 2500 centimeters squared |
| **g/305 m** | grams per 305 meters |
| **g/4 d** | grams per 4 days |
| **g/400m** | grams per 400 meters |
| **g/5 kg soil** | grams per 5 kilograms soil |
| **g/5 m2** | grams per 5 meters squared |
| **g/50 org** | grams per 50 organisms |
| **g/50 seeds** | grams per 50 seeds |
| **g/500 g diet** | grams per 500 grams diet |
| **g/500 ml** | grams per 500 milliliters |
| **g/60 cm** | grams per 60 centimeters |
| **g/70d** | grams per 70 days |
| **g/acre** | grams per acre |
| **g/BDAY** | grams per bird-day |
| **g/bdwt e0.75** | grams per body weight * 1e0.75 |
| **g/bee** | grams per bee |
| **g/cc** | grams per cocoon |
| **g/cm** | grams per centimeter |
| **g/cm2** | grams per square centimeter |
| **g/ctnr** | grams per experimental container |
| **g/d** | grams per day |
| **g/d/org** | grams per day per organism |
| **g/d/wght** | grams per day per weight |
| **g/dl** | grams per deciliter |
| **g/dm3** | grams per cubic decimeter |
| **g d/m3** | grams day per cubic meter |
| **g/eu** | grams per experimental unit |
| **g/eu/d** | grams per experimental unit per day |
| **g/fed** | grams per feddan, or faddan (1 feddan = 1.038 acres) |
| **g/fish** | grams per fish |
| **g/fruit** | grams per fruit |
| **g/ft2** | grams per square foot |
| **g/gal** | grams per gallon |
| **g/g bdwt** | grams per gram body weight |
| **g/g bdwt/d** | grams per gram body weight per day |
| **g/g dry humus** | grams per gram dry humus |
| **g/g fd** | grams per gram food |
| **g/g org** | grams per gram organism |
| **g GAIN/kg fd** | grams weight gained per kilogram food |

| | |
|---|---|
| **g/h** | grams per hour |
| **g h/m3** | grams hours per cubic meter |
| **g H2O/dm2/h** | grams H2O per squared decameter per hour |
| **g/ha** | grams per hectare |
| **g/hL** | grams per hectoliter |
| **g/hd** | grams per hen day |
| **g/jv** | grams per juvenile |
| **g/kg** | grams per kilogram |
| **g/kg*e0.75 bdwt** | grams per kg * 1e0.75 body weight |
| **g/kg/d** | grams per kilogram per day |
| **g/kg bdwt** | grams per kilogram body weight |
| **g/kg bdwt/d** | grams per kilogram body weight per day |
| **g/kg bdwt/h** | grams per kilogram body weight per hour |
| **g/kg feed** | grams per kilogram of feed |
| **g/kg fd** | grams per kilogram food |
| **g/kg sd** | grams per kilograms seed |
| **g/kg soil** | grams per kilogram soil |
| **g/1.2 kg soil** | grams per 1.2 kilogram soil |
| **g/1.4 kg soil** | grams per 1.4 kilogram soil |
| **g/1.6 kg soil** | grams per 1.6 kilogram soil |
| **g/1.8 kg soil** | grams per 1.8 kilogram soil |
| **g/L** | grams per liter |
| **g/13.5 L** | grams per 13.5 liters |
| **g/L/m2** | grams per liter per square meter |
| **g/FM** | grams per female |
| **g/LE** | grams per leaf |
| **g/LIT** | grams per litter |
| **g/ML** | grams per male |
| **g/m** | grams per meter |
| **g/m2** | grams per square meter |
| **g/m3** | grams per cubic meter |
| **g/org** | grams per organism |
| **g/org/d** | grams per organism per day |
| **g/org/42 d** | grams per organism per 42 days |
| **g/org/eu** | grams per organism per experimental unit |
| **g/org/wk** | grams per organism per week |
| **g/org/yr** | grams per organism per year |
| **g/quadrant** | grams per quadrant |
| **g/sample** | grams per sample |
| **g/shell** | grams per shell |
| **g/ton** | grams per ton |
| **g/ug** | grams per microgram |
| **g/wk** | grams per week |
| **g GAIN/g fd/d** | grams weight gained per gram food per day |
| **g TI/100 g bdwt** | grams tissue per 100 grams bodyweight |
| **Gain:FD** | ratio of weight gained to weight of food consumed |
| **gal/100 gal** | gallons per 100 gallons |
| **gal/acre** | gallons per acre |
| **gamma/day** | gamma/day (Von Bertalanffy growth) |
| **gamma/g TI** | gamma counts per gram tissue |
| **gg** | gamma gamma |
| **gila:neuron** | gila to neuron ratio |
| **grade** | grade |
| **grain/panicle** | grains per panicle |
| **granules/kg bwt** | granules per kilogram body weight |
| **h** | hour |
| **H'** | Shannon-Weiner Diversity index |
| **HA units** | Hemagglutinating units |
| **hatchability** | hatchability |
| **hsk:gr** | ratio plant husk to grain |
| **Hz** | Hertz |
| **Hz/s** | Hertz per second |

| | |
|---|---|
| **in** | inches |
| **in2** | inches squared |
| **inclusion** | internuclear inclusion body |
| **index** | index |
| **IU** | International Units (One IU is the amount of enzyme consuming or forming 1 umol substrate or 1 umol product per minute under standard conditions.) May also be noted as “SI units” (Système International d'unités) |
| **IU/d** | International units per day |
| **IU/g** | International Units per gram |
| **IU/g TI** | International Units per gram tissue |
| **IU/kg** | International Units per kilogram |
| **IU/kg bdwt** | International units per kilogram body weight |
| **IU/L** | International Units per liter |
| **IU/mg** | International Units per milligram |
| **IU/mg Hb** | International units per milligram hemoglobin |
| **IU/mg pro** | International Units per milligrams protein |
| **IU/mg TI** | International units per milligram tissue |
| **IU/ml** | International Units per milliliter |
| **IU/orgwt** | International Units per organ weight |
| **J/beat** | Joules per beat |
| **J/d** | Joules per day |
| **jv** | juveniles |
| **jv/ad** | juveniles per adult |
| **jv/cc** | juveniles per cocoon |
| **jv/cntr** | juveniles per container |
| **jv/eu** | juveniles per experimental unit |
| **jv/fm** | juveniles per female |
| **jv/ftcc** | juveniles per fertile cocoon |
| **jv/lit** | juveniles per litter |
| **jv/mated fm** | juvenile per mated female |
| **jv/nest** | juveniles per nest |
| **jv/org/wk** | juveniles per organisms per week |
| **jv/org** | juveniles per organism |
| **k2/d** | elimination rate constant 2 per day |
| **K units** | Karmen units |
| **KA units** | King/Armstrong units |
| **KA/g** | King/Armstrong units per gram |
| **ka/d** | elimination rate constant a per day |
| **kBq** | kilobecquerels |
| **kBq/L** | kilobecquerels per liter |
| **kBq/dm3** | kilobecquerels per cubic decimeter |
| **kBq/eu** | kilbecquerels per experimental unit |
| **kBq/kg soil** | kiloBecquerels per kilogram soil |
| **kBq/ml** | kilbecquerels per milliliter |
| **K/ml** | karmen units per milliliter |
| **kcal** | kilocalories |
| **kcal/d** | kilocalories per day |
| **kcal/100g** | kilocalories per 100 grams |
| **kg** | kilograms |
| **kg ae/ha** | kilograms acid equivalent per hectare |
| **kg conc/d** | kilograms of concentrate per day |
| **kg plt/ha** | kilograms pellet per hectare |
| **kg silage/d** | kilograms of silage per day |
| **kg/0.5 m2** | kilograms per 0.5 square meters |
| **kg/50 m** | kilograms per 50 meters |
| **kg/9.3 m2** | kilograms per 9.3 square meters |

| | |
|---|---|
| **kg/9.9 m2** | kilograms per 9.9 square meters |
| **kg/11 m** | kilograms per 11 meters |
| **kg/100 m2** | kilograms per 100 square meters |
| **kg/ac** | kilograms per acre |
| **kg/d** | kilograms per day |
| **kg/eu** | kilograms per experimental unit |
| **kg/fed** | kilograms per feddan, or faddan (1 feddan = 1.038 acres) |
| **kg/ha** | kilograms per hectare |
| **kg/ha/yr** | kilograms per hectare per year |
| **kg/hL** | kilograms per hektoliter |
| **kg/L** | kilograms per liter |
| **kg/mi2/mo** | kilograms per square mile per month |
| **kg/mm** | kilograms per millimeter |
| **kg/mu** | kilograms per mu |
| **kg/org** | kilograms per organism |
| **kg/org/d** | kilograms per organism per day |
| **kg/wk** | kilograms per week |
| **kJ/d/org** | kilojoules per day per organism |
| **kmol/m3** | kilomoles per cubic meter |
| **KA/100ml** | king/armstrong units per 100 milliliters |
| **KI:BR** | kidney to brain ratio |
| **Kunit/ml** | k unit per milliliter |
| **L** | liters |
| **lamellae/axon** | lamellae per axon |
| **layers** | Layers |
| **l/24 h** | liters per 24 hours |
| **L/ha** | liters per hectare |
| **L/0.4 ha** | liter per 0.4 hectares |
| **L/feddan** | liters per feddan, or faddan (1 feddan = 1.038 acres) |
| **l/l** | liter per liter |
| **L/m2** | liters per square meter |
| **L/mg** | liters per milligram |
| **lb** | pounds |
| **lb/5 gal/acre** | pounds per 5 gallons per acre |
| **lb/11 gal/acre** | pound per 11 gallons per acre |
| **lb/90 ft2** | pounds per 90 square feet |
| **lb/acre** | pounds per acre |
| **lb/ac ft** | pounds per acre foot |
| **lbs ae/ac** | pounds acid equivalent per acre |
| **lb/cwt sd** | pounds per hundred weight seed |
| **lb/d** | pounds per day |
| **lb/eu** | pounds per experimental unit |
| **lb/ft2** | pounds per square foot |
| **lb/gal** | pounds per gallon |
| **lb/org/d** | pounds per organism per day |
| **lb/plot** | pounds per plot |
| **LGTH/s** | length per second |
| **LGTH:THIK** | ratio of length to thickness |
| **LI:BR** | liver to brain ratio |
| **L/1000 bu** | Liters per 1000 bushels |
| **lit** | litters |
| **lit/pr** | litters per pair |
| **litter %** | litter percent |
| **ln(Wf/Wi)** | natural log(mean survivor weight/mean initial weight) |
| **log rel** | log relative activity/intensity |
| **log s** | log time in seconds |
| **log2** | log squared |
| **log2 titers** | log2 titers |
| **log 10 ug/g org** | log 10 micrograms per gram organism |
| **LU:BR** | lung to brain ratio |
| **M** | Molar |
| **m3** | cubic meters |

| | |
|---|---|
| **male** | Male |
| **m/m** | mass per mass |
| **maturity index** | maturity index |
| **MBq** | Megabecquerel |
| **mBq** | millibecquerels |
| **mBq/ml** | millibecquerels per milliliter |
| **mCi** | milliCuries |
| **mCi** | microCurie per kilogram |
| **mCi mg** | milliCuries milligram |
| **mCi/mg** | milliCuries per milligram |
| **mCi/ml** | millicuries per milliliter |
| **mCi/mmol** | milliCuries per millimoles |
| **mg CO2/dm2/h** | milligrams carbon dioxide per squared decameter per hour |
| **metric t/ha** | metric tons per hectare |
| **mM** | milliMolar (millimoles per liter) |
| **m enz act/mg** | millienzyme activity per milligram |
| **meq** | milliequivalents |
| **meq/g** | milliequivalents per gram |
| **meq/kg** | milliequivalents per kilogram |
| **meq/L** | milliequivalents per liter |
| **meq/100 g** | milliequivalents per 100 grams |
| **mg** | milligrams |
| **$mg^{1/3}$** | milligrams to 1/3 power |
| **mg %** | milligrams percent |
| **mg at/L*** ** | milligrams atom per liter ***Use mmol/L*** |
| **mg C/g OM** | milligrams carbon per gram organic matter |
| **mg CO2/h/g** | milligrams carbon dioxide per hour per gram |
| **mg CO2/hr/g ndl** | milligrams carbon dioxide per hour per gram of needles |
| **mg NH3/ g org** | milligrams ammonia per gram of organism |
| **mg NH3/g org/h** | milligrams ammonia per gram of organism per hour |
| **mg O2/g org** | milligrams oxygen per gram of organism |
| **mg O2/g org/h** | milligrams oxygen per gram of organism per hour |
| **mg P/100 g** | milligrams phosphorus per 100 grams |
| **mg pro/g** | milligrams protein per gram |
| **mg urea /g org** | milligrams urea per gram of organism |
| **mg urea/g org/h** | milligrams urea per gram of organism per hour |
| **mg/%** | milligrams per percent |
| **mg/0/d** | milligrams per organism per day |
| **mg/10 g bdwt** | milligrams per 10 grams body weight |
| **mg/10 g food** | milligrams per 10 grams food |
| **mg/10 L** | milligrams per 10 liters |
| **mg/100g** | milligrams per 100 grams |
| **mg/100g org** | milligrams per 100 grams organism |
| **mg/100g bw** | milligrams per 100 grams body weight |
| **mg/100g bw/d** | milligrams per 100 grams body weight per day |
| **mg/100g sd** | milligrams per 100 grams seed |
| **mg/100g soil** | milligrams per 100 grams soil |
| **mg/100kg bdwt** | milligrams per 100 kilograms body weight |
| **mg/100kg org** | milligrams per 100 kilograms of organism |
| **mg/100 lbs** | milligrams per 100 pounds |
| **mg/100lb/d** | milligrams per 100 pounds per day |
| **mg/100 mg TI** | milligrams per 100 milligrams tissue |
| **mg/100ml** | milligrams per 100 milliliters |
| **mg/100ml diet** | milligrams per 100 milliliters diet |

| | |
|---|---|
| **mg/100ul** | milligrams per 100 microliters |
| **mg/10g** | milligrams per 10 grams |
| **mg/10g org** | milligrams per 10 grams organism |
| **mg/12h** | milligrams per 12 hours |
| **mg/150ml** | milligrams per 150 milliliters |
| **mg/24h** | milligrams per 24 hours |
| **mg/24h/kg** | milligrams per 24 hours per kilogram |
| **mg/250g bdwt** | milligrams per 250 grams body weight |
| **mg/3 kg** | milligrams per 3 kilograms |
| **mg/3 kg soil** | milligrams per 3 kilograms soil |
| **mg/3 L soil** | milligrams per 3 liters soil |
| **mg/300 g** | milligrams per 300 grams |
| **mg/454g** | milligrams per 454 grams |
| **mg/500 ml** | milligrams per 500 milliliters |
| **mg/70g** | milligrams per 70 grams |
| **mg/bee** | milligrams per bee |
| **mg/cc** | milligrams per cocoon |
| **mg/cntr** | milligrams per container |
| **mg/cm** | milligrams per centimeter |
| **mg/cm2** | milligrams per square centimeter |
| **mg/cm2*torr** | milligrams per square centimeter X Torr |
| **mg/cm2/d** | milligrams per square centimeter per day |
| **mg/cm3** | milligrams per cubic centimeter |
| **mg/d** | milligrams per day |
| **mg/d/bdwt** | milligrams per day per body weight |
| **mg/d/wght** | milligrams per day per weight |
| **mg/d/100 mg org** | milligrams per day per 100 grams organisms |
| **mg/d/100 lbs** | milligrams per day per 100 pounds |
| **mg/dl** | milligrams per deciliter |
| **mg/dm2/h** | milligrams per square decimeter per hour |
| **mg/dm3** | milligrams per cubed decimeter |
| **mg/dose** | milligrams per dose |
| **mg/egg** | milligrams per egg |
| **mg/eu** | milligrams per experimental unit |
| **mg/fish** | milligrams per fish |
| **mg/g** | milligrams per gram |
| **mg/g ash** | milligrams per gram ash |
| **mg/g bdwt** | milligrams per gram body weight |
| **mg/g dry wt** | milligrams per gram dry weight |
| **mg/g/ clay** | milligrams per gram clay |
| **mg/g CRTN** | milligrams per gram creatinine |
| **mg/g fd** | milligrams per gram food |
| **mg/g fluid** | milligrams per gram fluid |
| **mg/g humus** | milligrams per gram humus |
| **mg/g N** | milligrams per gram nitrogen |
| **mg/g org** | milligrams per gram of organism |
| **mg/g pod** | milligrams per gram of pod |
| **mg/g soil** | milligrams per gram of soil |
| **mg/g/d** | milligrams per gram per day |
| **mg/g MIT** | micrograms per gram mitochondria |
| **mg/g pro** | milligrams per gram protein |
| **mg/g TI** | milligrams per gram tissue |
| **mg/g TI/h** | milligrams per gram tissue per hour |
| **mg/gland/g bdwt** | milligrams per gland per gram body weight |
| **mg/h** | milligrams per hour |
| **mg/h/g bdwt** | milligrams per hour per gram body weight |
| **mg/ha** | milligrams per hectare |
| **mg h/L** | milligrams hours per liter |

| | |
|---|---|
| **mg H2O/d*cm2*T** | milligrams water per day*square centimeters*Torr |
| **mg H2O/d*cm2*torr** | milligrams water per day X square centimeter X Torr |
| **mg/in2/d** | milligrams per square inch per day |
| **mg/jv** | milligrams per juvenile |
| **mg/kg** | milligrams per kilogram |
| **mg/kg bdwt** | milligrams per kilogram body weight |
| **mg/kg bdwt/d** | milligrams per kilogram body weight per day |
| **mg/kg bdwt/wk** | milligrams per kilogram body weight per week |
| **mg/kg dw org/d** | milligrams per kilogram dry weight organism per day |
| **mg/kg d fd** | milligrams per kilogram dry food |
| **mg/kg d soil** | milligrams per kilograms dry soil |
| **mg/kg diet** | milligrams per kilogram diet |
| **mg/kg dry wt** | milligrams per kilogram dry weight |
| **mg/kg egg** | milligrams per kilogram egg |
| **mg/kg fd** | milligrams per kilogram food |
| **mg/kg litter** | milligrams per kilogram litter |
| **mg/kg media** | milligrams per kilogram media |
| **mg/kg org** | milligrams per kilogram organism |
| **mg/kg soil** | milligrams per kilogram soil |
| **mg/kg d soil** | milligrams per kilogram dry soil |
| **mg/kg TI** | micrograms per milligrams tissue |
| **mg/kg/d** | milligrams per kilogram per day |
| **mg/kg/fish** | milligrams per kilogram per fish |
| **mg/kg/h** | milligrams per kilograms per hour |
| **mg/kg/L** | milligrams per kilogram per liter |
| **mg/kg org/d** | milligrams per kilogram organism per day |
| **mg/kg seed** | milligrams per kilogram seed |
| **mg/kg/wk** | milligrams per kilogram per week |
| **mg/kg wt** | milligrams per kilogram weight |
| **mg/kg wet wt** | milligrams per kilogram wet weight |
| **mg/kg wt/d** | milligrams per kilogram weight per day |
| **mg/L** | milligrams per liter |
| **mg/L 10 mi** | milligrams per liter 10 minutes |
| **mg/L/d** | milligram per liter per day |
| **mg/L/h** | milligrams per liter per hour |
| **mg/L media** | milligrams per liter media |
| **mg/m3** | milligrams per cubic meter |
| **mg/mg** | milligrams per milligram |
| **mg/mg node** | milligrams per milligram nodules |
| **mg/mi** | milligrams per minute |
| **mg/ml** | milligrams per milliliter |
| **mg/mm2** | milligrams per square milliliter |
| **mg/org** | milligrams per organism |
| **mg/org/d** | milligrams per organism per day |
| **mg/org/wk** | milligrams per organism per week |
| **mg N/100 ml** | milligrams nitrogen per 100 milliliter |
| **mg/orwt** | milligrams per organ weight |
| **mg P/h/g TI** | milligrams phosphorus per hour per gram tissue |
| **mg/quintal** | miligrams per quintal |
| **mg/TI** | milligrams per tissue |
| **mg TI/g bdwt** | milligrams tissue per gram body weight |
| **mg TI/kg bdwt** | milligrams tissue per kilogram body weight |
| **mg/wk** | milligrams per week |

| | |
|---|---|
| **mg CO2/m2/sec** | milligrams carbon dioxide per squared meter per second |
| **mg p/g** | milligrams protein per gram |
| **mg%** | milligram % |
| **mg/vol** | milligrams per volume |
| **mi** | minute |
| **mi/12 h** | minutes per 12 hours |
| **mi/d** | minutes per day |
| **mi/org** | minutes per organism |
| **mi/nmol Rh** | minutes per nanomoles per nanomol rhodopsin |
| **micronaires** | micronaires |
| **microns** | microns |
| **MK:SR** | milk to serum ratio |
| **ml** | milliliters |
| **ML** | males |
| **ML/total** | males per total population |
| **ml/10 L** | milliliter per 10 liters |
| **ml/10 L/100 m2** | milliliters per 10 liters per 100 square meters |
| **ml/100g** | milliliters per 100 grams |
| **ml/100g BW** | milliliters per 100 grams body weight |
| **ml/100g bdwt/d** | milliliters per 100 grams body weight per day |
| **ml/100 kg sd** | milliliters per 100 kilograms seed |
| **ml/100 L** | milliliters per 100 liter |
| **ml/100 m2** | milliliters per 100 square meters |
| **ml/16h** | milliliters per 16 hours |
| **ml/1000 ft** | milliliters per 1000 foot |
| **ml/20 L** | milliliters per 20 liters |
| **ml/24 h** | milliliters per 24 hours |
| **ml/25 ml** | milliliters per 25 milliliters |
| **ml/250 ml** | milliliters per 250 milliliters |
| **ml/3.79 L** | milliliters per 3.79 liters |
| **ml/50 kg seed** | milliliters per 50 kilograms seed |
| **ml/500 ml** | milliliters per 500 milliliters |
| **ml/70d** | milliliters per 70 days |
| **ml/92.9 m2** | milliliters per 92.9 square meters |
| **ml/929 cm2** | milliliters per 929 square centimeters |
| **ml/body wt** | milliliters per body weight |
| **ml/cntr** | milliliters per container |
| **ml/d** | milliliters per day |
| **ml/d/100g BW** | milliliters per day per 100 grams bodyweight |
| **ml/d/kg BW** | milliliters per day per kilogram body weight |
| **ml/d/org** | milliliters per day per organism |
| **ml/eu** | milliliters per experimental unit |
| **ml/eu/d** | milliliters per experimental unit per day |
| **ml/ft3** | milliliter per cubic foot |
| **ml/g food** | milliliters per gram food |
| **ml/g/h** | milliliters per gram per hour |
| **ml/gal** | milliliters per gallon |
| **ml/h** | milliliters per hour |
| **ml/h/g bdwt** | milliliters per hour per gram body weight |
| **ml/ha** | milliliters per hectare |
| **ml/injection** | milliliters per injection |
| **ml/kg** | milliliters per kilogram |
| **ml/kg bdwt** | milliliters per kilograms body weight |
| **ml/kg sd** | milliliters per kilograms seed |
| **ml/kg/d** | milliliters per kilogram per day |
| **ml/kg org/d** | milliliters per kilogram organism per day |
| **ml/L** | milliliters per liter |
| **ml/L/1000 ft2** | milliliters per liter per 1000 square foot |
| **ml/lit** | males per litter |
| **ml/mi/kg** | milliliters per minute per kilogram |

| | |
|---|---|
| **ml/mi/100g** | milliliters per minute per 100 grams |
| **ml CO2/mi** | milliliters CO2 per minute |
| **ml O2** | milliliters O2 |
| **ml O2/mg TI** | milliliters O2 per milligram tissue |
| **ml/org** | milliliters per organism |
| **ml/org/d** | milliliters per organism per day |
| **ml/plot** | milliliters per plot |
| **ml/quintal** | mililiters per quintal |
| **ml/s** | milliliters per second |
| **ml/wk** | milliliters per week |
| **mlcl/actin mlcl** | molecules per actin molecule |
| **ML:FM** | ratio of males to females |
| **mm** | millimeters |
| **mm x 100** | millimeters x 100 |
| **mmg** | micronmilligrams |
| **mmHG** | millimeters mercury |
| **mmHG/s** | millimeters mercury per second |
| **mmHg/beat/mi*-3** | millimeters mercury per beat per minute * 1 X 10-3 |
| **mm/d** | millimeters per day |
| **mm/org** | millimeters per organism |
| **mm/ug pro** | millimeters per microgram protein |
| **mM/g** | millimolar per gram |
| **mM/kg** | millimolar per kilogram |
| **mM/kg bdwt** | millimoles per kilogram body weight |
| **mM/L** | millimoles per liter |
| **mm2** | square millimeters |
| **mm2/mm3 X 1e-9** | square millimeters per cubic millimeter X 1 X 10 -9 |
| **mm2/org/d** | square millimeters per organism per day |
| **mm3** | cubic millimeters (abbreviated in some literature as cmm) |
| **mm3/100g d soil** | cubic millimeters per 100 grams dry soil |
| **mm3/dm3** | cubic millimeters per cubic decimeter |
| **mm3/L** | cubic millimeters per liter |
| **mm3/mg/h** | cubic millimeters per milligram per hour |
| **mm3/mm3** | cubic millimeters per cubic millimeter |
| **mmol** | millimoles |
| **mmol/d** | millimoles per day |
| **mmol/g** | millimoles per gram |
| **mmol/g dry wt** | millimoles per gram dry weight |
| **mmol/100 g** | millimoles per 100 grams |
| **mmol/100 g bdwt** | millimoles per 100 grams body weight |
| **mmol/g food** | millimoles per gram food |
| **mmol/h/g TI** | millimoles per hour per gram tissue |
| **mmol/kg** | millimoles per kilogram |
| **mmol/kg bdwt** | millimoles per kilogram body weight |
| **mmol/kg egg** | millimoles per kilogram egg |
| **mmol/kg/d** | millimoles per kilogram per day |
| **mmol/kg/h** | millimoles per kilogram per hour |
| **mmol/kg soil** | millimoles per kilogram soil |
| **mmol/L** | millimoles per liter (**equivalent to mg at/L) |
| **mmol/L soil** | millimoles per liter soil |
| **mmol/m2** | millimoles per square meter |
| **mmol/m2/s** | millimoles per square meter per second |
| **mmol/m3** | millimoles per cubic meter |
| **mmol/mi/mg** | millimoles per minute per milligram |
| **mmol/mg/mi** | millimoles per milligram per minute |
| **mmol/ml/h** | millimoles per milliliter per hour |

| | |
|---|---|
| **mmol NO2/kg** | millimoles nitrogen dioxide per kilogram |
| **mmol H2O/m2/s** | millimoles water per square meter per second |
| **mmu** | absolute milli-mass units |
| **mo** | month |
| **mol** | moles |
| **mol/dm3** | moles per cubic decimeter |
| **mol/egg** | moles per egg |
| **mol/L** | moles per liter |
| **mol/g** | moles per gram |
| **mol/g soil** | moles per gram soil |
| **mol/kg** | moles per kilogram |
| **mol/kg bdwt** | moles per kilogram body weight |
| **mol/m3** | moles per cubic meter |
| **mol/ml** | moles per milliliter |
| **mol/org** | moles per organism |
| **mol NO2/h/g** | moles NO2 per hour per gram |
| **molal** | molality |
| **mole%** | mole percent |
| **morph/org** | ectomycorrhizal morphotypes per organism |
| **mOsm** | milliosmoles |
| **mOsm/kg** | milliosmoles per kilogram |
| **mosmols/l** | mosmoles (conc osmotic particles in solution) per liter |
| **mouse unit/ml** | mouse units per milliliter |
| **MPa** | megaPascals |
| **mp/mg pro/15mi** | microsomal proteins/milligram protein per 15 minutes |
| **m/s** | meters per second |
| **mS/cm** | milli Siemens per centimeter |
| **ms** | milliseconds |
| **mu** | milliunits |
| **mU/d** | microunits per day |
| **mU/g** | milliUnits per gram organism |
| **mU/ml** | milliunit per milliliter |
| **mU/24 h/kg** | milliunit per 24 hours per kilogram |
| **mu/mg** | milliunit per milligram |
| **mu/mi/ml** | milliunit per minute per milliliter |
| **mu/ml** | milliunit per milliliter |
| **mu/24 h** | milliunit per 24 hours |
| **mu/org** | milliunit per organism |
| **mW** | milliwatts |
| **N** | normal |
| **NA** | not applicable |
| **nCi** | nanoCuries |
| **nCi/g org** | nanoCuries per gram organism |
| **nCi/L** | nanoCuries per liter |
| **ng** | nanograms |
| **ng days/L** | nanogram days per liter |
| **ng/0.3 L** | nanograms per 0.3 liters |
| **ng/100g bdwt** | nanograms per 100 grams per bodyweight |
| **ng/24h** | nanograms per 24 hours |
| **ng ATP/g d soil** | nanograms ATP per grams dry soil |
| **ngTEQ/kg bdwt/d** | nanograms Toxic Equivalency Concentration per kilogram body weight per day |
| **ng/cm** | nanograms per centimeter |
| **ng/cm2** | nanograms per square centimeter |
| **ng/d** | nanograms per day |
| **ng/dl** | nanograms per deciliter |
| **ng/egg** | nanograms per egg |
| **ng/eu** | nanograms per experimental unit |
| **ng/fish** | nanograms per fish |
| **ng/g** | nanograms per gram |
| **ng/g bdwt** | nanograms per gram body weight |

| | |
|---|---|
| **ng/g/d** | nanograms per gram per day |
| **ng/g diet** | nanograms per gram diet |
| **ng/g dry wt** | nanograms per gram dry weight |
| **ng/g egg** | nanograms per gram egg |
| **ng/g TE** | nanograms per gram Toxic Equivalences |
| **ng/g TI** | nanograms per gram tissue |
| **ng/g wet wt** | nanograms per gram wet weight |
| **ng/g org** | nanograms per gram organism |
| **ng/g TI/4 h** | nanograms per gram tissue per 4 hours |
| **ng/gland** | nanograms per gland |
| **ng/h** | nanograms per hour |
| **ng/kg** | nanograms per kilogram |
| **ng/kg bdwt/d** | nanograms per kilogram body weight per day |
| **ng/kg/day** | nanograms per kilogram per day |
| **ng/kg fd** | nanograms per kilogram food |
| **ng/kg/wk** | nanograms per kilogram per week |
| **ng/L** | nanograms per liter |
| **ng/mg** | nanograms per milligram |
| **ng/mg bdwt** | nanograms per milligram body weight |
| **ng/mg/mi** | nanograms per milligram per minute |
| **ng/mg fd** | nanograms per milligram food |
| **ng/mg pro** | nanograms per milligram protein |
| **ng/min** | nanograms per minute |
| **ng/mi/org** | nanograms per minute per organism |
| **ng/ml** | nanograms per milliliter |
| **ng/100 ml** | nanograms per 100 milliliters |
| **ng/ml/h** | nanograms per milliliter per hour |
| **ng/ml/mi** | nanograms per milliliter per minute |
| **ng/ml blood/d** | nanograms per milliliter blood per day |
| **ng/mm/day** | nanograms per millimeter per day |
| **ng/org** | nanograms per organism |
| **ng/orwt** | nanograms per organ weight |
| **ng/TI** | nanograms per tissue |
| **ng/ul** | nanograms per microliter |
| **nkat/mg pro** | nanokatals per milligrams protein |
| **nl/cm2** | nanoliters per square centimeters |
| **nl/L** | nanoliters per liter |
| **nM** | nanomolar (nanomoles per liter) |
| **nM/L** | nanomolar per liter |
| **nM/g** | nanomolar per gram |
| **nM DSMN:uM LYSI** | nanomoles desmosine to micromoles lysine ratio |
| **nmol** | nanomoles |
| **nmol/100 mg pro** | nanomoles per 100 milligrams protein |
| **nmol/100mg pro/h** | nanomoles per 100 milligrams protein per hour |
| **nmol ATP/g soil** | nanomoles adenosine triphosphate per gram of soil |
| **nmol DOPA/g/h** | nanomoles DOPA per gram per hour |
| **nmol enz/hr** | nanomoles enzyme per hour |
| **nmol H2O2/mi/mg** | nanomoles of peroxide per minute per milligram protein |
| **nmol/egg** | nanomoles per egg |
| **nmol mdhyde/g** | nanomoles malonaldehyde per gram |
| **nmol PBG/h/ml** | nanomoles porphobilinogen per hour per milliliter |
| **nmol PBG/g TI/h** | nanomoles porphobilinogen per gram tissue per hour |
| **nmol/cm2** | nanomoles per square centimeter |

| | |
|---|---|
| **nmol/g** | nanomoles per gram |
| **nmol/g dry wt** | nanomoles per gram dry weight |
| **nmol/g pro** | nanomoles per gram protein |
| **nmol/g pro/mi** | nanomoles per gram per protein per minute |
| **nmol/g ro/4 h** | nanomoles per gram root per 4 hours |
| **nmol/g/30mi** | nanomoles per gram per 30 minutes |
| **nmol/g/4 mi** | nanomoles per gram |
| **nmol/g/mi** | nanomoles per gram per minute |
| **nmol/g/h** | nanomoles per gram per hour |
| **nmol/g humus** | nanomoles per gram per humus |
| **nmol/g soil** | nanomoles per gram soil |
| **nmol/g TI** | nanomoles per gram tissue |
| **nmol/g TI/h** | nanomoles per g tissue per hour |
| **nmol/g wet wt** | nanomoles per gram wet weight |
| **nmol/h/mg pro** | nanomoles per hour per milligram protein |
| **nmol/h/ml RBC** | nanomoles per hour per milliliter red blood cells |
| **nmol/kg** | nanomoles per kilogram |
| **nmol/kg bdwt** | nanomoles per kilogram body weight |
| **nmol/kg/m** | nanomoles per kilogram per minute |
| **nmol/L** | nanomoles per liter |
| **nmol/l RBC/h** | nanomoles per milliliter red blood cells per hour |
| **nmol MDA/mg pro** | nanomoles malonaldehyde per milligram protein |
| **nmol/mg** | nanomoles per milligram |
| **nmol/mg/h** | nanomoles per milligram per hour |
| **nmol/mg/15mi** | nanomoles per milligram protein per 15 minutes |
| **nmol/ml** | nanomoles per milliliter |
| **nmol/mg pro** | nanomoles per milligram protein |
| **nmol/mg pro/mi** | nanomoles per milligram protein per minute |
| **nmol/mg/20mi** | nanomoles per milligram per 20 minutes |
| **nmol/mg/mi** | nanomoles per milligram per minute |
| **nmol/mgpro/30mi** | nanomoles per milligram protein per 30 minutes |
| **nmol/mg TI** | nanomoles per milligram tissue |
| **nmol/mi/g** | nanomoles per minute per gram |
| **nmol/mi/mg** | nanomoles per minute per milligram |
| **nmol/mi/mg pro** | nanomoles per minute per milligram protein |
| **nmol/mi/ml** | nanomoles per minute per milliliter |
| **nmol/mi/ml RBC** | nanomoles per minute per milliliter red blood cells |
| **nmol/mlpro/30mi** | nanomoles per milliliter protein per 30 minutes |
| **nmol/mol** | nanomoles per mole |
| **nmol/nm p450/mi** | nanomoles per nanomole cytochrome P450 per minute |
| **nmol/org/h** | nanomoles per organism per hour |
| **nmol/org/0.5 h** | nanomoles per organism per 0.5 hours |
| **nmol/org/h** | nanomoles per organism per hour |
| **nmol/TI** | nanomoles per tissue |
| **no** | number |
| **no >15cm** | number that are greater than 15 centimeters |
| **no/1 mi** | number per 1 minute |
| **no/2.8 mm2** | number per 2.8 square millimeters |
| **no/5 mi** | number per 5 minutes |
| **no/10 mi** | number per 10 minutes |
| **no/12 h** | number per 12 hours |

| | |
|---|---|
| **no/15 mi** | number per 15 minutes |
| **no/30 mi** | number per 30 minutes |
| **no/100 blsm clt** | number per 100 blossom cluster |
| **no/100u2** | number per 100 square microns |
| **no/200 cells** | number per 200 cells |
| **no/1000 sperm** | number per 1000 sperm |
| **no/1000 um2** | number per 1000 square micrometers |
| **no/1500x field** | number per 1500x field |
| **no/5000 cells** | number per 5000 cells |
| **no/area** | number per area |
| **no/cell** | number per cell |
| **no/cm** | number per centimeter |
| **no/d** | number per day |
| **no/eu** | number per experimental unit |
| **no/fm** | number per female |
| **no follicles** | number of follicles |
| **no/g** | number per gram |
| **no/g soil** | number per gram soil |
| **no/h** | number per hour |
| **no/ha** | number per hectare |
| **no/litter** | number of organisms per litter |
| **no/m** | number per meter |
| **no/m2** | number per square meter |
| **no/mm3** | number per cubic millimeter (also known as no/cmm) |
| **no/mi** | number per minute |
| **no/mm2** | number per square millimeter |
| **no/mm2 * 1e-4** | number per square millimeter X 1 X 10-4 |
| **no/mm3 * 1e-4** | number per cubic millimeter X 1 X 10 -4 |
| **no/mm3 * 1e-8** | number per cubic millimeter X 1 X 10 -8 |
| **no/neuron * 1e-3** | number per neuron X 1 X 10 -3 |
| **no/mo** | number per month |
| **no/nuclei** | number per nuclei |
| **no/org** | number per organism |
| **no/panicle** | number per panicle |
| **no/plot** | number per plot |
| **no/preg FM** | number per pregnant female |
| **no/sec** | number per second |
| **no/section** | number per section |
| **no/seed** | number per seed |
| **no/sertoli cells** | number per sertoli cells |
| **no/so** | number per shoot |
| **no/trap** | number per trap |
| **no/100 WBC** | number per 100 white blood cells |
| **no/100um2** | number per 100 square micrometers |
| **no/1000** | number per 1000 |
| **no/1000 RBCE** | number per 1000 red blood cells |
| **no/33 lbs** | number per 33 pounds |
| **no errors** | no errors |
| **no sites** | number of sites |
| **NR** | not reported |
| **nuclei:nucleoi** | ratio of nuclei to nucleoi |
| **OD** | optical density |
| **OD/100% RBC** | optical density of 100% red blood cells |
| **OD/50 mg pro** | optical density per 50 milligrams protein |
| **OD/g pro** | units of optical density change per gram protein |
| **OD/mg pro** | optical density per milligram protein |
| **OD/mi/mg pro** | optical density per minute per milligram protein |
| **OD/WGHT** | optical density per unit weight |
| **ODx10x3** | optical density x10x3 |
| **open bol/org** | open bolls per organism |
| **org** | organisms |

| | |
|---|---|
| **org/10 m** | organisms per 10 meters |
| **org/100g soil** | organisms per 100g soil |
| **org/0.25ft2** | organisms per 0.25 square feet |
| **org/0.25m2** | organisms per 0.25 square meters |
| **org/0.3m** | organisms per 0.3 meters |
| **org/50cm2** | organisms per 50 square centimeters |
| **org/60 leaves** | organisms per 60 leaves |
| **org/200 m2** | organisms per 200 square meters |
| **org/200cm3** | number of organisms per 200 cubic centimeters of soil |
| **org/cm ro** | organisms per centimeter root |
| **org/cntr** | organisms per container |
| **org conc/soil c** | organism concentration per soil concentration |
| **org/d/cntr** | organisms per day per container |
| **org/eu** | organisms per experimental unit |
| **org/ft2** | organisms per square foot |
| **org/fm** | organisms per female |
| **org/g** | organisms per gram |
| **org/g dry soil** | organisms per gram dry soil |
| **org/g humus** | organisms per gram humus |
| **org/g root** | organisms per gram root |
| **org/g soil** | organisms per gram soil |
| **org/ha** | organisms per hectare |
| **org/kg soil** | organisms per kilogram soil |
| **org/km2** | organisms per square kilometer |
| **org/lit** | organisms per litter |
| **org/m** | organisms per meter |
| **org/m2** | organisms per square meter |
| **org/mi** | organisms per minute |
| **org/plot** | organisms per plot |
| **org/sample** | organisms per soil sample |
| **org/sector** | number of organisms per sector |
| **org/site** | organisms per site |
| **org/trap** | organisms per trap |
| **org/trap/d** | organisms per trap per day |
| **org/tree** | organisms per tree |
| **org/w>150 mmHg** | organisms with blood pressure >150 millimeters mercury |
| **org/w>160 mmHg** | organisms with blood pressure >160 millimeters mercury |
| **org/wk** | organisms per week |
| **OT** | optical transmission |
| **OT/1 cm WDTH** | optical transmission per 1 centimeter bone width |
| **OT/1 mm CCT** | optical transmission per 1 millimeter combined cortical thickness |
| **OT/10 cm BO** | optical transmission per 10 centimeters bone |
| **OT/10 kg WGHT** | optical transmission per 10 kilograms weight |
| **OV:BR** | ovary to brain ratio |
| **oz/acre** | ounces per acre |
| **oz/2.5 gal** | ounces per 2.5 gallons |
| **oz/100 lb seed** | ounces per 100 pound seed |
| **oz/1000 ft** | ounces per 1000 feet |
| **oz/305 m** | ounces per 305 meters |
| **oz/ft2** | ounces per square feet |
| **%** | percent |
| **% AE** | percent acid equivalent |
| **%act** | percent activity |
| **% arb** | percent arbuscularity |
| **% ash** | percent ash |
| **% of bdwt** | percent of body weight |
| **% cell volume** | percent cell volume |
| **% CEC** | % of soil cation exchange capacity |
| **% change** | percent change |
| **% clitellate** | percent clitellate |

| | |
|---|---|
| **% CNTL RI** | percent of control Ratcliff Index |
| **% corn** | percent corn pollen |
| **% cortex** | percent of cortex |
| **% dev CNTL** | percent deviation from control |
| **% d wght** | percent dry weight |
| **% dose ret** | percent dose retained |
| **% dose/g TI** | percent of dose per gram of tissue |
| **% dose/h** | percent dose per hour |
| **% DT** | percent of digestive tract |
| **% earliness** | percent earliness (percent of total cotton yield obtained during the first picking) |
| **% FATL** | percent of total fatty acids |
| **% fertile** | percent fertile |
| **%FM** | percent female |
| **% g/g bdwt** | percent gram per gram body weight |
| **% ingested** | percent of ingested |
| **% intake** | percent of intake |
| **%lit** | percent of litter |
| **% mg** | percent milligrams |
| **% mg/g bdwt** | percent milligrams per gram body weight |
| **% ML** | percent male |
| **% NaCl** | percent sodium chloride |
| **% of CNTL** | percent of control |
| **% of diet** | percent of diet |
| **% of initial** | percent of initial quantity |
| **% of max yld** | percent of maximum yield |
| **% org** | percent of organisms |
| **% prod** | percent production [(# eggs/# hen days)*100] |
| **% PRTL** | percent of total protein |
| **% RBC** | percent red blood cells |
| **% sat** | percent saturation |
| **% sperm** | percent sperm |
| **% tolerance** | percent tolerance |
| **% total oil** | percent of total oil content |
| **% g** | percent grams |
| **% g/g** | percent gram per gram |
| **%/g** | percent per gram |
| **%*g** | percent multiplied by weight in grams |
| **% / min** | percent per minute |
| **%/ml** | percent per milliliter |
| **%/org/d** | percent per organism per day |
| **% of total** | percent of total |
| **% PLIPD** | percent of total phospholipid |
| **% RI** | percent Ratcliff Index |
| **% soil** | percent soil |
| **% TIME** | percent of time |
| **% total dose** | percent total dose |
| **% vol** | percent volume |
| **% wet wght** | percent wet weight |
| **%/d** | percent per day |
| **%/g TI** | percent per gram tissue |
| **%/wk** | percent per week |
| **% WSF** | percent water soluble fraction |
| **[% inhib]** | [percent inhibition] |
| **% S/ppm Zn** | percent sulfur per parts per million zinc |
| **%succ br/rm** | percent successful broods per female |
| **% wght** | percent of weight |
| **% wght/org** | percent weight per organism |
| **% v/v** | percent volume per volume |
| **%v/w** | percent volume per weight |
| **% w/w** | percent weight per weight |
| **% w/v** | percent weight per volume |
| **pair** | pair |
| **pc** | permeability constant |
| **PCI** | plastochron index |
| **pCi/g** | picoCuries per gram |
| **pCi/L** | picoCuries per liter |
| **pCi/ml** | picoCuries per milliliter |

| | |
|---|---|
| **pecks/s** | pecks per second |
| **pellet/d** | pellets per day |
| **pellet/org/d** | pellets per organism per day |
| **pellets** | pellets |
| **pg** | picograms |
| **pg/cell** | picograms per cell |
| **pg/cm2** | picograms per square centimeter |
| **pg/dm3** | picograms per cubic decimeter |
| **pg/g** | picograms per gram |
| **pg/g diet** | picograms per gram diet |
| **pg/g egg** | picograms per gram of egg |
| **pg/g TI** | picograms per gram tissue |
| **pg/g wet wt** | picograms per gram wet weight |
| **pg/L** | picograms per liter |
| **pg/kg bdwt/d** | picograms per kilogram body weight per day |
| **pg/kg egg** | picograms per kilogram egg |
| **pg/mg org** | picograms per milligram organism |
| **pg/mg TE** | picograms per milligram Toxic Equivalences |
| **pg/ml** | picograms per milliliter |
| **pg/mi** | picograms per minute |
| **pg/org** | picograms per organism |
| **pg/TI** | picograms per tissue |
| **pg TE/g egg** | picograms Toxic Equivalent per gram egg |
| **pH** | pH |
| **PIg/L** | PI grams per liter |
| **PLC:BL** | placenta to blood ratio |
| **PL:BL** | plasma to blood ratio |
| **pM** | picoMolar |
| **pmol** | picomoles |
| **pmol/cell** | picomoles per cell |
| **pmol/egg** | picomoles per egg |
| **pmol/hr/mg** | picomoles per hour per milligram |
| **pmol/g** | picomoles per gram |
| **pmol/g bdwt** | picomoles per gram body weight |
| **pmol/g egg** | picomoles per gram egg |
| **pmol/g/mi** | picomoles per gram per minute |
| **pmol/L** | picomoles per liter |
| **pmol/kg egg** | picomoles per kilogram egg |
| **pmol/mg/30 mi** | picomoles per milligram protein per 30 minutes |
| **pmol/ml** | picomoles per millimeter |
| **pmol/mg** | picomoles per milligram |
| **pmol/mg/d** | picomoles per milligram per day |
| **pmol/mg pro/mi** | picomoles per milligram protein per minute |
| **pmol/mg pro/h** | picomoles per milligram protein per hour |
| **pmol/mg/mi** | picomoles per milligram per minute |
| **pmol/mg/ 10 mi** | picomoles per milligram per 10 minutes |
| **pmol/mg/h** | picomoles per milligram per hour |
| **pmol/mg/nmol R** | picomoles per milligram per nanomol rhodopsin |
| **pmol/mi/g TI** | picomoles per minute per gram tissue |
| **pmol/mi/mg pro** | picomoles per minute per milligram protein |
| **pmol/nl** | picomoles per nanoliter |
| **pmol/nm p450/mi** | picomoles per nanomole cytochrome P450 per minute |
| **pmol/org** | picomoles per organism |
| **ppb** | parts per billion |
| **ppb/2H/org** | parts per billion per two hours per organism |
| **pphr** | parts per hundred rubber |
| **ppm** | parts per million |
| **ppm dry wt** | parts per million dry weight |
| **ppm dw fd** | parts per million dry weight food |

| | |
|---|---|
| **ppm food** | parts per million food |
| **ppm H2O** | parts per million water |
| **ppm-hour** | parts per million hour |
| **ppm/d/kg bdwt** | parts per million per day per kilogram body weight |
| **ppm/organi** | parts per million per organism |
| **ppm soil** | parts per million soil |
| **ppm/d** | parts per million per day |
| **ppm/eu** | parts per million per experimental unit |
| **ppmw** | parts per million by weight |
| **prdt/mi/mg pro** | product formed per minute per milligram protein |
| **0/00** | parts per thousand |
| **ppt** | parts per trillion |
| **pt** | pints |
| **pt/100 ft2** | pints per 100 square feet |
| **pt/ac** | pints per acre |
| **PSU** | practical salinity units |
| **q/ha** | quintals per hectare (1 quintal = 100 kilograms) |
| **qt/100 gal** | **quarts per 100 gallons** |
| **qt/acre** | **quarts per acre** |
| **qt/gal** | **quarts per gallon** |
| **[RA]** | [ratio: use the number, no unit needed] |
| **R** | weight/(length x width) an index of eggshell quality |
| **RA 1e-3** | ratio * 1e-3 |
| **RA/wk** | ratio per week |
| **rate/100 org** | rate per 100 organisms |
| **rate/mi** | rate per minute |
| **rev** | revolutions |
| **rev/h** | revolutions per 5 hours |
| **RF units** | RF units |
| **rgv** | relative gray value |
| **RI** | Ratcliffe index (shell wt/egg length x width mm2) |
| **RNA:protein** | RNA to protein ratio |
| **ro/so** | root to shoot ratio |
| **rpm** | revolution per minute |
| **RR** | Centric fusions |
| **RSA/TI** | relative specific activity per tissue |
| **RV:TV** | ratio of right ventricle to total ventricle |
| **s** | seconds |
| **SA** | Specific activity |
| **s/12 rpm** | seconds per 12 revolutions per minute |
| **s/16 rpm** | seconds per 16 revolutions per minute |
| **s/8 rpm** | seconds per 8 revolutions per minute |
| **sd/org/d** | seeds per organism per day |
| **s/g** | seconds per gram |
| **s/h** | seconds per hour |
| **sessions** | sessions |
| **SFU** | sigma Frankel units |
| **sgth:thik** | Strength to thickness ratio |
| **sgth:wght** | Strength to weight ratio |
| **sigma u/100ml** | sigma units per 100 milliliters |
| **SL unit** | SL unit |
| **SL:ME** | Slice to median ratio |
| **so/ft2** | shoots per square foot |
| **so:gr** | ratio shoot to grain |
| **so:ro** | ratio shoot to root |
| **SP:BR** | spleen to brain ratio |
| **spots/le** | spots per leaf |
| **species** | species |
| **spines/ u area** | spines per unit area |
| **str:gr** | ratio plant straw to grain |
| **succ br** | successful broods |
| **succ br/fm** | successful broods per female |

| | |
|---|---|
| **T3:T4** | Ratio of triidothyronine (T3) to thyroxine (T4) |
| **Tbsp/eu** | Tablespoons per experimental unit |
| **Tbsp/gal** | Tablespoons per gallon |
| **tsp/mound** | teaspoons per mound |
| **t/ha** | tons per hectare |
| **t/ha gr/t/ha gr + str** | tons per hectare grain plus straw |
| **taxa** | taxa |
| **TE:BR** | testes to brain ratio |
| **tillers/m2** | tillers per square meter |
| **tons/acre** | tons per acre |
| **top:root** | ratio plant tops to roots |
| **treated:cntl** | ratio treated to control |
| **trials** | trials |
| **TS:BR** | thymus to brain ratio |
| **u** | units |
| **U/100 mg TI** | Units per 100 milligram tissue |
| **u2** | square microns |
| **u2/300,000 u2** | square micrometers per 300,000 micrometers squared |
| **u3** | cubic microns |
| **u act** | unit activity (an increase in absorbance at 555 nm of 0.100, with a 1.0 cm light path, per milliliter of erythrocytes per hour, at 38 C). |
| **u act/h** | unit activity per hour |
| **u eq/g pro/mi** | microatom equivalents per gram protein per minute |
| **u/co2/50mg/10mi** | units per carbon dioxide per 50 milligrams per 10 minutes |
| **u/d** | units per day |
| **u/mg N2** | units per mg N2 |
| **u/mg TI** | units per milligram tissue |
| **U/ml** | Units per milliliter |
| **U/ml RBC** | units per milliliter red blood cells |
| **U of fl** | units of fluorescence |
| **u/g** | units per gram |
| **u/l** | units per liter |
| **u/mg** | units per milligram |
| **U/mg pro** | units per milligram protein |
| **u/ml** | units per milliliter |
| **u/TI** | units per tissue |
| **U/0.2 ml** | units per 0.2 milliliters |
| **u-atoms/egg** | microatoms per egg |
| **uBq** | microBecquerels |
| **uCi** | microcuries |
| **uCi/100g org** | microcuries per 100 grams organism |
| **uCi/3.6mg** | microcuries per 3.6 milligrams |
| **uCi/30mg** | microcuries per 30 milligrams |
| **uCi/L** | microcuries per liter |
| **uCi/g** | microcuries per gram |
| **uCi/g org** | microcuries per gram organism |
| **uCi/g soil** | microcuries per gram soil |
| **uCi/kg** | microcuries per kilogram |
| **uCi/mg** | microcuries per milligram |
| **uCi/ml** | microcuries per millimeter |
| **uCi/nmol** | microcuries per nanomoles |
| **uCi/org** | microcuries per organism |
| **uCi/ug** | microcuries per microgram |
| **uCi/ul** | microcuries per microliter |
| **ueq/l** | microequivalents per liter |
| **ueq/g** | microequivalents per gram |
| **ug** | micrograms |
| **ug-atoms/L** | micrograms atoms per liter |
| **ug%** | micrograms percent |
| **ug chl/cm2** | micrograms chlorophyll per square centimeter |
| **ug chl/ mg leaf** | micrograms chlorophyll per milligram of leaf |

| | |
|---|---|
| **ug CO2/g d sl/h** | micrograms carbon dioxide per grams dry soil per hour |
| **ug enz/g/h** | microgram enzyme per gram per hour |
| **ug frmzn/100g** | micrograms formazan formed per 100 grams tissue (formazans: Coloured azo compounds formed by the reduction of tetrazolium salts. Employing this reaction, oxidoreductase activity can be determined quantitatively in tissue sections by allowing the enzymes to act on their specific substrates in the presence of tetrazolium salts. |
| **ug GHA/1e+6 c/h** | micrograms gamma-glutamylhydroximate per 1X10 +6 cells per hour |
| **ug N/g** | micrograms nitrogen per gram.) |
| **ug NANA/TI** | micrograms N-acetyl neuraminic acid per tissue |
| **ug O/g pro/mi** | micrograms oxygen per gram protein per minute |
| **ug PAP/g/20 mi** | micrograms peroxidase-anti-peroxidase (PAP) per gram per 20 minutes |
| **ug PAP/g/30 mi** | micrograms peroxidase-anti-peroxidase (PAP) per gram per 30 minutes |
| **ug Pi/mg** | micrograms Pi/milligram |
| **ug Pi/mg MIT** | micrograms Pi/milligram mitochondria |
| **ug POH/mg pro/m** | micrograms phenol per milligrams protein per minute |
| **ug pro ld/ne** | ug proteolipid per nerve pair |
| **ug TE/kg** | micrograms Toxic Equivalent per kilogram |
| **ug TEQ/kg bw/wk** | micrograms Toxic Equivalency Concentration per kg bdwt per week |
| **ug TTC/mg pro/h** | micrograms triphenyl tetrazolium chloride reduced per milligram |
| **ug/0.1 ml/d/org** | micrograms per 0.1 milliliter per day per organism |
| **ug/0.5g** | micrograms per 0.5 grams |
| **ug/10 g bdwt** | micrograms per 10 grams body weight |
| **ug/10 L** | micrograms per 10 liters |
| **ug/100g** | micrograms per 100 grams |
| **ug/100 g bdwt** | micrograms per 100 grams body weight |
| **ug/100 g bdwt/d** | micrograms per 100 grams body weight per day |
| **ug/100g/d** | micrograms per 100 grams per day |
| **ug/100g org/d** | micrograms per 100 grams organism per day |
| **ug/100 mg** | micrograms per 100 milligrams |
| **ug/100 mg TI** | micrograms per 100 milligram tissue |
| **ug/100mg/30mi** | micrograms per 100 milligrams per 30 minutes |
| **ug/100mg/h** | micrograms per 100 milligrams per hour |
| **ug/100ml** | micrograms per 100 milliliters |
| **ug/100ml RBC** | micrograms per 100 milliliters red blood cells |
| **ug/200mg/20mi** | micrograms per 200 milligrams per 20 minutes |
| **ug/200mg/30mi** | micrograms per 200 milligrams per 30 minutes |
| **ug/24h** | micrograms per 24 hours |
| **ug/2.5 ul/h** | micrograms per 2.5 microliters per hour |
| **ug/24h/org** | micrograms per 24 hours per organism |
| **ug/250 g bdwt** | micrograms per 250 grams body weight |
| **ug/3.5L** | micrograms per 3.5 liters |
| **ug/ 4d** | micrograms per 4 days |
| **ug/50ul** | micrograms per 50 microliters |
| **ug/72h** | micrograms per 72 hours |
| **ug/500g** | micrograms per 500 grams |

| | |
|---|---|
| **ug/bee** | micrograms per bee |
| **ug/cell** | micrograms per cell |
| **ug/cm2** | micrograms per centimeter squared |
| **ug/cm2/d** | micrograms per square centimeter per day |
| **ug/cm3** | micrograms per cubic centimeter |
| **ug/d** | micrograms per day |
| **ug/d/org** | micrograms per day per organism |
| **ug/disk** | micrograms per disk |
| **ug/dl** | micrograms per deciliter |
| **ug/dm3** | micrograms per cubic decimeter |
| **ug/egg** | micrograms per egg |
| **ug/em** | micrograms per embryo |
| **ug/eu** | micrograms per experimental unit |
| **ug/eu/d** | micrograms per experimental unit per day |
| **ug/fish** | micrograms per fish |
| **ug/g** | micrograms per gram |
| **ug/g/30 min** | micrograms per gram per 30 minutes |
| **ug/g agar** | micrograms per gram agar |
| **ug/g ash** | micrograms per gram ash |
| **ug/g bdwt** | micrograms per gram body weight |
| **ug/g bdwt/d** | micrograms per gram body weight per day |
| **ug/g bdwt/h** | micrograms per gram body weight per hour |
| **ug/g bdwt/wk** | micrograms per gram body weight per week |
| **ug/g CREA** | micrograms per gram creatinine |
| **ug/g dry cmpst** | micrograms per gram dry compost |
| **ug/g dry wt** | micrograms per gram dry weight |
| **ug/g d soil** | micrograms per gram dry soil |
| **ug/g diet** | micrograms per gram diet |
| **ug/g dry fd** | micrograms per gram dry food |
| **ug/g eu** | micrograms per gram experimental unit |
| **ug/g egg** | micrograms per gram egg |
| **ug/g food** | micrograms per gram food |
| **ug/g npro** | micrograms per gram nonprotein |
| **ug/g OC** | micrograms per gram Organic Carbon |
| **ug/g om** | micrograms per gram organic matter |
| **ug/g org** | micrograms per gram organism |
| **ug/g org/d** | micrograms per gram organism per day |
| **ug/g org/wk** | micrograms per gram organism per week |
| **ug/g org x 1E2** | micrograms per gram organism x 1E2 |
| **ug/g pro** | micrograms per gram protein |
| **ug/g soil** | micrograms per gram soil |
| **ug/g tissue** | micrograms per gram tissue |
| **ug/g wet wt** | micrograms per gram wet weight |
| **ug/g/d** | micrograms per gram per day |
| **ug/g/kg bdwt** | micrograms per gram per kilogram body weight |
| **ug/g/wk** | micrograms per gram per week |
| **ug/h** | micrograms per hour |
| **ug/h/100 g** | micrograms per hour per 100 grams |
| **ug/h/100 ml** | micrograms per hour per 100 milliliters |
| **ug/kg** | micrograms per kilogram |
| **ug/kg bdwt** | micrograms per kilogram body weight |
| **ug/kg bdwt/d** | micrograms per kilogram body weight per day |
| **ug/kg bdwt/wk** | micrograms per kilogram body weight per week |

| | |
|---|---|
| **ug/kg/d** | micrograms per kilogram per day |
| **ug/kg/egg** | micrograms per kilogram egg |
| **ug/kg fd** | micrograms per kilogram food |
| **ug/kg LD** | micrograms per kilogram lipid |
| **ug/kg/mi** | micrograms per kilogram per minute |
| **ug/kg/wk** | micrograms per kilogram per week |
| **ug/kg org** | micrograms per kilogram organism |
| **ug/kg org/d** | micrograms per kilogram organism per day |
| **ug/kg soil** | micrograms per kilogram soil |
| **ug/kg TI** | micrograms per kilograms tissue |
| **ug/L** | micrograms per liter |
| **ug/L/d** | micrograms per liter per day |
| **ug/m3** | micrograms per cubic meter |
| **ug/mg** | micrograms per milligram |
| **ug/mg food** | micrograms per milligram food |
| **ug/mg MIT** | micrograms per milligram mitochondria |
| **ug/mg org** | micrograms per milligram organism |
| **ug/mg pro** | micrograms per milligrams protein |
| **ug/mg pro/hr** | micrograms per milligram protein per hour |
| **ug/mg TI** | micrograms per milligram tissue |
| **ug/mi** | micrograms per minute |
| **ug/mi/mg pro** | micrograms per minute per milligram protein |
| **ug/min/ml** | micrograms per minute per milliliter |
| **ug/ml** | micrograms per milliliter |
| **ug/ml H2O** | micrograms per milliliter water |
| **ug/mm3** | micrograms per cubic millimeter |
| **ug/org** | micrograms per organism |
| **ug/org/d** | micrograms per organism per day |
| **ug/org/wk** | micrograms per organism per week |
| **ug/sample** | micrograms per sample |
| **ug/tank/wk** | micrograms per tank per week |
| **ug TE/kg** | micrograms Toxic Equivalent per kilogram |
| **ug/TI** | micrograms per tissue |
| **ug/ul** | micrograms per microliter |
| **uIU/ml** | microInternational units per milliliter |
| **ul** | microliter |
| **ul3** | cubic microliters |
| **ul/100ml** | microliter per 100 millimeter |
| **ul/20ml** | microliter per 20 millimeter |
| **ul/720 ml** | microliter per 720 milliliter |
| **ul/beat** | microliters per beat |
| **ul/beat/kg** | microliters per beat per kilogram |
| **ul/cm2** | microliter per square centimeter |
| **ulCO2/50mgTI/10** | microliters carbon dioxide per 50 milligrams tissue per 10 minutes |
| **ul Eq/ml** | microliters equivalents per milliliter |
| **ul O2/g/h** | microliters O2 per gram per hour |
| **ul O2/hr/g** | microliters oxygen per hour per gram |
| **ul O2/mi/g** | microliters oxygen per minute per gram |
| **ul/d** | microliters per day |
| **ul/egg** | microliters per egg |
| **ul/eu** | microliters per experimental unit |
| **ul/g** | microliters per gram |

| | |
|---|---|
| **ul/g bdwt** | microliters per gram body weight |
| **ul/g/d** | microliters per gram per day |
| **ul/g/h** | microliters per gram per hour |
| **ul/kg** | microliters per kilograms |
| **ul/kg bdwt** | microliter per kilogram body weight |
| **ul/L** | microliter per liter |
| **ul/L/h** | microliters per liter per hour |
| **ul/m2** | microliters per square meter |
| **ul/ml** | microliter per milliliter |
| **ul/org** | microliter per organism |
| **uM** | microMolar |
| **um/s** | micrometers per second |
| **um2** | micromoles squared |
| **um3** | cubic micromoles |
| **um3** | cubic micrometers or cubic microns |
| **um3/cell** | cubic micrometers per cell |
| **uM/cm3** | micromoles per squared centimeter |
| **uM/h/l RBC** | micromoles per hour per liter red blood cells |
| **umol/g dry wt f** | micromoles per gram dry weight food |
| **umol/g LD** | micromoles per gram lipid |
| **um/g/30mi** | micromoles per gram per 30 minutes |
| **uM/100g** | microMolar per 100 grams |
| **uM/h/mg pro** | micromolar per hour per milligram protein |
| **uM/kg** | micromolar per kilogram |
| **uM/kg wght** | micromolar per kilogram weight |
| **uM/kg/mi** | microMolar per kilogram per minute |
| **uM/L** | microMolar per liter |
| **uM/mg pro** | micromoles per milligram protein |
| **uM/min/g** | micromoles per minute per gram |
| **uM/ml** | micromolar per milliliter |
| **um/TI** | micromoles per tissue |
| **uM B-naph/h/ml** | micromoles beta-naphthalene per hour per milliliter |
| **um B-naph/h/mgP** | micromoles beta-naphthalene per hour per milligram protein |
| **uM BAPNA/mi/mgP** | micromoles of BAPNA (benzoylarginie-p-nitroanilide) inhibited per minute per milligram protein |
| **uM BAPNA/mi/ml** | micromoles of BAPNA (benzoylarginie-p-nitroanilide) inhibited per minute per milliliter |
| **uM BTEE/mi/mgP** | micromoles BTEE (N-benzyl-L-tyrosine ethyl ester) per minute per milligram protein |
| **uM P/g** | micromoles Phosphorus per gram |
| **uM SAPNA/mi/mgP** | micromoles of SAPNA (succinyl-1-(ala)3-p-nitroanilide) inhibited per minute per milligram protein |
| **uM SAPNA/mi/ml** | micromoles of SAPNA (succinyl-1-(ala)3-p-nitroanilide) inhibited per minute per milliliter |
| **uM TAME/mi/mgP** | micromoles TAME (toluenesulfonyl-L-arginine methyl ester) per minute per milligram protein |
| **umol** | micromoles |
| **umol ASCA/mg pro** | micromoles ascorbic acid per milligram protein |
| **umol C2H4/g/h** | micromoles of ethylene produced per gram per hour |
| **umol C2H4/org/h** | micromoles of ethylene produced per organism per hour |
| **umol CO2/m2/s** | micromoles CO2 per square meter per second |
| **umol CO2/g/s** | micromoles CO2 per gram per second |
| **umol CO2/g ch/s** | micromoles carbon dioxide per gram chlorophyll per second |

| | |
|---|---|
| **umol HA/mg pro** | micromoles hippuric acid per milligram protein |
| **umol GH/mgpro/m** | micromoles reduced glutathione per milligram protein per minute |
| **umol NADPH/mg P** | micromoles NADPH per milligram protein per minute |
| **umol P/g/20 mi** | micromol phosphorus per gram per 20 minutes |
| **umol P/g/h** | micromoles phosphorus per gram per hour |
| **umol P/mg pro/h** | micromoles phosphorus per milligram protein per hour |
| **umol Pbg/h/g** | micromoles of porphobilinogen per hour per gram tissue |
| **umol Pi/mgp/30m** | micromoles Pi per milligram protein per 30 minutes |
| **umol Pi/mgpro/h** | micromoles Pi per milligram protein per hour |
| **umol pyv mg p/h** | micromoles pyruvate per milligram protein per hour |
| **umol/100g** | micromoles per 100 grams |
| **umol/100g org** | micromoles per 100 grams organism |
| **umol/100 ml** | micromoles per 100 milliliters |
| **umol/10g/h** | micromoles per 10 grams per hour |
| **umol/10mg/h** | micromoles per 10 milligrams per hour |
| **umol/20mi/g** | micromoles per 20 minutes per gram |
| **umol/cm2** | micromoles per square centimeter |
| **umol/dl/h** | micromoles per decaliter per hour |
| **umol/dm3** | micromoles per cubic decimeter |
| **umol/eu** | micromoles per experimental unit |
| **umol/g** | micromoles per gram |
| **umol/g ash** | micromoles per gram ash |
| **umol/g diet** | micromoles per gram diet |
| **umol/g org** | micromoles per gram organism |
| **umol/g pro/h** | micromoles per gram protein per hour |
| **umol/g soil** | micromoles per gram soil |
| **umol/g Tl** | micromole per gram tissue |
| **umol/g Tl/h** | micromoles per gram tissue per hour |
| **umol/g wet wt** | micromoles per gram wet weight |
| **umol/g/h** | micromoles per gram per hour |
| **umol/g/mi** | micromoles per gram per minute |
| **umol/g/15 mi** | micromoles per gram per 15 minutes |
| **umol/h/g pro** | micromoles per hour per grams protein |
| **umol/h/g Tl** | micromoles per hour per gram tissue |
| **umol/h/Tl** | micromoles per hour per tissue |
| **umol/h/mg pro** | micromoles per hour per milligram protein |
| **umol/h/mg Tl** | micromols per hour per milligram tissue |
| **umol/kg** | micromoles per kilogram |
| **umol/kg bdwt** | micromoles per kilogram body weight |
| **umol/kg egg** | micromoles per kilogram egg |
| **umol/kg media** | micromoles per kilogram media |
| **umol/kg org** | micromoles per kilogram organism |
| **umol/kg/d** | micromoles per kilogram per day |
| **umol/kg/mi** | micromoles per kilogram per minute |
| **umol/L** | micromoles per liter |
| **umoles/l agar** | micromoles per liter agar |
| **umol/l RBC/mi** | micromoles per liter red blood cells per minute |
| **umol/m** | micromoles per meter |
| **umol/mg** | micromoles per milligram |
| **umol/mg/15 mi** | micromoles per milligram per 15 minutes |

| | |
|---|---|
| **umol/mg/20** | micromoles per milligram per 20 minutes |
| **umol/mg pro** | micromoles per milligram protein |
| **umol/mgpro/20 mi** | micromoles per milligram protein per 20 minutes |
| **umol/mgpro/30mi** | micromoles per mg protein per 30 minutes |
| **umol/mg pro/h** | micromoles per milligram protein per hour |
| **umol/mg/h** | micromoles per milligram per hour |
| **umol/mg/mi** | micromoles per milligram per minute |
| **umol/ml** | micromoles per milliliter |
| **umol/mi** | micromoles per minute |
| **umol/mi/g** | micromoles per minute per gram |
| **umol/mi/g TI** | micromoles per minute per gram of tissue |
| **umol/mi/h** | micrograms per minute per hour |
| **umol/mi/l** | micromoles per minute per liter |
| **umol/mi/mg** | micromoles per minute per milligram |
| **umol/mi/mg pro** | micromoles per minute per milligram protein |
| **umol/mi/ml** | micromoles per minute per milliliter |
| **umol/ml/h** | micromole per milliliter per hour |
| **umol/ml/mi** | micrograms per milliliter per minute |
| **umol/mol** | micromoles per mole |
| **umol/mol C** | micromoles per mole Carbon |
| **umol/org** | micromoles per organism |
| **umol/TI** | micromoles per tissue |
| **umoles/g TI/h** | micromoles per gram tissue per hour |
| **umolNH3/1e+6c/h** | micromoles NH3 per 1X10+6 cells per hour |
| **uS/cm** | micro Siemens per centimeter |
| **units/100ml** | units per 100 milliliters |
| **units/g diet** | units per gram diet |
| **units/l** | units per liter |
| **units/mg pro** | units per milligram protein |
| **unit/mg pro/mi** | enzyme unit per milligram protein per minute |
| **uu/mg** | microunits per milligram |
| **USP/org** | USP unit per organism |
| **uU/ml** | microunits per milliliter |
| **uu/mi/ml** | microunits per minute per milliliter |
| **uu/ml** | microunits per milliliter |
| **uV** | microvolts |
| **V** | response value |
| **V/N** | response value per number of response sites |
| **V/quadrant** | response value per quadrant |
| **v/v** | volume per volume |
| **W units** | Wrobleski units |
| **WER** | water efficiency ratio |
| **wght/lit** | weight per litter |
| **wk** | week |
| **Wijs number** | Wijs' number |
| **WO:LI** | whole organism to liver ratio |
| **[1/h]** | [one per hour: use **/h**] |
| **[10x2/mm3]** | [10x2 cubic millimeters:use **/mm3**] |
| **[10x3/mm3]** | [10x3 cubic millimeters:use **/mm3**] |
| **[10x6/ml3]** | [10x6 cubic milliliters: use **/mm3**] |
| **[10x6/mm3]** | [10x6 cubic millimeters:use **/mm3**] |
| **[10x6/ul]** | [10x6 microliters:use **/ul**] |
| **[10x9/l]** | [10x9 liters:use **/l**] |
| **1mg/10ml** | 1 milligram per 10 milliliters |

| | |
|---|---|
| **1e+1 kg** | 1 x 10+1kilograms |
| **1e+1 ug/g** | 1 X 10 +1 micrograms per gram |
| **1e+2 cal/g** | 1 X 10 +2 calories per gram |
| **1e+2 mm** | 1 X 10 +2 millimeters |
| **1e+2 no/mm2** | 1 x 10 +2 per square millimeter |
| **1e+2 no/mm3** | 1 X 10 +2 per cubic millimeter |
| **1e+2 ug/g** | 1 X 10 +2 micrograms per gram |
| **1e+3 cell/mg TI** | 1 X 10 +3 cells per milligram tissue |
| **1e+3 cells** | 1 X 10 +3 cells |
| **1e+3 cells/mm3** | 1 X 10 +3 cells per cubic millimeter |
| **1e+3 cm/d** | 1 X 10 +3 centimeters per day |
| **1e+3 counts** | 1 X 10 +3 counts |
| **1e+3 cpm** | 1 X 10 +3 counts per minute |
| **1e+3dpm/mg DNA** | 1 x 10+3 disintegrations per minute per milligram DNA |
| **1e+3dpm/mg RNA** | 1 x 10+3 disintegrations per minute per milligram RNA |
| **1e+3 dpm/TI** | 1 X 10 +3 disintegrations per minute per tissue |
| **1e+3 no** | 1 X 10 +3 number |
| **1e+3 no/cm** | 1 X 10 +3 number per centimeter |
| **1e+3 no/cm3** | 1 X 10 +3 number per cubic centimeter |
| **1e+3 no/g TI** | 1 X 10 +3 number per gram tissue |
| **1e+3 no/mg SP** | 1 X 10 +3 number per milligram spleen |
| **1e+3 org/acre** | 1 X 10+3 organisms per acre |
| **1e+3 RA** | 1 X 10 +3 ratio |
| **1e+3 sigma u/g** | 1 X 10+3 sigma units per gram |
| **1e+3 um2** | 1 X 10 +3 square micrometers |
| **1e+3RNA/TCA/DNA** | 1 X 10 +3 (counts per minute TCA per milligram RNA) per milligram DNA |
| **1e+3/ml** | 1 X 10+3/milliliter |
| **1e+3/mm3** | 1 X 10+3/cubic millimeter |
| **1e+3 no** | 1 x 10+3 number |
| **1e+3 no/ul** | 1 x 10+3 number per microliter |
| **1e+3/ul** | 1 X 10+3/microliter |
| **1e+4 IU/g** | 1 X 10 +4 International units per gram |
| **1e+4 IU/TI** | 1 X 10 +4 International units per tissue |
| **1e+4 no/mg TI** | 1 x 10+4 number per milligram tissue |
| **1e+4 no/ml** | 1 X 10 +4 number per milliliter |
| **1e+4 ug/g** | 1 x 10+4 micrograms per gram |
| **1e+4 ug/TI** | 1 X 10+4 micrograms per tissue |
| **1e+4/mm** | 1 x 10+4/millimeter |
| **1e+4/mm3** | 1 x 10+4 per cubic millimeter |
| **1e+12 no/L** | 1 X 10+12 number/liter |
| **1e+5 no** | 1 X 10 +5 number |
| **1e+5 no/g TI** | 1 X 10 +5 number per gram tissue |
| **1e+6 cells** | 1 X 10 +6 cells |
| **1e+6 cells/mm3** | 1 X 10 +6 cells per cubic millimeter |
| **1e+6 cm** | 1 X 10 + 6 centimeters |
| **1e+6 cpm** | 1 X 10 +6 counts per minute |
| **1e+6 cpm/g TI** | 1 X 10 +6 counts per minute per gram tissue |
| **1e+6/ml** | 1 X 10+6/milliliter |
| **1e+6/mm3** | 1 X 10+6/cubic millimeter |
| **1e+6/ul** | 1 X 10+6/microliter |
| **1e+6 no** | 1 x 10+6 number |
| **1e+6 no/ml** | 1 X 10 +6 number per milliliter |
| **1e+6 no/ul** | 1 x 10+6 number per microliter |
| **1e+6 no/cm3** | 1 X 10 +6 number per cubic centimeter |

| | |
|---|---|
| **1e+6 no/g TI** | 1 x 10+6 number per gram tissue |
| **1e+6 no/mg TI** | 1 X 10 +6 number per milligram tissue |
| **1e+6 no/mm3** | 1 X 10 +6 number per cubic millimeter |
| **1e+6 no/org** | 1 x 10+6 number per organism |
| **1e+7/ml sperm** | 1 X 10+7 cells per milliliter sperm |
| **1e+8/mm3** | 1 x 10+8/cubic millimeters |
| **1e+8 no** | 1 x 10+8 number |
| **1e+9 no** | 1 X 10 +9 number |
| **1e+9 no/l** | 1 X 10 +9 number per liter |
| **1e+9 no/ml** | 1 X 10 +9 number per milliliter |
| **1e-1 mg/mg/d** | 1 X 10 -1 milligrams per milligrams per day |
| **1e-2 mm** | 1 x 10-2 millimeters |
| **1e-2 Nm** | 1 x 10-2 namometers |
| **1e-2 no/ul** | 1 X 10 -2 number per microliter |
| **1e-2 ug/g** | 1 X 10 -2 micrograms per gram |
| **1e-2 J/beat/kg** | 1 x 10 -2 Joules per beat per kilogram |
| **1e-3 cm/d** | 1 X 10 -3 centimeters per day |
| **1e-3 cpm** | 1 x10-3 counts per minute |
| **1e-3*dyn*s*cm-5** | 1 X 10 -3 X dynes X seconds X centimeters -5 |
| **1e-3 mg/mg/d** | 1 X 10 -3 milligrams per milligrams per day |
| **1e-3 RA** | 1 X 10 -3 molar |
| **1e-4dpm/g** | 1 x 10-4 disintegrations per minute per gram |
| **1e-4dpm/mg Pi** | 1 x 10-4 disintegrations per minute per milligram Pi |
| **1e-4 in** | 1 X 10 -4 inches |
| **1e-4 no** | 1 X 10 -4 number |
| **1e-5/mm3** | 1 X 10 -5/cubic millimeter |
| **1e-6 mol/mi/gTI** | 1 X 10 -6 moles per minute per gram tissue |
| **1e-9 moles** | 1 X 10 -9 moles |
| **1e-2M** | 1 X 10-2 molar |
| **1e-3M** | 1 X 10-3 molar |
| **1e-4M** | 1 X 10-4 molar |
| **1e-5M** | 1 X 10-5 molar |
| **1e-6M** | 1 X 10-6 molar |
| **1e-7M** | 1 X 10-7 molar |

# Appendix O. Ionic Fraction Codes

| | |
|---|---|
| 2,4-Dichlorophenoxyacetic | 24D |
| Actinium | Ac |
| Aluminum | Al |
| Americium | Am |
| Ammonia (un-ionized) | $NH_3$ |
| Ammonium (total) | $NH_4$ |
| Ammonium nitrate | NO3N |
| Ammonium nitrite | NO2N |
| Antimonate | SbO4 |
| Antimony | Sb |
| Argon | Ar |
| Arsenite | AsO2 |
| Arsenate | AsO4 |
| Arsenic | As |
| Astatine | At |
| Azide | N3 |
| Barium | Ba |
| Berkelium | Bk |
| Beryllium | Be |
| Bismuth | Bi |
| Borate | BO3 |
| Borate | B2O3 |
| Borate | B4O7 |
| Boron | B |
| Bromate | BrO3 |
| Bromine | Br |
| Cadmium | Cd |
| Calcium | Ca |
| Californium | Cf |
| Carbon | C |
| Cerium | Ce |
| Cesium | Cs |
| Chlorine | Cl |
| Chlorine produced oxidant | CPOX |

| | |
|---|---|
| Chlorate | ClO3 |
| Chlorite | ClO2 |
| Chromium | Cr |
| Dichromate | Cr2O7 |
| Chromium (+3) | Cr3 |
| Chromium (+6) | CrVI |
| Chromium trioxide | CrO3 |
| Chromate | CrO4 |
| Cobalt | Co |
| Copper | Cu |
| Curium | Cm |
| Cyanide | CN |
| Diethyldithiocarbamate | DETC |
| Diquat | DQT |
| Dysprosium | Dy |
| Einsteinium | Es |
| Erbium | Er |
| Europium | Eu |
| Fermium | Fm |
| Fluorine | F |
| Francium | Fr |
| Gadolinium | Gd |
| Gallium | Ga |
| Germanium | Ge |
| Gold | Au |
| Hafnium | Hf |
| Hydrogen Cyanide | HCN |
| Hydrogen sulfide ion | HS- |
| Helium | He |
| Holmium | Ho |
| Hydrogen | H |
| Indium | In |
| Iodine | I |
| Iridium | Ir |

| | |
|---|---|
| Iron | Fe |
| Krypton | Kr |
| Lanthanum | La |
| Lawrencium | Lr |
| Lead | Pb |
| Lithium | Li |
| Lutetium | Lu |
| Magnesium | Mg |
| Manganate | MnO4 |
| Manganese | Mn |
| Mendelevium | Md |
| Mercury | Hg |
| Methylene Blue Active Substances | MeBAS |
| Methylmercury | MeHg |
| Molybdnate | MoO4 |
| Molybdenum | Mo |
| Neodymium | Nd |
| Neon | Ne |
| Neptunium | Np |
| Nickel | Ni |
| Niobium | Nb |
| Nitrate | NO3- |
| Nitrite | NO2 |
| Nitrogen | N |
| Nobelium | No |
| Not reported | NR |
| Osmium | Os |
| Oxygen | O |
| Palladium | Pd |
| Paraquat | PQT |
| Pentachlorophenol | PCP |
| Petroleum hydrocarbon | PHC |
| Perchlorate | ClO4 |
| Phosphorus | P |
| Platinum | Pt |
| Plutonium | Pu |

| | |
|---|---|
| Polonium | Po |
| Potassium | K |
| Praseodymium | Pr |
| Promethium | Pm |
| Protactinium | Pa |
| Radium | Ra |
| Radon | Rn |
| Rhenium | Re |
| Rhodium | Rh |
| Rubidium | Rb |
| Ruthenium | Ru |
| Samarium | Sm |
| Scandium | Sc |
| Selenate | SeO4 |
| Selenite | SeO3 |
| Selenium | Se |
| Silicate | SiO2 |
| Silicon | Si |
| Silver | Ag |
| Sodium | Na |
| Sodium Azide | NaN3 |
| Strontium | Sr |
| Sulfate | SO4 |
| Sulfur | S |
| Tantalum | Ta |
| Technetium | Tc |
| Tellurium | Te |
| Terbium | Tb |
| Thallium | Tl |
| Thiocyanate | SCN |
| Thiosulfate | S2O3 |
| Thorium | Th |
| Thulium | Tm |
| Tin | Sn |
| Titanium | Ti |
| Total Residual Bromine | TRBr |
| Total Residual Chlorine | TRCl |

| | |
|---|---|
| Total Residual Oxidant | TROX |
| Triethyl lead | Pb3E |
| Tributyltin | TBT |
| Tributyltin oxide | TBTO |
| Triphenyltin | TPT |
| Tungstate | WO4 |
| Uranium | U |
| Uranium oxide (Uraninite) | UO2 |

| | |
|---|---|
| Vanadium | V |
| Wolfram | W |
| Xenon | Xe |
| Ytterbium | Yb |
| Yttrium | Y |
| Zinc | Zn |
| Zirconium | Z |

# Appendix P. Chemical Analysis Methods

| Code | Definition | Description |
|---|---|---|
| **M** | **M**easured | Clearly states in the paper that the concentrations reported by the author were measured. |
| **U** | **U**nmeasured | Author clearly identifies that the concentrations are based on nominal values, or the author presents concentration information, but does not report information that chemical analysis was conducted. |
| **NR** | **N**ot **R**eported | Author describes methods for analyzing chemical concentrations, but it is not clear that the values presented are based on measured or nominal concentrations. |
| **X** | Unmeasured (some measured values reported in article) | Author clearly identifies that some of the concentrations are based on nominal values while other concentrations are based on measured values, with the original nominal values also reported. Record the measured values for the concentrations reported as measured and the unmeasured values for the concentrations reported as nominals in the dose data field. |

# Appendix Q. Sample Unit Codes for Section V.5. Results Information

| Code | Definition |
|---|---|
| **AB** | **Ab**ove ground portion (plants) |
| **AD** | **Ad**ult |
| **BH** | **B**ot**h** male and female organisms exposed or observed |
| **BR** | **Br**ood |
| **C1** | First Clutch, brood or litter |
| **C2** | Second Clutch, brood or litter |
| **C3** | Third Clutch, brood or litter |
| **CC** | **C**o**c**oons |
| **CL** | **C**e**l**ls |
| **CB** | **C**om**b**s |
| **CO** | **Co**lony |
| **CT** | **C**on**t**ainers |
| **DC** | **D**e**c**eased organism |
| **EG** | **Eg**g |
| **EM** | **Em**bryo |
| **EU** | **E**xperimental **u**nit |
| **F0** | **F0** generation |
| **F1** | **F1** generation |
| **F2** | **F2** generation |
| **F3** | **F3** generation |
| **F4** | F4 generation |
| **F5** | **F5 generation** |
| **FET** | Fetus |
| **FB** | Mature, **f**ull-**b**loom (fruit trees) |
| **FD** | **F**ron**d**(s) |

| Code | Definition |
|---|---|
| **FF** | **F**ields (as in agriculture) |
| **FG** | **F**emale **g**ametophyte |
| **FI** | **Fi**ngerling |
| **FL** | **Fl**ower(s) |
| **FM** | **Fe**m**ale organisms |
| **FR** | **Fr**uit |
| **FT** | **F**rogle**t** |
| **FX** | multiple generations |
| **FY** | **Fry** |
| **G1** | females, 1st generation |
| **G2** | females, 2nd generation |
| **G3** | females, 3rd generation |
| **G4** | females, 4th generation |
| **G5** | females, 5th generation |
| **G6** | females, 6th generation |
| **GR** | **Gr**ains |
| **GS** | **G**erminated **s**eed |
| **HC** | **H**oney **c**omb |
| **HT** | **H**a**t**chling |
| **IM** | **Im**mature |
| **JV** | **J**u**v**enile |
| **KR** | **K**e**r**nal |
| **LE** | **Le**af |
| **LE1** | 1st **le**af |
| **LE2** | 2nd **le**af |
| **LE3** | 3rd **le**af |
| **LE4** | 4th **le**af |
| **LE5** | 5th **le**af |

| Code | Definition |
|---|---|
| **LE6** | 6th **le**af |
| **LE7** | 7th **le**af |
| **LE8** | 8th **le**af |
| **LT** | **Lit**ters |
| **LV** | **L**ar**v**ae |
| **M1** | males, 1st generation |
| **M2** | males, 2nd generation |
| **M3** | males, 3rd generation |
| **M4** | males, 4th generation |
| **M5** | males, 5th generation |
| **M6** | males, 6th generation |
| **MD** | **M**ature **d**ormant |
| **MG** | **M**ale **g**ametophyte |
| **ML** | **Mal**e organisms |
| **MT** | **Mat**ure, no specified stage |
| **MU** | **Mu**ltiple |
| **MX** | males, multiple generations |
| **NF** | Non-pregnant females |
| **NR** | Applicable information about the organisms was **N**ot **R**eported |
| **NT** | **N**es**t** |
| **NU** | **N**a**u**plii |
| **NY** | **Ny**mph(s) |
| **OR** | **Or**ganism |
| **PA** | **Pa**rr |
| **PB** | Mature, **p**ost-**b**loom (fruit trees) |
| **PC** | **P**lant **c**utting (unspecified) |
| **PF** | Pregnant females |
| **PH** | Mature, **p**it-**h**ardening (fruit trees) |
| **PL** | **P**lo**t**s |

| Code | Definition |
|---|---|
| **PR** | **P**ai**r** |
| **PU** | **Pu**pa(e) |
| **PV** | **P**ost-lar**v**a |
| **RB** | Mature **r**eproductive, 2nd generation |
| **RC** | Mature **r**eproductive, 3rd generation |
| **RO** | **Ro**ot |
| **RP** | Mature **re**p**r**oductive |
| **RS** | **R**oot **s**egments |
| **SA** | **S**ub**a**dult |
| **SC** | 2nd generation (M2), no spec.stage |
| **SD** | **S**ee**d** |
| **SG** | Mature, **s**ide-**g**reen (fruit trees) |
| **SF** | **S**ac **F**ry, yolk-sac fry |
| **SHL** | Shell |
| **SL** | **S**eed**l**ing |
| **SM** | Samples |
| **SO** | **S**h**o**ot |
| **SOT** | **S**h**o**ot **t**ip |
| **SPR** | **Sp**o**r**e |
| **SV** | **S**ur**v**ivor |
| **TA** | **Ta**dpole |
| **TC** | **T**issue **c**ulture callus |
| **TU** | **Tu**bers |
| **VC** | **V**egetative **c**lone |
| **VG** | Mature **v**e**g**etative |

# Appendix R. Effect Group Codes and Definitions

| GROUP/EFFECT CODE(S) | DEFINITION |
|---|---|
| **ACC/ACC** | **Acc**umulation: Effects, measurements and endpoints which characterize the process by which chemicals are taken into and stored in plants or animals. Includes lethal body burden. |
| **BEH/AVO, BEH**, **FDB** | **Beh**avior: Overt activity of an organism represented by three *effect* groups - avoidance, general behavior, and feeding behavior. All measurements related to reproductive behavior are listed under the major effect group REP. |
| **BCM/BCM, ENZ, HRM,** | **B**io**c**he**m**ical: measurement of biotransformation or metabolism of chemical compounds, modes of toxic action, and biochemical responses in plants and animals including three *effect* groups - biochemical, enzyme and hormone effects. |
| **CEL/CEL, GEN, HIS** | **Cel**lular Effects: measurements and endpoints regarding changes in structure and chemical composition of cells and tissues of plants or animals as related to their functions; the three *effect* groups include cellular, genetic and histological effects. |
| **GRO/DVP, GRO, MPH** | **Gro**wth: a broad category which encompasses measures of weight and length and includes effects on development, growth and morphology. Development covers toxicant effects on tissue organization in growing progeny. Growth represents length and weight changes at any point in the life cycle. Morphology measurements and endpoints address the structure (bones) and form (organ/tissue development) of an organism at any stage of its life history. |
| **MOR/MOR** | **Mor**tality: measurements and endpoints where the cause of death is by direct action of the chemical. |
| **PHY/INJ, IMM, ITX, PHY** | **Phy**siology: measurements and endpoints regarding basic activity in cells and tissues of plants or animals. Four *effect* groups include injury, immunity, intoxication and general physiological response. |
| **POP/POP** | **Pop**ulation: measurements and endpoints relating to a group of organisms or plants of the same species occupying the same area at a given time. |
| **REP/ REP**, **AEG** | **Rep**roduction: measurements and endpoints to track the effect of toxicants on the reproductive cycle. All measurements related to reproduction and care of progeny are included in this category, including behavioral and physiological measurements. Measurements related to development of progeny are found under the major *effect* group GRO, minor *effect* group DVP. The *effect* group AEG includes measurements of avian or reptilian eggs. |
| **SYS/PRS** | Eco**sys**tem: measurements and endpoints to track the effects of toxicants on ecosystem processes. Includes microbial processes. |
| **NOC/NOC** | **No** Group **C**ode: measurements related to multiple or delayed effects or endpoints reported without a specific effect. |

# Appendix S. Group Effect, Effect and Measurement Codes and Definitions

Note: Codes in < > need maintenance and should not be used for coding at this time.

## ACC Accumulation Group

| ACC ACCUMULATION Effect TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| GACC | Accumulation, General | Used when more than one measurement is coded for an AQUIRE record. | |
| ASML | Assimilation of test chemical | The conversion of nutrient or chemical into the fluid or solid substance of the body, by the processes of digestion and absorption, whether in plants or animals. | http://cancerweb.ncl.ac.uk/omd/ |
| <BDBN> | Body Burden | No definition available. | Should be coded as RSDE. If this measurement is associated with an endpoint, should be changed to LBCN or EBCN. |
| ELIM | Elimination | General term for loss or disappearance of a substance from an organism by either passive or active transport mechanism, e.g. diffusion and metabolic transformation. | |
| LBCN | Lethal Body Concentration | Also Lethal Body Burden. The body residue of a chemical that is associated with mortality. | |
| RATO | Ratio | Ratio of accumulated substance between two response sites, but not the whole organism. | |
| <RCVY> | Recovery of Lead Shot | No definition available. | |
| RSDE | Residue | Amount of test chemical remaining in tissue after exposure. This includes body burden or body concentrations. This also includes autoradiography results. | |
| TSLC | Translocation | The conduction of the test substance from one part of an organism to another. | |
| UPTK | Uptake | The fraction of total available chemical in a medium (food, water) | |

| **ACC ACCUMULATION Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| | | that is transferred to the organism (measured as the incoming - outgoing concentrations) OR a process by which materials are transferred into and onto an organism. | |

## BEH Behavior Group

| **AVO Avoidance Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| Measurement Code | Measurement Name | Measurement Definition | Notes |
| GAVO | Avoidance, General | Unknown or multiple types of avoidance responses.. | |
| CHEM | Chemical Avoidance | Avoidance or attraction to a chemical gradient. | |
| FOOD | Food Avoidance | Avoidance or attraction to a chemical gradient in food. | |
| STIM | Stimulus Avoidance | Avoidance or attraction to a stimulus. | |
| WATR | Water Avoidance | Avoidance or attraction to a chemical gradient in water. | |

| **BEH Behavior Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| DTCH | Ability to Detach from Substrate | Change in ability of an organism to detach from or attach to a substrate. | |
| ACTP | Accuracy of Learned Task, Performance | No definition available. | |
| ATSK | Acquired task | Ability to learn a new task. | |
| ACTV | Activity, General | No definition available. | |
| ADOT | Adopt/adoption | Voluntary acceptance of the offspring of other parents to be as one's own offspring. | http://cancerweb.ncl.ac.uk/omd/ |
| AGCL | Aggregation/Clumping | Grouped with the other organisms; aggregating in a group. | |
| AGGT | Aggression | Hostile, injurious, or destructive behavior or outlook especially when caused by frustration. | http://www.m-w.com/ |
| ALRT | Alert | watchful and/OR prompt to meet danger | |
| ATCL | Antennal Cleaning | No definition available. | |

| **BEH Behavior Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| APCH | Approach | To make advances to especially in order to create a desired result, to come very near to. | http://www.m-w.com/ |
| ATTK | Attack, attacking | To threaten with immediate injury or capture. | |
| BATH | Bathing | To wash in a liquid. | |
| BWAX | Bees Wax Produced | No definition available. | |
| GBHV | Behavioral Changes, General | Quantifiable change in activity including trained behavior. | |
| BITE | Bite or biting | To seize with the teeth. | |
| BOBB | Bobbing | To move up and down in a short quick movement. | |
| BOWW | Bow, bowing | To bend the head, body, or knee. | |
| BBBH | Burrow or Burial Behavior | No definition available. | |
| CNBL | Cannibalism | Eating other individuals of one's own species. | http://cancerweb.ncl.ac.uk/omd/ |
| CASE | Case Leaving Behavior | Change in number of organisms emerging from a casing. | |
| COMA | Colony Maintenance (Bees) | No definition available. | |
| COMB | Comb Built | No definition available. | |
| CMST | Compactness of Swimming Track | No definition available. | |
| CRTP | Continual reinforcement task performed | Performance of a task under continual reinforcement. | |
| CRDN | Coordination | Harmonious functioning of muscles or groups of muscles in the execution of movements. | http://www.m-w.com/ |
| DHST | Diameter of Helix of Swimming Track | No definition available. | |
| DIGG | Dig/digging | To advance by removing or pushing aside material. | Webster's |
| DPLY | Displaying Behavior | No definition available. | |
| LOCO | Distance Moved, Change in Direct Movement | Quantifiable change in direct movement. | |
| DUMV | Diurnal movements | Movements made during the day. | |
| DRMT | Dormant, Adverse Condition Response | No definition available. | |
| ECMB | Empty Combs | No definition available. | |
| EQUL | Equilibrium | Change in ability to maintain balance. | |

| **BEH Behavior Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| EXTN | Extinction | Time it takes for a behavior to cease | |
| FLTR | Filtration Rate | Change in rate of filtration. | |
| FRTP | Fixed ratio task performed | A task performed under fixed ratio reinforcement. | |
| FLHM | Flehmen response | the collection of pheromone signals through the curling of the upper lip during exploration of the oral and anogenital areas of other animals during social encounters | (http://www.hhmi.org/news/katz2.html) |
| FLIT | Flight | Behaviors include flag, evade, retreat, flee, freeze, defensive upright posture, defensive sideways posture and oblique. | ECOREF 58432 |
| FTTR | Flutter | To move with quick wavering or flapping motions. | |
| FLYG | Flying Behavior | No definition available. | |
| FOOT | Foot Retraction | No definition available. | |
| FRZG | Freezing Behavior | The act of stopping motion brought on by a stimulus. | |
| GRAB | Grab, grabbing | To take or seize by or as if by a sudden motion or grasp. | |
| GPST | Grip strength | The duration of hanging on thin wire or special apparatus with the fore and hind limbs | (http://www.oecd.org/dataoecd/38/46/34030071.pdf) |
| GROM | Grooming | An animal's cleaning and caring for the body surface. This includes preening, the cleaning and oiling of feathers with the bill or of hair with the tongue. | http://cancerweb.ncl.ac.uk/omd/ |
| HDLF | Head lift | Lifting of the head by an organism. | ECOTOX |
| HONY | Honey Produced | No definition available. | |
| HMVT | Horizontal movements | Movements from side to side or on the horizontal plane. | |
| JUMP | Jumping | To spring into the air: leap; especially: to spring free from the ground or other base by the muscular action of feet and legs. | http://www.m-w.com/ |
| KILL | Kill | One organism killing another organism. | |
| MIGR | Migration | Quantifiable change in migration behavior. | |
| MOTL | Motility | The ability to move spontaneously. | http://cancerweb.ncl.ac.uk/omd/ |

| **BEH Behavior Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| NMVM | Movements, Number of | No definition available. | |
| NGRX | Negative geotaxis reflex | The time to turn 180 degrees when placed head downward on an inclined plane. | http://www.oecd.org/dataoecd/38/46/34030071.pdf |
| WINK | Nictitation | Winking or blinking. Synonym: nictation. | http://cancerweb.ncl.ac.uk/omd |
| NRES | No response | No response to the toxicant. | |
| NCMV | Nocturnal movements | Movements made during the night. | |
| NACT | Non-social activity | Behaviors include explore, scan, dig, push-dig, wash, self-groom, scratch, jump and eat. | ECOREF 58432 |
| STRS | Observed Stress | Observed physiological tension or irritation in animals or plants. | |
| ORNT | Orientation | To set or arrange in any determinate position especially in relation to the points of the compass. | |
| PALR | Palmar grasp | Ability to grasp with the palm of a hand. | |
| PHTR | Phototactic Response | Attraction to or avoidance of light. | |
| PLAR | Placing reflex | Flexion followed by extension of the leg. | Dorlands Medical Dictionary |
| POLC | Pollen collected | Collection of a mass of microspores in a seed plant appearing usually as a fine dust. | Webster's |
| POST | Posture | The position of the limbs or the carriage of the body as a whole. | http://cancerweb.ncl.ac.uk/omd/ |
| PRVU | Predator Vulnerability | Quantifiable change in ability to avoid or escape capture. | |
| PNPY | Prey penetration | The penetration of a pest into a plant root system. | |
| <GPRD> | Production, General | No definition available. | |
| RSPT | Response Time to a Stimulus | No definition available. | |
| REST | Rest | A state of motionlessness or inactivity or a bodily state characterized by minimal functional and metabolic activities. | http://www.m-w.com/ |
| RSNR | Resting and not ruminating | Lying down and not chewing cud. | |
| RSRU | Resting and ruminating | Lying down and chewing cud. | |
| RVSE | Reversals | To turn completely about in position or direction. | http://www.m-w.com/ |
| RRSP | Righting Response | No definition available. | |

| **BEH Behavior Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| RUBB | Rub | To move along the surface of a body with pressure. | |
| RUNN | Run | To go faster than a walk; specifically: to go steadily by springing steps so that both feet leave the ground for an instant in each step | www.merriam-webster.com/dictionary/run |
| SCRT | Scratch | to scrape, dig, rub, tear or mark a surface of with something sharp or jagged such as claws or nails | (Websters) |
| SEBH | Search/explore/forage behavior | An active movement by which an organism seek resources. To wander or rove in search of food | http://www.colostate.edu/Depts/Entomology/courses/en507/student_papers_1995/bradbury.html and http://cancerweb.ncl.ac.uk/omd/ |
| SLEP | Sleep/Sleeping | The natural periodic suspension of consciousness during which the powers of the body are restored. | Webster's |
| INST | Sleeping Time, Induced | No definition available. | |
| SMEL | Smell/Sniff | To perceive the odor or scent of through stimuli affecting the olfactory nerves. | Webster's |
| SACT | Social Activity | Behaviors include attend, nose, groom, sniff, investigate, follow, push-under, push-past, crawl-over and crouch. | ECOREF 58432 |
| SRED | Spread, Spreading | To stretch out. | |
| SDNR | Standing and not ruminating | Standing and not chewing cud. | |
| SDRU | Standing and ruminating | Standing and chewing cud. | |
| STLT | Startle | To frighten or surprise suddenly. | Webster's |
| STPY | Stereotypy | Frequent almost mechanical repetition of the same posture, movement, or form of speech (as in schizophrenia). | http://www.m-w.com/ |
| SRCH | Stretch | To enlarge or distend especially by force. | Webster's |
| SURF | Surfacing | No definition available. | |
| SWIM | Swimming | No definition available. | |
| THML | Temperature Tolerance | Change in tolerance to temperature change. | |

| **BEH Behavior Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TUBE | Tube Building | The process of constructing open-ended, cylindrical tubes using mucus or silk to bind together detritus | ECOTOX |
| VACL | Valve Closure | Change in the ability to open or close a shell valve upon mechanical stimulation and/or gaping response. | |
| VRTP | Variable Interval Reinforcement Task Performed | Variable interval (VI) schedules deliver reinforcement for the first response after a random average length of time passes since the last reinforcement. | http://en.wikipedia.org/wiki |
| VMVT | Vertical or rearing movements | To rise up on the hind legs. | http://www.m-w.com/ |
| VIBR | Vibrissae placing | A sensorimotor reflex. The vibrissae (hair), but not the skin, is manipulated and invokes a reflex response. | |
| VCLF | Visual Cliff | No definition available. | |
| VISP | Visual placing | The reaction of an organism in response to a visual stimuli. For example: The fast movement of a finger towards a mouse normally elicits an immediate reaction from the mouse. In addition, the mouse is held a few centimeters above a grid (a wire mouse cage top) and should extend its front limbs in an attempt to grasp the grid. This response is known as visual placing. | http:/cmhd.mshri.on.ca/pdf |
| NVOC | Vocalizations, Number of | No definition available. | |
| WALK | Walk | to move along on foot, advance by steps | www.merriam-webster.com/dictionary/walk |
| WTCH | Watch, watching | To keep something under close observation. | |
| YAWN | Yawn | To open the mouth wide usually as an involuntary reaction to fatigue or boredom. | Webster's |

| **FDB Feeding Behavior Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| BGNG | Begging Behavior | No definition available. | |
| FECL | Fecal Production | No definition available. | |
| FDNG | Feeding Behavior (Activity) | No definition available. | |

| | | | |
|---|---|---|---|
| GFDB | Feeding Behavior, General | No definition available. | |
| FEFF | Feeding Efficiency | No definition available. | |
| FTIM | Feeding Time | No definition available. | |
| FCNS | Food Consumption (Amount or Rate) | No definition available. | |
| FSTR | Food Storage | No definition available. | |
| LTBD | Litter Breakdown | No definition available. | |
| PRBE | Predatory Behavior | Change in ability to seek and capture prey. | |
| STRK | Strikes | Number of times food source was hit. | |
| WCON | Water Consumption | No definition available. | |

## BCM Biochemical Group

**BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name

| Measurement Code | Measurement Name | Measurement Definition | Notes |
|---|---|---|---|
| DPHZ | 1, 1-Diphenyl-2-picryl hydrazyl | No definition available. | |
| DHCA | 1,25-Dihydrocholecalciferol (also Calcitriol) | The form of vitamin D3 that is biologically active in intestinal transport and calcium resorption by bone. | http://cancerweb.ncl.ac.uk/omd/ |
| HD12 | 12-hydroxydodecanoic acid | 12-hydroxydodecanoic acid, also: 12 hydroxy lauric acid, omega-hydroxylauric acid | http://www.ncbi.nlm.nih.gov |
| RRRA | 13-cis-Retinoic acid to 9,13-di-cis-Retinoic acid ratio | The ratio of 13-cis-Retinoic acid to 9,13-di-cis-Retinoic acid | ECOTOX |
| 1ACC | 1-Aminocyclopropane-1-carboxylic acid | 1-Aminocyclopropane-1-carboxylic acid (ACC) is a disubstituted cyclic alpha-amino acid in which a three-membered cyclopropane ring is fused to the C(alpha)-atom of the amino acid. | http://en.wikipedia.org/wiki |
| 1HPY | 1-Hydroxypyrene | Main metabolite compound of polycyclic aromatic hydrocarbons with four to six rings. | ECOREF#50442 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| 2AAF | 2-Acetylaminofluorene | 2-Acetylaminofluorene is a hepatic carcinogen whose mechanism of activation involves N-hydroxylation to the aryl hydroxamic acid followed by enzymatic sulfonation to sulfoxyfluorenylacetamide. It is used to study the carcinogenicity and mutagenicity of aromatic amines. Also: Fluoren-2-ylacetamide, N-2-Fluorenylacetamide, 2AAF (http://www.ncbi.nlm.nih.gov) | http://www.ncbi.nlm.nih.gov |
| DPPA | 2,3-diphosphoglyceric acid | A by- product of glycolysis can bind with hemoglobin. | http://www.hhp.ufl.edu/classes/ess/Spring/Pet3351jd/pdf3351/3351Chapter10.PDF |
| 25HC | 25-Hydroxycholecalciferol | A 3,25-diol; the first step in the biological conversion of vitamin D3 to the more active form, calcitriol; it is more potent than vitamin D3. Synonym: calcidiol, calcifediol. | http://cancerweb.ncl.ac.uk/omd/ |
| DOPC | 3,4-Dihydroxyphenylacetic acid | A metabolite of dopamine. | |
| DCDA | 3,4-Dihydroxyphenylacetic acid to Dopamine ratio | The ratio of 3,4-Dihydroxyphenylacetic acid to Dopamine. | ECOTOX |
| MHPS | 3-methoxy-4-hydroxyphenylethyleneglycol sulfate | A catecholamine metabolite. | pharmrev.aspetjournals.org/cgi/content/full/56/3/331 |
| 3MTA | 3-Methoxytyramine | A metabolite of dopamine | |
| 3MDO | 3-Methoxytyramine to Dopamine ratio | The ratio of 3-Methoxytyramine to Dopamine. | ECOTOX |
| 3NTT | 3-nitrotyrosine to tyrosine ratio | Ratio of 3-nitrotyrosine to tyrosine in a sample. | ECOTOX |
| 3PPG | 3-phosphoglycerate | One of the molecules involved in the Calvin cycle which is the fixation of carbon dioxide during photosynthesis. | |
| HMPG | 4-Hydroxy-3-methoxyphenylglycol | A metabolite of norepinephrine (abbreviated by MHPG). | |
| 4ORA | 4-Oxo-retinoic acid | An oxidative metabolite of retinoic acid. A highly active endogenous active retinoid. | http://www.niwi.knaw.nl/elecpubl/imwo/niob/niobb.htm |
| HIHT | 5-HIAA5-HT Ratio | The ratio of 5-Hydroxyindole Acetic Acid to 5-Hydroxytryptamine ratio. | |
| 5HAA | 5-Hydroxyindole Acetic Acid | A product of serotonin metabolism excreted by patients with carcinoid tumors. (5-HIAA) | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| 5HSR | 5-Hydroxyindole Acetic Acid to Serotonin ratio | The ratio of 5-Hydroxyindole Acetic Acid to Serotonin | ECOTOX |
| 6BHC | 6-beta-Hydroxycortisol | 6-beta-Hydroxycortisol is a cortisol metabolite. Synonyms: 6-beta-Hydrocortisol; 6-beta,17-dihydroxycorticosterone; 6,11-beta,17,21-tetrahydroxypregn-4-ene-3,20-dione | ECOTOX and http://pubchem.ncbi.nlm.nih.gov |
| 7BRF | 7-Benzyloxyoxyresorufin | No definition available. | |
| 7ERF | 7-Ethoxyresorufin | No definition available. | |
| 7MRF | 7-Methoxyresorufin | No definition available. | |
| 7PRF | 7-Pentoxyresorufin | No definition available. | |
| 8ODG | 8-hydroxydeoxyguanosine | A biomarker of oxidative stress on DNA | ECOREF#76203 |
| 8O2D | 8-Oxo-2'-deoxyguanosine | 8-Oxo-2'-deoxyguanosine (8-oxo-dG) is an oxidized derivative of deoxyguanosine. 8-oxo-dG is one of the major products of DNA oxidation. Concentrations of 8-oxo-dG within a cell are a measurement of oxidative stress. | http://en.wikipedia.org/wiki |
| CODR | 9-cis-4-oxo-13,14-dihydro-retinoic acid | A recently discovered retinoic acid metabolite. | ECOTOX 80509 |
| 1CLA | 9 trans, 11 cis-conjugated linoleic acid | 9(E),11(Z)-Octadecadienoic acid, or 9 trans, 11 cis-conjugated linoleic acid, is a conjugated linoleic acid. | ECOTOX |
| 2CLA | 10 trans, 12 cis-conjugated linoleic acid | 10(E),12(Z)-Octadecadienoic acid, or 10 trans, 12 cis-conjugated linoleic acid, is a conjugated linoleic acid. | ECOTOX |
| 3CLA | 11 cis, 13 trans-conjugated linoleic acid | 11(Z),13(E)-Octadecadienoic acid, or 11 cis, 13 trans-conjugated linoleic acid, is a conjugated linoleic acid. | ECOTOX |
| AAIB | A-Aminoisobutyrate | A group of compounds that are derivatives of the amino acid 2-amino-2-methylpropanoic acid. | http://cancerweb.ncl.ac.uk/omd/ |
| ACAH | Acetaldehyde | A colourless, flammable liquid used in the manufacture of acetic acid, perfumes, and flavors. It is also an intermediate in the metabolism of alcohol. It has a general narcotic action and also causes irritation of mucous membranes. Large doses may cause death from respiratory paralysis. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ACTE | Acetone | The simplest ketone, it mixes with water, ethyl alcohol, and most oils. It is naturally found in very tiny quantities in the body fluids and tissues of healthy people and in somewhat larger amounts in people suffering from diabetes or starvation. It is present as a lipid metabolite in tissues. | http://cancerweb.ncl.ac.uk/omd/ and ECOREF#73878 |
| ACHL | Acetylcholine | A reversible acetic acid ester of choline, and a cholinergic agonist serving as a neurotransmitter (ACh). | |
| ACRR | Acetylene Reduction Rate/plant Roots Nodulated | No definition available. | |
| ACID | Acid Produced | No definition available. | |
| ADRT | Acid resistant thiol | Thiols which dissociate only at alkaline pHs | ECOREF#89702 |
| CDST | acid soluble thiol | No definition available. | |
| AIHP | Acid-insoluble hydroxyproline | Specific proline residues on the amino side of a glycine residue in collagen become hydroxylated at C4, before the polypeptides become helical, by the activity of prolyl hydroxylase. This enzyme has a ferrous ion at the active site and a reducing age. | |
| ACHP | Acid-soluble hydroxyproline | Specific proline residues on the amino side of a glycine residue in collagen become hydroxylated at C4, before the polypeptides become helical, by the activity of prolyl hydroxylase. This enzyme has a ferrous ion at the active site and a reducing age. | |
| ACTN | Actin | A muscle protein that is the chief constituent of the Z-band myofilaments of each sarcomere. | |
| CAMP | Adenosine 3',5'-cyclic Monophosphate | A key regulator which acts to control the rate of a number of cellular processes in bacteria, most animals, and some higher plants. | |
| ADPT | Adenosine diphosphate (ADP) | A neucleotide, the 5'-pyrophosphate of adenosine, involved in energy metabolism. It is produced by hydrolysis of ATP and converted back to ATP by the process of oxidative phosphorolation and substrate phosphorolation. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ADOX | Adenosine diphosphate to oxygen ratio | The ratio of adenosine diphosphate to oxygen. | |
| AMPT | Adenosine monophosphate (AMP) | A neucleotide, the 5'-phosphate of adenosine, involved in energy metabolism. It is produced by hydrolysis of ATP and converted back to ADP by adenylate kinase. Also called adenylic acid. | |
| AMDT | Adenosine phosphates (AMP+ADP+ATP) | Total of Adenosine monophosphate, adenosine diphosphate and adenosine triphosphate in a sample. (AMP+ADP+ATP) | ECOTOX |
| ATPT | Adenosine Triphosphate | (ATP) A coenzyme composed of adenosinediphosphate with an additional phosphate group; an important energy compound in metabolism. | |
| ATAD | Adenosine Triphosphate (ATP) to Adenosine diphosphate (ADP) | The ratio of Adenosine Triphosphate (ATP) to Adenosine diphosphate (ADP) | ECOTOX |
| ATAM | Adenosine Triphosphate (ATP) to Adenosine monophosphate (AMP) | The ratio of Adenosine Triphosphate (ATP) to Adenosine monophosphate (AMP) | ECOTOX |
| ATPP | Adenosine triphosphate to Phosphocreatine ratio | Ratio of Adenosine triphosphate to Phosphocreatine in a sample. | ECOTOX |
| ADCD | Adenylic acid | A condensation product of adenosine and phosphoric acid; a nucleotide found among the hydrolysis products of all nucleic acids. 3'- Adenylic acid (adenosine 3'-monophosphate) and 5'-adenylic acid (adenosine 5 prime monophosphate) differ in the place of attachment of the phosphoric acid to the d-ribose; deoxyadenylic acid differs in having H instead of OH at the 2 prime position of d-ribose. Also known as adenine nucleotides | http://cancerweb.ncl.ac.uk/omd/ |
| ADNA | Adrenic Acid | Adrenic Acid (C22:4n-6), also all cis-7,10,13,16-docosatetraenoic acid, is a poly unsaturated fatty acid. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| AFB1 | Aflatoxin B1 | A potent hepatotoxic and hepatocarcinogenic mycotoxin produced by the aspergillus flavus group of fungi. It is also mutagenic, teratogenic, and causes immunosuppression in animals. It is found as a contaminant in peanuts, cotton seed meal, corn, and other grains. The mycotoxin requires epoxidation to aflatoxin b1 2,3-oxide for activation. Microsomal monooxygenases biotransform the toxin to the less toxic metabolites aflatoxin m1 and q1. | http://cancerweb.ncl.ac.uk/omd/ |
| AB12 | Aflatoxin B1 and B2 | Aflatoxin B1 and Aflatoxin B2 which are potent hepatotoxic and hepatocarcinogenic mycotoxins produced by the aspergillus flavus group of fungi. It is also mutagenic, teratogenic, and causes immunosuppression in animals. | http://cancerweb.ncl.ac.uk/omd/ |
| AFB2 | Aflatoxin B2 | A potent hepatotoxic and hepatocarcinogenic mycotoxin produced by the aspergillus flavus group of fungi. It is also mutagenic, teratogenic, and causes immunosuppression in animals. | http://cancerweb.ncl.ac.uk/omd/ |
| AFG1 | Aflatoxin G1 | Aflatoxin G1 is a mycotoxin produced by strains of the fungi Aspergillus flavus and A. parasiticus. | http://www.cfsan.fda.gov |
| ALAN | Alanine | A neutral amino acid occurring in two forms alpha and beta. | |
| AAGO | Alanine aminotransferase to glutamate oxaloacetate ratio | Ratio of Alanine aminotransferase to glutamate oxaloacetate AAT/GOT | ECOTOX |
| ALBE | Albumen Energy | Albumin - any protein that is soluble in water and moderately concentrated salt soln, and is coagulable by heat. | |
| ALBM | Albumin | Any of numerous simple heat-coagulable water-soluble proteins that occur in blood plasma or serum, muscle, the whites of eggs, milk, and other animal substances and in many plant tissues and fluids. | Webster's |
| ALGL | Albumin:Globulin ratio | The ratio of Albumin to Globulin in a sample. | |
| APHT | Alkaline phosphate | No definition available. | |
| AKLD | Alkoxylipids | | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ALLT | Allantoic Acid | A crystallizable acid obtained by hydrolysis of allantoin; intermediate product in nucleic acid metabolism. | |
| ALLA | Allantoin | A crystallizable oxidation product of uric acid found in allantoic and amniotic fluids and in fetal urine. | |
| APCY | Allophycocyanin | Allophycocyanin (APC) is a large protein (approximate molecular weight 80 kd) containing many fluors. | http://www.drmr.com/abcon/APC.html |
| ATRA | all-trans-retinoic acid | A form of vitamin A and a drug used for the treatment of acute promyelocytic leukemia. | http:en.wikipedia.org wikiAll-trans_retinoic_acid |
| A2UG | Alpha 2u-globulin | Alpha 2u-globulin is an androgen-dependent urinary protein; synthesized by hepatic tissue; released into plasma and filtered through kidneys into urine. Major urinary proteins (MUPs), also known as alpha2u-globulins, are a subfamily of proteins found in high abundance in the urine and other secretions of many mammals. | http://www.ncbi.nlm.nih.gov and www.wikipedia.org/wiki |
| AABA | Alpha-aminobutyric Acid | Inhibitory amino acid - alpha form of GABA. | |
| ACAR | alpha-Carotene | One of several orange or red crystalline hydrocarbon pigments C40H56 that occur in the chromoplasts of plants and in the fatty tissues of plant-eating animals and are convertible to vitamin A. | |
| AGLB | alpha-Globulins | A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation. | http://cancerweb.ncl.ac.uk/omd/ |
| AGPT | alpha-glycerophosphate | A salt or ester of either of the glycerophosphoric acids. | |
| KTBA | alpha-ketobutyric acid | A product of the lysis of cystathionine. It is also one of the degradation products of threonine. It can be converted to propionyl-CoA (and subsequently methylmalonyl CoA, which can be converted to succinyl CoA, a CAC intermediate), and thus enter the citric acid cycle. | http://en.wikipedia.org |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| KGTA | alpha-ketoglutarate | alpha-ketoglutarate (also called oxo-glutarate) is an important biological compound. It is the keto acid produced by de-amination of glutamate, and is an intermediate in the Krebs cycle. synonyms: alpha-oxoglutaric acid, 2-oxoglutarate. | http://en.wikipedia.org |
| PINE | Alpha-pinene | Isomeric unsaturated bicyclic terpene hydrocarbon liquids derived from sulfate wood turpentine; used as solvents for coatings and wax formulations, as chemical intermediates for resins, and as lube-oil additives. | |
| APRO | alpha-Proteins | Protein: Any of a group of complex organic compounds which contain carbon, hydrogen, oxygen, nitrogen and usually sulfur, the characteristic element being nitrogen and which are widely distributed in plants and animals. | |
| ASYC | Alpha-synuclein | a protein found in the brain. It is predominantly a presynaptic neuronal protein | http://en.wikipedia.org /wiki/Alpha_synuclein |
| ATCO | alpha-Tocopherol concentration | One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant. | |
| ATUB | alpha-Tubulin | The alpha form of a Tubulin which is one of several members of a small family of globular proteins. | en.wikipedia.org |
| ALTL | Alternariol | A principle Alternaria mycotoxin | http://www.micotoxinas.com.br/altertoxins.htm |
| ALTN | Alternariol monomethyl ether | A principle Alternaria mycotoxin | http://www.micotoxinas.com.br/altertoxins.htm |
| ALCO | Aluminum Content | The concentration of aluminum found in a sample. | |
| AMAN | Amino Acid Nitrogen | The nitrogen associated with the amino acids in the body. | |
| AMAC | Amino Acid(s), General Term | Any organic comp containing an amino and a carboxyl group. | |
| ESAA | Amino Acids, Essential | Amino acids required for protein synthesis that cannot be synthesized by the organism and therefore must be maintained in the diet. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NEAA | Amino Acids, Nonessential | The amino acids required for protein synthesis that are synthesized by the organism and are not specifically required in the diet. | |
| TTAA | Amino Acids, Total | Measure of total amino acids - any organic comp containing an amino and a carboxyl group. | |
| TFAA | Amino Acids, Total Free | No definition available. | |
| AMNN | Amino Nitrogen | Nitrogen combined with hydrogen in the amino group. Also known as ammonia nitrogen. | |
| AMMO | Ammonia | A colorless alkaline gas. | |
| NH4I | Ammonium ion | The ammonium cation is a positively charged polyatomic cation of the chemical formula NH4+. It has a molecular mass of 18.04 and is formed by protonation of ammonia (NH3). The resulting ion has a pKa of 9.25. Ammonium and aminium are also general names for positively charged or protonated substituted amines and quaternary ammonium cations N+R4, where one or more hydrogen atoms are replaced by organic radical groups (which could be symbolized as R). | http://en.wikipedia.org/wiki/Ammonium_ion |
| NHPN | Ammonium ion Nitrogen ratio | The ratio of Ammonium ion (NH4+) to nitrogen in a sample. | ECOTOX |
| AMYD | Amyloid | A glycoprotein deposited extracellularly in tissues in amyloidosis. | http://cancerweb.ncl.ac.uk/ |
| AMPP | Amyloid precursor protein | An integral membrane protein expressed in many tissues and concentrated in the synapses of neurons. | http://en.wikipedia.org/wiki/Amyloid_precursor_protein |
| AMYS | Amylose | Amylose is an unbranched glucan in starch. | http://www.ncbi.nlm.nih.gov |
| AION | Anions | Negatively charged atoms or radicals. | http://cancerweb.ncl.ac.uk/omd/ |
| AHDA | Anteisoheptadecanoic acid | 14-methylhexadecanoic acid, or anteisoheptadecanoic acid (C17:0 ai), is a saturated fatty acid. | ECOTOX |
| APDA | Anteisopentadecanoic acid | 12-methyltetradecanoic acid, anteisopentadecanoic acid (C15:0 ai) is a saturated fatty acid. Also: sarcinic acid | http://en.wikipedia.org/wiki/ and http://pubchem.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ANTC | Anthocyanin | A blue, purple or red, accessory pigment found in plants. Anthocyanins are water-soluble glucosides that are not directly involved in photosynthesis and can mask the green of chlorophyll giving the plant a red purple color. | http://cancerweb.ncl.ac.uk/omd/ |
| ANTH | Anthocyanins | Any of the intensely colored, sap-soluble glycoside plant pigments responsible for most scarlet, purple, mauve, and blue coloring in higher plants. | |
| SBCO | Antimony concentration | The concentration of Antimony found in a sample. | ECOTOX |
| ANTO | Antioxidant activity | Synthetic or natural substances added to products to prevent or delay their deterioriation by action of oxygen in air. In biochemistry and medicine, antioxidants are enzymes or other organic substances, such as vitamin e or beta-carotene that are capable of counteracting the damaging effects of oxidation in animal tissue. | http://cancerweb.ncl.ac.uk/omd/ |
| ANPY | Antipyrine | An artificial alkaloid, believed to be efficient in abating fever. | http://cancerweb.ncl.ac.uk/omd/ |
| ARCA | Arachidic acid | Arachidic acid, or Eicosanoic acid (C20:0), is a saturated fatty acid. | ECOTOX |
| ARCH | arachidonate | An essential unsaturated fatty acid that humans use to synthesize regulatory molecules such as prostaglandins and thromboxanes. It is found in fatty animal tissue such as egg yolk and liver. | |
| ARGI | Arginine | An amino acid, produced by hydrolysis of proteins. | |
| ASCO | Arsenic content | The concentration of arsenic found in a sample. | |
| ASCN | Arsenic to creatinine ratio | The ratio of arsenic to creatinine. | |
| <AOCN> | Arterial Oxygen Content | No definition available. | Use OCON as measurement and response site ART |
| ASBT | Ascorbate | A salt or ester of ascorbic acid. | http://cancerweb.ncl.ac.uk/omd/ |
| AOAR | Ascorbate to oxidized Ascorbate ratio | Ratio of Ascorbate to oxidized Ascorbate in sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ASCA | Ascorbic Acid | Vitamin C. A white, crystalline, water-soluble vitamin found in many plant materials, especially citrus fruit. | |
| ASHC | Ash Content | The mass of incombustible material remaining after burning a given coal sample as a percentage of the original mass of coal. | |
| ASPR | Asparagine | A nonessential amino acid that is the beta-amide if aspartic acid. It is found in most plants, and has diuretic properties. It is used as a culture medium for certain bacteria. | Dorlands Medical Dictionary |
| ASPA | Aspartate | A salt of aspartic acid - a nonessential amino acid occurring in proteins. | |
| ASPC | Aspartic Acid | One of the non-essential amino acids commonly occurring in the L-form. It is found in animals and plants. | http://www.ncbi.nlm.nih.gov |
| ASRA | AST(reduced):total AST including oxidized glutathione | the ratio of reduced acid-soluble thiols to total acid soluble thiols including oxidized glutathione | ECOTOX |
| AVER | Averufin | An anthraquinone that is involved with aflatoxin biosynthesis | ECOTOX 75785 |
| AVDN | Avidin | Avidin is a tetrameric protein produced in the oviducts of birds, reptiles and amphibians deposited in the whites of their eggs. Advodom interacts with biotin to render it unavailable to mammals, thereby producing biotin deficiency. | http://www.ncbi.nlm.nih.gov/mesh and http://en.wikipedia.org/wiki |
| BACO | Barium content | The concentration of barium found in a sample. | |
| BHNC | Behenic Acid | A constituent of most fats and fish oils; large amounts are found in jamba, mustard seed, rapeseed oils, and cerebrosides. | http://cancerweb.ncl.ac.uk/omd/ |
| BECO | Beryllium concentration | The concentration of Beryllium found in a sample. | ECOTOX |
| BGPR | beta- and gamma-Protein | Protein: Any of a group of complex organic compounds which contain carbon, hydrogen, oxygen, nitrogen and usually sulfur, the characteristic element being nitrogen and which are widely distributed in plants and animals. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| BATP | beta-ATP (beta-Adenosine triphosphate) | Beta-ATP (beta-Adenosine triphosphate) consists of adenosine, composed of an adenine ring and a ribose sugar, and three phosphate groups (triphosphate). The phosphoryl group is in the beta position relative to the ribose group. | http://en.wikipedia.org/wiki and ECOTOX |
| BGBN | beta globin | The polypeptide moiety of haemoglobin that is designated beta and that when deficient or defective causes various anemias (as beta-thalassemia or sickle-cell anemia). | http://cancerweb.ncl.ac.uk/omd/ and medical.merriam-webster.com |
| B2MG | beta2-Microglobulin | A small, nonpolymorphic protein, homologous to the C3 domain of IgG, that is one subunit of class I major histocompatibility antigens. | |
| BCAR | beta-Carotene | One of several orange or red crystalline hydrocarbon pigments C40H56 that occur in the chromoplasts of plants and in the fatty tissues of plant-eating animals and are convertible to vitamin A. | |
| CBCH | beta-Carotene to Chlorophyll A Ratio | Ratio of beta-Carotene to Chlorophyll A | |
| BGLB | beta-Globulins | A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation. | http://cancerweb.ncl.ac.uk/omd/ |
| BTBL | beta-Tubulin | Tubulin is microtubule subunit protein found in large quantities in mammalian brain. It has also been isolated from sperm flagellum; cilia; and other sources. One of the most common members of the tubulin family is beta-tubulin. | http://en.wikipedia.org/wiki and http://www.ncbi.nlm.nih.gov |
| HCO3 | Bicarbonate (HCO3-) concentration | A carbonate in which but half the hydrogen of the acid is replaced by a positive element or radical, thus making the proportion of the acid to the positive or basic portion twice what it is in the normal carbonates; an acid carbonate; sometimes called supercarbonate. They are an important factor in determining the pH of the blood and the concentration of bicarbonate ions is regulated by the kidney. Levels in the blood are an index of the alkali reserve or buffering capacity. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| BLAC | Bile Acids | Steroid acids found in bile; e.g., taurocholic and glycocholic acid's, used when biliary secretion is inadequate and for biliary colic. Their physiological roles include fat emulsification. Their synthesis is reduced in disorders of the peroxisomes. | http://cancerweb.ncl.ac.uk/omd |
| BLLB | Bilirubin | A reddish yellow pigment C33H36N4O6 that occurs especially in bile and blood and causes jaundice if accumulated in excess. | http://www.m-w.com/ |
| TLBL | Bilirubin, Total | Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated. | |
| GBCM | Biochemical, General | Biochemistry - the chemistry of living organisms and the vital processes; physiological chemistry. | |
| BIOT | Biotin Content | Biotin - structure identical to vitamin H and coenzyme R; ubiquitous member of the Vitamin B complex required by or occurring in all forms of life. | |
| BICO | Bismuth concentration | The concentration of Bismuth found in a sample. | ECOTOX |
| BAGA | Bisphenol A glucuronic acid | A major degradation product of bisphenol A subjected to renal excretion. | ECOREF 60614 |
| <BUNT> | Blood Urea Nitrogen | Nitrogen attached to urea which is a waste product of protein metabolism. Measured to assess kidney function. | |
| BCON | Boron Content | The concentration of boron found in a sample. | |
| BPHY | b-phycoerythrin | A protein. | |
| BRKN | Bradykinin | Vasoactive nonapeptide (RPPGFSPFR) formed by action of proteases on kininogens. Bradykinin is a very potent vasodilator and increases permeability of post capillary venules, it acts on endothelial cells to activate phospholipase A2. It is also spasmogenic for some smooth muscle and will cause pain. | http://cancerweb.ncl.ac.uk/omd/ |
| BRCO | Bromine Concentration | The level of bromine in a sample | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| BFCO | Bromoform concentration | A colorless liquid, slightly soluble in water; used in the separation of minerals. | |
| C4CD | C4 acids | Initial product of photosynthesis. | |
| CDAI | Cadmium Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| CDBP | Cadmium binding proteins | Cadmium binding proteins, metallothionein and non-metallothionein proteins. | ECOTOX |
| CDCO | Cadmium Content | The concentration of cadmium found in a sample. | |
| CDPR | Cadmium to Phosphorus ratio | The ratio of cadmium to phosphorus. | |
| CDZN | Cadmium to Zinc Ratio | The ratio of cadmium to zinc. | |
| CFCA | Caffeic Acids | Caffeic Acidsaare a class of phenolic acids related to chlorogenic acid, p-coumaric acid, vanillic acid, etc., which are found in plant tissues. It is involved in plant growth regulation. | http://www.ncbi.nlm.nih.gov |
| CABN | Calbindin | A protein that plays a fundamental role in the Vitamin D mediated transport of calcium in reptiles, amphibians, birds and mammals. It is found in the intestine, kidneys, egg shell gland, brain, and possibly other organs. Its molecular weight is species dependent. Also known as Cholecalcin, Vitamin D-Dependent Calcium-Binding Protein, Intestinal Membrane Calcium-Binding Protein | http://www.ncbi.nlm.nih.gov |
| CLCN | Calcein | Calcein is a fluorescent compound created by non-specific intracellular esterases. The acetomethoxy derivative can be transported into live cells and the reagent is useful as a viability test and for short term marking of cells. A calcium chelating agent that fluoresces brightly in the presence of bound calcium. | http://cancerweb.ncl.ac.uk and http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CGRP | Calcitonin Gene-Related Peptide | Calcitonin gene-related peptide. A 37-amino acid peptide derived from the calcitonin gene. It occurs as a result of alternative processing of mRNA from the calcitonin gene. The neuropeptide is widely distributed in neural tissue of the brain, gut, perivascular nerves, and other tissue. The peptide produces multiple biological effects and has both circulatory and neurotransmitter modes of action. In particular, it is a potent endogenous vasodilator. | http://www.ncbi.nlm.nih.gov |
| CACO | Calcium Content | Found in nearly all organized tissues | |
| CAAL | Calcium to aluminum Ratio | The ratio of the amount of calcium to aluminum in an organism or organism's parts. | |
| CANR | Calcium Nitrogen ratio | The ratio of calcium to nitrogen in a sample. | ECOTOX |
| CANA | Calcium to sodium ratio | Ratio of calcium to sodium in an organism or organism's tissues. | |
| CAZN | Calcium to Zinc Ratio | Ratio of calcium to zinc in an organism or organism's tissues. | |
| CAPH | Calcium/Phosphorus Ratio | Calcium and phosphorus form Calcium phosphate, the dense hard material found in teeth and bones | |
| CLMD | Calmodulin | A calcium binding protein with four EF hand binding sites for calcium. | |
| CMPH | Camphor Concentration | The concentration of camphor found in a sample. | |
| CAPA | Capric acid | Capric acid, decanoic acid, is a C10:0 fatty acid found in animal oils and fats; has an unpleasant smell resembling goats. | http://wordnetweb.princeton.edu/ and http://en.wikipedia.org/wiki/ |
| CARB | Carbohydrate | An aldehyde or ketone derivative of a polydric alcohols, including starches, sugars, celluloses and burns. | |
| CCON | Carbon Content | The concentration of carbon found in a sample. | |
| CO2C | Carbon Dioxide Content | The concentration of carbon dioxide found in a sample. | |
| CNRA | Carbon to Nitrogen Ratio | No definition available. | |
| CPRT | Carbon phosphorus ratio | The ratio of carbon to phosphorus in a sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CARO | Carotene | Any of several red, crystalline carotenoid hydrocarbon pigments occurring widely in nature, convertible in the animal body to Vitamin A. | |
| CACH | Carotene to Chlorophyll A Ratio | Ratio of Carotene to Chlorophyll A | |
| CARC | Carotenoid Content | Isomeric pigments having colors from violet to yellow. | |
| CRCA | Carotenoids Chlorophyll A ratio | The ratio of carotenoids to chlorophyll a | ECOTOX |
| CARR | Carrageenan | Sulphated cell wall polysaccharide found in certain red algae. Contains repeating sulphated disaccharides of galactose and (sometimes) anhydrogalactose. | http://cancerweb.ncl.ac.uk/omd/ |
| CSEN | Casein | Group of proteins isolated from milk. Caseins are amphipathic polypeptides of around 200 amino acids with substantial hydrophobic C terminal domains that associate to give micellar polymers in divalent cation rich medium. | http://cancerweb.ncl.ac.uk/omd/ |
| CRMD | Ceramide | An N-acyl sphingosine, the lipid moiety of glycosphingolipids. | |
| CRBR | Cerebroside | Glycolipid found in brain (11% of dry matter). Sphingosine core with fatty amide or hydroxy fatty amide and a single monosaccharide on the alcohol group (either glucose or galactose). | http://cancerweb.ncl.ac.uk/omd/ |
| CRLF | Ceroid and Lipofuscin | Ceroid and Lipofuscin are naturally occurring lipid pigments. | http://www.ncbi.nlm.nih.gov |
| CHTN | Chitin | Chitin is a linear polysaccharide of beta-1->4 linked units of acetylglucosamine. It is the second most abundant biopolymer on earth, found especially in insects and fungi. | (http://www.ncbi.nlm.nih.gov) |
| CHLR | Chloride | Salt of hydrochloric acid; any binary comp of chlorine. | |
| CLCO | Chlorine concentration | The concentration of chlorine found in a sample. | |
| CLGA | Chlorogenic acid | Chlorogenic acid is a naturally occuring phenolic acid which is a carcinogenic inhibitor. It has also been shown to prevent paraquat-induced oxidative stress in rats. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CHLA | Chlorophyll A Concentration | Pigment found in photosynthetic cells; occurs in all organisms exhibiting aerobic photosynthesis. | |
| CHLB | Chlorophyll B Concentration | Pigment found in photosynthetic cells; occurs in all higher plants. | |
| CHAB | Chlorophyll A:Chlorophyll B | The ratio of Chlorophyll A and Chlorophyll B found in a sample. | ECOTOX |
| CACC | Chlorophyll A to Chlorophyll C ratio | The ratio of Chlorophyll A and Chlorophyll C found in a sample. | ECOTOX |
| CHAP | Chlorophyll A to Phaeophytin A ratio | Ratio of Chlorophyll A to Phaeophytin A in a sample. | ECOTOX |
| CHLC | Chlorophyll C concentration | Any of a group of green magnesium-containing porphyrin derivatives occurring in all photosynthetic organisms. Chlorophylls act as respiratory pigments, converting light energy to reducing potential. Chlorophyll C occurs in diatoms and brown algae. | |
| CHLO | Chlorophyll, General | Pigment found in photosynthetic cells. Measurable change in chlorophyll content including chlorophyll content, chlorosis. | |
| CHCT | Chlorophyll:Carotenoids | The ratio of chlorophyll to carotenoids in a sample | ECOTOX |
| COAN | Chlorpyrifos-o-analog | A metabolite of the chemical Chlorpyrifos. | |
| CHOL | Cholesterol | A pearly, fatlike steroid alcohol, found in animal fats and oils, bile, blood, brain tissues, milk, egg yolk, myelin sheath, liver, kidneys and adrenal gland - precursor to Steroids and sex hormones. | |
| CHES | Cholesteryl ester | Esterified cholesterol. | ECOREF 67751 |
| CHLN | Choline | Considered to be a vitamin of the B complex, found in many animal and plant tissues. | |
| CHDS | Chondroitin Sulfate | Chondroitin Sulfate is a derivative of chondroitin which has a sulfate moiety esterified to the galactosamine moiety of chondroitin, found in various tissues (as cartilage, adult bone, and tendons). | (http://www.ncbi.nlm.nih.gov and http://www.merriam-webster.com) |
| CRCO | Chromium content | The concentration of chromium found in a sample. | |
| CRPR | Chromium to Phosphorus Ratio | No definition available. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CMYS | Chymotrypsin | Serine proteases from pancreas. Preferentially hydrolyze Phe, Tyr or Trp peptide and ester bonds. | http://cancerweb.ncl.ac.uk/omd/ |
| CHYM | Chymotrypsinogen | An inactive proteolytic enzyme of pancreatic juice; converted to the active form, chymotrysin, by trypsin. | |
| C12O | cis-12-octadecenoic acid | cis-12-octadecenoic acid (C18:1 cis12) is a mono unsaturated fatty acid. | ECOTOX |
| C13O | cis-13-octadecenoic acid | cis-13-octadecenoic acid (C18:1 cis13) is a mono unsaturated fatty acid. | ECOTOX |
| C7HD | cis-7-hexadecenoic acid | cis-7-hexadecenoic acid (C16:1 cis7) is a mono unsaturated fatty acid. | ECOTOX |
| C9HD | cis-9-heptadecenoic acid | cis-9-heptadecenoic acid (C17:1 cis9) is a mono unsaturated fatty acid. | ECOTOX |
| C11O | cis-vaccenic acid | cis-11-Octadecenoic acid (C18:1 cis11), or cis-vaccenic acid, is a mono unsaturated fatty acid. | ECOTOX |
| CITT | Citrate | Citrate can refer either to the conjugate base of citric acid, (C3H5O(COO)3), or to the esters of citric acid. | http://en.wikipedia.org/wiki |
| CITA | Citric acid | An important intermediate in the citric acid cycle which breaks down glucose into water and carbon dioxide when oxygen is present. | http://cancerweb.ncl.ac.uk/omd/ |
| CITR | Citrulline | The organic compound citrulline is an a-amino acid. . It is a key intermediate in the urea cycle, the pathway by which mammals excrete ammonia. | http://en.wikipedia.org/wiki |
| COCO | Cobalt Content | The concentration of cobalt found in a sample. | |
| CLLG | Collagen | The protein substance of the white fibers (collagenous fibers) of skin, tendon, bone, cartilage and all other connective tissue, composed of molecules of tropocollagen, it is converted into gelatin by boiling. Collagenous pertaining to collagen, forming or producing collagen. | http://cancerweb.ncl.ac.uk/omd/ |
| CLHP | Collagen to hydroxyproline ratio | Ratio of collagen to hydroxyproline | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CSF2 | Colony-Stimulating Factor, Granulocyte-Macrophage (CSF2) | Granulocyte-Macrophage Colony-Stimulating Factor is an acidic glycoprotein of MW 23 kDa with internal disulfide bonds. The protein is produced in response to a number of inflammatory mediators by mesenchymal cells present in the hemopoietic environment and at peripheral sites of inflammation. GM-CSF is able to stimulate the production of neutrophilic granulocytes, macrophages, and mixed granulocyte-macrophage colonies from bone marrow cells and can stimulate the formation of eosinophil colonies from fetal liver progenitor cells. GM-CSF can also stimulate some functional activities in mature granulocytes and macrophages. Also: CSF-2 | http://www.ncbi.nlm.nih.gov |
| CNDN | Conjugated Dienes | Dienes are hydrocarbons which contain two double bonds. Dienes are intermediate between alkenes and polyenes.Conjugated dienes have conjugated double bonds separated by one single bond. They are also the most stable. | http://en.wikipedia.org |
| CJLA | Conjugated Linoleic Acids | Conjugated Linoleic Acids represent a group of around nine geometric and positional isomers of Linoleic Acid in which the trans/cis double bonds are conjugated, where double bonds alternate with single bonds. | http://www.ncbi.nlm.nih.gov |
| CUAI | Copper Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| CUCO | Copper Content | Metal; is essential in nutrition, component of various proteins. | |
| CUCD | Copper to Cadmium ratio | The ratio of copper to cadmium. | |
| CUCR | Copper to Carbon ratio | The ratio of copper to carbon in a sample. | |
| CUMN | Copper to Manganese Ratio | Ratio of copper to manganese in an organism or organism's tissues. | |
| CUMO | Copper to molybdenum ratio | Ratio of copper to molybdenum in an organism or organism's tissues. | |
| CUZN | Copper to Zinc Ratio | No definition available. | |
| CTR1 | Copper Transporter 1 | Copper Transporter 1 is a high-affinity copper transporter protein of the plasma membrane. | http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CPRP | Coproporphyrin | Produced by oxidation of the methylene bridges in coproporphrynogen - an intermediate in the formation of heme; coproporphyrin III is excreted in the feces in hereditary coproporphyria. | |
| CCTR | Coproprophyrin creatine ratio | The ratio of Coproprophyrin to creatine in a sample. | ECOTOX |
| CMCA | Coumaric acids | Hydroxycinnamic acid and its derivatives. Act as activators of the indoleacetic acid oxidizing system, thereby producing a decrease in the endogenous level of bound indoleacetic acid in plants. | http://www.ncbi.nlm.nih.gov |
| CRTN | Creatine | A compound which is made by the body and is used to store energy in the form of phosphate molecules. | http://cancerweb.ncl.ac.uk/omd/ |
| CREC | Creatine compounds | The total amount of creatine compounds found in a sample | ECOTOX |
| CREA | Creatinine | Anhydride of creatine; found in muscle and blood and excreted in the urine. | |
| CC23 | Crustacean calcium-binding protein 23 | Also called CCBP-23 protein. Possibly acts as a regulatory protein and not as a calcium buffer or transport protein. | expasy.org/uniprot/CCB23_ORCLI |
| C1AB | Cry1Ab protein | Cry1Ab protein is an insecticidal crystal protein encoded by strains of B. thuringiensis, or crops genetically engineered to express the protein. | http://www.ncbi.nlm.nih.gov and ECOTOX |
| CGMP | Cyclic guanylic acid, cGMP | 3',5' cyclic ester of guanylic acid. A second messenger generated by guanylyl cyclase and is a major component of ribonucleic acids. | http://cancerweb.ncl.ac.uk/omd/ |
| CYTN | Cysteine | A crystalline sulfur-containing amino acid $C_3H_7NO_2S$ readily oxidizable to cystine. | |
| CPNI | Cysteine proteinase inhibitors | Cysteine proteinase inhibitors are Exogenous and endogenous compounds which inhibit cysteine proteinases. | http://cancerweb.ncl.ac.uk |
| CYSI | Cystine | The amino acid formed by linking two cysteine residues with a disulfide linkage between the two SH groups. The analogous compound present within proteins is termed two half cysteines. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CYCB | Cytochalasin B | A group of fungal metabolites that inhibit the addition of G actin to a nucleation site and therefore perturb labile microfilament arrays. Cytochalasin B inhibits at around 1 microgram/ml but at about 5 _g/ml begins to inhibit glucose transport. Cytochalasin D affects only the microfilament system and is therefore preferable. | http://cancerweb.ncl.ac.uk/ |
| CYTC | Cytochrome c | Cytochromes of the c type that are found in eukaryotic mitochondria. They serve as redox intermediates that accept electrons from mitochondrial electron transport complex III and transfer them to mitochondrial electron transport complex IV. | http://www.ncbi.nlm.nih.gov |
| CP2K | Cytochrome P2K (CYP 2K) | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P2K = pigment 2K | |
| CP3K | Cytochrome P3K (CYP 3K) | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P3K = pigment 3K. | |
| DDEC | DDE concentration | The concentration of DDE in tissue | |
| DABT | Dehydroascorbate | A salt or ester of dehydroascorbic acid. | http://cancerweb.ncl.ac.uk/omd/ |
| DASC | Dehydroascorbic acid | L-threo-2,3-hexodiulosonic acid gamma-lactone. The reversibly oxidized form of ascorbic acid. It is the lactone of 2,3-diketogulonic acid and has antiscorbutic activity in man on oral ingestion. | http://cancerweb.ncl.ac.uk/omd/ |
| DHRT | Dehydroretinol (Vitamin A2) | 3-Dehydroretinol; retinol with an additional double bond in the 3-4 position of the cyclohexane ring. It is also called vitamin A2. Also known as Didehydroretinol. | http://cancerweb.ncl.ac.uk/omd/ |
| ACTR | delta Aminolevulinic acid creatine ratio | The ratio of delta Aminolevulinic acid to creatine in a sample | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| DALA | delta-Aminolevulinic acid | The delta-aminolevulinic acid (pronounce) synthase (ALA synthase) reaction occurs in the mitochondria. The product of the reaction, ALA, diffuses into the cytoplasm, where the next several steps of heme synthesis occur. | http://medlib.med.utah.edu/NetBiochem/hi31.htm |
| DOVL | Deoxynivalenol | Deoxynivalenol, also known as Vomitoxin, is a type B trichothecene, an epoxy-sesquiterpeneoid. This micotoxin may contaminate food or feed grains, induce emesis and inhibit protein synthesis. | http://en.wikipedia.org/wiki and http://www.ncbi.nlm.nih.gov |
| DSMN | Desmosine | Component of elastin, formed from four side chains of lysine and constituting a cross linkage. | http://cancerweb.ncl.ac.uk/omd/ |
| DDXN | Diadinoxanthin | Diadinoxanthin, 5,6-Epoxy-7',8'-didehydro-5,6-dihydro-carotene-3,3-diol, is a Xanthophyll. | (http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki) |
| DAPP | Diaminopropane | Diaminopropane may refer to either of two isomeric chemical compounds: 1,2-diaminopropane or 1,3-diaminopropane. | http://en.wikipedia.org/wiki |
| DTXN | Diatoxanthin | Diatoxanthin is a Xanthophyll. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| DDRP | Didehydroretinyl palmitate | A vitamin. | |
| DISC | Diethylsuccinate Hydrolysis | No definition available. | |
| DGDG | Digalactosyl Diglyceride (Glycolipid) | Glycolipid - lipid containing carbohydrate groups, usually galactose. The simplest are the glycodiacyl-glycerols. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| DGCR | Diglyceride | Glycerol substituted on the 1 and 2 hydroxyl groups with long chain fatty acyl residues. DAG is a normal intermediate in the biosynthesis of phosphatidyl phospholipids and is released from them by phospholipase C activity. DAG from phosphatidyl inositol polyphosphates is important in signal transduction. Elevated levels of DAG in membranes activate protein kinase C by stabilizing its catalytically active complex with membrane bound phosphatidyl serine and calcium | http://cancerweb.ncl.ac.uk/omd/ |
| DHLA | Dihomo-gamma-Linolenic Acid | Dihomo-gamma-Linolenic Acid (C20:3n-6), also all cis-8,11,14-eicosatetraenoic acid, is a poly unsaturated fatty acid. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| DHAP | Dihydroxyacetone-P | No definition available. | |
| PGF2 | Dinoprost | Dinoprost is a naturally occurring prostaglandin that has oxytocic, luteolytic, and abortifacient activities. Due to its vasocontractile properties, the compound has a variety of other biological actions. Also: PGF2, Prostaglandin F2alpha, Prostaglandin F2, 9alpha,11beta-PGF2, Estrofan, Enzaprost F | http://www.ncbi.nlm.nih.gov |
| DPHG | Diphosphatidylglycerol | Diphosphatidylglycerol, also called cardiolipin, is an acidic phospholipids composed of two molecules of phosphatidic acid covalently linked to a molecule of glycerol. They occur primarily in mitochondrial inner membranes and in bacterial plasma membranes. Chemical name: 1,3-bis(sn-3'-phosphatidyl)-sn-glycerol | http://www.ncbi.nlm.nih.gov and http://www.lipidlibrary.co.uk |
| DTBL | Direct Bilirubin (Conjugated) | Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated. | |
| DCHA | Docosahexaenoic acid | Docosahexaenoic acid (22:6 n-3), also DHA or C22:6, (all cis-4,7,10,13,16,19) omega-3 fatty acid, is a poly unsaturated fatty acid. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| DCPA | Docosapentaenoic acid | Docosapentaenoic acid (22:5 n-3), also DPA; Clupanodonic acid; or C22:5(all cis-7,10,13,16,19) acid, is a poly unsaturated fatty acid. | ECOTOX and http://en.wikipedia.org/wiki |
| D6FA | Docosatrienoic acid (C22:3n-6) | Docosatrienoic acid (C22:3n-6) is a poly unsaturated fatty acid. | ECOTOX |
| D11A | Docosenoic acid (C22:1n-11) | Docosenoic acid (C22:1n-11) is a poly unsaturated fatty acid. | ECOTOX |
| DMCA | Domoic Acid | Causes amnesic shellfish poisoning (ASP), is an amino acid phycotoxin (algal toxin) found associated with certain algal blooms | http://en.wikipedia.org/wiki/Domoic_acid |
| DOP1 | Dopa | An amino acid derived from the amino acid tyrosine. | http://cancerweb.ncl.ac.uk/omd/ |
| DATP | Dopamine Transporter Protein | The dopamine transporter (also dopamine active transporter, DAT, Dopamine Carriers, Dopamine Plasma Membrane Transporter Proteins, SLC6A3) is a membrane spanning protein that binds the neurotransmitter dopamine and performs reuptake of it from the synapse into a neuron.. | http://en.wikipedia.org/wiki and http://www.nlm.nih.gov/mesh |
| DRYM | Dry matter | All soluble and insoluble organic substances and inorganic substances present in a sample except for water. | www.florafood.com/common/documents/alidefpar.pdf |
| ECCR | Echinochrome | A quinone, echinochrome, is the red coloring matter in sea urchins and sand dollars. | |
| ECDA | Eicosadienoic acid | Eicosadienoic acid (C20:2 n-6), also C20:2 (cis, cis-11, 14) acid, is a poly unsaturated fatty acid. | ECOTOX and http://en.wikipedia.org/wiki |
| ECSP | Eicosapentaenoate | A fatty acid. | |
| ECOA | Eicosenoic acid(C20:1 cis11) | Eicosenoic acid (C20:1 cis11), or Gondoic acid, is a mono unsaturated fatty acid. | ECOTOX |
| E11A | Eicosenoic acid (C20:1n-11) | Eicosenoic acid (C20:1n-11) is a poly unsaturated fatty acid. | ECOTOX |
| ELDA | Elaidic acid | Elaidic acid (C18:1 trans9) is a mono unsaturated fatty acid. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ELST | Elastin | Glycoprotein (70 kD) randomly coiled and cross linked to form elastic fibers that are found in connective tissue. Like collagen, the amino acid composition is unusual with 30% of residues being glycine and with a high proline content. Cross linking depends upon formation of desmosine from four lysine side groups. The mechanical properties of elastin are poorer in old animals. | http://cancerweb.ncl.ac.uk/omd/ |
| ELYT | Electrolytes | A chemical compound which when molten or dissolved in certain solvents, usually water, will conduct an electrical current. | |
| ENDP | Endorphin | One of the three major groups of endogenous opioid peptides. | (http://www.ncbi.nlm.nih.gov) |
| ETXN | Endotoxin | Toxins closely associated with the living cytoplasm or cell wall of certain microorganisms, which do not readily diffuse into the culture medium, but are released upon lysis of the cells. | http://www.ncbi.nlm.nih.gov |
| NRGC | Energy Compound | No definition available**.** | |
| NKPH | Enkephalin | Either of two peptides with opiate and analgesic activity that occur naturally in the brain and have a marked affinity for opiate receptors. | http://www.m-w.com/ |
| ENKP | Enkephalins | Natural opiate pentapeptides isolated originally from pig brain. Leu enkephalin (YGGFL) and Met enkephalin (YGGFM) bind particularly strongly to _ type opiate receptors. | http://cancerweb.ncl.ac.uk/omd/ |
| EZIN | Enzyme inhibitors | Compounds or agents that combine with an enzyme in such a manner as to prevent the normal substrate-enzyme combination and the catalytic reaction. | http://cancerweb.ncl.ac.uk/omd/ |
| ETCO | epsillon-Tocopherol concentration | One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant. | |
| ERGL | Ergosterol | Ergosterol is a steroid of interest both because its biosynthesis in fungi is a target of antifungal agents, notably azoles, and because when it is present in skin of animals, ultraviolet rays break a bond to result in ergocalciferol. | http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ERUC | Erucic Acid | A monoethenoid acid that is the cis isomer of brassidic acid and makes up 40 to 50% of the total fatty acid in rapeseed, wallflower seed, and mustard seed. | |
| ETSR | Erythrocyte sedimentation rate | A test that measures the rate at which red blood cells settle through a column of liquid. A non-specific index of inflammation. | http://cancerweb.ncl.ac.uk/omd/ |
| ECFC | Esterified cholesterol free cholesterol ratio | The ratio of esterified chlolesterol to free cholesterol found in an organism or tissue sample | ECOTOX |
| ETST | Esters of Sterins | A fractional component of blood lipids | ECOREF#72824 |
| EICN | Ethyl isocyanide | Bound ethyl isocyanide serves as a structural model for the transition state of the NO-induced oxidation reaction. | phillips-lab.biochem.wisc.edu |
| ETHL | Ethylene | A colorless, flammable gas with a sweet taste and odor. | |
| F2IP | F2-Isoprostanes | F2-Isoprostanes are a class of Isoprostanes derived from the free radical oxidation of arachidonic acid through non-enzymatic oxidation of cell membrane lipids. | http://www.ncbi.nlm.nih.gov |
| FAME | Fatty Acid Methyl Ester | No definition available. | |
| FATS | Fatty acids | Fatty acids can saturated, monounsaturated and polyunsaturated. | ECOTOX |
| FATL | Fatty acid, total | Total amount of fatty acids .Any number of saturated aliphatic monocarboxylic acids. A metabolic byproduct from the breakdown of fats. Chemically R COOH where R is an aliphatic moiety. | |
| FFTA | Fatty Acids, Free or Nonesterified | Straight chained monocarboxylic acid that are nonesterified; the fraction of plasma fatty acids that are not in the form of glycerol; transported complexed with albumin. | |
| FSPP | Female specific proteins | Proteins that only appear in female hemolymph or tissues during oocyte maturation. | http://biotech.korea.ac.kr/member/kimhr/17.pdf |
| FENR | Fenretinide (4-Hydroxy-retinoic acid) | A Vitamin-A derivative. A synthetic retinoid. It is an effective as an antineoplastic agent. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| FRTN | Ferritin | Ferritins are Iron-containing proteins that are widely distributed in animals, plants, and microorganisms. Their major function is to store iron in a nontoxic bioavailable form. Each ferritin molecule consists of ferric iron in a hollow protein shell (apoferritins) made of 24 subunits of various sequences depending on the species and tissue types. | http://www.ncbi.nlm.nih.gov |
| FRLA | Ferulic acid | Ferulic acid is an organic compound that is an abundant phenolic phytochemical found in plant cell walls. It is a derivative of trans-cinnamic acid. As a component of lignin, ferulic acid is a precursor in the manufacture of other aromatic compounds. | http://en.wikipedia.org |
| FIBR | Fiber | Amount of fiber from a diet. | |
| FBRG | Fibrinogen | Soluble plasma protein (340 kD, 46 nm long), composed of 6 peptide chains. | http://cancerweb.ncl.ac.uk/omd/ |
| FBNT | Fibronectin | A large glycoprotein found on the surface of cells and mediates cellular adhesion, control of cell shape and cell migration. | |
| FLVN | Flavin | Flavins are tricyclic heteronuclear organic rings based on pteridine whose biochemical source is the vitamin riboflavin. The flavin moiety can exist as a chemical group of other important biomolecules such as flavin adenine dinucleotide or flavin mononucleotide. | http://cancerweb.ncl.ac.uk and http://en.wikipedia.org/wiki |
| FLRS | Fluorescence | Property of emitting light while exposed to light, the emitted light having a wavelength only slightly longer than that of the light absorbed | Used for algae or other organisms that naturally fluoresce, may be used to measure chlorophyll or population growth rate. For example, if it is specifically stated that fluorescence is used to measure chlorophyll A, code the measurement as CHLA. |
| FLCO | Fluoride concentration | The concentration of fluoride found in sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| FLCA | Folic acid | A member of the vitamin B family that stimulates the hematopoietic system. It is present in the liver and kidney and is found in mushrooms, spinach, yeast, green leaves, and grasses. Also: Vitamin M, Pteroylglutamic Acid, Folate, Folvite, Folacin | http://www.ncbi.nlm.nih.gov/ |
| FADH | Formaldehyde | Formaldehyde is the chemical compound with the formula H2CO. It is the simplest aldehyde-- an organic compound containing a terminal carbonyl group: it consists of exactly one carbonyl. Small amounts of formaldehyde are produced as a metabolic byproduct in most organisms. | http://en.wikipedia.org/wiki |
| FAAN | Free amino acid Nitrogen ratio | The ratio of Free Amino acid to nitrogen in a sample. | ECOTOX |
| FTIX | Free thyroxine index | An arbitrary value obtained by multiplying the triiodothyronine uptake by the serum thyroxine concentration; it largely corrects for variations in thyroid-bound globulin concentration by providing a clinically valid estimate of the physiologically active free thyroxine; direct assay or laboratory measurement of free serum thyroxine yields a more accurate value. | http://cancerweb.ncl.ac.uk/omd/ |
| FRCT | Fructose | A 6 carbon sugar (hexose) abundant in plants. Fructose has its reducing group (carbonyl) at C2 and thus is a ketose, in contrast to glucose that has its carbonyl at C1 and thus an aldose. Sucrose, common table sugar, is the non-reducing disaccharide formed by an alpha linkage from C1 of glucose to C2 of fructose (latter in furanose form). Fructose is a component of polysaccharides such as insulin, levan. | http://cancerweb.ncl.ac.uk/omd/ |
| FXTN | Fucoxanthin | Fucoxanthin is a Xanthophyll. | http://www.ncbi.nlm.nih.gov |
| FUB1 | Fumonisin B1 | Fumonisine B1 is an inhibitor of ceramide synthase. Fumonisin B1 is the most prevalent member of a family of toxins produced by several species of Fusarium moulds which occur mainly in maize. | http://en.wikipedia.org/wiki/Fumonisin_B1 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| FUB2 | Fumonisin B2 | Fumonisin B2 is a mycotoxin produced by the fungus Fusarium moniliforme. It is a structural analog of Fumonisin B1. Fumonisin B2 is more cytotoxic than Fumonisin B1. Fumonisin B2 inhibits sphingosine acyl-transterase. | http://en.wikipedia.org/wiki/Fumonisin_B2 |
| FUMO | Fumonisins | a family of toxins produced by several species of Fusarium moulds which occur mainly in maize | http://en.wikipedia.org/wiki/Fumonisin_B1 |
| GLTL | Galactolipid | A glycolipid that yields galactose on hydrolysis. | http://www.fasthealth.com/dictionary/g/galactolipid.php |
| GLCA | Gallic acid | A colorless or slightly yellow crystalline compound obtained from nutgalls. It is used in photography, pharmaceuticals, and as an analytical reagent. Also known as 3,4,5-Trihydroxybenzoic Acid. | http://www.ncbi.nlm.nih.gov |
| GABA | gamma-Aminobutyric acid | Thought to be a central nervous system postsynaptic inhibitory transmittor. | |
| GGLB | gamma-Globulins | A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. It can also be precipitated out of solution and into a solid with a solution of ammonium sulphate at 50% saturation. | http://cancerweb.ncl.ac.uk/omd/ |
| GLAF | gamma-Linolenic acid | gamma-Linolenic acid (C18:3n-6), also C18:3 (all cis-6,9,12) acid or gamoleic acid, is a poly unsaturated fatty acid. | ECOTOX |
| GTCO | gamma-Tocopherol concentration | One of eight compounds that occur in nature that have vitamin E activity, an essential vitamin that functions as an antioxidant. | |
| GNGL | Ganglioside | A glycosphingolipid that contains one or more residues of N acetyl or other neuraminic acid derivatives. Gangliosides are found in highest concentration in cells of the nervous system, where they can constitute as much as 5% of the lipid. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GD1A | Ganglioside GD1a | Any disease characterized, in part, by the abnormal accumulation within the nervous system of specific gangliosides, e.g., GM2 gangliosidosis, Tay-Sachs disease, caused by hexosaminidase A enzyme deficiency with accumulation of GM2 ganglioside. | http://cancerweb.ncl.ac.uk/omd/ |
| GD1B | Ganglioside GD1b | Any disease characterized, in part, by the abnormal accumulation within the nervous system of specific gangliosides, e.g., GM2 gangliosidosis, Tay-Sachs disease, caused by hexosaminidase An enzyme deficiency with accumulation of GM2 ganglioside. | http://cancerweb.ncl.ac.uk/omd/ |
| GGM1 | Ganglioside GM1 | Form of gangliosidosis characterized by accumulation of g(m1) ganglioside and oligosaccharides, and caused by an absence or severe deficiency of beta-galactosidase a. The three phenotypes of g(m1) gangliosidosis are called infantile (generalized), juvenile, and adult (types 1, 2, and 3 respectively), referring to the age at which clinical manifestations appear. | http://cancerweb.ncl.ac.uk/omd/ |
| GGT1 | Ganglioside GT1 | Any disease characterized, in part, by the abnormal accumulation within the nervous system of specific gangliosides, e.g., GM2 gangliosidosis, Tay-Sachs disease, caused by hexosaminidase An enzyme deficiency with accumulation of GM2 ganglioside. | http://cancerweb.ncl.ac.uk/omd/ |
| GCBN | Gap charge balance | A measurement used for determining blood gases. Because of electrochemical balance the concentrations of serum cations and anions are the same. However, in the routine measurement of electrolytes, more anions are unmeasured than are cations; this leads to an expected "anion gap." As typically calculated, the anion gap is based on only three electrolytes: sodium, chloride and bicarbonate (or serum CO2). | http://www.mtsinai.org/pulmonary/noninvasive/gaps.htm |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GESM | Geosmin | Geosmin, trans-1,10-dimethyl-trans-9-decalol, is a metabolite produced by several cyanobacteria species at varying amounts. | |
| GERN | Geraniol | Used in perfumery and flavoring. | |
| GERA | Geranyl Acetate | No definition available. | |
| GINS | Ginsenosides | No definition available. | |
| GPRO | Glial fibrillary acidic protein | A protein found in microfilaments of glial cells, helps distinguish glial from non-glial tumors. | http://cancerweb.ncl.ac.uk/omd/ |
| GLOB | Globulin | A simple globular protein which cannot be dissolved in pure water but which can be dissolved if a salt is added to the water. | http://cancerweb.ncl.ac.uk/omd/ |
| GLPS | Glucagon-Like Peptides | Peptides derived from proglucagon which is also the precursor of pancreatic glucagon. Despite expression of proglucagon in multiple tissues, the major production site of glucagon-like peptides (glps) is the intestinal l cells. Glps include glucagon-like peptide 1, glucagon-like peptide 2, and the various truncated forms. Synonym: Enteroglucagon. | http://www.ncbi.nlm.nih.gov |
| GLUC | Glucose | A sugar. | |
| GTP1 | Glucose Transporter Type 1 | Glucose Transporter Type 1 is a ubiquitously expressed glucose transporter protein that is important for constitutive, basal glucose transport. It is predominately expressed in endothelial cells and erythrocytes at the blood-brain barrier and is responsible for glucose entry into the brain. Also: Solute Carrier Family 2, Facilitated Glucose Transporter, Member 1 Protein, GLUT1 Protein, SLC2A1 Protein, Erythrocyte Glucose Transporter | http://www.ncbi.nlm.nih.gov |
| GLTT | Glutamate | A salt or ester of glutamic acid. | |
| GTMA | Glutamic acid | An amino acids commonly found in proteins. Plays a central role in amino acid metabolism, acting as precursor of glutamine, proline and arginine. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GMIN | Glutamine | Monoamide of flutamic acid, important carrier of urinary ammonia and is broken down in the kidney by the enzyme glutaminase. | |
| GTAS | Glutamine and asparagine | Glutamine: An amino acid. Monoamide of flutamic acid, important carrier of urinary ammonia and is broken down in the kidney by the enzyme glutaminase. Asparagine: A white crystalline amino acid found in many plant seeds. | McGraw-Hill Scientific Dictionary |
| GLTH | Glutathione (reduced glutathione) | A widely distributed tripeptide that is important in plant and animal tissue oxidation reactions. The concentration of glutathione in animal cells is _5mM and its sulphydryl group is kept largely in the reduced state. This allows it to act as a sulphydryl buffer, reducing any disulphide bonds formed within cytoplasmic proteins to cysteines. Hence, few, if any, cytoplasmic proteins contain disulphide bonds.<br><br>Also known as Reduced glutathione | http://cancerweb.ncl.ac.uk/omd/ |
| GSSG | Glutathione disulfide (oxidized glutathione) | A glutathione derivative that forms when the sulfhydryl side chains of the cysteine residues of two glutathione molecules form a disulfide bond during the course of being oxidized with various oxides and peroxides in cells. Also known as oxidized glutathione | http://cancerweb.ncl.ac.uk/omd/ |
| GGGH | Glutathione disulfide to glutathione ratio (oxidized to reduced) | The ratio of glutathione disulfide to glutathione. Also known as Oxidized glutathione to reduced glutathione ratio | ECOTOX |
| GYCL | Glycerol content | A sweet syrupy hygroscopic trihydroxy alcohol C3H8O3 usually obtained by the saponification of fats and used especially as a solvent and plasticizer. | |
| GLCN | Glycine | An amino acid. | |
| GBTN | Glycine betaine | Glycine betaine, or N,N,N-trimethylglycine, was named after its discovery in sugar beets (Beta vulgaris) in the 19th century. It is a small N-trimethylated amino acid, existing in zwitterionic form at neutral pH. | http://en.wikipedia.org/wiki |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GLYA | Glycoalkaloid | Glycoalkaloids are a family of poisons commonly found in the plant species Solanum dulcamara (nightshade). There are several glycoalkaloids (alkaloids + sugars) that are potentially toxic. | http://en.wikipedia.org/wiki |
| GLYC | Glycogen | A polysaccharide stored in the liver and muscles. | |
| GLYP | Glycoprotein Composition | Glycoprotein - Any of a class of conjugated proteins containing both carbohydrate and protein units. | |
| GRHP | Gonadotropin releasing hormone to protein content ratio | Ratio of Gonadotropin releasing hormone to protein content | ECOTOX |
| GAX4 | Gonyautoxin 4 | Gonyautoxin 4 is a compound produced by Gonyaulax dinoflagellates and may then be consumed by mollusks, fishes, etc. This substance is a member of the saxitoxin group of neurotoxins that cause respiratory paralysis and other effects in mammals, known as paralytic shellfish poisoning. | http://en.wikipedia.org/wiki and http://www.ncbi.nlm.nih.gov |
| GSPL | Gossypol | Gossypol is a dimeric sesquiterpene found in cottonseed. Gossypol is a polyphenolic aldehyde that permeates cells and acts as an inhibitor for several dehydrogenase enzymes. | http://en.wikipedia.org/wiki and http://www.ncbi.nlm.nih.gov |
| GRMN | Gramine | Gramine (also called donaxine) is a naturally occurring indole alkaloid present in several plant species. Gramine may play a defensive role in these plants, since it is toxic to many organisms. | http://en.wikipedia.org/wiki |
| CSF3 | Granulocyte Colony-Stimulating Factor (CSF3) | Granulocyte Colony-Stimulating Factor is a glycoprotein of MW 25 kDa containing internal disulfide bonds. It induces the survival, proliferation, and differentiation of neutrophilic granulocyte precursor cells and functionally activates mature blood neutrophils. Among the family of colony-stimulating factors, G-CSF is the most potent inducer of terminal differentiation to granulocytes and macrophages of leukemic myeloid cell lines. Also: CSF3, Colony Stimulating Factor 3 | http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| G5DP | guanosine 5'-diphosphate | Guanosine esterified at its 5' position with diphosphoric acid; bound tightly in microtubules. Acronym: GDP | http://cancerweb.ncl.ac.uk/omd/ |
| G5TP | guanosine 5'-triphosphate | An immediate precursor of guanine nucleotides in RNA; similar to ATP; has a crucial role in microtubule formation. | http://cancerweb.ncl.ac.uk/omd/ |
| HP60 | Heat Shock Protein 60 (HSP60) | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP70 | Heat Shock Protein 70 (HSP70) | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HSPS | Heat Shock Protein | Families of proteins conserved through prokaryotic and eukaryotic cells and bacteria in response to hyperthermia and other environmental stresses, although some are constitutively expressed. They increase thermal tolerance and perform functions essential to cell survival under these conditions. Acronym: HSP | http://cancerweb.ncl.ac.uk/omd |
| H108 | Heat shock protein 108 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP16 | Heat shock protein 16 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | ECOTOX |
| HP20 | Heat shock protein 20 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP26 | Heat Shock Protein 26 (HSP26) | Any of a group of cellular proteins that are produced under conditions of heat stress and help to stabilize other cellular proteins exposed to high temperatures. | |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HP30 | Heat shock protein 30 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP32 | Heat shock protein 32 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP40 | Heat shock protein 40 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP42 | Heat shock protein 42 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP52 | Heat shock protein 52 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP71 | Heat shock protein 71 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP72 | Heat shock protein 72 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP73 | Heat shock protein 73 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP75 | Heat shock protein 75 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HS78 | Heat shock protein 78 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| HP90 | Heat shock protein 90 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HP96 | Heat shock protein 96 | Any of a group of a proteins that are synthesized in the cytoplasm of cells as part of the heat shock response and act to protect the chromosomes from damage. | |
| HPSS | Heat Shock Proteins, small | A family of low molecular weight heat-shock proteins. Small Heat shock proteins have been suggested to act as major immunogens in many infections. | http://www.ncbi.nlm.nih.gov and http://cancerweb.ncl.ac.uk/omd/ |
| HMGT | Hemagglutinin | An erythrocyte-agglutinating antibody. | |
| HMCT | Hematocrit (Anemia) | Measurement of the volume of packed red cells in a blood specimen after centrifugation of hematocrit tube. | |
| <HEMT> | Hematological Parameters | No definition available. | |
| HEME | Heme Content | Heme - any quadridentate chelate of iron with the four pyrrole groups of a porphyrin; found in blood. | |
| HMCY | Hemocyanin | A blue respiratory pigment found only in mollusks and in arthropods other than insects. | |
| HMGL | Hemoglobin | Oxygen carrying pigment of the erythrocytes. | |
| HMPR | Hemoglobin to protein ratio | Hemoglobin to protein ratio in a sample | ECOTOX |
| HMLS | Hemolysin | An agent or a substance, such as an antibody or a bacterial toxin, that causes the destruction of red blood cells, thereby liberating hemoglobin. Also called erythrocytolysin, erythrolysin. | The American Heritage Stedman's Medical Dictionary |
| HPXN | Hemopexin | Single chain haem binding plasma _1 glycoprotein (57 kD) unlike haptoglobin does not bind haemoglobin | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HMSN | Hemosiderin | Hemosiderin or haemosiderin is an iron-storage complex. It is always found within cells (as opposed to circulating in blood) and appears to be a complex of ferritin, denatured ferritin and other material. The iron within deposits of hemosiderin is very poorly available to supply iron when needed. | http://en.wikipedia.org/wiki |
| HXDC | Hexadecenoate | Palmitate, also called n-hexadecanoate, is the dissociated and observed form of Palmitic Acid at physiological pH | http://en.wikipedia.org/wiki |
| HXBT | Hexobarbital | A barbiturate that is effective as a hypnotic and sedative. | http://cancerweb.ncl.ac.uk/omd/ |
| HEXS | Hexose | Suger, a monosaccharide with six carbon atoms. Hexoses include Fructose, Fucose, Galactose, Glucose, Mannose, Rhamnose, and Sorbose | www.wikipedia.org/wiki and http://www.ncbi.nlm.nih.gov |
| HDLC | High density lipoprotein cholesterol | Lipoproteins, which are combinations of lipids (fats) and proteins, are the form in which lipids are transported in the blood. | |
| HDCH | High density lipoprotein cholesterol:Total cholesterol | The ratio between high density lipoprotein cholesterol and total cholesterol concentrations in a sample. | |
| HSTM | Histamine | Formed by decarboxylation of histidine. Potent pharmacological agent acting through receptors in smooth muscle and in secretory systems. Stored in mast cells and released by antigen. (See hypersensitivity). Responsible for the early symptoms of anaphylaxis. Also present in some venoms. | http://cancerweb.ncl.ac.uk/omd/ |
| HIST | Histidine | An amino acid. | |
| HITY | Histidine to tyrosine ratio | Ratio of histidine to tyrosine in an organism or organism's tissues. | |
| HCTN | Homocysteine | Homocysteine is a thiol-containing amino acid formed by a demethylation of methionine. | http://www.ncbi.nlm.nih.gov |
| HVLA | Homovanillic acid | A metabolite of dopamine. Also known as 3-Methoxy-4-hydroxyphenylacetic acid. | |
| HMDP | Homovanillic acid to Dopamine Ratio | The ratio of Homovanillic acid to Dopamine found in a sample | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| HYLA | Hyaluronic Acid | A natural high-viscosity mucopolysaccharide with alternating beta (1-3) glucuronide and beta (1-4) glucosaminidic bonds. It is found in the umbilical cord, in vitreous body and in synovial fluid. A high urinary level is found in progeria | (http://www.ncbi.nlm.nih.gov) |
| HDCB | Hydrocarbons | An organic molecule which consists only of carbon and hydrogen atoms, and no other elements. | http://cancerweb.ncl.ac.uk/omd/ |
| H2O2 | Hydrogen Peroxide | Unstable colorless liquid used as a bleach, chemical intermediate, rocket fuel, and antiseptic. | |
| HBZA | Hydroxybenzoic acids | Hydroxybenzoic acids are a benzoic acid substituted by one or more hydroxy groups in any position on the benzene ring. | http://cancerweb.ncl.ac.uk/omd/ |
| HPLN | Hydroxyproline | Specific proline residues on the amino side of a glycine residue in collagen become hydroxylated at C4, before the polypeptides become helical, by the activity of prolyl hydroxylase. This enzyme has a ferrous ion at the active site and a reducing agent such as ascorbate is necessary to maintain the iron in the ferrous state. The presence of hydroxyproline is essential to produce stable triple helical tropocollagen, hence the problems caused by ascorbate deficiency in scurvy. This unusual amino acid is also present in considerable amounts in the major glycoprotein of primary plant cell walls. | (see HRGP). http://cancerweb.ncl.ac.uk/omd/ |
| HPCN | Hypericin | Hypericin is a naphtodianthrone, a red-colored anthraquinone-derivative, which, together with hyperforin, is one of the principal active constituents of Hypericum (Saint John's wort). | http://en.wikipedia.org/wiki/ |
| HIFT | Hypoxia inducible factor-1 alpha-Tubulin ratio | Ratio of Hypoxia inducible factor (HIF-1-alpha) to alpha-Tubulin in sample. | ECOTOX |
| IBIL | Indirect Bilirubin (Free) | Bilirubin - breakdown product of heme, normally circulates in plasma as a complex with albumin and is taken up by the liver cells and conjugated. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| IDAA | Indole Acetic Acid | Indole-3-acetic acid, also known as IAA and Indoleacetic Acid, is a member of the group of phytohormones called auxins. IAA is generally considered to be the most important native auxin. | http://en.wikipedia.org/wiki |
| IN1P | Inositol 1-phosphate | Inositol phosphates are a group of mono- to polyphosphorylated inositols. They have important messaging functions in the cells. The measurement of Inositol 1-phosphate concentration in a sample. | http://en.wikipedia.org/wiki/Inositol_phosphate |
| ITFG | Interferon-gamma | Interferon-gamma,or type II interferon, is a cytokine that is the major interferon produced by mitogenically or antigenically stimulated lymphocytes. It is structurally different from type I interferon and its major activity is immunoregulation. It has been implicated in the expression of class II histocompatibility antigens in cells that do not normally produce them, leading to autoimmune diseases. | http://www.ncbi.nlm.nih.gov |
| IL1A | Interleukin-1alpha | A soluble factor produced by monocytes; macrophages, and other cells which activates T-lymphocytes and potentiates their response to mitogens or antigens. Interleukin-1 alpha is an interleukin-1 subtype that occurs as a membrane-bound pro-protein form that is cleaved by proteases to form a secreted mature form. Unlike Interleukin-1beta both membrane-bound and secreted forms of interleukin-1alpha are biologically active. Also: IL-1 alpha | http://www.ncbi.nlm.nih.gov |
| IL1B | Interleukin-1 beta | A soluble protein (17 kD: 152 amino acids) secreted by monocytes, macrophages or accessory cells involved in the activation of both T-lymphocytes and B lymphocytes and potentiates their response to antigens or mitogens. Its biological effects include the ability to replace macrophage requirements for T-cell activation, as well as affecting a wide range of other cell types. at least two IL-1 genes are active and alpha and beta forms of IL-1 are recognized. It is released early in an immune system response by | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| | | monocytes and macrophages. It stimulates T-cell proliferation and protein synthesis. Another effect of IL-1 is that it causes fever. | |
| ITL2 | Interleukin-2 | A hormone-like substance released by stimulated T lymphocytes, causes activation and differentiation of other T lymphocytes independently of antigen. A type of interleukin, a chemical messenger, a substance that can improve the body's response to disease. It stimulates the growth of certain disease-fighting blood cells in the immune system. Acronym: IL-2 | http://cancerweb.ncl.ac.uk/omd/ |
| ILK3 | Interleukin-3 | Interleukin-3 is a multilineage cell growth factor secreted by lymphocytes; epithelial cells; and astrocytes which stimulates clonal proliferation and differentiation of various types of blood and tissue cells. Also: IL3 | http://www.ncbi.nlm.nih.gov |
| ILK4 | Interleukin-4 | Interleukin-4 is a soluble factor produced by activated T-lymphocytes that induces the expression of MHC class II genes and FC receptors on B-lymphocytes and causes their proliferation and differentiation. It also acts on T-lymphocytes, mast cells, and several other hematopoietic lineage cells. | http://www.ncbi.nlm.nih.gov |
| ILK6 | Interleukin-6 | A cytokine that stimulates the growth and differentiation of human B-cells and is also a growth factor for hybridomas and plasmacytomas. It is produced by many different cells including T-cells, monocytes, and fibroblasts. A single chain 25 kD cytokine originally described as a pre B-cell growth factor, now known to have effects on a number of other cells including T-cells which are also stimulated to proliferate. An inducer of acute phase proteins and a colony-stimulating factor acting on mouse bone marrow. | http://cancerweb.ncl.ac.uk/omd/ |
| IL10 | Interleukin-10 | Interleukin-10 is a cytokine produced by a variety of cell types, including T-lymphocytes; monocytes; dendritic cells; and epithelial cells that exerts a variety of effects on immunoregulation and inflammation. Interleukin-10 | http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | combines with itself to form a homodimeric molecule that is the biologically active form of the protein. Also: IL-10, Cytokine Synthesis Inhibitory Factor, CSIF | |
| IL12 | Interleukin-12 | Interleukin-12 is a heterodimeric cytokine that plays a role in innate and adaptive immune responses. Interleukin-12 is a 70 kDa protein that is composed of covalently linked 40 kDa and 35 kDa subunits. It is produced by dendritic cells; macrophages and a variety of other immune cells and plays a role in the stimulation of interferon-gamma production by T-lymphocytes and natural killer cells. Also: IL-12 p70 | http://www.ncbi.nlm.nih.gov |
| IP40 | Interleukin-12 subunit p40 | Interleukin-12 subunit p40 is a cytokine subunit that is a component of both interleukin-12 and interleukin-23. It binds to the interleukin-12 subunit p35 via a disulfide bond to form interleukin-12 and to interleukin-23 subunit p19 to form interleukin-23. Also: Interleukin-12b, IL-12(p40) | http://www.ncbi.nlm.nih.gov |
| IL17 | Interleukin 17 | Interleukin-17 (IL-17, or IL-17A) is the founding member of a group of cytokines called the IL-17 family. IL-17A is a proinflammatory cytokine produced primarily by T-lymphocytes or their precursors. Several subtypes of interleukin-17 have been identified, each of which is a product of a unique gene. Also: IL17A, CTLA8 | http://www.ncbi.nlm.nih.gov and www.wikipedia.org/wiki |
| ICON | Iodine concentration | The concentration of Iodine found in a sample. | |
| FEAI | Iron Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| FECO | Iron Content | Metal that is an essential constituent of hemoglobin, cytochrome and other components of respiratory enzyme systems; chief function is the transport of oxygen to tissues and in cellular oxidation mechanisms. | |
| FEMN | Iron to Manganese Ratio | No definition available. | |
| FEZN | Iron to zinc ratio | No definition available. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ISDM | Isodesmosine | 2-(4-amino-4-carboxybutyl)-1-(5-amino-5-carboxypentyl)-3,5-bis(3-amino-3-carboxypropyl)pyridinium. A rare amino acid found in elastin, formed by condensation of four molecules of lysine into a pyridinium ring. | http://cancerweb.ncl.ac.uk/omd/ |
| IDMN | Isodesmosine + Desmonine | Isodesmosine: 2-(4-amino-4-carboxybutyl)-1-(5-amino-5-carboxypentyl)-3,5-bis(3-amino-3-carboxypropyl)pyridinium. A rare amino acid found in elastin, formed by condensation of four molecules of lysine into a pyridinium ring. PLUS Desmosine: Component of elastin, formed from four side chains of lysine and constituting a cross linkage. | http://cancerweb.ncl.ac.uk/omd/ |
| IHDA | isoheptadecanoic acid | 15-methylhexadecanoic acid, or isoheptadecanoic acid (C17:0 iso), is a saturated fatty acid. | ECOTOX |
| ILEU | Isoleucine | An amino acid. | |
| IMNT | Iso-menthone | No definition available. | |
| IODA | Iso-octadecanoic acid | Iso-octadecanoic acid (C18:0 iso) is a saturated fatty acid. | ECOTOX |
| IPLM | Isopalmitic acid | 14-Methylpentadecanoic acid, isopalmitic acid (C16:0 iso) is a saturated fatty acid. | http://en.wikipedia.org/wiki/ and http://pubchem.ncbi.nlm.nih.gov |
| IPDA | Isopentadecanoic acid | 13-methyltetradecanoic acid, isopentadecanoic acid (C15:0 iso) is a saturated fatty acid. | http://en.wikipedia.org/wiki/ and http://pubchem.ncbi.nlm.nih.gov |
| ISPT | Isoprostane | A series of prostaglandin-like compounds that are produced by the attack of free-radical species on unsaturated fatty acids, especially arachidonic acid, of cellular membranes. Once cleaved from the lipid membrane by the action of phospholipases they can circulate into various bodily fluids and eventually be excreted. Although these compounds resemble enzymatically synthesized prostaglandins their stereoisometric arrangement is usually different than the "naturally occurring" compounds. | http://www.ncbi.nlm.nih.gov |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| KTNE | Ketone | A byproduct of fat metabolism. An overabundance of ketones in the bloodstream is seen in a severe metabolic derangement known as diabetic ketoacidosis. | http://cancerweb.ncl.ac.uk/omd/ |
| LACT | Lactate | The anionic form of lactic acid, a salt of lactic acid. | |
| LCPY | Lactate Pyruvate Ratio | The ratio of lactate to pyruvate found in a sample | ECOTOX |
| LCTA | Lactic Acid | Metabolic intermediate involved in biochemical processes, end product of glycolysis. | |
| LCTS | Lactose | The major sugar in human and bovine milk. | http://cancerweb.ncl.ac.uk/omd/ |
| LAUA | Lauric acid | Lauric acid, dodecanoic acid (C12:0), a crystalline fatty acid occurring as glycerides in natural fats and oils, especially coconut oil and palm-kernel oil. | http://wordnetweb.princeton.edu/ and http://en.wikipedia.org/wiki/ |
| LASC | L-ascorbic acid | Synonym-ascorbic acid (ASCA). Vitamin C. A water-soluble vitamin found in many fruits and vegetables. | Dorlands Dictionary |
| LA2S | L-Ascorbyl-2-sulfate | No definition available. | |
| LASS | L-ascorbyl-2-sulfate | A stable derivative of ascorbic acid used as a source of vitamin C. | http://www.asasea.com/technical/AQ48-okeefe.pdf |
| PBIC | Lead 131-Iodine content | The content of Lead 131-iodine found in an organism or tissue. | |
| PBAI | Lead Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| PBCO | Lead Content | Metal. | |
| PBPR | Lead Phosphorus ratio | The ratio of lead to phosphorus. | |
| LGHE | Leghemoglobin | Leghemoglobin is a red-colored enzyme active in the environment of N2-fixing nodules; leghemoglobin mediates the high O2 requirements of the N2-fixing bacteroids and the necessity of the O2-limited environment. | |
| LEUC | Leucine | An amino acid. | |
| LCCT | Leucocrit | (Leukocrit) the volume percentage of leukocytes in whole blood. | |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| LTB4 | Leukotriene B4 | Leukotriene B4, or LTB4, is the major metabolite in neutrophil polymorphonuclear leukocytes. It stimulates polymorphonuclear cell function (degranulation, formation of oxygen-centered free radicals, arachidonic acid release, and metabolism). | http://www.ncbi.nlm.nih.gov |
| LIGN | Lignin | Organic substance which act as a binder for the cellulose fibers in wood and certain plants and adds strength and stiffness to the cell walls. | http://cancerweb.ncl.ac.uk/omd/ |
| LIMO | Limonene | A terpene with a lemon odor that is found in oils from citrus fruits and in oils from peppermint and spearmint. | |
| LINA | Linalool | A terpene that has a bergamot odor and is found in many essential oils, particularly in bergamot and rosewood; used as a flavoring agent and in perfumes. | |
| LELA | Linoelaidic acid | Linoelaidic acid (C18:2 trans9,trans12) is a poly unsaturated fatty acid. | ECOTOX |
| LNLT | Linoleate | A fatty acid. A salt of linoleic acid. | |
| LINO | Linoleic Acid | A principal fatty acid in plants and considered essential in animal nutrition; used in medicine, feeds, paints, and margarine. | |
| LNLN | Linolenic acid | An 18 carbon fatty acid with three double bonds (9, 12, 15, octadecatrienoic acid) and isomers. Essential dietary component for mammals. | http://cancerweb.ncl.ac.uk/omd/ |
| LNLA | Linolenic acid, all cis | Linolenic acid (C18:3n-3), also C18:3 (all cis-9,12,15) acid or alpha-Linolenic acid, is a poly unsaturated fatty acid. | ECOTOX |
| LNEI | Linolenic and Eicosenoic Acid | Linolenic acid - One of the principle unsaturated fatty acids in plants and essential fatty acids in plants and an essential fatty acid in animal nutrition. Eicosenoic acid - a saturated fatty acid; a constituent of butter. | |
| LIPD | Lipid | Fat or fat-like substances, total lipid. | |
| LCAR | Lipid:Chlorophyll A ratio | Ratio of Lipid to Chlorophyll A in a sample. | ECOTOX |
| <LIPT> goes to LIPD | Lipid Content, Total | No definition available. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| LDPO | Lipid Peroxides | Peroxides produced in the presence of a free radical by the oxidation of unsaturated fatty acids in the cell in the presence of molecular oxygen. The formation of lipid peroxides results in the destruction of the original lipid leading to the loss of integrity of the membranes. They therefore cause a variety of toxic effects in vivo and their formation is considered a pathological process in biological systems. Their formation can be inhibited by antioxidants, such as vitamin e, structural separation or low oxygen tension. | |
| LPSA | Lipid Soluble Antioxidants | Antioxidant - substance that prevents or delays deterioration by action of oxygen. | |
| LDNT | Lipids, Neutral | No definition available. | |
| LDPL | Lipids, Polar | No definition available. | |
| LPFS | Lipofuscin | Any of a group of liquid pigments found in cardiac and smooth muscle cell, in macrophages, and in parenchyma and interstitial cells; differential reactions include sudanophilia, Nile blue staining, fatty acid , glycol, and ethylene. | |
| LPPX | Lipoperoxide | A chemical that impairs prostacyclin synthesis and promote thromboxane synthesis, which can increase platelet aggregation. | |
| LICO | Lithium content | The concentration of lithium found in a sample. | |
| LDLP | Low density lipoprotein | Lipoprotein substances (combination of a fat and a protein) which acts as a carrier for cholesterol and fats in the bloodstream. | http://cancerweb.ncl.ac.uk/omd/ |
| LUTE | Lutein | An orange xanthophyll C40H56O2 occurring in plants, animal fat, egg yolk, and the corpus luteum. | |
| LYSI | Lysine | An amino acid. | |
| LPPC | Lysophosphatidylcholine | Lysophosphatidylcholines, also called lysolecithins, are a class of chemical compounds which are derived from phosphatidylcholines. They result from partial hydrolysis of phosphatidylcholines which removes one of the fatty acid groups. | http://en.wikipedia.org/wiki |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| LPPE | Lysophosphatidylethanolamine | Lysophosphatidylethanolamine is a specific inhibitor of phospholipase D, a key enzyme in the degradation of membrane phospholipids during the early stages of plant senescence. By this action, it retards the senescence of leaves, flowers, and post-harvest fruits. | http://lipidlibrary.aocs.org/Lipids/pe/index.htm#lpe |
| LPPG | Lysophosphatidylglycerol | Lysophosphatidylglycerol, with a fatty acid in position sn-1 only, has been reported to have some biological properties in animal tissues in vitro, but it is not known whether these are relevant in vivo. | http://lipidlibrary.aocs.org/Lipids/pg/index.htm |
| MGCO | Magnesium | Metal, that is essential in nutrition, required for the activity of many enzymes, especially those concerned with oxidative phosphorylation | |
| MGAL | Magnesium to aluminum ratio | The ratio of the amount of magnesium to aluminum in an organism or organism's parts. | |
| MGNR | Magnesium to Nitrogen ratio | Magnesium to nitrogen ratio in a sample. | ECOTOX |
| MLAT | Malate | A salt of malic acid. | |
| MLDH | Malondialdehyde | Malonaldehyde is found in many foodstuffs and can be present at high levels in rancid foods. It is present as a lipid metabolite in human and animal tissues. It is probably used only as a research chemical. | |
| MNAI | Manganese Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| MNCO | Manganese Content | Metal, occur in body tissue in very small amounts and acts as an activator of liver arginase and other enzymes. | |
| MNFE | Manganese to iron ratio | Ratio of manganese to iron in an organism or organism's tissues. | |
| MNNR | Manganese Nitrogen ratio | The ratio of manganese to nitrogen in a sample. | ECOTOX |
| MRNN | Marennine | A blue pigment secreted by algae. | |
| MARG | Margaric acid | Margaric acid (C17:0), or heptadecanoic acid, is a saturated fatty acid. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| MEAD | Mead Acid | Mead Acid (C20:3n-9), also all cis-5,8,11-eicosatrienoic acid, is a poly unsaturated fatty acid. | ECOTOX |
| MCHG | Mean Corpuscular Hemoglobin | The mean mass of hemeglobin in the red blood cell (hemoglobin * 10/red blood cell count). | |
| MCHC | Mean Corpuscular Hemoglobin Concentration | The mean concentration of hemoglobin in the red blood cell (hemoglobin/hematocrit). | |
| MCPV | Mean Corpuscular Volume | Measure average size of a single red blood cell. Used to classify anemias. Derived value obtained by dividing hematocrit / Total RBC | |
| MLNN | Melanin | Melanin is a class of compounds found in plants, animals, and protists, where it serves predominantly as a pigment. The class of pigments are derivatives of the amino acid tyrosine. | http://en.wikipedia.org/wiki |
| MTHL | Menthol | A compound used in medicines and perfumes, and as flavoring agent. Also known as peppermint camphor. | |
| MNTH | Menthone | Oily, colorless ketonic liquid with slight peppermint odor. | |
| MNAC | Menthyl Acetate | No definition available**.** | |
| HGCO | Mercury concentration | The concentration of mercury found in a sample. | |
| MTLT | Metal Content, Total | Total metal content in a sample. | ECOTOX |
| MTLN | Metallothionein | A group of vertebrate and invertebrate proteins that bind heavy metals that may be involved in zinc homeostasis and resistance to heavy-metal toxicity. | |
| MTCD | Metallothionein to Cadmium ratio | The ratio of Metallothionein to Cadmium meaured in a sample | ECOTOX |
| MCUR | Metallothionein to Copper ratio | The ratio of Metallothionein to Copper measured in a sample | ECOTOX |
| MGLB | Methemoglobin | Hemoglobin in the oxidized state. Also ferrihemoglobin. | http://www.ncbi.nlm.nih.gov |
| METH | Methionine | An amino acid. | |
| MDCH | Methyl-4,7,10,13,16,19-Docosahexanate | No definition available. | |
| MGPN | Mg-2,4-divinyl pheophophyrin a5 monomethyl ester | Mg-2,4-divinyl pheophophyrin a5 monomethyl ester is a protochlorophyllide pigment. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| MCYS | Microcystin | .M. aeruginosa produces compounds called microcystins, which are potent hepatotoxins and probable tumor promoters. | |
| MCPR | Microsomal Proteins | Proteins found in microsomes. | |
| MCON | Mineral content | Mineral content. | |
| MRXC | Mirex concentration | The amount of the chemical Mirex found in an organism, tissue or response site | |
| MOCO | Molybdenum Content | A silvery metal used in iron-base alloys. | |
| MGDG | Monogalactosyl Diglyceride (Glycolipid) Content | Glycolipid - lipid containing carbohydrate groups, usually galactose. The simplest are the glycodiacyl-glycerols. | |
| MGCR | Monoglyceride | Glycerol with an acyl moiety esterified to position 1 (i.e., 1-monoacylglycerol) or position 2 (i.e., 2-monoacylglycerol); an intermediate in the degradation and synthesis of lipids; 2 monoacylglycerols are a major end product of triacylglycerol degradation. | http://cancerweb.ncl.ac.uk/omd/ |
| MUFA | Monounsaturated Fatty Acids | Monounsaturated Fatty Acids are fatty acids in which the carbon chain contains one double or triple carbon-carbon bonds. | http://www.ncbi.nlm.nih.gov |
| MYLN | Myelin | The material making up the myelin sheath of nerve axons. | http://cancerweb.ncl.ac.uk/omd/ |
| MYRA | Myristic acid | The myristoyl group is one of the less common fatty acyl residues of phospholipids in biological membranes but is found as an N terminal modification of a large number of membrane associated proteins and some cytoplasmic proteins. | http://cancerweb.ncl.ac.uk/omd/ |
| MYSL | Myristoleic acid | Myristoleic acid (C14:1 cis9) is a mono unsaturated fatty acid. | ECOTOX |
| HNMS | N[3H-methyl] scopolamine | No definition available. | |
| CNAC | N-acetyl-(S-3-chloroprop-2-enyl)cysteine (3CNAC) | N-acetyl-(S-3-chloroprop-2-enyl)cysteine (3CNAC) is a metabolite of 1,3-Dichloropropene, a conjugate of acetylcysteine with 1,3-dichloropropene. | http://www.ncbi.nlm.nih.gov and http://www.epa.gov/iris/subst/0224.htm |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NBUA | N-butyric acid | One of two isomeric fatty acids C4H8O2; the straight-chain acid of unpleasant odor normally found in perspiration and rancid butter. Also Butanoic acid, or normal butyric acid | http://www.wikipedia.org/wiki |
| RNDP | NADPH to NADP Ratio | Ratio of NADPH to NADP. NADPH is the reduced form of NADP+, and NADP+ is the oxidized form of NADPH (Nicotinamide adenine dinucleotide phosphate). | http://en.wikipedia.org/wiki and ECOTOX |
| NXNT | Neoxanthin | Carotenoid pigments involved in photosynthesis. Neoxanthin is one of the main carotenoids in chloroplasts of higher plants and algae. Alternate spelling: neoxanthine | http://www.ncbi.nlm.nih.gov and ECOTOX |
| NRMA | Neuraminic acid | Sometimes known as sialic acid, but strictly one of a family of sialic acids (which includes also N glycolyl neuraminic acid and O substituted derivatives). It is a 9 carbon sugar formed by adding to mannose three carbons from pyruvate. Occurs in the subset of glycolipids known as gangliosides and in glycoproteins. The presence of its carboxyl group on glycolipids and glycoproteins is responsible for much of the negative charge on animal cell surfaces. | http://cancerweb.ncl.ac.uk/omd/ |
| NICO | Nickel Content | The concentration of nickel found in a sample. | |
| NIFE | Nickel to nitrogen ratio | Ratio of nickel to nitrogen in an organism or organism's tissues. | |
| <NADP> | Nicotinamide-adenine Dinucleotide Phosphate, Reduced | (nicotinamide) NADP - a coenzyme compound of robosylnicotinamide 5'-phosphate, serves as an electron carrier in a number of reactions. | |
| NICT | Nicotine | A plant alkaloid from tobacco, blocks transmission at nicotinic synapses. | http://cancerweb.ncl.ac.uk/omd/ |
| NPSS | Ninhydrid-positive Substances | No definition available. | |
| NO3- | Nitrate | A salt or ester of nitric acid. | http://www.m-w.com/ |
| NOCO | Nitric Oxide concentration | This compound is produced from L arginine by the enzyme nitric oxide synthase. Acts as a potent vasorelaxant via elevation of intracellular cGMP in vascular smooth muscle. | http://cancerweb.ncl.ac.uk/omd/ |
| NO2 | Nitrite | The amount of nitrite in a sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NCON | Nitrogen | Gaseous element that is a constituent of protein and nucleic acids and is present in all living cells. | |
| NCAR | Nitrogen Calcium ratio | The ratio of nitrogen to calcium in a sample. | ECOTOX |
| NMGR | Nitrogen Magnesium ratio | The ratio of nitrogen to magnesium in a sample. | ECOTOX |
| NPRT | Nitrogen Phosphorus Ratio | The ratio of nitrogen to phosphorus in a sample. | ECOTOX |
| NKRT | Nitrogen Potassium ratio | The ratio of nitrogen to potassium in a sample. | ECOTOX |
| NSRA | Nitrogen to sulfur ratio | No definition available**.** | |
| NODA | Nonadecanoic acid | Nonadecanoic acid (C19:0) is a saturated fatty acid. | ECOTOX |
| NPSH | Nonprotein Sulfhydryl | Sulfhydryl, or thiol - the univalent radical of sulfur. | |
| QPHP | Non-photochemical quenching pigments to light harvesting pigments ratio | The ratio of Non-photochemical quenching pigments to light harvesting pigments. | ECOTOX |
| NSUG | Non-reducing sugars | Sugar and therefore does not react with amino acids or proteins. | |
| NUAC | Nucleic Acids | A large, acidic, chainlike molecule containing phosphoric acid, sugar, and purine and pyrimidine bases; two types are ribonucleic acid and deoxyribonucleic acid. | |
| NUTP | Nucleoside Triphosphate | A nucleoside in which the H of one of the ribose hydroxyls (usually the 5') is replaced by a triphosphoric group, -PO(OH)-O-PO(OH)-O-PO(OH) | http://cancerweb.ncl.ac.uk/omd/ |
| NTPH | Nucleotide triphophate (Total) to hemoglobin ratio | Ratio of total nucleotide triphosphate to hemoglobin in a sample. | ECOTOX |
| NUTR | Nutrient Status Change | No definition available**.** | |
| OHGL | O2 Specific Bond to Hemoglobin | No definition available**.** | |
| ODCN | Octadecanoate | A free fatty acid | ECOREF #77855 |
| OCTA | Octadecenoic acid (C18:1n-7) | Octadecenoic acid, both cis and trans isomers, (C18:1n-7) is a mono unsaturated fatty acid. | ECOTOX |
| OCTS | Octadecenoic acids | Octadecenoic acids, various isomers of the mono unsaturated fatty acid. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| OSDB | Oestradiol breakdown products | Amount of polar metabolites formed in nmoles/ g microsomal fraction from the breakdown of estradiol. | |
| EPNP | O-Ethyl-O-p-nitrophenylbenzenethionophosphate | The amount of O-Ethyl-O-p-nitrophenylbenzenethionophosphate contained within a response site. | |
| OLCO | Oil Content | No definition available. | |
| OLYD | Oil Yield | No definition available. | |
| OLEC | Oleic Acid | Yellowish, unsaturated fatty acid with lard-like aroma; the main component of olive and cooking oils; used in soaps, ointments, cosmetics, and ore beneficiation. | |
| O1LA | (omega -1)-Hydroxy lauric acid | Hydroxylation product of the metabolism of lauric acid. | ECOREF 67744 |
| O2LA | (omega-2)-Hydroxy lauric acid | Hydroxylation product of the metabolism of lauric acid. | ECOREF 67744 |
| O3LA | (omega-3)-Hydroxy lauric acid | Hydroxylation product of the metabolism of lauric acid. | ECOREF 67744 |
| O6LA | (omega-6)-Hydroxy lauric acid | Hydroxylation product of the metabolism of lauric acid. | ECOREF 67744 |
| O3FA | Omega 3 Fatty Acid | Omega 3 Fatty Acids are unsaturated fatty acids which have the first unsaturated bond in the third position from the omega carbon. | http://www.ncbi.nlm.nih.gov |
| O3O6 | Omega 3 Fatty Acids to Omega 6 Fatty Acids ratio | Ratio of Omega 3 Fatty Acids to Omega 6 Fatty Acids in a sample. | ECOTOX |
| O6FA | Omega 6 Fatty Acids | Omega 6 Fatty Acids are unsaturated fatty acids which have the first unsaturated bond in the sixth position from the omega carbon. | http://www.ncbi.nlm.nih.gov |
| O6O3 | Omega 6 Fatty Acids to Omega 3 Fatty Acids ratio | Ratio of Omega 6 Fatty Acids to Omega 3 Fatty Acids in a sample. | ECOTOX |
| OACD | Organic acids | Initial product of photosynthesis. | |
| ORNI | Ornithine | An amino acid. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| OSCN | Osteocalcin | Osteocalcin is a Vitamin K-dependent calcium-binding protein synthesized by osteoblasts and found primarily in bones. Serum osteocalcin measurements provide a noninvasive specific marker of bone metabolism. The protein contains three residues of the amino acid gamma-carboxyglutamic acid (Gla), which, in the presence of calcium, promotes binding to hydroxyapatite and subsequent accumulation in bone matrix. | http://www.ncbi.nlm.nih.gov |
| OCON | Oxygen Content | The concentration of oxygen found in a sample. | |
| ONRA | Oxygen to nitrogen ratio | The ratio of oxygen to nitrogen in a sample. | |
| OXHC | Oxyhemocyanin | Hemocyanine charged with oxygen. | |
| OHCP | Oxyhemocyanin to protein ratio | Ratio of oxyhemocyanin to protein in a sample. | ECOTOX |
| PCLV | Packed Cell Volume | The venous hematocrit determined by centrifugation; the number of packed red cells in ml/100ml of centrifuged blood. | |
| PALM | Palmitic Acid | A fatty acid derived from spermaceti; used to make metal palmitates and in soaps, water-proofing, and lubricating oils. Also: Hexadecanoic Acid, cetylic acid | http://pubchem.ncbi.nlm.nih.gov |
| PALL | Palmitoleic Acid | An unsaturated fatty acid, found in marine animal oils. | |
| AMNH | P-amino Hippurate | A salt of aminohippuric acid, the glycine conjugate of amniobenzoic acid, salt is used to measure the effective renal plasma flor and to determine the functional capacity of the tubular excretory mechanism (PAH or PAHA). | |
| PTNA | Pantothenic acid | Pantothenic acid is a butyryl-beta-alanine that can also be viewed as pantoic acid complexed with beta alanine. It is incorporated into coenzyme a and protects cells against peroxidative damage by increasing the level of glutathione. Also: Vitamin B5 | http://www.ncbi.nlm.nih.gov |
| PRXT | Paroxetine | Trans-(-)-3-((1,3-benzodioxol-5-yloxy)methyl)-4-(4-fluorophenyl)piperidine. A serotonin uptake inhibitor that is effective in the treatment of depression. | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PTLN | Patulin | Patulin, or 4-Hydroxy-4H-furo(3,2-c)pyran-2(6H)-one, is a mycotoxin produced by several species of Aspergillus and Penicillium. It is found in unfermented apple and grape juice and field crops. It has antibiotic properties and has been shown to be carcinogenic and mutagenic and causes chromosome damage in biological systems. | http://www.ncbi.nlm.nih.gov |
| PCBC | PCB concentration | The amount of the chemical(s) Polychlorinated biphenol(s) found in an organism, tissue or response site. | |
| PDCN | Pentadecanoate | A free fatty acid | ECOREF #77855 |
| PDCA | Pentadecanoic acid | Pentadecanoic acid, pentadecylic acid (C15:0) is a saturated fatty acid. | http://en.wikipedia.org/wiki/ |
| POLD | Peroxidizable lipids | Lipids that are able to be peroxidized. | |
| PHPH | pH | Hydrogen ion concentration. | |
| PPYT | Phaeophytin | A breakdown product of chlorophyll | www.dep.state.fl.us/labs/biology/microbio.htm |
| PNYL | Phenols concentration | The concentration of Phenols found in a sample. Phenols, sometimes called phenolics, are a class of chemical compounds consisting of a hydroxyl group (-O H) attached to an aromatic hydrocarbon group. The simplest of the class is phenol (C6H5OH). | http://en.wikipedia.org/wiki/Phenols and ECOTOX |
| PHEN | Phenylalanine | An amino acid. | |
| PTNN | Phlorotannin | Phlorotannins are a class of polyphenolic compounds (tannins) derived from pholorglucinol (1,3,5-trihydroxybenzene) . Phlorotannins can be found in brown seaweeds. | http://www.ncbi.nlm.nih.gov and ECOTOX |
| PSPH | Phosphagen | A nutrient formed from 3 specific amino acids that saturate muscle tissue with creatine which is a compound of muscle energy production. | |
| PPHT | Phosphate | Phosphate esters occur in many body constituents including nucleotides and nucleic acids, phospholipids, and phophoproteins. | |
| PHSP | Phosphatide Phosphorus | Phospholipid with phosphorus. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PHPA | Phosphatidic acid | Phosphatidic acid is a major constituent of cell membranes and acts as a biosynthetic precursor for the formation of all acylglycerol lipids in the cell. | http://en.wikipedia.org/wiki |
| PHSC | Phosphatidyl Choline (Phospholipid) Content | Choline attached to a phospholipid; major component of cell membranes. | |
| PHSE | Phosphatidyl Ethanolamine (Phospholipid) Content | A phospholipid with an ethanolamine attached; major constituent of cell membranes. | |
| PHSG | Phosphatidyl Glycerol (Phospholipid) Content | No definition available. | |
| PHSI | Phosphatidyl Inositol (Phospholipid) | A phospholipid with the sugar inositol attached; minor constituent of cell membranes. | |
| PARG | Phosphoarginine | A high-energy phosphate compound that is primarily found in invertebrates. | |
| PHCR | Phosphocreatine | Present in high concentration (about 20mM) in striated muscle and is synthesised and broken down by creatine phosphokinase to buffer ATP concentration. It acts as an immediate energy reserve for muscle. | http://cancerweb.ncl.ac.uk/omd/ |
| PCRA | Phosphocreatine to creatine | The ratio of Phosphocreatine to creatine | ECOTOX |
| PCRE | Phosphocreatinine | A high energy reservoir for ATP formation. | http://web.stcloudstate.edu/lsreerama/Assets/Biochem480/MetabGen.pdf |
| PDST | Phosphodiester | A diesterified orthophosphoric acid, RO-(PO2H)-OR', as in the nucleic acids. | http://cancerweb.ncl.ac.uk/omd/ |
| PSPY | Phosphoenol pyruvate | An important metabolic intermediate. The enol (less stable) form of pyruvic acid is trapped as its phosphate ester, giving the molecule a high phosphate transfer potential. Formed from 2 phosphoglycerate by the action of enolase. | |
| PPEA | Phosphoethanolamine | Phosphoethanolamine is a key intermediate in the formation of cephalins; formed in liver and brain by phosphorylation of ethanolamine. | http://cancerweb.ncl.ac.uk/omd |
| PMST | Phosphomonoester | No definition available. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PCON | Phosphorus Content | Essential element in the diet, found in bones, abundant in all tissues, is involved in some form in almost all metabolic processes. | |
| PFER | Phosphorus to Iron Ratio | No definition available. | |
| PORT | Phosphorus oxygen ratio | The ratio of phosphorus to oxygen in a sample. | ECOTOX |
| PNRT | Phosphorus Nitrogen ratio | The ratio of phosphorus to nitrogen in a sample. | ECOTOX |
| PZNR | Phosphorus to Zinc ratio | Ratio of phosphorus to zinc in an organism or organism's tissues. | |
| PPPT | Phosphorylation of proteins | Addition of phosphate groups to hydroxyl groups on proteins (side chains s, T or Y) catalysed by a protein kinase often specific) with ATP as phosphate donor. Activity of proteins is often regulated by phosphorylation. | http://cancerweb.ncl.ac.uk/omd/ |
| PSPI | Phosphotidylserine and phosphotidylinosital | Derivatives of phosphatidic acids that are parts of biomembranes. | |
| PHSS | Phosphtidylserine | Derivatives of phosphatidic acids in which the phosphoric acid is bound in ester linkage to a serine moiety. Also Serine Phosphoglyceride | http://www.ncbi.nlm.nih.gov |
| PHCB | Phycobiliproteins | Phycobiliproteins are light harvesting protein complexes found in phycobilisomes. | http://www.ncbi.nlm.nih.gov |
| PHYC | Phycocyanin | A blue phycobilin. Phycobilin - any of various protein-bound pigments which are open chain tetrapyrroles and occur in some groups of algae. | |
| PHCO | Phycoerythrin | Phycoerythrin is the metal-free red phycobilin pigment in a conjugated chromoprotein of red algae. It functions as a light-absorbing substance together with chlorophylls. | http://www.ncbi.nlm.nih.gov |
| PHTC | Phytochelatin | Phytochelatins are small polypeptide compounds produced in plants by enzymes which are expressed in response to heavy-metals (Cd2+, Pb4+). | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PHTN | Phytoene | Phytoene is a precursor to carotenoids. Two molecules of the twenty carbon geranylgeranyl pyrophosphate are condensed in a tail-to-tail configuration to give the forty carbon phytoene, the first committed step in carotenoid biosynthesis. | http://en.wikipedia.org/wiki |
| PSCY | Plastocyanin | A prototypical blue-copper 'cupredoxin' protein, whose function is electron transfer in photosynthesis. | |
| PLAT | Platelets | Z minute flattened body, especially blood platelets. | |
| PNAS | p-Nitroanisol | The amount of p-Nitroanisol contained within a response site. | |
| PBHB | Poly-b-hydroxybutyrate | No definition available. | |
| PEGE | Polyethylene Glycol (Peg) Efflux | No definition available. | |
| PLSC | Polysaccharide | Polymers of (arbitrarily) more than about ten monosaccharide residues linked glycosidically in branched or unbranched chains. | http://cancerweb.ncl.ac.uk/omd/ |
| PUFA | Polyunsaturated Fatty Acids | Polyunsaturated Fatty Acids are fatty acids in which the carbon chain contains two or more double or triple carbon-carbon bonds. | http://www.ncbi.nlm.nih.gov |
| PORP | Porphyrin | Found in prosthetic groups of hemoglobin, myoglobin, and cytochromes. | |
| KCDR | Potassium Cadmium Ratio | The ratio of potassium to cadmium in a sample. | |
| KCON | Potassium Content | Metallic element of the alkali group, chief cation of muscle and most other cells (intracellular fluid). | |
| KCUR | Potassium Copper Ratio | The ratio of potassium to copper in a sample. | |
| KNO3 | Potassium nitrate | Potassium nitrate content in a sample. | ECOTOX |
| KNRT | Potassium Nitrogen ratio | The ratio of potassium to nitrogen in a sample. | ECOTOX |
| KNAR | Potassium Sodium Ratio | The ratio of potassium to sodium in a sample. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PCPA | Procarboxypeptidase A | Physiologically inactive substances that can be converted to active enzymes, specific precursor form is referred to as a procarboxypeptidase A. In the case of pancreatic carboxypeptidase A, the inactive zymogen form, pro-carboxypeptidase A, is converted to its active form - carboxypeptidase A - by the enzyme enteropeptidase. This mechanism ensures that the cells wherein pro-carboxypeptidase A is produced are not themselves digested. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| PCPB | Procarboxypeptidase B | Physiologically inactive substances that can be converted to active enzymes, specific precursor form is referred to as a procarboxypeptidase B. In the case of pancreatic carboxypeptidase B, the inactive zymogen form, pro-carboxypeptidase B, is converted to its active form - carboxypeptidase A - by the enzyme enteropeptidase. This mechanism ensures that the cells wherein pro-carboxypeptidase A is produced are not themselves digested. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| PRLN | Proline | A heterocyclic amino acid occurring in essentially all proteins, and as a major constituent in collagen protein. | |
| PMP2 | proMMP2 | The inactive zymogen, or proenzyme, of MMP2 (matrix metalloproteinase 2) | ECOTOX |
| PM29 | Pro-matrix metaloproteinase 2 and Pro-matrix metaloproteinase 9 | Pro-matrix metaloproteinase 2 and Pro-matrix metaloproteinase 9 are the inactive zymogen, or proenzymes, of MMP2 and MMP9. | ECOTOX |
| PMP9 | proMMP9 | The inactive zymogen, or proenzyme, of MMP9 (matrix metalloproteinase 9) | ECOTOX |
| PADH | Propionaldehyde | Propionaldehyde is the organic compound with the formula CH3CH2CHO. It is the only 3-carbon aldehyde and is a structural isomer of acetone. It is a colourless liquid with a slightly irritating, fruity odour. It is present as a lipid metabolite in tissues. | http://en.wikipedia.org/wiki and ECOREF#73878 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PGE2 | Prostaglandin E2 | Any of a group of components derived from unsaturated 20 carbon fatty acids, primarily arachidonic acid, via the cyclooxygenase pathway that are extremely potent mediators of a diverse group of physiologic processes. The abbreviation for prostaglandin is PG, specific compounds are designated by adding one of the letters A through I to indicate the type of substituents found on the hydrocarbon skeleton and a subscript (1, 2 or 3) to indicate the number of double bonds in the hydrocarbon skeleton for example, PGE2. All of the prostaglandins act by binding to specific cell surface receptors causing an increase in the level of the intracellular second messenger cyclic AMP (and in some cases cyclic GMP also). The effect produced by the cyclic AMP increase depends on the specific cell type. Increased cyclic AMP increases prostaglandin synthesis leading to further increases in cyclic AMP. See also individual prostaglandins. | http://cancerweb.ncl.ac.uk/omd/ |
| PTSM | Proteasome | Proteolytic complexes that degrade cytosolic and nuclear proteins. Implicated in ATP dependent ubiquitin protein complex degradation and in antigen processing in antigen presenting cells. The 20S proteasome (700 kD), essential in ATP ubiquitin degradation pathway, has 13-15 subunits each of which has three or four different peptidase activities. 26S proteasomes may be formed in an ATP dependent fashion from a 20S proteasome and additional components, CF1 (660 kD), CF2 (250 kD) and CF3 (600 kD). | http://cancerweb.ncl.ac.uk/omd/ |
| PROB | Protein binding | No definition available. | |
| PRSH | Protein bound sulfhydryl | Protein bound sulfhydryl. | |
| PCAR | Protein carbonyls | Markers of oxidative stress measured as 2,4-dinitrophenylhydrazine incorporated into protein | ECOREF #81028 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PRCO | Protein Content | Protein - principle component of protoplams of cells; a combination of amino acids in peptide linkages. | |
| PRUP | Protein to urea ratio | Ratio of protein to urine. | |
| PROI | Protein, insoluble | Any of a group of complex organic compounds which contain carbon, hydrogen, oxygen, nitrogen and usually sulphur, the characteristic element being nitrogen and which are widely distributed in plants and animals. In this case: Insoluble proteins | http://cancerweb.ncl.ac.uk/omd/ |
| PRTL | Protein, Total | No definition available. | |
| PCCA | Protocatechuic acid | Protocatechuic acid or 3,4-Dihydroxybenzoic acid; 4-carboxycatechol;oxidation product of epinephrine. | http://cancerweb.ncl.ac.uk/omd/ |
| PRTO | Protoporphyrin | Combines with heme to form the heme prosthetic group of hemoglobin and myoglobin. | |
| PHCN | Pseudohypericin | Pseudohypericin is an analogue of hypericin and is also a principal constituent of Hypericum (Saint John's wort). | ECOTOX and http://en.wikipedia.org/wiki/ |
| PLAC | Pulp:Acid | Pulp to acid ratio. | |
| PUTR | Putrescine | An amine associated with putrifying tissue. Associates strongly with DNA. Has been suggested as a growth factor for mammalian cells in culture. | http://cancerweb.ncl.ac.uk/omd/ |
| PYRT | Pyrethin | A relatively safe botanical poison derived from a species of chrysanthemum, it breaks down quickly in the environment. It kills by interfering with the pattern of insect nerve transmissions. | |
| PYRV | Pyruvate | The end product of glycolysis (used synonymously with pyruvic acid). | |
| QUIN | Quinone | Any of various usually yellow, orange, or red quinonoid compounds including several that are biologically important as coenzymes, hydrogen acceptors, or vitamins | http://www.merriam-webster.com/medlineplus/Quinone |
| LALN | Ratio of linoleic to linolenic fatty acids | Ratio of linoleic to linolenic fatty acids | |
| SUFA | Ratio of saturated to unsaturated fatty acids | Ratio of saturated to unsaturated fatty acids | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ROXS | Reactive oxygen species | Reactive intermediate oxygen species including both radicals and non-radicals. These substances are constantly formed in the human body and have been shown to kill bacteria and inactivate proteins, and have been implicated in a number of diseases. Scientific data exist that link the reactive oxygen species produced by inflammatory phagocytes to cancer development. | http://cancerweb.ncl.ac.uk/omd/ |
| GSGS | Reduced Glutathione to Glutathione disulfide | The ratio of reduced Glutathione to Glutathione disulfide | ECOTOX |
| RSUG | Reducing sugars | Reducing sugars refer to any saccharide bearing an anomeric carbon atom which has not formed a glycosidic bond. So called because of the facility with which the aldehyde group reduces mild oxidizing agents. | |
| RIDX | Refractive Index | The refractive power of a medium with that of air which is assumed to be 1. | |
| RBVL | Relative Blood Volume (Volume/100g Body Weight) | Sum of red cell volume and plasma volume in relation to body weight. | |
| RTND | Retinoids | A class of keratolytic drugs derived from retinoic acid and used for treatment of severe acne and psoriasis. | http://cancerweb.ncl.ac.uk/omd/ |
| VITA | Retinol (Vitamin A) | Vitamin A1alcohol; 2,6,6-trimethyl-1-(9'-hydroxy-3',7'-dimethylnona-1',3',5',7'-tetraenyl)cyclohex-1-ene;a half-carotene bearing the b (or beta-ionone) form of the cyclic end group and a CH2OH at the C-15 position (numbering as in carotenoids) or 9'-position (numbering as a nonyl side chain on a cyclohexene ring); an intermediate in the vision cycle, it also plays a role in growth and differentiation. Also known as Retinyl palmitate. | http://cancerweb.ncl.ac.uk/omd/ |
| RTRP | Retinol/Retinyl palmitate ratio | The ratio of Retinol to Retinyl palmitate in a sample. | ECOTOX |
| RBGD | Retinoyl beta-glucuronide | An unstable metabolite of the vitamin A metabolite retinoic acid. | http://www.pharmacy.ohio-state.edu/homepage/program/medchem/medc_curley.html |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| RTES | Retinyl esters | Sum of retinyl palmitate, retinyl stearate, and retinyl oleate. | ECOTOX 80509 |
| VIDD | Retinyl palmitate:Dehydroretinyl palmitate | Ratio of Retinyl palmitate to Dehydroretinyl palmitate found in a sample. | |
| RTST | Retinyl stearate | A derivative of Vitamin A. | http://www.umm.edu/altmed/ConsSupplements/VitaminARetinolcs.html) |
| RHDP | Rhodopsin | Light sensitive pigment formed from retinal linked through a Schiff's base to opsin:rhodopsin is an integral membrane protein found in the discs of retinal rods and cones, comprising some 40% of the membrane. Vertebrate opsins are proteins of 38 kD. | http://cancerweb.ncl.ac.uk/omd/ |
| RIBO | Riboflavin Content | The heat stable factor of the vitamin B complex; serves as a component of two coenzymes - FAD and FMN | |
| RBSD | Riboside | A glycoside that has ribose as its sugar component. | http://cancerweb.ncl.ac.uk/omd |
| RBCO | Rubidium Concentration | The level of Rubidium in a sample | ECOTOX |
| SAHC | S-adenosyl-l-homocysteine | S-(5'-deoxy-5'-adenosyl)-l-homocysteine; the compound formed by the demethylation of S-adenosyl-l-methionine. | http://cancerweb.ncl.ac.uk/omd/ |
| SAME | S-adenosyl-l-methionine | S-(5'-deoxy-5'-adenosyl)-l-methionine; a sulfonium compound bearing a methyl group that is transferred in transmethylation reactions. Synonym: active methionine. Acronym: SAM | http://cancerweb.ncl.ac.uk/omd/ |
| AMAH | S-adenosylmethionine to S-adenosylhomocysteine ratio | Ratio of S-adenosylmethionine to S-adenosylhomocysteine in a sample. | ECOTOX |
| SATF | Saturated Fatty Acids | Saturated Fatty Acids are fatty acids that have no double bonds between the carbon atoms of the fatty acid chain and are thus fully saturated with hydrogen atoms. | http://en.wikipedia.org/wiki |
| STLD | Saturated lipid or fat | A fatty acid with all potential hydrogen binding sites filled (totally hydrogenated fat). | http://cancerweb.ncl.ac.uk/omd/ |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SCPN | Scopoletin | Plant growth factor derived from the root of scopolia carniolica or scopolia japonica. Chemical name: 2H-1-Benzopyran-2-one, 7-hydroxy-6-methoxy- 7-hydroxy-6-methoxycoumarin | http://cancerweb.ncl.ac.uk/omd/ |
| <SMET> | Secondary Metabolism | No definition available. | |
| SECO | Selenium content | The concentration of selenium found in a sample. | |
| SESR | Selenium to sulfur ratio | No definition available. | |
| SERI | Serine | An amino acid. | |
| SERP | Serpin | Superfamily of proteins, mostly serine protease inhibitors | http://cancerweb.ncl.ac.uk/omd/ |
| SIAL | Sialic acid | A group of naturally occurring n- and o-acyl derivatives of the deoxyamino sugar neuraminic acid. They are ubiquitously distributed in many tissues. | http://cancerweb.ncl.ac.uk/omd/ |
| SLAC | Silicic acid | Hydrated silicon dioxide that occurs in nature. It is insoluble in water or acids except hydrofluoric acid. | http://cancerweb.ncl.ac.uk/omd/ |
| SICO | Silicon content | The concentration of silicon found in a sample. | |
| AGCO | Silver concentration | The concentration of silver found in a sample. | ECOTOX |
| SPXN | Siphonaxanthin | Siphonaxanthinis a Xanthophyll. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| SRGA | Siringic acid | Siringic acid is a phenolic acid | ECOREF#71186 |
| NACO | Sodium Content | Alkaline metallic element, chief cation of the extracellular body fluids. | |
| NAZN | Sodium Zinc Ratio | The ratio of sodium to zinc in a sample. | |
| NAKR | Sodium:Potassium Ratio | The ratio of sodium to potassium in a sample. | |
| PRSL | Soluble Protein | Protein - principle component of protoplams of cells; a combination of amino acids in peptide linkages. | |
| SSUG | Soluble Sugars | No definition available. | |
| SGRV | Specific gravity | The ratio of the density of a substance to the density of some substance (as pure water) taken as a standard when both densities are obtained by weighing in air. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SPMD | Spermidine | A polyamine compound, C7H19N3, found in ribosomes and living tissues and having various metabolic functions. It was originally isolated from semen. | The American Heritage7 Dictionary of the English Language: Fourth Edition. 2000. |
| SPER | Spermine | Polybasic amine. Found in human sperm, in ribosomes and in some viruses. Involved in nucleic acid packaging. Synthesis is regulated by ornithine decarboxylase which plays a key role in control of DNA replication. | http://cancerweb.ncl.ac.uk/omd/ |
| SPHG | Sphingomyelin | A group of phospholipids, found in brain, spinal cord, kidney, and egg yolk, containing 1-phosphocholine (choline O-phosphate) combined with a ceramide (a long-chain fatty acid linked to the nitrogen of a long-chain base, such as sphingosine). Synonym: ceramide 1-phosphorylcholine, phosphosphingosides. | http://cancerweb.ncl.ac.uk/omd/ |
| SPIG | Spiggin | A glue protein produced by the kidney of a male stickleback that is used as a cementing substance for the building of a nest. | ECOREF 62582 |
| STRH | Starch Content | Polysaccharide. | |
| STER | Stearic Acid | Nature's most common fatty acid, derived from natural animal and vegetable fats. | |
| STES | Sterol esters | Sterol esters are present in plant tissues, but as relatively minor components other than in waxes. Usually the sterol components of sterol esters are similar to the free sterols, although there may be relatively less of stigmasterol. | http://www.lipid.co.uk/infores/Lipids/sterols/ |
| STOL | Sterols | Any of a group of natural steroid alcohols derived from plants or animals; they are waxy insoluble substances. Any steroid-based alcohol having a hydrocarbon (aliphatic) side-chain of 8-10 carbons at the 17-beta position and a hydroxyl group at the 3-beta position (therefore an alcohol). | www.dictionary.com http://cancerweb.ncl.ac.uk/omd/ |
| SEWE | Steryl esters and wax esters | A component of the lipid content of organisms. | |
| SVOL | Steviol | The amount of Steviol measured in a sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SRCO | Strontium Content | The concentration of strontium found in a sample. | |
| PRST | Structure proteins | Proteins whose role is for structure and support in tissue and within the cell; e.g., the collagens. | http://cancerweb.ncl.ac.uk/omd/ |
| SCCN | Succinate | A salt or ester of succinic acid; for example sodium succinate, the reaction product of succinic acid and sodium hydroxide. | |
| SUCR | Sucrose | A sugar such as sucrose, which is made up of two monosaccharides: one glucose molecule and one fructose molecule. Nonreducing disaccharide, D glucopyranosyl D fructofuranose | http://cancerweb.ncl.ac.uk/omd/ |
| SUGA | Sugar Content | A sweet carbohydrate. | |
| SGMP | Sugar monophosphates | Initial product of photosynthesis. | |
| SPHS | Sugar phosphates | Initial product of photosynthesis. | |
| SLFT | Sulfate concentration | The concentration of sulfate measured in a sample. | |
| SFTD | Sulfatides | Cerebroside sulfuric esters containing one or more sulfate groups in the sugar portion of the molecule. | http://cancerweb.ncl.ac.uk/omd/ |
| SLFH | Sulfhydryl | The univalent radical of sulfur, also known as thiol. | |
| SQVD | Sulfoquinovosyl diglyceride | A lipid. | |
| SCON | Sulfur Content | The concentration of sulfur found in a sample. | |
| SSER | Sulfur to Selenium Ratio | No definition available. | |
| SPTP | Synaptophysin | Synaptophysin is a 38-kd calcium-binding glycoprotein that is present in the presynaptic vesicles of neurons and in the neurosecretory granules of neuroendocrine cells. | http://www.biocare.net/AntibodyView.asp?ID=421 |
| TAUR | Taurine | Taurine is one of the most abundant amino acids in the body. It is found in the central nervous system, skeletal muscle and is very concentrated in the brain and heart. It is synthesized from the amino acids methionine and cysteine, in conjunction with vitamin B6. | http://cancerweb.ncl.ac.uk/omd/ |
| TGRT | Taurine to Glycine ratio | The ratio of Taurine to Glycine in a sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TNZA | Tenuazonic acid | Tenuazonic acid is a metabolite found in a strain of the fungus Alternaria tenuis Auct. which functions as an antibiotic with antiviral and antineoplastic properties, and may also act as a mycotoxin. | http://www.ncbi.nlm.nih.gov |
| TDCN | Tetradecanoate | A free fatty acid | ECOREF #77855 |
| TEAM | Tetraethyl Ammonium | The bromide and chloride salts are short acting quaternary ammonium ganglion-blocking agents. | |
| TLCO | Thallium content | The concentration of thallium found in a sample. | |
| LCPR | The ratio of lipid to chlorophyll to protein | The ratio of the amount of lipid to chlorophyll to protein in an organism or organism's parts. | |
| LPRR | The ratio of lipid to protein | The ratio of the amount of lipid to protein in an organism or organism's parts. | |
| THIA | Thiamin | A member of the water-soluble B vitamin group, necessary for energy production and carbohydrate metabolism. Deficiency is known as beriberi. Vitamin B1. | http://cancerweb.ncl.ac.uk/omd/ |
| TPPH | Thiamin pyrophosphate | The diphosphoric ester of thiamin, a coenzyme of several (de)carboxylases, transketolases, and alpha-oxoacid dehydrogenases. Synonym: aneurine pyrophosphate, cocarboxylase, diphosphothiamin. | http://cancerweb.ncl.ac.uk/omd/ |
| THBA | Thiobarbituric Acid | A condensation of malonic acids and ureas; parent compound for a class of barbiturates. | |
| TBAR | Thiobarbituric Acid Reactive Substances | No definition available. | |
| TCNT | Thiocyanate | Thiocyanate (also known as rhodanide) is the anion [SCN]-. It is both a breakdown product of cyanide and is known to be important in the biosynthesis of hypothiocyanite by a lactoperoxidase. | www.wikipedia.org/wiki |
| THSF | Thioether | A thioether is a functional group in organic chemistry that has the structure R1-S-R2. Like many other sulfur-containing compounds, volatile thioethers characteristically have foul odors. Also: Sulfides, Sulfur Ethers. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| THCO | Thorium concentration | The concentration of Thorium found in a sample. | ECOTOX |
| THLS | Trehalose | Trehalose is a disaccharide sugar (342 D) found widely in invertebrates, bacteria, algae, plants and fungi, formed by the dimerisation of glucose. | http://cancerweb.ncl.ac.uk/omd |
| THRE | Threonine | An amino acid. | |
| TXB2 | Thromboxane B2 | Thromboxane B2 is a stable, physiologically active compound formed in vivo from the prostaglandin endoperoxides. It is important in the platelet-release reaction. | http://www.nlm.nih.gov |
| TYMD | Thymidine | A nucleoside derived from DNA; essential growth factor for certain microorganisms in mediums lacking vitamin B12 and folic acid. | |
| TTTV | Thymol turbidity test | Precipitation of abnormal proportions of albumin and globulin from the serum of patients with liver disease by addition of thymol. Although popular in the past it has been superseded by quantitative determination of specific proteins and direct measurement of liver enzymes. Synonym: Maclagan's test, Maclagan's thymol turbidity test, TTT. | http://cancerweb.ncl.ac.uk/omd |
| SNCO | Tin concentration | The concentration of Tin found in a sample. | ECOTOX |
| TICO | Titanium content | The concentration of titanium found in a sample. | |
| <D44T> | Total 4,4 Dimethylsterols | Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility. | |
| <DI4T> | Total 4-dimethysterols | No definition available. | |
| C9BT | Total 9b,19-cyclopropylsterols | Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility | |
| GLYT | Total Glycolipid Content | Glycolipid - a lipid containing carbohydrate groups. | |
| LAMT | Total lauric acid metabolites | A total of all metabolism products of lauric acid. | ECOREF#67744 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TNSC | Total Non-structural Carbohydrate | No definition available. | |
| PHST | Total Phospholipid Content | Phospholipid - major form of lipid in cell membranes. | |
| TTSL | Total Solids (in milk) | Total solids are determined by weighing milk, drying milk, and weighing dried milk residue. Total solids content of milk is the weight of dried milk residue expressed as percentage of original milk weight. | http://www.fmmaseattle.com/lab/solids.htm |
| T9HC | trans-9 Hexadecanoate | A free fatty acid | ECOREF #77855 |
| T10O | trans-10-octadecenoic acid | trans-10-octadecenoic acid (C18:1 trans10) is a mono unsaturated fatty acid. | ECOTOX |
| T12O | trans-12-octadecenoic acid | trans-12-octadecenoic acid (C18:1 trans12) is a mono unsaturated fatty acid. | ECOTOX |
| TSFN | Transferrin | A protein that carries iron in the bloodstream (80 kD) found in mammalian serum, a beta globulin. Total iron binding capacity (TIBC) is a blood test that measures the ability of transferrin to carry iron in the blood and indirectly measures transferrin in the bloodstream. | http://cancerweb.ncl.ac.uk/omd/ and http://www.healthline.com |
| TGB1 | Transforming growth factor beta 1 | Transforming growth factor beta 1 or TGF-beta1 is a polypeptide member of the transforming growth factor beta superfamily of cytokines. It is a secreted protein that performs many cellular functions, including the control of cell growth, cell proliferation, cell differentiation and apoptosis. | http://en.wikipedia.org |
| TCTP | translationally controlled tumor protein | No definition available. | |
| TTRN | Transthyretin | An a-globulin secreted by the liver; it forms a complex with retinol binding protein and binds retinol, transporting it to the peripheral tissues. It may also bind triiodothyronine or thyroxine although these are usually transported by thyroxine-binding globulins. | Dorland's Medical Dictionary |
| TRIB | Tributyrin | A colorless fat, found in cows milk. | |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| TRIG | Triglycerides (Triacylglycerols) | A neutral fat synthesized from carbohydrates for storage in animal adipose cells; on enzyme hydrolysis it releases free fatty acids in the blood. | |
| TMAO | Trimethylamine oxide | Trimethylamine oxide (TMAO) is a common and compatible osmolyte in tissue that is often credited with counteracting protein-destabilizing forces. | www.cephbase.dal.ca/refdb/pdf/6856.pdf |
| TPNN | Troponin | Complex of three proteins, Troponins C, I, & T, associated with tropomyosin and actin on the thin filament of striated muscle, upon which it confers calcium sensitivity. | http://cancerweb.ncl.ac.uk/omd/ |
| TRYS | Trypsinogen | The zymogen of trypsin, secreted in the pancreatic juice. Also known as protrypsin. | |
| TRYP | Tryptophan | Amino acid. | |
| TRTY | Trytophan to tyrosine ratio | The ratio of trytophan to tyrosine in an organism or organism's tissues. | |
| TERP | T-terpinene | No definition available. | |
| TMFA | Tumour necrosis factor-alpha | Originally described as a tumour inhibiting factor in the blood of animals exposed to bacterial lipopolysaccharide or Bacille Calmette-Guerin. Preferentially kills tumour cells in vivo and in vitro, causes necrosis of certain transplanted tumours in mice and inhibits experimental metastases. Human Tumour Necrosis factor alpha (TNF-a) is a protein of 157 amino acids and has a wide range of pro inflammatory actions. Usually considered a cytokine. Also known as cachectin. | http://cancerweb.ncl.ac.uk/omd/ |
| TYRO | Tyrosine | An amino acid. | |
| UFAS | Unsaturated fatty acids | Unsaturated Fatty Acids are fatty acids in which the carbon chain contains one (monounsaturated), two or more (polyunsaturated) double or triple carbon-carbon bonds. | http://www.ncbi.nlm.nih.gov |
| USAR | Unsaturated fatty acid to saturated fatty acids ratio | Ratio of unsaturated fatty acids to saturated fatty acids. | ECOTOX |
| UCON | Uranium concentration | The concentration of Uranium found in a sample. | ECOTOX |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| UREA | Urea | Formed in the liver via the urea cycle from ammonia produced by the deamination of amino acids. | |
| UTMR | Urea to Trimethylamine oxide ratio | Ratio of Urea to Trimethylamine oxide | ECOTOX |
| UREN | Urea nitrogen | The nitrogen associated with the urea in the body. | |
| URIC | Uric Acid | The end product of purine catabolism in primates. | |
| UDPA | Uridine Diphosphate (UDP) Acetylglucosamine | No definition available. | |
| UPRP | Uroporphyrin | Porphyrins are pigments found in both animal and plant life. This test is useful in evaluating any number of porphyrin disorders (involving the various porphyrins) of red blood cells. | |
| UCTR | Uroprophrin creatine ratio | The ratio of Uroprophrin to creatine in a sample. | ECOTOX |
| VACC | Vaccenic acid | n-Trans-11-octadecenoic acid; an unsaturated fatty acid of which both cis- and trans- isomers are found in butter and other animal fats. | http://cancerweb.ncl.ac.uk/omd/ |
| VALI | Valine | An amino acid. | |
| VCON | Vanadium content | The concentration of vanadium found in a sample. | |
| VNLA | Vanillic acid | Vanillic acid is a flavoring agent. It is the intermediate product in the two-step bioconversion of ferulic acid to vanillin. | http://cancerweb.ncl.ac.uk/omd/ |
| VMAC | Vanillylmandelic acid | A metabolite of norepinephrine. | |
| VCXN | Vaucheriaxanthin | Vaucheriaxanthin is a Xanthophyll. | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| VERA | Versicolorin A | A mycotoxin | ECOTOX |
| VHAC | Versiconal Hemiacetal Acetate | An anthraquinone that is an intermediate in aflatoxin biosynthesis | ECOTOX 75785 |
| VLDL | Very low density lipoprotein | Composed mostly of cholesterol, with little protein and used to transport cholesterol, triglycerides and other lipids to various tissues. Often called "bad cholesterol" because it deposits cholesterol on the walls of arteries. | NIH-Medline |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| VPRO | Vimentin | An intermediate filament protein found in mesodermally derived cells including muscle. | http://cancerweb.ncl.ac.uk/omd/ |
| VXCA | Violaxanthin to Chlorophyll A ratio | Ratio of Violaxanthin to Chlorophyll A | |
| VLXN | Violaxanthin | Carotenoid pigments involved in photosynthesis. Violaxanthin is a carotene epoxide that is precursor to capsanthin; one of three xanthophylls (violaxanthin, zeaxanthin and antheraxanthin) involved in evolution of plastids of green plants (oxygen evolution); and participates in series of photo-induced interconversions known as "violaxanthin cycle". Alternate spelling: Violaxanthine Other names: 5,6:5',6'-Diepoxy-5,5',6,6'-tetrahydro-beta-carotene-3,3'-diol, Zeaxanthin diepoxide | |
| VTAE | Vitamin A ester (Retinyl ester) | A compound that has a fatty acid bound to the alcohol group of retinol. | http://www.canr.uconn.edu/nusci/hpg/fatsolublenotes.pdf |
| VB12 | Vitamin B12 | Vitamin B12 is a cobalt-containing coordination compound produced by intestinal micro-organisms and found also in soil and water. Higher plants do not concentrate vitamin B 12 from the soil and so are a poor source of the substance as compared with animal tissues. It is important for the normal functioning of the brain and nervous system, and for the formation of blood. Cyanocobalamin is an especially common vitamer of the B-12 vitamin family, animals and humans can convert it to active (cofactor) forms of the vitamin, such as methylcobalamin | http://www.ncbi.nlm.nih.gov and http://en.wikipedia.org/wiki |
| VTMD | Vitamin D | Vitamin D is a fat-soluble vitamin that includes both cholecalciferols and ergocalciferols. | http://www.ncbi.nlm.nih.gov |
| VTD3 | Vitamin D3 | Also called cholecalciferol; fat soluble vitamin. | |
| VTME | Vitamin E | Any of a series of eight related compounds called tocopherols, alpha-tocopherol having the highest biological activity; occurs in wheat germ and other naturally occurring oils. | |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| VITN | Vitellin | Major egg yolk proteins from egg-laying animals such as non-mammalian vertebrates; arthropods; and others. Vitellins are high-density lipoglycoproteins derived from circulating precursors, vitellogenins. Vitellins serve as nutrients for the growing non-mammalian embryos. | http://www.ncbi.nlm.nih.gov |
| VITE | Vitellogenin | The serum phospholipoglycoprotein precursor to egg yolk. | |
| VEPO | Vitellogenin:protein ratio | The ratio of the amount of vitellogenin to the amount of protein in an organism. | |
| VIVT | Vitellogenin:Vitellin ratio | The amount of Vitellogenin to the amount of Vitellin in a sample. | |
| WTCO | Water Content | The amount of water found in a sample. | |
| WAXX | Wax | Waxes are natural secretions of plants or animals. Chemically, a wax is a type of lipid that may contain a wide variety of long-chain alkanes, esters, polyesters and hydroxy esters of long-chain primary alcohols and fatty acids. These substances are malleable at normal ambient temperatures, a melting point above approximately 45 C, relatively low viscosity when melted, insoluble in water, and hydrophobic. | ECOTOX and http://en.wikipedia.org/wiki |
| XTRA | Xanthurenic acid | 4,8-Dihydroxyquinoline-2-carboxylic acid; 4,8-dihydroquinaldic acid;the sulfur-yellow crystals form a red compound with Millon reagent, or an intensely green one with ferrous sulfate; excreted in the urine of pyridoxine-deficient animals after the ingestion of tryptophan, and of rats fed almost exclusively with fibrin. | http://cancerweb.ncl.ac.uk/omd |
| <YLKE> | Yolk Energy | No definition available. | |

| **BCM Biochemical Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ZEAR | Zearalenone | Zearalenone or (s-(e))-3,4,5,6,8,10-hexahydro-14,16-dihydroxy-3-methyl-1h-2-benzoxacyclotetradecin-1,7(8h)-dione. One of a group of compounds known under the general designation of resorcylic acid lactones. Cis, trans, dextro and levo forms have been isolated from the fungus gibberella zeae (formerly fusarium graminearum). They have oestrogenic activity, cause toxicity in livestock as feed contaminant, and have been used as anabolic or oestrogen substitutes. | http://cancerweb.ncl.ac.uk/omd/ |
| ZXTN | Zeaxanthin | B,beta-carotene-3,3'-diol;a carotene found in corn, fruits, seeds, and egg yolk; isomeric with xanthophyll. | http://cancerweb.ncl.ac.uk/omd/ |
| ZXCH | Zeaxanthin to Chlorophyll A ratio | Ratio of Zeaxanthin to Chlorophyll A | |
| ZXVX | Zeaxanthin to Violaxanthin ratio | Ration of Zeaxanthin to Violaxanthin | |
| ZNAI | Zinc Accumulation index | The ratio of a chemical in the organism to the ratio of the chemical in the soil. | |
| ZNCO | Zinc Content | Necessary in trace amounts in the body; it forms an essential part of enzymes and plays an important role in protein synthesis and cell division. | |
| ZNPP | Zinc protoporphyrin | A tightly bound, specific non-polypeptide unit required for the biological function of some proteins. A prosthetic group consisting of a protoporphyrin ring and a central zinc (Zn) atom. High levels of zinc protoporphyrin (ZPP) in blood indicate lead exposure. | http://www.clunet.edu/BioDev/omm/catalase/frames/hemetx.htm |
| ZNCD | Zinc to cadmium ratio | Ratio of zinc to cadmium in an organism or organism's tissues. | |
| ZNCU | Zinc to Copper ratio | Ratio of zinc to copper in an organism or organism's tissues. | |
| ZNFE | Zinc to iron ratio | Ratio of zinc to iron in an organism or organism's tissues. | |
| ZNNA | Zinc to sodium ratio | Ratio of zinc to sodium in an organism or organism's tissues. | |
| ZPP2 | Zona pellucide protein 2 | A glycoprotein that helps form a non-cellular membrane around a developing egg. | ECOREF 67746 |

| **BCM Biochemical Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ZPRO | Zona Radiata Protein | Also known as: vitelline envelope, zona radiata, or eggshell protein. A protein involved in the thickening of the cell membrane of the ovum. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Note** |
| BGAL | (Beta)-galactosidase | One of a class of enzymes which cuts the glycosidic bond between the sugar galactose and another sugar molecule (of a different type than galactose). There are two subclasses - the alpha galactosidases and beta galactosidases - which cuts the two types of glycosidic bonds (alpha and beta, respectively). | http://cancerweb.ncl.ac.uk/omd/ |
| ALAD | (Delta)-Aminolevulinic Acid Dehydratase | Also known as (Delta)-Aminolevulinic Acid Dehydrase. | |
| ALAS | (Gamma)-ala Synthetase | No definition available. | |
| GGTR | (Gamma)-glutamyl Transferase** | No definition available. (**GGT is also used for gamma glutamyl transpeptadase, a liver enzyme; prior to using the GGTR code verify that indeed GGT is used as the transferase in the current publication. The gamma glutamyl transpeptadase code is GGTP (proposed code).) | |
| 15B7 | 15 beta/7alpha-hydroxylases | 15 beta/7alpha-hydroxylases are an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| 17BH | 17beta-hydroxysteroid dehydrogenase | An enzyme of the oxidoreductase class that catalyze the dehydrogenation of hydroxysteroids. | http://cancerweb.ncl.ac.uk/omd/ |
| 2OHB | 2-OH Biphenyl Hydroxylase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HSHG | 3-beta Hydroxysteroid dehydrogenase | Hydroxysteroid dehydrogenase is a type of alcohol oxidoreductases which acts as a dehydrogenase upon a hydroxysteroid. Accepted name: 3(or 17)beta-hydroxysteroid dehydrogenase, Other name(s): beta-hydroxy steroid dehydrogenase; 17-ketoreductase; 17beta-hydroxy steroid dehydrogenase; 3beta-hydroxysteroid dehydrogenase; 17beta-hydroxy steroid dehydrogenase; 3beta-hydroxy steroid dehydrogenase. | www.wikipedia.org/wiki and www.chem.qmul.ac.uk |
| CECD | 3-cyano-7-ethoxycoumarin O-deethylase | An enzyme. | |
| 3HCD | 3-hydroxyacyl-CoA dehydrogenase | An enzyme that reversibly catalyzes the oxidation of a 3-hydroxyacyl CoA to 3-ketoacyl CoA in the presence of NAD. They are key enzymes in the oxidation of fatty acids and in mitochondrial fatty acid synthesis. | http://cancerweb.ncl.ac.uk/omd/ |
| HCAD | 3-hydroxyacyl-CoA dehydrogenase | Beta-Hydroxyacyl dehydrogenase;enzyme catalyzing the oxidation of an l-3-hydroxyacyl-CoA to a 3-ketoacyl-CoA with reduction of NAD+; one of the enzymes of the b oxidation of fatty acids. | http://cancerweb.ncl.ac.uk/omd/ |
| 3HAO | 3-Hydroxyanthranilate oxygenase | An enzyme. | |
| 3HBD | 3-hydroxybutyrate dehydrogenase | 3-hydroxybutyrate dehydrogenase is an enzyme, Other name(s): NAD-beta-hydroxybutyrate dehydrogenase; hydroxybutyrate oxidoreductase; beta-hydroxybutyrate dehydrogenase; D-beta-hydroxybutyrate dehydrogenase; D-3-hydroxybutyrate dehydrogenase; D-(-)-3-hydroxybutyrate dehydrogenase; beta-hydroxybutyric acid dehydrogenase; 3-D-hydroxybutyrate dehydrogenase; beta-hydroxybutyric dehydrogenase, (R)-3-hydroxybutanoate:NAD+ oxidoreductase | http://www.chem.qmul.ac.uk |
| 4CBH | 4-chlorobiphenyl hydroxylase | An enzyme. | ECOTOX |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PNPP | 4-nitrophenylphosphatase | 4-nitrophenylphosphatase is an enzyme that catalyzes the hydrolysis of nitrophenyl phosphates to nitrophenols. Other name(s): nitrophenyl phosphatase; p-nitrophenylphosphatase; para-nitrophenyl phosphatase; K-pNPPase; NPPase; PNPPase; Ecto-p-nitrophenyl phosphatase; p-nitrophenylphosphate phosphohydrolase, K-Dependent p-Nitrophenylphosphatase, 4-nitrophenylphosphate phosphohydrolase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| 4OHB | 4-OH Biphenyl Hydroxylase | No definition available. | |
| 5ARD | 5alpha-reductase | Accepted name: 3-oxo-5alpha-steroid 4-dehydrogenase Other name(s): steroid 5alpha-reductase; 3-oxosteroid delta4-dehydrogenase; 3-oxo-5alpha-steroid delta4-dehydrogenase; steroid delta4-5alpha-reductase; delta4-3-keto steroid 5alpha-reductase; delta4-3-oxo steroid reductase; delta4-3-ketosteroid5alpha-oxidoreductase; delta4-3-oxosteroid-5alpha-reductase; 3-keto- delta4-steroid-5alpha-reductase; testosterone 5alpha-reductase; 4-ene-3-ketosteroid-5alpha-oxidoreductase; delta4-5alpha-dehydrogenase; 3-oxo-5alpha-steroid:(acceptor) delta4-oxidoreductase Systematic name: 3-oxo-5alpha-steroid:acceptor delta4-oxidoreductase | http://www.chem.qmul.ac.uk |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| 5AVS | 5-aminolevulinate synthase | 5-aminolevulinate synthase is an enzyme of the transferase class that catalyzes condensation of the succinyl group from succinyl coenzyme A with glycine to form delta-aminolevulinate. It is a pyridoxyal phosphate protein and the reaction occurs in mitochondria as the first step of the heme biosynthetic pathway. The enzyme is a key regulatory enzyme in heme biosynthesis. Other name(s): ALAS; ALA synthase; alpha-aminolevulinic acid synthase; delta-aminolevulinate synthase; delta-aminolevulinate synthetase; delta-aminolevulinic acid synthase; delta-aminolevulinic acid synthetase; delta-aminolevulinic synthetase; 5-aminolevulinate synthetase; 5-aminolevulinic acid synthetase; ALA synthetase; aminolevulinate synthase; aminolevulinate synthetase; aminolevulinic acid synthase; aminolevulinic acid synthetase; aminolevulinic synthetase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| 5NLT | 5-Nucleotidase activity | A liver enzyme that can be measured in the bloodstream. It can be a specific indicator for liver disease when it is elevated. | |
| RNPH | 5'-Ribonucleotide phosphohydrolase | Common name: 5'-nucleotidase. A glycoprotein enzyme present in various organs and in many cells. The enzyme catalyses the hydrolysis of a 5'-ribonucleotide to a ribonucleoside and orthophosphate in the presence of water. It is cation-dependent and exists in a membrane-bound and soluble form. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| 6PGD | 6-Phosphogluconate dehydrogenase | 6-phosphogluconate dehydrogenase is an enzyme of the oxidoreductase class that catalyzes the reaction 6-phospho-D-gluconate and NADP+ to yield D-ribulose 5-phosphate, carbon dioxide, and NADPH. Also: phosphogluconate 2-dehydrogenase, 6-phosphogluconic dehydrogenase; phosphogluconate dehydrogenase; gluconate 6-phosphate dehydrogenase; 6-phosphogluconate dehydrogenase (NAD); 2-keto-6-phosphogluconate reductase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| EROD | 7-Ethoxyresorufin O-deethylase | No definition available. | |
| A712 | 7,12-dimethylbenz(a)anthracene hydroxylase | 7,12-dimethylbenz(a)anthracene hydroxylase is part of a large group of cytochrome P-450 (heme-thiolate) monooxygenases that complex with NAD(P)H-Flavin Oxioreductase in numerous mixed-function oxidations of aromatic compounds. | (http://www.ncbi.nlm.nih.gov) |
| ACOH | Acetanilide-4-hydroxylase | A marker for CYP1A2. | ECOREF#75745 |
| AASY | Acetolactate synthase | A flavoprotein enzyme that catalyzes the formation of acetolactate from 2 moles of Pyruvate in the biosynthesis of Valine and the formation of acetohydroxybutyrate from pyruvate and alpha-ketobutyrate in the biosynthesis of Isoleucine. Other name(s): a-acetohydroxy acid synthetase; a-acetohydroxyacid synthase; a-acetolactate synthase; a-acetolactate synthetase; acetohydroxy acid synthetase; acetohydroxyacid synthase; acetolactate pyruvate-lyase (carboxylating); acetolactic synthetase. | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| ACHE | Acetylcholinesterase | An enzyme that breaks down unused acetylcholine in the synaptic cleft (the space between neurons), this enzyme is necessary to restore the synaptic cleft so it is ready to transmit the next nerve impulse. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ACAC | Acetyl-CoA carboxylase | A carboxylating enzyme that catalyses the conversion of ATP, acetyl-CoA, and hco3- to ADP, orthophosphate, and malonyl-CoA. It is a biotinyl-protein that also catalyses transcarboxylation. The plant enzyme also carboxylates propanoyl-CoA and butanoyl-CoA | http://cancerweb.ncl.ac.uk/omd/ |
| ACPH | Acid Phosphatase | No definition available. | |
| APRT | Acid Protease | Any of many protein-hydrolyzing enzymes that work best in an acidic solution (usually in a pH range of 2-6). Such proteases include the stomach enzymes pepsin and rennin | |
| APYR | Acid pyrophosphatase | A group of enzymes within the class EC 3.6.1.- that catalyze the hydrolysis of diphosphate bonds, chiefly in nucleoside di- and triphosphates. They may liberate either a mono- or diphosphate. | |
| ACCO | Acyl-CoA oxidase | Acyl-CoA oxidase, enzyme that catalyzes the first and rate-determining steps of peroxisomal beta-oxidation of fatty acids. It acts on enzyme A derivatives of fatty acids with chain lengths from 8 to 18 . Also, fatty acyl-CoA oxidase; acyl coenzyme A oxidase; fatty acyl-coenzyme A oxidase, acyl-CoA:oxygen 2-oxidoreductase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| AATA | Acyl coenzyme A:testosterone acyltransferase | An enzyme responsible for testosterone esterification | Gooding etal,Environ Health Perspect. (2003) 111(4): 426-430 |
| ADDM | Adenosine deaminase | An enzyme that catalyses the hydrolysis of adenosine to inosine with the elimination of ammonia. Since there are wide tissue and species variations in the enzyme, it has been used as a tool in the study of human and animal genetics and in medical diagnosis. | http://cancerweb.ncl.ac.uk/omd/ |
| ATPA | Adenosine Triphosphatase | A group of enzymes which catalyze the hydrolysis of ATP coupled with another function such as transporting calcium across a membrane. These enzymes may be dependent on calcium, magnesium, anions, h+, or DNA. | http://cancerweb.ncl.ac.uk/omd/ |
| ADNY | Adenylate | An enzyme that catalyzes the formation of cyclic AMP from ATP. | http://www.m-w.com/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ADCY | Adenylate cyclase | Adenylate cyclase is an enzyme. Other name(s): adenylylcyclase; adenyl cyclase; 3',5'-cyclic AMP synthetase; ATP diphosphate-lyase (cyclizing). | http://www.chem.qmul.ac.uk/iubmb |
| ADPS | ADPase | A calcium-activated enzyme that catalyzes the hydrolysis of ATP to yield AMP and orthophosphate. It can also act on ADP and other nucleoside triphosphates and diphosphates. Also: apyrase, ATP-diphosphatase; adenosine diphosphatase. | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| AGPP | ADP glucose pyrophosphorylase | ADP glucose pyrophosphorylase is an enzyme. Other name(s): glucose-1-phosphate adenylyltransferase, adenosine diphosphate glucose pyrophosphorylase; adenosine diphosphoglucose pyrophosphorylase; ADP-glucose pyrophosphorylase; ADP-glucose synthase; ADP-glucose synthetase; ADPG pyrophosphorylase; ADP:alpha-D-glucose-1-phosphate adenylyltransferase | http://www.chem.qmul.ac.uk |
| AAPT | Alanine aminopeptidase | Catalysis of the release of an N-terminal amino acid, preferentially alanine, from an oligopeptide or polypeptide. | http://www.informatics.jax.org/searches/GO.cgi?id=GO:0016284 |
| AATT | Alanine transaminase (ALT) | Alanine transaminase is an enzyme that catalyses the conversion of l-alanine and 2-oxoglutarate to pyruvate and l-glutamate. Other name(s): glutamic-pyruvic transaminase; glutamic-alanine transaminase; GPT; β-alanine aminotransferase; alanine aminotransferase; alanine-α-ketoglutarate aminotransferase; alanine-pyruvate aminotransferase; ALT; glutamic acid-pyruvic acid transaminase; glutamic-pyruvic aminotransferase; L-alanine aminotransferase; L-alanine transaminase; L-alanine-α-ketoglutarate aminotransferase; pyruvate transaminase; pyruvate-alanine aminotransferase; pyruvate-glutamate transaminase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ATAS | Alanine aminotransferase Aspartate aminotransferase ratio | The ratio of alanine aminotransferase (ALT) to aspartate aminotransferase (AST) found in a sample | ECOTOX |
| AGTF | Alanine gamma-glutamyltransferase | An enzyme. | |
| | | | |
| ATRP | Alanine Transpeptidase | No definition available. | |
| ADHE | Alcohol dehydrogenase | Alcohol dehydrogenase is responsible for catalyzing oxidation of primary and secondary alcohols to aldehydes and ketones. Other name(s): aldehyde reductase; ADH; alcohol dehydrogenase (NAD); aliphatic alcohol dehydrogenase; ethanol dehydrogenase; NAD-dependent alcohol dehydrogenase; NAD-specific aromatic alcohol dehydrogenase; NADH-alcohol dehydrogenase; NADH-aldehyde dehydrogenase; primary alcohol dehydrogenase; yeast alcohol dehydrogenase. | http://www.chem.qmul.ac.uk and http://en.wikipedia.org/wiki |
| ALDH | Aldehyde dehydrogenase (ALDH) | An enzyme that catalyzes the conversion of an aldehyde to its corresponding acid. | |
| ALDO | Aldolase | An enzyme in anaerobic glycolysis that catalyzes the cleavage of fructose 1,6-diphosphate to glyceraldehyde 3-phosphate. | |
| AEPX | Aldrin Epoxidase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ALIE | Ali esterase | Ali esterase catalyzes a carboxylic ester to yield an alcohol and carboxylic acid anion; has wide specificity; also hydrolyzes vitamin a esters; can be used to separate stereoisomers; consider also esterase b which is a serine protease. Also known as carboxylesterase, B-esterase; monobutyrase; cocaine esterase; procaine esterase; methylbutyrase; vitamin A esterase; butyryl esterase; carboxyesterase; carboxylate esterase; carboxylic esterase; methylbutyrate esterase; triacetin esterase; carboxyl ester hydrolase; butyrate esterase; methylbutyrase; a-carboxylesterase; propionyl esterase; nonspecific carboxylesterase; esterase D; esterase B; esterase A; serine esterase; carboxylic acid esterase; cocaine esterase, carboxylic-ester hydrolase | http://www.chem.qmul.ac.uk/ |
| ALPH | Alkaline Phosphatase | An enzyme that catalyses the cleavage of inorganic phosphate non-specifically from a wide variety of phosphate esters and having a high (greater than 8) pH optimum. Found in bacteria, fungi and animals but not in higher plants. | http://cancerweb.ncl.ac.uk/omd/ |
| AKPT | Alkaline protease | These proteases work best in the pH range of 8 to 11 and are used widely in washing powders and to de-hair hides. | |
| AKPY | Alkaline pyrophoshatase | A group of enzymes within the class EC 3.6.1.- that catalyze the hydrolysis of diphosphate bonds, chiefly in nucleoside di- and triphosphates. They may liberate either a mono- or diphosphate. | |
| ALLN | Allantoinase Activity | An enzyme (an amidohydrolase) that catalyses the hydrolysis of allantoin to allantoic acid. | http://cancerweb.ncl.ac.uk/omd/ |
| AMYL | Alpha-amylase | An enzyme that catalyses the endohydrolysis of 1,4-alpha-glycosidic linkages in starch, glycogen, and related polysaccharides and oligosaccharides containing 3 or more 1,4-alpha-linked d-glucose units. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| AFCD | alpha-Fucosidase | An enzyme that catalyzes the hydrolysis of an alpha-l-fucoside, producing an alcohol and l-fucose; a deficiency of the lysosomal enzyme will result in fucosidosis. | http://cancerweb.ncl.ac.uk/omd/ |
| AGCT | alpha-Galactosidase | An enzyme that catalyzes the hydrolysis of terminal, non-reducing alpha-d-galactose residues in alpha-galactosides including galactose oligosaccharides, galactomannans, and galactolipids. | http://cancerweb.ncl.ac.uk/omd/ |
| AGSE | alpha-Glucosidase | Enzymes that catalyze the exohydrolysis of 1,4-alpha-glucosidic linkages with release of alpha-glucose. Also known as alpha-D-Glucoside glucohydrolases | http://cancerweb.ncl.ac.uk/omd/ |
| AGPD | alpha-glycerol phosphate dehydrogenase | NAD-dependent glycerol-3-phosphate dehydrogenase ( 1.1.1.8 ) (GPD) catalyzes the reversible reduction of dihydroxyacetone phosphate to glycerol-3-phosphate. It is a cytoplasmic protein, active as a homodimer, each monomer containing an N-terminal NAD binding site. In insects, it acts in conjunction with a mitochondrial alpha-glycerophosphate oxidase in the alpha-glycerophosphate cycle, which is essential for the production of energy used in insect flight. | http:www.ebi.ac.uk |
| HBDS | alpha-Hydroxybutyrate dehydrogenase | An enzyme. | |
| AMNS | alpha-Mannosidase | Catalyzes hydrolysis of terminal, non-reducing alpha-d-mannose residues in alpha-d-mannosides. Also known as alpha-d-mannoside mannohydrolase, alpha-d-mannosidase, neutral alpha-mannosidase, alpha mannosidase a, alpha mannosidase b, lysosomal alpha-mannosidase, laman. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| AMOX | Amine oxidase | A group of enzymes including those oxidizing primary monoamines, diamines, and histamine. Other name(s): diamine oxidase; diamino oxhydrase; histaminase; amine oxidase; amine oxidase (pyridoxal containing); benzylamine oxidase; histamine deaminase; histamine oxidase; Cu-amine oxidase; amine oxygen oxidoreductase; diamine:O2 oxidoreductase (deaminating); semicarbazide-sensitive amine oxidase; SSAO | http://cancerweb.ncl.ac.uk and http://www.chem.qmul.ac.uk |
| AMPD | Aminopeptidase | any member of a sub-subclass of enzymes of the hydrolase class that catalyze the hydrolytic cleavage of the N-terminal amino acid or dipeptide from a peptide chain; they are exopeptidases and occur in plasma and many tissues. | www.mercksource.com/pp/us/cn |
| APND | Aminopyrine N-demethylase | No definition available. | |
| AMDM | AMP deaminase (adenosine monophosphate deaminase) | An enzyme that catalyses the deamination of AMP to IMP (Inosine monophosphate). | http://cancerweb.ncl.ac.uk/omd/ |
| AMLS | Amylase | An enzyme produced in the pancreas and salivary glands. Elevation of the blood amylase is common in conditions of pancreatitis. | http://cancerweb.ncl.ac.uk/omd/ |
| ANAE | A-naphthyl Acetate Esterase | No definition available. | |
| AGCE | Angiotensin converting enzyme | An enzyme of the hydrolase class that catalyzes cleavage of the leucine leucine bond in angiotensin to generate angiotensin. The enzyme is synthesized as inactive prorenin in the kidney and released into the blood in the active form in response to va | |
| ANHG | Aniline hydrogenase | Aniline hydrogenase is an enzyme | ECOTOX |
| AHDX | Aniline Hydroxylase | No definition available. | |
| AREG | Arachidonate epoxygenase | Synonym- Arachidonic Acid Epoxygenase. Requires cytochrome p-450; uses NADPH and oxygen; forms 5,6-,8,9-11,12- and 14,15-cis-epoxyeicosatrienoic acids; p4502caa is the form isolated from rabbit renal cortex | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ARGN | Arginase | A ureahydrolase that catalyses the hydrolysis of arginine and canavanine to yield l-ornithine and urea. Chemical name: L-Arginine amidinohydrolase | http://cancerweb.ncl.ac.uk/omd/ |
| AGKN | Arginine kinase | Acts to maintain steady-state ATP concentrations by mobilizing stores of high energy phosphate during periods of rapid ATP hydrolysis. | |
| ARMT | Aromatase | An enzyme which converts androgens to estrogens by desaturating ring a of the steroid. This enzyme complex is located in the endoplasmic reticulum of estrogen-producing cells including ovaries, placenta, testicular sertoli and leydig cells, adipose, and b. Also known as Estrogen synthetase or P450Arom | |
| ARHY | Aromatic hydroxylase | Enzyme is concentrated in the hepatic endoplasmic reticulum. | Free Online Medical Dictionary |
| ASMT | Arsenite methyl transferase | an enzyme | |
| AMTR | Arsenite methyltransferase | An enzyme of the biotransformation pathway that forms methylarsonate from inorganic arsenite. | |
| AHHD | Aryl hydrocarbon hydrolase (AHH) | Also known as Aryl Hydrocarbon hydrolase (AHH).<br>A group of cytochrome p-450 (haem-thiolate) proteins which utilise reduced flavin or flavoprotein as one donor and incorporate one atom of oxygen. They act on many aromatic compounds. They are a component part of the mixed-function oxidase system and are important for the oxidation of many drugs and toxins such as phenobarbital, carcinogens, and insecticide. These enzymes are considered to be an aspect of EC 1.14.14.1. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ARES | Aryldialkylphosphatase (Arylesterase) | Aryldialkylphosphatase acts on organophosphorus compounds (such as paraoxon) including esters of phosphonic and phosphinic acids. Inhibited by chelating agents; requires divalent cations for activity. Also: organophosphate hydrolase; paraoxonase; A-esterase; aryltriphosphatase; organophosphate esterase; esterase B1; esterase E4; paraoxon esterase; pirimiphos-methyloxon esterase; OPA anhydrase; organophosphorus hydrolase; phosphotriesterase; paraoxon hydrolase; OPH; organophosphorus acid anhydrase. | (http://www.chem.qmul.ac.uk) |
| SASE | Arylsulfatase | An enzyme that cleaves phenol sulfates, including cerebroside sulfates. Some arylsulfatases are inhibited by sulfate (type II) and some are not (type I). Synonym: sulfatase. | http://cancerweb.ncl.ac.uk/omd/ |
| ASPT | Arylsulphatase | Aryl sulphatases A, B and C comprise a group of enzymes originally assayed by their ability to hydrolyze O sulphate esters of aromatic substrates. Aryl sulphatase A, substrate cerebroside 3 sulphate, is deficient in metachromatic leukodystrophy. Aryl sulphatase B, substrate acetylhexosamine 4 sulphate in glycosaminoglycans, is deficient in Maroteaux-Lamy syndrome. Aryl sulphatase C hydrolyses oestrogen sulphates. All three are deficient in multiple sulphatase deficiency. | http://cancerweb.ncl.ac.uk/omd/ |
| ASCP | Ascorbate peroxidase | An enzyme. | |
| ASOA | Ascorbic Acid Oxidase Activity | A copper containing enzyme found in higher plants where it catalyzes the reversible oxidation of ascorbate to 2-dehydro-ascorbate acid with the concomitant reduction of molecular oxygen to water. | http://www.cordis.lu/tmr/src/grants/fair/975021.htm |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ASAT | Aspartate Aminotransferase | Accepted name: aspartate transaminase. Usually abbreviated as AST. Other name(s): glutamic-oxaloacetic transaminase; glutamic-aspartic transaminase; transaminase A; AAT; AspT; 2-oxoglutarate-glutamate aminotransferase; aspartate a-ketoglutarate transaminase; aspartate aminotransferase; aspartate-2-oxoglutarate transaminase; aspartic acid aminotransferase; aspartic aminotransferase; aspartyl aminotransferase; AST; glutamate-oxalacetate aminotransferase; glutamate-oxalate transaminase; glutamic-aspartic aminotransferase; glutamic-oxalacetic transaminase; glutamic oxalic transaminase; GOT (enzyme); L-aspartate transaminase; L-aspartate-a-ketoglutarate transaminase; L-aspartate-2-ketoglutarate aminotransferase; L-aspartate-2-oxoglutarate aminotransferase; L-aspartate-2-oxoglutarate-transaminase; L-aspartic aminotransferase; oxaloacetate-aspartate aminotransferase; oxaloacetate transferase; aspartate:2-oxoglutarate aminotransferase; glutamate oxaloacetate transaminase Systematic name: L-aspartate:2-oxoglutarate aminotransferase | http://www.chem.qmul.ac.uk |
| AAGP | aspartate aminotransferase to glutamate pyruvate transaminase ratio | Ratio of aspartate aminotransferase to glutamate pyruvate transaminase AST/GPT | ECOTOX |
| BATS | ATP synthase beta chain | The beta chain of an enzyme that catalyses the conversion of phosphate and ADP into ATP during oxidativephosphorylation in mitochondriaand bacteria or photophosphorylationin chloroplasts. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| AZOR | Azo-reductase | Azo-reductase is an enzyme. Other name(s): new coccine (NC)-reductase; NC-reductase; azo-dye reductase; orange II azoreductase; NAD(P)H:1-(4'-sulfophenylazo)-2-naphthol oxidoreductase; orange I azoreductase; azo reductase; azoreductase; nicotinamide adenine dinucleotide (phosphate) azoreductase; NADPH2-dependent azoreductase; dimethylaminobenzene reductase; p-dimethylaminoazobenzene azoreductase; dibromopropylaminophenylazobenzoic azoreductase; N,N-dimethyl-4-phenylazoaniline azoreductase; p-aminoazobenzene reductase; methyl red azoreductase; NADPH2:4-(dimethylamino)azobenzene oxidoreductase, azobenzene reductase. | http://www.chem.qmul.ac.uk |
| B5P4 | b5/P-450 | No definition available. | |
| BAPH | Benzo(a)pyrene Hydroxylase | No definition available. | |
| BAPM | Benzo(a)pyrene monooxygenase | An enzyme that catalyses the incorporation of one oxygen atom of molecular oxygen into benzo(a)pyrene. | |
| BPND | Benzphetamine-n-demethylase | No definition available. | |
| <BHXA> | Benzpyrene Hydroxylase | No definition available. | |
| BROD | Benzylresorufin O-deethylase | No definition available. | |
| BAMY | Beta-amylase | An enzyme that catalyses the hydrolysis of 1,4-alpha-glycosidic linkages in starch, glycogen, and related polysaccharides and oligosaccharides so as to remove successive beta-maltose units from the non-reducing ends of the chains. | http://cancerweb.ncl.ac.uk/omd/ |
| BGMD | beta-Glucosaminidase | Cleaves all non-reducing terminal beta-linked N-acetylglucosamine. | http://www.prozyme.com/glycopro/index.html#GE30 |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| BGSE | beta-Glucosidase | An enzyme that catalyzes the hydrolysis of terminal non-reducing residues in beta-d-glucosides with release of beta-glucose. Also known as beta-D-Glucoside glucohydrolase. | http://cancerweb.ncl.ac.uk/omd/ |
| BGCR | beta-Glucuronidase | beta-Glucuronidase hydrolyzes conjugated glucuronides. It is ubiquitous in animal lysozymes. The enzyme has found wide application in determining urinary steroids. | http://www.worthington-biochem.com/manual/G/GL.html |
| HCAR | beta-hydroxy-beta-methylglutaryl-CoA reductase | Beta-hydroxy-beta-methylglutaryl-reductase, an enzyme that catalyses the rate-limiting step of cholesterol biosynthesis, beta-hydroxy-beta-methylglutaryl-CoA + 2NADPH + 2H+ → mevalonate + 2NADP+ + coenzyme A. Also known as 3-Hydroxy-3-methylglutaryl-coenzyme A reductase; hydroxymethylglutaryl-CoA reductase; β-hydroxy-β-methylglutaryl coenzyme A reductase; β-hydroxy-β-methylglutaryl CoA-reductase; 3-hydroxy-3-methylglutaryl coenzyme A reductase; hydroxymethylglutaryl coenzyme A reductase | http://cancerweb.ncl.ac.uk and http://www.chem.qmul.ac.uk |
| NADG | beta-N-Acetyl-D-glucosaminidase | A lysosomal enzyme known to be released from macrophages during inflammation. | |
| BN4H | Bunitrolol 4-hydroxylase | Mediated by cytochrome p-450; catalyses the hydroxylation of bunitrolol | http://cancerweb.ncl.ac.uk/omd/ |
| BCHE | Buterylcholinesterase | No definition available. | |
| BCOD | Butoxycoumurin O-dealkylase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CACP | Ca2+/calmodulin-dependent protein kinase | Ca2+/calmodulin-dependent protein kinase is an enzyme. Other names: ATP:caldesmon O-phosphotransferase; caldesmon kinase; caldesmon kinase (phosphorylating); Ca2+/calmodulin-dependent microtubule-associated protein 2 kinase; Ca2+/calmodulin-dependent protein kinase 1; Ca2+/calmodulin-dependent protein kinase II; Ca2+/calmodulin-dependent protein kinase IV; Ca2+/calmodulin-dependent protein kinase kinase; Ca2+/calmodulin-dependent protein kinase kinase beta; calmodulin-dependent kinase II; CaM kinase; CaM kinase II; CAM PKII; CaM-regulated serine/threonine kinase; CaMKI; CaMKII; CaMKIV; CaMKKalpha; CaMKKbeta; microtubule-associated protein 2 kinase; STK20 | http://www.chem.qmul.ac.uk |
| CATP | Calcium ATPase | Usually used of the calcium pumping ATPase present in high concentration as an integral membrane protein of the sarcoplasmic reticulum of muscle. This pump lowers the cytoplasmic calcium level and causes contraction to stop. Normal function of the pump seems to require a local phospholipid environment from which cholesterol is excluded. | http://cancerweb.ncl.ac.uk/omd/ |
| CCAT | Calcium Carbonate ATPase | No definition available. | |
| CAAH | Carbonic Anhydrase | No definition available. | |
| CSP3 | Caspase 3 | A short pro-domain caspase that plays an effector role in apoptosis. Other name(s): CPP32; apopain; yama protein. | http://www.ncbi.nlm.nih.gov and www.chem.qmul.ac.uk |
| CTLS | Catalase | An enzyme that catalyzes the decomposition of hydrogen peroxide into molecular oxygen and water. | |
| CTMT | Catechol o-methyltransferase | An enzyme of the transferase class that catalyzes the transfer of a methyl group from s-adenosylmethionine to a catechol or catecholamine such as dopa, dopamine, norepinephrine, or epinephrine (converting to normetanephrine and metanephrine, respectively) | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CTHP | Cathepsin | Intracellular proteolytic enzymes of animal tissues, such as cathepsin B, a lysosomal thiol proteinase, C, dipeptidyl peptidase, D, that has pepsin like specificity, G, similar to chymotrypsin, H, that possesses aminopeptidase activity, N, that attacks N terminal peptides of collagen and so on. | http://cancerweb.ncl.ac.uk/omd/ |
| CTHB | Cathepsin b | A lysosomal cysteine proteinase which hydrolyzes proteins, with a specificity resembling that of papain. The enzyme is present in a variety of tissues and is important in many physiological and pathological processes. In pathology, cathepsin b has been found to be involved in demyelination, emphysema, rheumatoid arthritis, and neoplastic infiltration. | http://cancerweb.ncl.ac.uk/omd/ |
| CTHD | Cathepsin d | An intracellular proteinase found in a variety of tissue. It has specificity similar to but narrower than that of pepsin a. The enzyme is involved in catabolism of cartilage and connective tissue. | http://cancerweb.ncl.ac.uk/omd/ |
| CLLS | Cellulase | Enzymes that break down cellulose and are involved in cell wall breakdown in higher plants, especially during abscission. Produced in large amounts by certain fungi and bacteria. | http://cancerweb.ncl.ac.uk/omd/ |
| CRLP | Ceruloplasmin | A blue copper containing dehydrogenase protein (135 kD) found in serum (200-500_g/ml) that is apparently involved in copper detoxification and storage and possibly also in mopping up excess oxygen radicals or superoxide anions. Also: Ceruloplasmin Oxidase; ferroxidase; ferroxidase I; iron(II): oxygen oxidoreductase; caeruloplasmin; ferro:$O_2$ oxidoreductase; ferroxidase, iron II:oxygen oxidoreductase | http://cancerweb.ncl.ac.uk/omd/, http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| CTNS | Chitinase | An enzyme which breaks down chitin, which is a polysaccharide that forms the hard outer shell of arthropods (insects, spiders, crustaceans, etc.), and the cell walls of fungi, and some algae. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CHIT | Chitobiase | One of the lysosomal glycosidases called Chitobiase belongs to a special family of proteins that hydrolyze the polysaccharide chitin | |
| CATE | Chloramphenicol O-acetyltransferase | Chloramphenicol O-acetyltransferase is an enzyme. Other name(s): chloramphenicol acetyltransferase; chloramphenicol acetylase; chloramphenicol transacetylase; CAT I; CAT II; CAT III; acetyl-CoA:chloramphenicol 3-O-acetyltransferase. | http://www.chem.qmul.ac.uk |
| CYOX | Chlorpyrifos-oxonase | Has activity similar to aryldialkylphosphatase (EC 3.1.8.1); enzyme from rat plasma and liver hydrolyzes chlorpyrifos oxon | http://cancerweb.ncl.ac.uk/omd/ |
| C7A1 | Cholesterol 7-alpha-Hydroxylase | A membrane-bound cytochrome p450 enzyme that catalyzes the 7-alpha-hydroxylation of cholesterol in the presence of molecular oxygen and nadph-ferrihemoprotein reductase. This enzyme, encoded by cyp7, converts cholesterol to 7-alpha-hydroxycholesterol which is the first and rate-limiting step in the synthesis of bile acids. Also: cholesterol 7alpha-monooxygenase, CYP7A1 | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| CLES | Cholesterol esterase | An enzyme that catalyses the hydrolysis of cholesterol and some other sterol esters, to liberate cholesterol plus a fatty acid anion. | http://cancerweb.ncl.ac.uk/omd/ |
| CACA | Choline Acetyltransferase | An enzyme that controls the production of acetylcholine, appears to be depleted in the brains of Alzheimer patients. | http://cancerweb.ncl.ac.uk/omd/ |
| CAPK | Choline phosphokinase | Also known as choline kinase and choline phosphotransferase. An enzyme that is active in the first step of choline phosphoglyceride (lecithin) biosynthesis by catalyzing the phosphorylation of choline to phosphorylcholine in the presence of ATP. | http://cancerweb.ncl.ac.uk/omd/ |
| CPCY | choline-phosphate cytidylyltransferase | An enzyme that catalyses the transfer of cytidylate (CMP) to choline phosphate to form CDPcholine. It is the rate-limiting enzyme in the choline pathway for the biosynthesis of phosphatidylcholine. Its activity is increased by glucocorticoids. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CPPT | Cholinephosphotransferase | An enzyme catalyzing the reaction between CDP-choline and 1,2-diacylglycerol to form a phosphatidylcholine and CMP. The last step in lecithin biosynthesis. | http://cancerweb.ncl.ac.uk/omd/ |
| CEST | Cholinesterase | An enzyme found in blood and in various other tissues that catalyzes hydrolysis of choline esters, including acetylcholine. | |
| CSYN | Citrate synthase | An enzyme of the lyase class that catalyzes the condensation of oxaloacetate and the acetyl group of coenzyme a to form of citrate and coenzyme a. This is the initial reaction in the tricarboxylic acid cycle. | |
| CZSD | Copper Zinc superoxide dismutase | CuZn superoxide dismutase (CuZnSOD) catalyses the dismutation reaction of the total superoxide radical to molecular oxygen and hydrogen peroxide. This type of SOD is distinguished by its metal prosthetic group, Cu/Zn. | From Molecular Biophysics Group |
| CPPO | Coproporphyrinogen oxidase | Coproporphyrinogen oxidase is an enzyme. Also: coproporphyrinogen III oxidase; coproporphyrinogenase (http://www.chem.qmul.ac.uk) | |
| CRKI | Creatine Kinase | An enzyme of vertebrate skeletal and myocardial muscle that catalyzes the transfer of a high-energy phosphate group from phosphocreatinine to adenosinediphosphate with the formation of adenosinetriphosphate and creatinine. | |
| CPSE | Creatine phosphokinase | An enzyme that is contained in skeletal muscle, smooth muscle and cardiac muscle. Creatine phosphokinase is released into the bloodstream in increased quantities if muscle in injured. Creatine phosphokinase can be fractionated so that specific measurements can be made for blood levels of creatine phosphokinase that comes exclusively from damaged heart muscle. | http://cancerweb.ncl.ac.uk/omd/ |
| GMPP | Cyclic guanylic acid phosphodiesterase, cGMP PDE | An enzyme involved with the process of sight. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CYST | Cysteine Dioxygenase | No definition available. | |
| CYAM | Cystine aminopeptidase | Cystine an amino acid combined with Aminopeptidase which is an enzyme that removes the N terminal amino acid from a protein or peptide. | partial definition from: http://cancerweb.ncl.ac.uk/ |
| CYAA | Cytochrome aa3 | An enzyme complex of the inner mitochondrial membrane that catalyzes the reaction between ferrocytochrome c and oxygen to yield ferricytochrome c and water. It is associated with the pumping of protons and the resultant phosphorylation of ADP to ATP. The reaction is the terminal event in the electron transport scheme by which oxygen is used for fuel combustion. It is a part of Complex IV of the respiratory chain. A deficiency of one or more of the polypeptides of this complex results in neuronal loss in brain leading to psychomotor retardation and neurodegenerative disease. | http://cancerweb.ncl.ac.uk/omd/ |
| CYTB | Cytochrome b | Cytochromes (electron-transporting proteins) with protoheme or a related haem as the prosthetic group. The prosthetic group is not covalently bound to the protein moiety. | http://cancerweb.ncl.ac.uk/omd/ |
| CYB5 | Cytochrome B-5 | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions. | |
| CYCC | Cytochrome c + c1 | Cytochrome c is a type of cytochrome, a protein which carries electrons, that is central to the process of respiration in mitochondria (an organelle found in eukaryotes which produces energy). Cytochrome c1 is the 30-kD membrane-bound c-type protein of mitochondria that functions as an electron donor to cytochrome c in the mitochondrial and bacterial respiratory chain. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CCOX | Cytochrome C-oxidase | An enzyme complex of the inner mitochondrial membrane that catalyses the reaction between ferrocytochrome c and oxygen to yield ferricytochrome c and water. Other name(s): cytochrome oxidase; cytochrome a3; cytochrome aa3; Warburg's respiratory enzyme; indophenol oxidase; indophenolase; complex IV (mitochondrial electron transport); ferrocytochrome c oxidase; NADH cytochrome c oxidase | http://cancerweb.ncl.ac.uk/omd/ and http://www.chem.qmul.ac.uk |
| CCCS | Cytochrome c oxidase citrate synthase ratio | Ratio of cytochrome c oxidase to citrate synthase found in a sample. | ECOTOX |
| CP1A | Cytochrome P1A (CYP1A) | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P1A = pigment 1A | |
| CYP2 | Cytochrome P2 | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions. | |
| CY2B | Cytochrome P2B (CYP2B) | One of the intracellular hemoprotein respiratory pigments that are enzymes functioning in electron transport as carriers of electrons | |
| CYP3 | Cytochrome P3A | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions. | |
| P420 | Cytochrome P-420 | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| P450 | Cytochrome P-450 | Isoenzyme, Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; P450 - 450 nm maximum absorption - found in the liver endoplasmic reticular, the renal brush border the outer membrane of the adrenal mitochondria; serves as an intermediate electron carrier in reactions catalyzed by some monoxygenases; active in detoxification of xenobiotics by activating the molecular oxygen for an attack on the substrate | |
| P1A1 | Cytochrome P-450 1A1 | An isoenzyme translation product of the P450 subfamily 1A CYP1A gene. | ECOREF 61237 |
| 1A12 | Cytochrome P450 1A1/2 | A microsomal cytochrome p450 isoform protein. (CYP1A1/2) | ECOTOX |
| C1A2 | Cytochrome P-450 1A2 | A polycyclic aromatic hydrocarbon-inducible cytochrome which is of significant clinical interest due to the large number of drug interactions associated with induction and inhibition of theophylline. Caffeine is considered to be a model substrate for this enzyme. It also metabolizes theophylline and antipyrene. Environmental factors including cigarette smoking, charbroiled meat, cruciferous vegetables, and a number of drugs including phenytoin, phenobarbital, and omeprazole produce increases in cyp1a2 activity. | http://cancerweb.ncl.ac.uk/omd/ |
| P2B1 | Cytochrome P450 2B1 (CYP2B1) | Cytochrome P450 2B1 (CYP2B1) is an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| 2B12 | Cytochrome P450 2B1/2 | A microsomal cytochrome p450 isoform protein. (CYP2B1/2) | ECOTOX |
| 2B10 | Cytochrome P450 2B10 (CYP2B10) | Cytochrome P450 2B10 (CYP2B10) is an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| 2C11 | Cytochrome P450 2C11 (CYP2C11) | Cytochrome P450 2C11 (CYP2C11) is an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| C116 | Cytochrome P450 2C11/6 | A microsomal cytochrome p450 isoform protein. (CYP2C11/6) | ECOTOX |
| C2E1 | Cytochrome P450 2E1 | A member of the cytochrome P450 mixed-function oxidase system, is involved in the metabolism of xenobiotics in the body. While it is involved only in the oxidative metabolism of a small range of substrates (mostly small polar molecules), there are many important drug interactions mediated by CYP2E1. Also: CYP2E1, N-Nitrosodimethylamine Demethylase | http://www.ncbi.nlm.nih.gov/ and http://en.wikipedia.org |
| C2K1 | Cytochrome P450 2K1 | A microsomal cytochrome p450 isoform protein. (CYP2K1) | |
| C2M1 | Cytochrome P450 2M1 | A microsomal cytochrome p450 isoform protein. (CYP2M1) | |
| C3A1 | Cytochrome P450 3A1 (CYP3A1) | Cytochrome P450 3A1 (CYP3A1) is an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| 3A21 | Cytochrome P450 3A2/1 | A microsomal cytochrome p450 isoform protein. (CYP3A2/1) | ECOTOX |
| CA27 | Cytochrome P450 3A27 | A microsomal cytochrome p450 isoform protein. (CYP3A27) | |
| CY2C | Cytochrome P-450 CYP2C | Electron transfer hemeprotein having a mode of action in which the transfer of a single electron is effected by the reversible valence change of the central iron atom of the heme prosthetic group; found in the endoplasmic reticulum that acts as an intermediary in MFO reactions. | |
| C2D6 | Cytochrome p-450 cyp2d6 | A polymorphic enzyme that catalyses the hydroxylation of debrisoquine. It also metabolizes several antidepressants and neuroleptics. This enzyme is deficient in up to 10 percent of the population. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| C2D6 | cytochrome p-450 cyp2d6 | A polymorphic enzyme that catalyses the hydroxylation of debrisoquine. It also metabolises several antidepressants and neuroleptics. This enzyme is deficient in up to 10 percent of the population. | http://cancerweb.ncl.ac.uk/omd/ |
| CPOD | Cytochrome P450 dependent O-demethylase | An enzyme | ECOTOX |
| CYTA | Cytochrome P450A | A cytochrome when the heme contains a formyl side chain and a cytochrome with a protoheme IX prosthetic group. | (Dorland's Medical Dictionary) |
| CPDE | Cytochrome P450-dependent O-deethylation activity | An enzyme | ECOTOX |
| DEAS | Dehydroascorbatase | Catalyzes the hydrolysis of the gamma lactone, dehydroascorbate, to diketogulonate. | http://cancerweb.ncl.ac.uk/omd/ |
| DHAO | Dehydroascorbate reductase | dehydroascorbate reductase, Accepted name: glutathione dehydrogenase (ascorbate),Other name(s): dehydroascorbic reductase; dehydroascorbic acid reductase; glutathione dehydroascorbate reductase; DHA reductase ; GDOR; glutathione:dehydroascorbic acid oxidoreductase; Systematic name: glutathione:dehydroascorbate oxidoreductase | www.chem.qmul.ac.uk |
| DHYG | Dehydrogenase | Enzyme that oxidizes a substrate by transferring hydrogen to an acceptor that is either NAD/NADP or a flavin enzyme. | http://cancerweb.ncl.ac.uk/omd/ |
| DBHD | delta-5-3-beta hydroxysteroid dehydrogenase | Converts dehydroepiandrosterone to delta-4-androstene-3,17-dione | |
| D6DS | Delta-6-desaturase | Linoleoyl-CoA Desaturase is an enzyme that catalyzes the syn-dehydrogenation of linoleol-CoA gamma-linolenoyl-CoA Also: linoleate desaturase, linoleic desaturase, Delta-6 Fatty Acid Desaturase , Delta-6-Desaturase, Delta-6-FADTase, Linoleic Acid Delta-6 Desaturase, Linoleoyl Coenzyme A Desaturase | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| DSCA | Diethylsuccinase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| DNSE | Deoxyribonuclease II | Deoxyribonuclease II is an enzyme. Other name(s): DNase II; pancreatic DNase II; deoxyribonucleate 3'-nucleotidohydrolase; DNase II; pancreatic DNase II; acid deoxyribonuclease; acid DNase | http://www.chem.qmul.ac.uk |
| DBHX | Dopamine beta-hydroxylase | This enzyme converts dopamine into norepinephrine | www.behavenet.com/capsules/neurochem/dopaminebetahydroxylase.htm |
| DTDP | DT-diaphorase | Prevents the redox cycling of certain compounds. | |
| E20M | Ecdysone 20-monooxygenase | Ecdysone 20-monooxygenase is an enzyme from insect fat body or malpighian tubules involving a heme-thiolate protein (P-450). NADPH can act as ultimate hydrogen donor. Also: alpha-ecdysone C-20 hydroxylase; ecdysone 20-hydroxylase | http://www.chem.qmul.ac.uk |
| ESTS | Elastase | Serine protease that will digest elastin and collagen type IV, inhibited by _ 1 protease inhibitor of plasma. | http://cancerweb.ncl.ac.uk/omd/ |
| ENCL | Endocellulase | An enzyme that is able to break beta 1-4 bonds randomly along a cellulose strand. | |
| ENGC | Endoglucanase | An enzyme isolated from fungi and bacteria. It catalyzes the endohydrolysis of 1,4-beta-glucosidic linkages in cellulose, lichenin, and cereal beta-glucans. EC 3.2.1.4. | http://www.online-medical-dictionary.org/omd.asp?q=endoglucanase |
| GENZ | Enzyme, General | Change in enzyme activity or enzyme protein levels. | |
| EPND | EPN (O-Ethyl-O-p-nitrophenyl phenylphosphonothionate) detoxification | No definition available. | |
| EPHY | Epoxide Hydrase | Also Epoxide Hydrolase No definition available. | |
| EMDL | Erythromycin N-demethylase | A Cytochrome P450-dependent monooxygenase activity | ECOTOX |
| ESTE | Esterase | Any group of enzymes that catalyze the synthesis and hydrolysis of esters. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ESLI | Esterase lipase | Esterase is an enzyme that catalyses the hydrolysis of organic esters to release an alcohol or thiol and acid. Lipase is an enzyme that catalyses the hydrolysis of fats (monoglycerides, diglycerides and triglycerides) to glycerol and fatty acids. | http://cancerweb.ncl.ac.uk/omd/ |
| ESST | Estradiol sulfotransferase | Estrogen sulfotransferase (EST) catalyzes the sulfation of estrogens such as estradiol and estrone, using the cofactor3'-phosphoandenosine-5'-phosphosulfate (PAPS). | http://www.epa.gov/endocrine/inventory/NIEH-091.html |
| ECOD | Ethoxycoumurin O-deethylase | No definition available. | |
| ENDM | Ethylmorphine-n-demethylase | No definition available. | |
| EXCL | Exocellulase | An enzyme that is able to cleave the glucose molecules from the ends of cellulose strands | |
| ERKM | Extracellular Signal-Regulated MAP Kinases | A mitogen-activated protein kinase subfamily that is widely expressed and plays a role in regulation of meiosis; mitosis; and post mitotic functions in differentiated cells. The extracellular signal regulated map kinases are regulated by a broad variety of cell surface receptors and can be activated by certain carcinogens. Also: ATP:protein phosphotransferase (MAPKK-activated), c-Jun N-terminal kinase; Dp38; ERK; ERK1; ERK2; extracellular signal-regulated kinase; JNK; JNK3a1; LeMPK3; MAP kinase; MAP-2 kinase; MAPK; MBP kinase I; MBP kinase II; microtubule-associated protein 2 kinase; microtubule-associated protein kinase; myelin basic protein kinase; p38d; p38-2; p42 mitogen-activated protein kinase; p42mapk; PMK-1; PMK-2; PMK-3; pp42; pp44mapk; p44mpk; SAPK; STK26; stress-activated protein kinase | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| FASC | Fatty acid synthase complex | The multienzyme complex that catalyses the formation of palmitate from acetylcoenzyme A, malonylcoenzyme A, and NADPH. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| FADE | Fatty acyl desaturase | Fatty acyl desaturases are enzymes involved in fatty acid chain synthesis, elogation and desaturation | ECOTOX |
| FMOO | Flavin-containing monooxygenase (FMO) | A microsomal enzyme responsible for metabolism of some drugs. Other name(s)**:** dimethylaniline oxidase; dimethylaniline *N*-oxidase; FAD-containing monooxygenase; *N,N*-dimethylaniline monooxygenase; DMA oxidase; flavin mixed function oxidase; Ziegler's enzyme; mixed-function amine oxidase; FMO; FMO-I; FMO-II; FMO1; $FMO_2$; FMO3; FMO4; FMO5; flavin monooxygenase; methylphenyltetrahydropyridine *N*-monooxygenase; 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine:oxygen *N*-oxidoreductase; dimethylaniline monooxygenase (*N*-oxide-forming); *N,N*-dimethylaniline,NADPH:oxygen oxidoreductase (*N*-oxide-forming) | http://www.fda.gov/cder/drug/drugReactions/default.htm and http://www.chem.qmul.ac.uk |
| F16D | Fructose 1,6-diphosphatase | Fructose 1,6-diphosphatase (FDPase) (also termed fructose 1,6-bisphosphatase) is a focal enzyme in gluconeogenesis via its conversion of fructose 1,6-diphosphate (FDP) to fructose 6-phosphate (F-6-P), which permits endogenous glucose production from. | |
| F6PD | Fructose-6-phosphate dehydrogenase | enzyme that catalyses the dehydrogenation (oxidation) of d-glucose-6-phosphate | http://cancerweb.ncl.ac.uk/omd/ |
| FDPA | Fructose-diphosphate Aldolase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PGTP | G-protein GTPase, heterotrimeric | Heterotrimeric G-protein GTPase group comprises GTP-hydrolysing systems, where GTP and GDP alternate in binding. This group includes stimulatory and inhibitory G-proteins such as Gs, Gi, Go and Golf, targetting adenylate cyclase and/or K+ and Ca2+ channels; Gq stimulating phospholipase C; transducin activating cGMP phosphodiesterase; gustducin activating cAMP phosphodiesterase. Golf is instrumental in odour perception, transducin in vision and gustducin in taste recognition. At least 16 different alpha subunits (39-52 kDa), 5 beta subunits (36 kDa) and 12 gamma subunits (6-9 kDa) are known. Systematic name: GTP phosphohydrolase (signalling) | http://www.chem.qmul.ac.uk |
| GGTP | gamma-glutamyl transpeptidase | An enzyme contained in the liver that plays a role in metabolism. | |
| GGCS | gamma-Glutamylcysteine synthetase | An enzyme that catalyses the first step in glutathione biosynthesis, reacting l-glutamate, l-cysteine, and ATP to form gamma-glutamylcysteine, ADP, and orthophosphate; inhibited by thiols such as glutathione. | http://cancerweb.ncl.ac.uk/omd/ |
| GLKN | Glucokinase | An enzyme which adds phosphate groups to glucose molecules. It is produced in the liver and is highly specific about targetting glucose as its substrate. | http://cancerweb.ncl.ac.uk/omd/ |
| GPIM | Glucose phosphate isomerase | An enzyme that converts glucose-6-phosphate to its positional isomer glucose-1-phosphate. | |
| G6PT | Glucose-6-phosphatase | An enzyme that catalyzes the conversion of d-glucose 6-phosphate and water to d-glucose and orthophosphate. | |
| G6PD | Glucose-6-phosphate Dehydrogenase | No definition available. | |
| GD6D | Glucose-6-phosphate dehydrogenase : 6-phosphogluconate dehydrogenase ratio | Ratio of Glucose-6-phosphate dehydrogenase to 6-phosphogluconate dehydrogenase | ECOTOX |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| GCTA | Glucosyltransferase | Glucosyltransferases are enzymes which transfer residues of glucose (a sugar) from a nucleoside diphosphate glucose to acceptor molecules. | http://cancerweb.ncl.ac.uk/omd/ and http://www.ncbi.nlm.nih.gov/ |
| GLTR | Glucuronyl Transferase | No definition available. | |
| GLMC | Glutamate decarboxylase | A pyridoxal-phosphate protein that catalyzes the alpha-decarboxylation of l-glutamic acid to form gamma-aminobutyric acid and carbon dioxide. The enzyme is found in bacteria and in invertebrate and vertebrate nervous systems. It is the rate-limiting enzyme in determining gaba levels in normal nervous tissues. The brain enzyme also acts on l-cysteate, l-cysteine sulfinate, and l-aspartate. | http://cancerweb.ncl.ac.uk/ |
| GLMD | Glutamate Dehydrogenase | An enzyme that catalyses the conversion of l-glutamate and water to 2-oxoglutarate and nh3 in the presence of NAD+. | http://cancerweb.ncl.ac.uk/ |
| GOPG | Glutamate Oxaloacetate Transaminase to Glutamic Pyruvic Transaminase ratio | Ratio of Glutamate Oxaloacetate Transaminase to Glutamic Pyruvic Transaminase | ECOTOX |
| GLMT | Glutamate transferase | No definition available. | |
| GLAD | Glutamic Acid Dehydrogenase | Enzymes that catalyze the reaction of l-glutamate, H2O, and NAD+ (or NADP+ in some cases) producing alpha-ketoglutarate (2-oxoglutarate), ammonia, and NADH; in mammals, this is the prime contributor to oxidative deamination. | http://cancerweb.ncl.ac.uk/omd/ |
| GPTR | Glutamic Pyruvic Transaminase | An enzyme that is found primarily in the liver. It is released into the bloodstream as the result of liver damage. Also called the alanine aminotransferase (ALT) or serum glutamic pyruvic transaminase (SGPT). | http://cancerweb.ncl.ac.uk/ |
| GOTR | Glutamic-oxaloacetic Transaminase | An enzyme catalyzing the reversible transfer of an amine group from l-glutamic acid to oxaloacetic acid, forming alpha-ketoglutaric acid and l-aspartic acid; a diagnostic aid in viral hepatitis and in myocardial infarctions. | http://cancerweb.ncl.ac.uk/ |
| GLUT | Glutaminase | An enzyme. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| GLMS | Glutamine Synthetase | An enzyme which catalyzes the formation of glutamine from glutamic acid and ammonia, using ATP as a source of energy. | |
| GTPD | Glutamyl transpeptadase | A membrane-bound glycoprotein necessary for the formation of mercapturic acids from glutathione conjugates, This enzyme has a number of acceptor amino acids and catalyzes three reactions. | |
| GLPX | Glutathione Peroxidase | Glutathione peroxidase catalyzes the reduction of various organic hydroperoxides, as well as hydrogen peroxide, with glutathione as hydrogen donor. | |
| GLRE | Glutathione Reductase | An FAD containing enzyme, a dimer of 50 kD subunits. It catalyses the NADP dependent reduction of glutathione disulphide (GSSG) to glutathione (GSH). This is an essential reaction that maintains a GSH:GSSG ratio in the cytoplasm of _500:1. | http://cancerweb.ncl.ac.uk/ |
| GSTR | Glutathione S-transferase | A class of enzymes that catalyze the reaction of glutathione with an acceptor molecule (e.g., an arene oxide) to form an S-substituted glutathione; a key step in detoxification of many substances. Systematic name: RX:glutathione R-transferase R may be an aliphatic, aromatic or heterocyclic group; X may be a sulfate, nitrile or halide group. Also catalyses the addition of aliphatic epoxides and arene oxides to glutathione, the reduction of polyol nitrate by glutathione to polyol and nitrile, certain isomerization reactions and disulfide interchange. Other names: glutathione transferase; glutathione S-alkyltransferase; glutathione S-aryltransferase; S-(hydroxyalkyl)glutathione lyase; glutathione S-aralkyltransferase; glutathione S-alkyl transferase; GST | http://cancerweb.ncl.ac.uk/ and http://www.chem.qmul.ac.uk/iubmb |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| GTST | Glutathione synthetase | An enzyme that catalyses the formation of glutathione, ADP, and orthophosphate from gamma-glutamylcysteine, ATP, and glycine; a deficiency will lead to metabolic acidosis and progressive brain dysfunction. Also : GSH synthetase, glutathione synthase, gamma-L-glutamyl-L-cysteine:glycine ligase (ADP-forming) | http://cancerweb.ncl.ac.uk/omd and http://www.chem.qmul.ac.uk |
| GAPD | Glyceraldehyde 3-phosphate dehydrogenase | GAPDH. In glycolysis, this enzyme catalyses the conversion of glyceraldehyde 3-phosphate and organic phosphate and NAD+ into 1,3-bisphosphoglycerate and NADH and free hydrogens (and viceversa) by transferring hydrogens and electrons between the molecules. | http://cancerweb.ncl.ac.uk/omd/ |
| GLYD | Glyceraldehyde Dehydrogenase | No definition available. | |
| GLPP | Glycogen phosphorylase | Enzyme that catalyses the sequential removal of glycosyl residues from glycogen to yield one glucose-1-phosphate per reaction. Its activity is controlled by phosphorylation (by phosphorylase kinase). | http://cancerweb.ncl.ac.uk/ |
| GCOX | Glycolate oxidase | Glycolate oxidase is an enzyme. Other name(s): (S)-2-hydroxy-acid oxidase; hydroxy-acid oxidase A; hydroxy-acid oxidase B; glycolate oxidase; oxidase, L-2-hydroxy acid; hydroxyacid oxidase A; L-alpha-hydroxy acid oxidase; L-2-hydroxy acid oxidase. | www.chem.qmul.ac.uk |
| GUPX | Guaiacol Peroxidase | Plant peroxidase. Guaiacol peroxidases have also been found in sterile root exudates and shown to oxidize Mn2+ to form Mn3+ chelates that are capable of decolorizing aromatic dyes. Peroxidase is commonly assayed by noting the development of color (A470) during the oxidation of a simple phenolic compound, guaiacol (ortho-methoxyphenol). For every four molecules of H2O2 that are reduced, one molecule of tetraguaiacol is formed. | http://lbewww.epfl.ch/COST837/PhytoRemed2000_Files/Session2.pdf http://www-plb.ucdavis.edu/courses/s99/plb111l/Enzymes.html. |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HATP | H+-transporting ATPase | Multisubunit enzymes that reversibly synthesize adenosine triphosphate. They are coupled to the transport of protons across a membrane. Other names: ATP synthase; F1-ATPase; FoF1-ATPase; ATP phosphohydrolase (H+-transporting), H+-transporting two-sector ATPase, mitochondrial ATPase; coupling factors (F0, F1 and CF1); chloroplast ATPase | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk/ |
| HOXY | Heme oxygenase (Haem oxygenase) | A mixed function oxidase enzyme which during haemoglobin catabolism catalyses the degradation of haem to ferrous iron, carbon monoxide and biliverdin in the presence of molecular oxygen and reduced NADPH. The enzyme is induced by metals, particularly cobalt. | http://cancerweb.ncl.ac.uk |
| FECH | Heme synthetase | Heme synthetase is an enzyme. Also: ferrochelatase, ferro-protoporphyrin chelatase; iron chelatase; heme synthetase; protoheme ferro-lyase | http://www.chem.qmul.ac.uk |
| HEPX | Heptachlor epoxidase | No definition available. | |
| HXBH | Hexobarbital Hydroxylase | Hexobarbital goes to 3-hydroxyhexobarbital | http://cancerweb.ncl.ac.uk |
| HXKN | Hexokinase | Enzyme that catalyses the transfer of phosphate from ATP to glucose to form glucose-6 phosphate, the first reaction in the metabolism of glucose via the glycolytic pathway.. | http://cancerweb.ncl.ac.uk/omd/ |
| HPSE | Hydrogen Peroxidase | No definition available. | |
| HAHY | Hydroxyacylglutathione hydrolase | An enzyme with catalytic activity similar to that of lactoylglutathione lyase, but more general; catalyses the hydrolysis of an S-2-hydroxyacylglutathione, producing glutathione and a 2-hydroxy acid anion. Also glyoxalase II. | http://cancerweb.ncl.ac.uk/omd/ |
| IPYR | Inorganic pyrophosphate | A chemical that can block bone mineral crystal formation. | http://www.homestead.com/hypophosphatasia/files/page8.html |
| IVAS | Invertase | Enzyme catalysing the hydrolysis of sucrose to glucose and fructose (sucrase), so called because the sugar solution changes from dextro rotatory to laevo rotatory during the course of the reaction. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ITMD | Iodothyronine 5'-monodeiodinase | An integral membrane bound selenoenzyme. The enzyme activity has only been demonstrated in the direction of 5'-deiodination, which renders the thyroid hormone more active. The enzyme consists of type I and type II enzymes, both containing selenocysteine, but with different kinetics. Accepted name: thyroxine 5'-deiodinase Other names: diiodothyronine 5'-deiodinase [ambiguous]; iodothyronine 5'-deiodinase; iodothyronine outer ring monodeiodinase; type I iodothyronine deiodinase; type II iodothyronine deiodinase; thyroxine 5-deiodinase [misleading]; L-thyroxine iodohydrolase (reducing) | ECOREF 48163 and http://www.chem.qmul.ac.uk/iubmb/enzyme |
| FESD | Iron superoxide dimutase | Fe superoxide dimutase (FeSOD) caralyses the dimutation reaction of the toxic superoxide radical to molecular oxygen and hydrogen peroxide. This type of SOD is distinguished by its metal prosthetic group, Fe. | From University of Leeds PROMISE database |
| ICDH | Isocitrate dehydrogenase | An enzyme of the oxidoreductase class that catalyses the conversion of isocitrate and NAD+ to yield 2-ketoglutarate, carbon dioxide, and NADH. It occurs in cell mitochondria. The enzyme requires magnesium, mn2+; it is activated by ADP, citrate, and calcium, and inhibited by NADH, NADPH, and ATP. | http://cancerweb.ncl.ac.uk |
| ICLY | Isocitric lyase | An enzyme unique to the glyoxylate cycle which enables plant tissues to utilize triglycerides as an energy source. | ECOREF#73229 |
| KYNU | Kynureninase | A liver enzyme catalyzing the hydrolysis of the l-kynurenine side chain, with the formation of anthranilic acid and l-alanine, in l-tryptophan metabolism. Also L-Kynurenine hydrolase | http://cancerweb.ncl.ac.uk/omd/ |
| KATE | Kynurenine aminotransferase | Kynurenine aminotransferase (KAT) catalyzes the formation of kynurenic acid (KYNA), the natural antagonist of ionotropic glutamate receptors. | Han and Li, 2004, FEBS Letters, 577(3):381-385 |
| LTSE | Lactase | An enzyme that breaks down the milk sugar lactose. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| LADH | Lactate Dehydrogenase | An enzyme with 5 forms: LDH-1 is in the heart, its blood level can rise when heart muscle is damaged. Other forms can be found in the liver, brain, kidney, skeletal muscle and bone. Usually abbreviated as LDH. | http://cancerweb.ncl.ac.uk/omd/ |
| LDMD | Lactate Dehydrogenase/malic Dehydrogenase Ratio | No definition available. | |
| LCDH | Lactic dehydrogenase | The enzyme that catalyses the formation and removal of lactate according to the equation: pyruvate + NADH = lactate NAD. | http://cancerweb.ncl.ac.uk/omd/ |
| LGLY | Lactoylglutathione lyase | An enzyme that catalyses the interconversion of methylglyoxal and lactate, with glutathione serving as a coenzyme. Also S-Lactoyl-glutathione methylglyoxal-lyase (isomerizing), or glyoxalase I. | http://cancerweb.ncl.ac.uk/omd/ |
| LAMO | lauric acid monooxygenase | Cytochrome p-450 linked, requires NADPH. Synonyms: lauric acid hydroxylase, lauric acid omega-hydroxylase, lauric acid (omega-1)-hydroxylase, omega-1 hydroxylase, laurate omega-hydroxylase, cytochrome p-450iva1, cytochrome p450iva1, cytochrome p450iva3, cytochrome p-450iva3, omega-lauryl hydroxylase, cytochrome p-450 4a1, cytochrome p4504a1, cyp4a1, cyp4a, cytochrome p-450 4a, cyp4a2, cytochrome p-450 iva | http://cancerweb.ncl.ac.uk/omd/ |
| LEAM | Leucine aminopeptidase | An exopeptidase that removes neutral amino acid residues from the N terminus of proteins. | http://cancerweb.ncl.ac.uk/omd/ |
| LTRS | leucine tRNA ligase | An enzyme that activates leucine with its specific transfer RNA. Other name(s): leucyl-tRNA synthetase; leucyl-transfer ribonucleate synthetase; leucyl-transfer RNA synthetase; leucyl-transfer ribonucleic acid synthetase; leucine-tRNA synthetase; leucine translase. | http://www.chem.qmul.ac.uk and www.ncbi.nlm.nih.gov |
| LGDD | L-Gulonate dehydrogenase and decarboxylase | Enzymes involved in the metabolism of L-ascorbic acid. | ECOREF 58373 |
| GULO | L-Gulonolactone oxidase | an enzyme which oxidizes l-gulonolactone to 2-keto-l-gulonolactone. | http://www.positivehealth.com/permit/Articles/Nutrition/vitc3.htm |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| LIPS | Lipase | Any of many enzymes that help break down lipids by catalyzing the fraction of an ester linkage. | |
| LPPR | Lipoperoxide | a product of the oxidation of unsaturated lipids | (http://64.233.167.104/search?q=cache:1gRkyBs7mKEJ:www.apsnet.org/phyto/PDFS/1999/0819-03R.pdf+Lipoperoxide&hl=en&start=93) |
| LPLP | Lipoprotein lipase | An enzyme of the hydrolase class that catalyses the reaction of triacylglycerol and water to yield diacylglycerol and a fatty acid anion. The enzyme hydrolyzes triacylglycerols in chylomicrons, very-low-density lipoproteins, low-density lipoproteins, and diacylglycerols. It occurs on capillary endothelial surfaces, especially in mammary, muscle, and adipose tissue. Genetic deficiency of the enzyme causes familial hyperlipoproteinaemia type I. | http://cancerweb.ncl.ac.uk/omd/ |
| LPXG | Lipoxygenase | Enzyme that catalyses the oxidative conversion of arachidonic acid to the hydroxyeicosenoic acid (HETE) structure in the synthesis of leucotrienes. Other names: lipoxidase; carotene oxidase; lipoperoxidase; fat oxidase; lipoxydase; lionoleate:$O_2$ oxidoreductase; linoleate:oxygen 13-oxidoreductase | http://cancerweb.ncl.ac.uk/omd/ and www.chem.qmul.ac.uk/ |
| LNSE | l-Leucyl-beta-napthylamide splitting enzyme | Frequently used to test for leucine aminopeptidase (ec 3.4.11.1) activity; hydrolyzes naphthylamides of leucine. | http://cancerweb.ncl.ac.uk/omd/ |
| T4GL | L-Thyroxine (T4) Glucuronidation | Glucuronidation represents a major means of metabolizing hormones so that they can then be excreted. In this case L-Thyroxine (T4). | http://www.anapsid.org/cnd/hormones/glucuronidation.html |
| LUCI | Luciferase | Enzymes present in certain luminous organisms that act to bring about the oxidation of luciferins; energy produced in the process is liberated as bioluminescence; such enzymes can be used to detect very low concentrations of metabolites. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| LPDH | Lysopine dehydrogenase | Lysopine dehydrogenase is an enzyme. Other name(s): D-lysopine synthase; D-lysopine dehydrogenase; D(+)-lysopine dehydrogenase , N2-(D-1-carboxyethyl)-L-lysine:NADP+ oxidoreductase (L-lysine-forming) | http://www.chem.qmul.ac.uk |
| LYZM | Lysozyme activity | Enzyme found in the secretions (tears) of the lacrimal glands of animals and in nasal mucus, gastric secretions, and egg white. Discovered in 1921 by Sir Alexander Fleming, lysozyme catalyzes the breakdown of certain carbohydrates found in the cell walls of certain bacteria (*e.g.,* cocci). It thus functions, in the case of lacrimal fluid**.** | |
| LYSO | Lysyl oxidase | Extracellular enzyme that deaminates lysine and hydroxylysine residues in collagen or elastin to form aldehydes, that then interact with each other or with other lysyl side chains to form crosslinks. | http://cancerweb.ncl.ac.uk/omd/ |
| MGAT | Maganesium ATPase | No definition available. | |
| MCAT | Magnesium Carbonate ATPase | No definition available. | |
| MLDA | Malate dehydrogenase | An enzyme that catalyses the conversion of (s)-malate and NAD+ to oxaloacetate and NADH. | http://cancerweb.ncl.ac.uk |
| MLCB | Malathion Carboxylesterase | No definition available. | |
| MADH | Malic Dehydrogenase | An enzyme that catalyses the conversion of (s)-malate and NAD+ to oxaloacetate and NADH. | http://cancerweb.ncl.ac.uk/ |
| MALE | Malic Enzyme | No definition available. | |
| MLTS | Maltase | An enzyme that hydrolyzes maltose (and the glucose trimer maltotriose) to glucose, during the enzymic breakdown of starch. | http://cancerweb.ncl.ac.uk |
| MM29 | Matrix metalloproteinase 2 and Matrix metalloproteinase 9 | Matrix metalloproteinase 2 and Matrix metalloproteinase 9 in a sample. | ECOTOX |
| MNSD | Manganese Superoxide Dismutase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MNSO | Manganese superoxide dismutase (MnSOD) | Manganese superoxide dismutase (MnSOD) catalyses the dismutation reaction of the total superoxide radical to molecular oxygen and hydrogen peroxide. This type of SOD is distinguished by its metal prosthetic group, Mn. | |
| MSRA | Methionine sulfoxide reductase | The enzyme plays a role in preventing oxidative-stress damage caused by reactive oxygen species by reducing the oxidized form of methionine back to methionine and thereby reactivating peptides that had been damaged. This enzyme belongs to the family of oxidoreductases, specifically those acting on a sulfur group of donors with a disulfide as acceptor. Other names in common use include MsrB, methionine sulfoxide reductase (ambiguous), pMSR, methionine S-oxide reductase (ambiguous), selenoprotein R, methionine S-oxide reductase (R-form oxidizing), methionine sulfoxide reductase B, SelR, SelX, PilB, and pRMsr. Includes peptide-methionine (S)-S-oxide reductase, peptide-methionine (R)-S-oxide reductase, L-methionine (S)-S-oxide reductase, and L-methionine (R)-S-oxide reductase. | www.chem.qmul.ac.uk and www.wikipedia.org/wiki |
| MCOD | Methoxycoumarin O-dealkylase | No definition available. | |
| MROD | Methoxyresorufin-o-deethylase | No definition available. | |
| MG6P | Microsomal Glucose 6-phosphatase | No definition available. | |
| MAPK | Mitogen-activated protein kinases | Mitogen-activated protein (MAP) kinases (EC 2.7.11.24) are serine/threonine-specific protein kinases that respond to extracellular stimuli (mitogens) and regulate various cellular activities, such as gene expression, mitosis, differentiation, and cell survival/apoptosis | http://en.wikipedia.org/wiki/Mitogen-activated_protein_kinase |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MFOS | Mixed function oxidases | Catalyse the insertion of one oxygen atom of molecular oxygen into the organ substrate. Require a second substrate to donate electrons for the reduction of the second atom in the oxygen molecule to water. | http://cancerweb.ncl.ac.uk/omd/ |
| MMP2 | MMP2 | Matrix metalloproteinase 2 is a secreted endopeptidase in the interstitial collagenase family. Also: gelatinase A; 72-kDa gelatinase; type IV collagenase; 3/4 collagenase (Obsolete); 72 kDa gelatinase type A; collagenase IV; collagenase type IV; MMP 2; type IV collagen metalloproteinase; type IV collagenase/gelatinase. | http://www.chem.qmul.ac.uk |
| MMP9 | MMP9 | Matrix metalloproteinase 9 is an enzyme in the interstitial collagenase family. Also: gelatinase B; 92-kDa gelatinase; type V collagenase; 92-kDa type IV collagenase; macrophage gelatinase; 95 kDa type IV collagenase/gelatinase; collagenase IV; collagenase type IV; gelatinase MMP 9; MMP 9; type IV collagen metalloproteinase. | http://www.chem.qmul.ac.uk |
| MAOA | Mono Amino Oxidase | An enzyme that catalyzes the oxidative deamination of naturally occurring monoamines. It is a flavin-containing enzyme that is localized in mitochondrial membranes, whether in nerve terminals, the liver, or other organs.Other name(s): amine oxidase (flavin-containing); monoamine oxidase, tyramine oxidase; tyraminase; amine oxidase; adrenalin oxidase; epinephrine oxidase; MAO; polyamine oxidase; serotonin deaminase; adrenaline oxidase; spermidine oxidase; spermine oxidase; monoamine:O2 oxidoreductase (deaminating) | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MDHA | monodehydroascorbate reductase | monodehydroascorbate reductase, Other name(s): NADH:semidehydroascorbic acid oxidoreductase; MDHA; semidehydroascorbate reductase; AFR; AFR-reductase; ascorbic free radical reductase; ascorbate free radical reductase; SOR; MDAsA reductase (NADPH) ; SDA reductase; NADH:ascorbate radical oxidoreductase; NADH-semidehydroascorbate oxidoreductase; ascorbate free-radical reductase ; NADH:AFR oxidoreductase; monodehydroascorbate reductase (NADH2), Systematic name: NADH:monodehydroascorbate oxidoreductase | www.chem.qmul.ac.uk |
| MUDH | Multiple Dehydrogenases (Measured Total Produced by Soil Microorganisms) | No definition available. | |
| NAGD | N-Acetyl-beta-d-glucosamimidase | An enzyme. | |
| NABH | N-acetyl-beta-hexosaminidase | Enzyme reaction hydrolysis of terminal non-reducing *N*-acetyl-D-hexosamine residues in *N*-acetyl-beta-D-hexosaminides. Acts on *N*-acetylglucosides and *N*-acetylgalactosides. Accepted name: beta-*N*-acetylhexosaminidase. Synonyms: hexosaminidase; beta-acetylaminodeoxyhexosidase; *N*-acetyl-beta-D-hexosaminidase; *N*-acetyl-beta-hexosaminidase; beta-hexosaminidase; beta-acetylhexosaminidinase; beta-D-*N*-acetylhexosaminidase; beta-*N*-acetyl-D-hexosaminidase; beta-*N*-acetylglucosaminidase; hexosaminidase A; *N*-acetylhexosaminidase; beta-D-hexosaminidase; beta-*N*-acetyl-D-hexosaminide *N*-acetylhexosaminohydrolase | www.chem.qmul.ac.uk/iubmb |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ATYL | n-Acetylglucosaminidase | 2-acetamido-2-deoxy-beta-d-glucoside acetamidodeoxygluco-hydrolase. Catalyses the hydrolysis of terminal, non-reducing 2-acetamido-2-deoxy-beta-glucose residues in chitobiose and higher analogs as well as in glycoproteins. Has been used widely in structural studies on bacterial cell walls and in the study of diseases such as mucolipidosis and various inflammatory disorders of muscle and connective tissue. | http://cancerweb.ncl.ac.uk/omd/ |
| NATT | N-Acetyltransferase | An enzyme that catalyzes the transfer of acetyl groups from acetyl-CoA to arylamines. They have wide specificity for aromatic amines, particularly serotonin, and can also catalyze acetyl transfer between arylamines without CoA. EC 2.3.1.5. | www.online-medical-dictionary.org |
| NCB5 | NADH cytochrome B5 reductase | Electron transport proteins found in animals, plants and yeasts. | |
| NDCC | NADH Cytochrome C Reductase | Nicotinamide adenine dinucleotide cytochrome C reductase. | |
| NHCR | NADH cytochrome C reductase | No definition available. | |
| NDFR | NADH Ferrichrome Reductase | Nicotinamide adenine dinucleotide ferrichrome reductase. | |
| NDFC | NADH ferricyanide reductase | Nicotinamide adenine dinucleotide ferricyanide reductase. | |
| NACR | NADH-cyt c reductase | Nicotinamide adenine dinucleotide cytochrome C reductase. | |
| NDDP | NADH-DT-diaphorase | No definition available. | |
| NCCR | NADPH Cytochrome C Reductase | Nicotinamide adenine dinucleotide phosphate cytochrome C reductase. | |
| DHYD | NADPH Dehydrogenase | A flavoprotein that reversibly oxidises NADPH to NADP and a reduced acceptor. | http://cancerweb.ncl.ac.uk/omd/ |
| 450R | NADPH-cytochrome P-450 Reductase | No definition available. | |
| NDPD | NADPH-Diaphorase (Nicotinamide Adenine Dinucleotide phosphate Diaphorase) | No definition available. | |
| NDFH | NADPH-ferrihemoprotein reductase | Nicotinamide adenine dinucleotide phosphate ferrihemoprotein reductase | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| NNTR | NADPH-tetrazolium reductase | Reported to possess activity identical with NADPH cytochrome c reductase EC 1.6.2.4 . Synonym: NADPH-neotetrazolium reductase, NADPH-nbt reductase | http://cancerweb.ncl.ac.uk/omd/ |
| NDMT | N-Demethylase | That transfers a methyl group from S adenosyl methionine to a substrate. most commonly encountered in bacterial chemotaxis where the methyl accepting chemotaxis proteins (MCPs) become methylated in the course of adaptation. Also known as methyltransferase. | |
| NEES | Neurotoxic esterase | Site of biochemical lesion in delayed neuronal degeneration produced by certain organophosphorus esters; insensitive to organophosphorus cpds such as paraoxon, but sensitive to mipafox . Synonym: phenylvalerate esterase, neuropathy target esterase, phenyl valerate hydrolase, nte, lymphocyte neuropathy target esterase | http://cancerweb.ncl.ac.uk/omd/ |
| HAFS | N-Hydroxy-2-acetylaminofluorene sulfotransferase | A growth hormone dependant, liver enzyme involved in the microsomal metabolism of testosterone. | ECOREF 58214 |
| NAOX | Nicotinamide adenine dinucleotide phosphate oxidase (NADPH) Oxidase | A plasma membrane-associated enzyme complex that catalyses the univalent reduction of oxygen using NADPH as an electron donor. The superoxide anion formed acts as an oxidant in the phagocyte microbicidal system, proceeding through a series of electron transfer reactions that form the respiratory burst. Various genetic defects in the system result in chronic granulomatous disease (granulomatous disease, chronic). | http://cancerweb.ncl.ac.uk/omd/ |
| NADN | Nicotinamide adinine dinucleotide (oxidized) (NAD) | The oxidized (burned) coenzyme form of Vitamin B3. | |
| NADH | Nicotinamide adinine dinucleotide (reduced) (NADH) | Activated form of the B vitamin niacin, the first of 5 enzyme complexes of the electron transport chain. | |
| NCTR | Nicotinamide transferase | Catalyses reversibly the methylation of nicotinamide in the presence of s-adenosylmethionine to yield 1-methylnicotinamide and s-adenosylhomocysteine. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| NRDT | Nitrate Reductase | No definition available. | |
| NOSZ | Nitric oxide synthase | Nitric oxide synthase is a NADPH-dependent enzyme that catalyzes the conversion of l-arginine and oxygen to produce citrulline and nitric oxide. Also: nitric oxide synthetase; endothelium-derived relaxation factor-forming enzyme; endothelium-derived relaxing factor synthase; NO synthase; NADPH-diaphorase | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| NITG | Nitrogenase Activity | Nitrogenase is a member of a family of enzymes found in nitrogen fixing bacteria that reduce nitrogen to ammonia (also ethylene to acetylene). | http://cancerweb.ncl.ac.uk |
| NRED | Nitroreductase | Enzymes which reduce nitro groups. | http://cancerweb.ncl.ac.uk/omd/ |
| NNDE | Nitrosamine-N-demethylase | An enzyme. | |
| NSES | Non-specific esterases | Esterases are ubiquitous enzymes present in the cells of all living organisms. In this case it is the measurement of nonspecific. | ECOREF#97635 |
| OAHL | O-acetylhomoserine (thiol)-lyase | With hydrogen sulfide, forms homocysteine. Accepted name: O-acetylhomoserine aminocarboxypropyltransferase Synonym: acetylhomoserine sulfhydrylase, homocysteine synthase, oah sulfhydrylase, o-acetylhomoserine sulfhydrylase, o-acetyl-l-homoserine sulfhydrylase, o-acetylhomoserine-o-acetylserine sulfhydrylase, met25 sulfhydrylase, o-acetylserine-o-acetylhomoserine sulfohydro-lyase, aahshase, O-acetyl-L-homoserine acetate-lyase (adding methanethiol); O-acetyl-L-homoserine sulfhydrolase; O-acetylhomoserine sulfhydrolase; methionine synthase Systematic name: O-acetyl-L-homoserine:methanethiol 3-amino-3-carboxypropyltransferase | http://www.chem.qmul.ac.uk and http://cancerweb.ncl.ac.uk/omd |
| OLHD | omega laurate hydroxlase | Steroid metabolizing enzyme. | ECOREF 62306 |
| O1LH | omega-1-laurate hydroxylase | Steroid metabolizing enzyme. | ECOREF 62306 |
| O2LH | omega-2-laurate hydroxylase | Steroid metabolizing enzyme. | ECOREF 62306 |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ORCT | Ornithine Carbamoyl Transferase | No definition available. | |
| ORDC | Ornithine decarboxylase | The enzyme that converts ornithine to putrescine (dibasic amine) by decarboxylation. Rate limiting in the synthesis of the polyamines spermidime and spermine that regulate DNA synthesis. | http://cancerweb.ncl.ac.uk/omd/ |
| PAEA | Palmitoyl-CoA:estradiol acyltransferase | An enzyme responsible for estradiol esterification. | Janer, et al (2005) Aquat.Toxicol. 75(1):32-42 |
| PAPN | Papain | Papain is an enzyme involved in the hydrolysis of proteins with broad specificity for peptide bonds, but preference for an amino acid bearing a large hydrophobic side chain at the P2 position. Other name(s): papayotin; summetrin; velardon; papaine; Papaya peptidase I | http://www.chem.qmul.ac.uk |
| PNOD | para-Nitrophenetole-o-deethylase | No definition available. | |
| PNAC | para-Nitrophenyl Acetate Carboxylasterase | No definition available. | |
| PCTN | Pectinase activity | Random hydrolysis of 1,4-alpha-D-galactosiduronic linkages in pectate and other galacturonans Also called Polygalacturonase or Pectin depolymerase. | http://www.expasy.ch/cgi-bin/nicezyme.pl?3.2.1.15 |
| PBHD | Pentobarbital Hydroxylase | No definition available. | |
| PROD | Pentylresorufin O-deethylase | No definition available. | |
| PPSN | Pepsin | any of several enzymes of the gastric juice that catalyze the hydrolysis of proteins to form polypeptides. | www.mercksource.com |
| PODA | Peroxidase (Pod) Enzyme Activity | An enzyme that catalyzes reactions in which hydrogen peroxide is an electron acceptor. Also: myeloperoxidase; lactoperoxidase; verdoperoxidase; guaiacol peroxidase; thiocyanate peroxidase; eosinophil peroxidase; Japanese radish peroxidase; horseradish peroxidase (HRP); extensin peroxidase; heme peroxidase; MPO; oxyperoxidase; protoheme peroxidase; pyrocatechol peroxidase; scopoletin peroxidase. | (http://www.chem.qmul.ac.uk) |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PHLD | Phenoloxidase | An enzyme oxidizing benzenediols to semiquinones with O2. | http://cancerweb.ncl.ac.uk/omd/ |
| PBES | Phenyl Benzoate Esterase | No definition available. | |
| PHLL | phenylalanine ammonia lyase | This enzyme is a member of the aromatic amino acid lyase family. An enzyme that catalyses the deamination of l-phenylalanine to form trans-cinnamate and ammonia. It may also act on l-tyrosine. Since the enzyme deprives neoplastic tissue of phenylalanine, it has been used experimentally in the treatment of acute lymphoblastic leukaemia. The enzyme is obtained from many plants and is used as an enzymic marker for lignification and other developmental processes in plant cells. Other name(s): phenylalanine deaminase; phenylalanine ammonium-lyase; PAL; L-phenylalanine ammonia-lyase; Phe ammonia-lyase | http://www.chem.qmul.ac.uk and http://cancerweb.ncl.ac.uk/omd |
| PNMT | Phenylethanolamine N-methyl transferase | A methyltransferase that catalyses the reaction of sadenosyl-l-methionine and phenylethanolamine to yield S-adenosyl-l-homocysteine and n-methylphenylethanolamine. It can act on various phenylethanolamines and converts norepinephrine into epinephrine. | http://cancerweb.ncl.ac.uk/omd/ |
| PHTS | Phosphatase | Phosphoric Monoester Hydrolases is an enzyme group also called phosphatases or phosphor-monoesterases. These enzymes catalyse the hydrolysis of various bonds. | http://www.chem.qmul.ac.uk |
| PDPT | Phosphatidate phosphatase | Other name(s): phosphatic acid phosphatase; acid phosphatidyl phosphatase; phosphatic acid phosphohydrolase;phosphatidic acid phosphatase; 3-sn-phosphatidate phosphohydrolase | http://www.chem.qmul.ac.uk and www.expasy.org |
| PSPM | Phosphoamidase | An enzyme catalyzing the hydrolysis of phosphorus-nitrogen bonds, notably the hydrolysis of N-phosphocreatine to creatine and orthophosphate. | http://cancerweb.ncl.ac.uk/omd/ |
| PPDE | Phosphodiesterase | An enzyme that cleaves phosphodiesters to give a phosphomonoester and a free hydroxyl group. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PPPC | Phosphoenol pyruvate carboxylase | An enzyme with high affinity for carbon dioxide. It catalyzes irreversibly the formation of oxaloacetate from phosphoenolpyruvate and carbon dioxide. This fixation of carbon dioxide in several bacteria and some plants is the first step in the biosynthesis of glucose. | |
| PPPA | Phosphoenolpyruvic acid | Also known as Phosphoenolpyruvate carboxykinase. An enzyme that catalyses the reaction of oxaloacetate and GTP to form phosphoenolpyruvic acid, CO2, and GDP; a key enzyme in gluconeogenesis; the biosynthesis of this enzyme is decreased by insulin. | http://cancerweb.ncl.ac.uk/omd/ |
| PFRC | Phosphofructokinase | An enzyme that functions in carbohydrate metabolism and especially in glycolysis by catalyzing the transfer of a second phosphate (as from ATP) to fructose | |
| PHGP | phospholipid-hydroperoxide glutathione peroxidase (PHGPx) | Selenoenzyme found in biological materials; a protein thiol peroxidase. Other name(s): peroxidation-inhibiting protein; PHGPX; peroxidation-inhibiting protein: peroxidase, glutathione (phospholipid hydroperoxide-reducing); phospholipid hydroperoxide glutathione peroxidase; hydroperoxide glutathione peroxidase. | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| PLA2 | Phospholipase A2 | An enzyme that catalyses the hydrolysis of a lecithin to a lysolecithin by removing the 2-acyl group; also acts on other phospholipids by removing a fatty acid from the 2-position; this enzyme has an important role in prostaglandin and leukotriene biosynthesis. | http://cancerweb.ncl.ac.uk/omd/ |
| PHLC | Phospholipase C | An enzyme found in the alpha-toxin of clostridium welchii and other strains of clostridia and bacilli. It hydrolyzes glycerophosphatidates with the formation of 1,2-diacylglycerol and a phosphorylated nitrogenous base such as choline. | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PHPD | Phospholipase D | An enzyme found mostly in plant tissue. It hydrolyzes glycerophosphatidates with the formation of a phosphatidic acid and a nitrogenous base such as choline. This enzyme also catalyzes transphosphatidylation reactions. Other name(s): lipophosphodiesterase II; lecithinase D; choline phosphatase; phosphatidylcholine phosphatidohydrolase | http://www.chem.qmul.ac.uk and http://www.ncbi.nlm.nih.gov |
| PPHL | Phosphorylase | Enzyme that catalyses the sequential removal of glycosyl residues from glycogen to yield one glucose-1-phosphate per reaction. Its activity is controlled by phosphorylation (by phosphorylase kinase). | http://cancerweb.ncl.ac.uk/omd/ |
| PHLA | Phosphorylase A | The phosphorylated and more active form of phosphorylase that functions as a regulatory enzyme during glycogen breakdown. The phosphate groups are hydrolytically removed by phosphorylase phosphatase to form phosphorylase be and orthophosphate. | |
| PCCX | Picolinate carboxylase | An enzyme. | |
| PCLX | Picoline carboxylase | One of several carboxy-lyases, trivially named carboxylases or decarboxylases (EC subclass 4.1.1), catalyzing the addition of CO2 to all or part of another molecule to create an additional -COOH group (e.g., ribulose-1,5-bisphosphate carboxylase). | |
| PNAD | P-nitroanisole Demethylase | No definition available. | |
| NPHL | p-Nitrophenol hydroxylase | A Cytochrome P450-dependent monooxygenase activity | ECOTOX |
| PPOX | Polyphenol oxidase | Catechol oxidase - any group of enzymes of the oxidoreductase class that catalyze the oxidation of catechols to 1,2-benzoquinones. The group includes enzymes called also diphenol oxidase or polyphenol oxidase, based on their substrates | Dorland's Medical Dictionary |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PHBG | Porphobilinogen | Chemical name: 1H-Pyrrole-3-propanoic acid, 5-(aminomethyl)-4-(carboxymethyl) an enzyme used by the body to make important substances such as the molecule call heme | http://cancerweb.ncl.ac.uk/omd/ http://health.allrefer.com/health/pbg-info.html) |
| PPBD | Porphobilinogen deaminase | Porphobilinogen deaminase is an enzyme. Also: hydroxymethylbilane synthase; HMB-synthase; pre-uroporphyrinogen synthase; uroporphyrinogen I synthase; uroporphyrinogen I synthetase; uroporphyrinogen synthase; uroporphyrinogen synthetase; porphobilinogen ammonia-lyase (polymerizing); (4-[2-carboxyethyl]-3-[carboxymethyl]pyrrol-2-yl)methyltransferase (hydrolysing) | http://www.chem.qmul.ac.uk |
| P6BH | Progesterone 6beta-hydroxylase | Progesterone 6beta-hydroxylase an isoform of the unspecific monooxygenase EC 1.14.14.1 that oxidizes a variety of structurally unrelated compounds. | ECOTOX and http://www.ncbi.nlm.nih.gov |
| PCOD | Propoxycoumarin O-dealkylase | No definition available. | |
| PPDO | Prolyl hydroxylase | Accepted name: procollagen-proline dioxygenase; Other name(s): protocollagen hydroxylase; proline hydroxylase; proline,2-oxoglutarate 4-dioxygenase; collagen proline hydroxylase; hydroxylase, collagen proline; peptidyl proline hydroxylase; proline protocollagen hydroxylase; proline, 2-oxoglutarate dioxygenase; prolylprotocollagen dioxygenase; prolylprotocollagen hydroxylase; protocollagen proline 4-hydroxylase; protocollagen proline dioxygenase; protocollagen proline hydroxylase; protocollagen prolyl hydroxylase; prolyl 4-hydroxylase; prolyl-glycyl-peptide, 2-oxoglutarate:oxygen oxidoreductase, 4-hydroxylating; procollagen-L-proline,2-oxoglutarate:oxygen oxidoreductase (4-hydroxylating) | http://www.chem.qmul.ac.uk |
| PRTS | Protease | An enzyme that digests proteins. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PRCE | Protein C (activated) | A peptidase of family S1 (trypsin family), one of the gamma-carboxyglutamic acid-containing coagulation factors. Formed from protein C, the proenzyme that circulates in plasma, by the action of a complex of thrombin with thrombomodulin, or by serine endopeptidases present in several snake venoms. Other name(s): blood-coagulation factor XIVa; activated blood coagulation factor XIV; activated protein C; autoprothrombin II-A; protein Ca; APC; GSAPC | http://www.chem.qmul.ac.uk |
| PDSI | Protein disulfide-isomerase | An enzyme that catalyses the rearrangement of disulfide bonds within proteins during folding. It is a monomer identical to one of the subunits of procollagen-proline dioxygenase. | http://cancerweb.ncl.ac.uk/omd/ |
| PKSA | Protein kinase A | Protein kinase A has several functions in the cell, including regulation of glycogen, sugar, and lipid metabolism. Also known as cAMP-dependent protein kinase, PKA; PKA C; protein kinase A; STK22 | http://www.wikipedia.org and http://www.chem.qmul.ac.uk |
| PKSC | Protein kinase C | An enzyme that phosphorylates proteins on serine or threonine residues in the presence of physiological concentrations of calcium and membrane phospholipids. | http://cancerweb.ncl.ac.uk/omd/ |
| PRTA | Proteolytic activity | An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides). | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PCHE | Pseudocholinesterase | An enzyme involved in the breakdown of acetylcholine. Associated with acetylcholinesterase. Acetylcholinesterase is found in nerve tissue while pseudocholinesterase is found primarily in the liver. Measurement of pseudocholinesterase may be performed as a screening tool prior to the administration of electroconvulsive therapy. It is also useful in identifying organophosphate toxicity or congenital enzyme deficiencies. | |
| PXPK | Pyridoxal Phosphokinase | An enzyme that catalyzes reversibly the phosphorylation of pyridoxal in the presence of ATP with the formation of pyridoxal 5-phosphate and ADP. Pyridoxine, pyridoxamine and various derivatives can also act as acceptors. EC 2.7.1.35. | www.online-medical-d |
| PGP1 | Pyroglutamyl-peptidase I | Pyroglutamyl-peptidase I is an enzyme. Other names: 5-oxoprolyl-peptidase; pyrase; pyroglutamate aminopeptidase; pyroglutamyl aminopeptidase; L-pyroglutamyl peptide hydrolase; pyrrolidone-carboxyl peptidase; pyrrolidone-carboxylate peptidase; pyrrolidonyl peptidase; L-pyrrolidonecarboxylate peptidase; pyroglutamidase; pyrrolidonecarboxylyl peptidase | http://www.chem.qmul.ac.uk |
| PYRC | Pyruvate carboxylase | An enzyme of the ligase class that catalyzes the irreversible carboxylation of pyruvate to form oxaloacetate. The enzyme is a mitochondrial protein containing a biotin prosthetic group, requiring magnesium or manganese and acetyl CoA, and occurs in l | |
| PYKN | Pyruvate kinase | A phosphotransferase that catalyzes reversibly the phosphorylation of pyruvate to phosphoenolpyruvate in the presence of ATP. It has four isozymes (l, r, m1, and m2). | |
| QNPT | Quinolinate phosphoribosyltrans-ferase | An enzyme. | |
| QORD | Quinone oxidoreductase | A flavoprotein similar to NADH dehydrogenase (quinone), but oxidizing NADPH. | Biology-online.org |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| RNIN | Renin | An enzyme of the hydrolase class that catalyses cleavage of the leucine leucine bond in angiotensin to generate angiotensin. The enzyme is synthesized as inactive prorenin in the kidney and released into the blood in the active form in response to various metabolic stimuli. Not to be confused with rennin (chymosin). | cancerweb.ncl.ac.uk |
| REHL | Retinyl Ester Hydrolase | The liver enzymes that hydrolyze retinyl esters, the form in which newly absorbed dietary vitamin A is delivered to the liver. These enzymes (retinyl ester hydrolases or REHs) are important in both the uptake of dietary vitamin A by the liver and in the mobilization of stored vitamin A from the liver when dietary input is inadequate to meet the body's need for this essential nutrient. | http:www.ars.usda.gov research publications publications.htm?seq_no_115=173015 |
| RHDS | Rhodanese | Rhodanese is an enzyme. Other names: thiosulfate sulfurtransferase;thiosulfate cyanide transsulfurase; thiosulfate thiotransferase; rhodanase | http://www.chem.qmul.ac.uk |
| RUBI | Ribulose bisphosphate carboxylase/oxygenase (Rubisco) | A rate regulating-enzyme in photosynthesis and a key enzyme in nitrogen metabolism. | http://www.irri.org/IRRN24-1Minireviews.pdf |
| RBPC | Ribulose-1,5-bisphosphate carboxylase | A copper protein that catalyzes the formation of 2 moles of 3-phosphoglycerate from ribulose 1,5-biphosphate in the presence of carbon dioxide and is responsible for carbon dioxide fixation in photosynthesis. | |
| RNSE | Rnase (ribonuclease) | An enzyme that catalyzes the depolymerization of ribonucleic acid. | |
| SPGX | Selenium dependent glutathion peroxidase | Selenium has a main role as an antioxidant in the enzyme selenium-glutathione-peroxidase. | http://www.uphs.upenn.edu/ency/article/002414.htm |
| SRDT | Serine dehydratase | Serine dehydratases are enzymes in the lyase class and currently classified as Ammonia-Lyases (previously as Hydro-Lyases). | ECOTOX and http://www.chem.qmul.ac.uk |
| SGOT | Serum Glutamate Oxalo Acetate Transaminase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| SSAR | Serum Glutamate Oxalo Acetate Transaminase and Serum Glutamic Pyruvic Transaminase to Alkaline Phosphatase ratio (SGOT & SPGT to ALPH ratio) | Ratio of Serum Glutamate Oxalo Acetate Transaminase and Serum Glutamic Pyruvic Transaminase to Alkaline Phosphatase | |
| SSRA | Serum Glutamate Oxalo Acetate Transaminase to Serum Glutamic Pyruvic Transaminase ratio (SGOT to SPGT ratio) | Ratio of Serum Glutamate Oxalo Acetate Transaminase to Serum Glutamic Pyruvic Transaminase. | |
| SGPT | Serum Glutamic Pyruvic Transaminase | No definition available. | |
| NAAT | Sodium adenosine triphosphatase | No definition available. | |
| NKAT | Sodium Potassium ATPase | A major transport protein of the plasma membrane. A multi unit enzyme, it moves 3 sodium ions out of the cell and 2 potassium ions in, for each ATP hydrolyzed. The sodium gradient established is used for several purposes (see facilitated diffusion, action potential), while the potassium gradient is dissipated through the potassium leak channel. Must not be confused with a sodium channel. Other names: sodium pump; $Na^+$,$K^+$ pump; Na,K-pump; ($Na^+$ + $K^+$)-activated ATPase; ($Na^+$ + $K^+$)-ATPase; $Na^+$,$K^+$-ATPase; Na,K-activated ATPase, $Na^+$/$K^+$-exchanging ATPase, ATP phosphohydrolase ($Na^+$/$K^+$-exchanging) | http://cancerweb.ncl.ac.uk and http://www.chem.qmul.ac.uk |
| SBDH | Sorbitol Dehydrogenase | No definition available. | |
| STCS | Starch synthase | Starch synthase is an enzyme. Other name(s): ADP-glucoseþstarch glucosyltransferase; adenosine diphosphate glucose-starch glucosyltransferase; adenosine diphosphoglucose-starch glucosyltransferase; ADP-glucose starch synthase; ADP-glucose synthase; ADP-glucose transglucosylase; ADP-glucose-starch glucosyltransferase; ADPG starch synthetase; ADPG-starch glucosyltransferase; starch synthetase; ADP-glucose:1,4-alpha-D-glucan 4-alpha-D-glucosyltransferase | http://www.chem.qmul.ac.uk |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| SSTT | steryl-sulfatase | Arylsulfatases a and b hydrolyze nitrocatechol sulfate, but p-nitrophenyl sulfate is hydrolyzed only slightly by both enzymes; arylsulfatase c hydrolyzes both p-nitrophenyl sulfate and nitrocatechol sulfate, low substrate specificity located chiefly in microsomes; a and b are found in lysosomes; arylsulfatase a is cerebroside sulfatase and arylsulfatase b is chondro-4-sulfatase. Synonym: arylsulfatase c, dehydroepiandrosterone sulfate sulfatase, steroid sulfatase, estrone sulfate sulfohydrolase, steroid sulphatase, cholesterol sulfatase, dhea sulfatase, 3 beta-hydroxysteroid sulfate sulfatase, estrone sulfate sulfatase, sterylsulfatase, steroid sulfohydrolase, cholesterol sulfate sulfatase, arylsulphatase c | http://cancerweb.ncl.ac.uk/omd/ |
| SCDH | Succinate Dehydrogenase | No definition available. | |
| SUPS | Sucrose phosphate synthase | A type 2a phosphoprotein phosphatase. | http://cancerweb.ncl.ac.uk/omd/ |
| SCRS | Sucrose synthase | Sucrose synthase has a dual role in producing both UDP-glucose (necessary for cell wall and glycoprotein biosynthesis) and ADP-glucose (necessary for starch biosynthesis). Other name(s): UDPglucose-fructose glucosyltransferase; sucrose synthetase; sucrose-UDP glucosyltransferase; sucrose-uridine diphosphate glucosyltransferase; uridine diphosphoglucose-fructose glucosyltransferase | http://www.chem.qmul.ac.uk |
| SOXE | Sulfite oxidase | Sulfite oxidase is a molybdenum requiring enzyme that catalyzes the terminal reaction in the oxidative degradation of sulfur amino acids with the formation of a sulfate. | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| SFTA | Sulfotransferase | Generic term for enzymes in EC sub-subclass 2.8.2 catalyzing the transfer of a sulfate group from 3'-phosphoadenylyl sulfate (active sulfate) to the hydroxyl group of an acceptor, producing the sulfated derivative and 3'-phosphoadenosine 5'-phosphate | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| SODA | Superoxide Dismutase (SOD) | An enzyme that catalyzes the decomposition of a superoxide into hydrogen peroxide and oxygen. Other name(s): superoxide dismutase I; superoxide dismutase II; SOD; Systematic name: superoxide:superoxide oxidoreductase | www.chem.qmul.ac.uk |
| T15A | Testosterone 15-alpha hydroxylase | An enzyme that acts on Testosterone at the 15-alpha position | ECOTOX |
| TBHY | Testosterone 16 beta-hydroxylase | An enzyme that acts on testosterone at the 16-beta position. | |
| T16A | Testosterone 16-alpha hydroxylase | An enzyme that acts on testosterone at the 16-alpha position. | |
| TT2A | Testosterone 2-alpha hydroxylase | From mouse liver, member of the murine cytochrome p450 2d family; amino-terminal amino acid sequence given in first source Registry. Synonym: cytochrome p450 2alpha, cytochrome p-450 2alpha, androstenedione 2alpha-hydroxylase, androgen 2alpha-hydroxylase. | http://cancerweb.ncl.ac.uk/omd/ |
| T2BH | Testosterone 2beta-hydroxylase | Testosterone 2beta-hydroxylase is an enzyme that acts on testosterone at the 2-beta position. | ECOTOX |
| TT6A | Testosterone 6-alpha hydroxylase | An enzyme that acts on testosterone at the 6-alpha position. | |
| TT6B | Testosterone 6-beta-hydroxylase | Pcn2 is an allelic variant form (2 amino acid alterations); for cyp3a2, consider also lidocaine n-deethylase. Synonyms: cytochrome p450(6 beta), cytochrome p-450 6b-1(pb1), cyp6b1, testosterone 6beta-hydroxylase, cyt p450 6beta-3, cytochrome p450(pcn2), 6beta-a gene product, cyp3a2, cyp6b3 | http://cancerweb.ncl.ac.uk/omd/ |
| TT7A | Testosterone 7alpha-hydroxylase (cyp2A1) | An enzyme that acts on testosterone at the 7-alpha position. | |
| TTRH | Testosterone hydroxylase | An enzyme that acts at positions 6 alpha, 7 alpha and 16 alpha of testosterone. | |
| TSST | Testosterone sulfotransferase | Probably an aspect of EC 2.8.2.15, steroid sulfotransferase. Synonyms: testosterone sulphotransferase, budesonide sulphotransferase | http://cancerweb.ncl.ac.uk/omd/ |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| THMN | Thiaminase | 1. An enzyme present in raw fish that destroys thiamin and may produce thiamin deficiency in animals on a diet largely composed of raw fish. 2. A hydrolase cleaving thiamin into a pyrimidine moiety (i.e., 2-methyl-4-amino-5-hydroxymethylpyrimidine) and a thiazole moiety (i.e., 4-methyl-5-(2'-hydroxyethyl)-thiazole); the pyrimidine moiety may appear in the urine as pyramin. | |
| THTR | Thiol Transferase | Reduces disulfide groups via thiol transfer; proposed to catalyze transfer of organomercurial from one thiol complex to another | http://cancerweb.ncl.ac.uk/omd/ |
| TDPD | Thioredoxin peroxidase | An enzyme also known as thiol peroxidase activity; TrxPx activity; TPx activity. Catalysis of the reaction: thioredoxin + H2O2 = thioredoxin disulfide + H2O. | http://db.yeastgenome.org/cgi-bin/GO/goTerm.pl?goid=8379 |
| TUOX | Thiourea oxygenase | An enzyme. | |
| TYKN | Thymidine kinase | Of pyrimidine salvage, catalyzing phosphorylation of thymine deoxyriboside to form its 5' phosphate, the nucleotide thymidylate. | http://cancerweb.ncl.ac.uk/omd/ |
| T5D3 | thyroxine 5-deiodinase | Thyroxine 5-deiodinase enzyme activity has only been demonstrated in the direction of 5-deiodination. The removal of the 5-iodine from the inner ring largely inactivates the hormone thyroxine. Other names: diiodothyronine 5'-deiodinase[ambiguous]; iodothyronine 5-deiodinase; iodothyronine inner ring monodeiodinase; type III iodothyronine deiodinase. | http://www.chem.qmul.ac.uk/iubmb |
| TAMN | Transaminase | One of a group of enzymes that catalyze the transfer of the amino group of an amino acid to a keto acid to form another amino acid. Also known as aminotransferase. | |
| TSKT | Transketolase | A thiamine pyrophosphate containing enzyme that links the pentose phosphate pathway with glycolysis by converting pentoses to hexoses. | Lindqvist, Y., et. al. (1992) EMBO J. 11, 2373-2379. and http://cancerweb.ncl.ac.uk/omd/ |
| TRIE | Triacetin Esterase | No definition available. | |
| TRBA | Tributyrinase | No definition available. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| T3GL | Triiodotyrosine (T3) Glucuronidation | Glucuronidation represents a major means of metabolizing hormones so that they can then be excreted. In this case triiodotyrosine (T3). | http://www.anapsid.org/cnd/hormones/glucuronidation.html |
| TPSY | Trypsin | A proteolytic enzyme which catalyzes the hydrolysis of peptide linkages in proteins. | |
| T23D | Tryptophan 2,3-dioxygenase | An oxidoreductase catalyzing the reaction of l-tryptophan and O2 to produce l-N-formylkynurenine; an adaptive enzyme, the level (in the liver) being controlled by adrenal hormones; a step in tryptophan catabolism; also, a step in the synthesis of NAD+ from tryptophan. | http://cancerweb.ncl.ac.uk/omd/ |
| TPHX | Tryptophan hydroxylase | Tryptophan hydroxylase (TPH) is the rate-limiting enzyme in the biosynthesis of serotonin and an important component of melatonin biosynthesis. | |
| TPOX | Tryptophan oxidase | A protohemoprotein. Forms formylkynurenine from l-tryptophan and molecular oxygen. | http://cancerweb.ncl.ac.uk/omd/ |
| TROX | Tryptophan oxygenase | A protohemoprotein. Forms formylkynurenine from l-tryptophan and molecular oxygen.Synonym-Tryptophan peroxidase | http://cancerweb.ncl.ac.uk/omd/ |
| T5D1 | Type I iodothyronine deiodinase | Type I iodothyronine deiodinase is one form of thyroxine 5'-deiodinase that renders thyroid hormone more active. The first reaction is a reductive deiodination converting the -Se-H group of the enzyme into an -Se-I group; the reductant then reconverts this into -Se-H, releasing iodide. | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| T5D2 | Type II iodothyronine deiodinase | Type II iodothyronine deiodinase is one form of thyroxine 5'-deiodinase that renders thyroid hormone more active by converting the prohormone thyroxine (T4) by outer ring deiodination (ORD). | http://www.ncbi.nlm.nih.gov and http://www.chem.qmul.ac.uk |
| TATS | Tyrosine aminotransferase | An enzyme that catalyses the reversible reaction of l-tyrosine and alpha-ketoglutarate producing p-hydroxyphenylpyruvate and l-glutamate; this enzyme catalyses a step in l-phenylalanine and l-tyrosine catabolism. | |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| TSHX | Tyrosine hydroxylase | Enzyme required for the synthesis of the neurotransmitters noradrenaline and dopamine. | http://cancerweb.ncl.ac.uk/omd/ |
| TKNS | Tyrosine kinases | Kinases that phosphorylate protein tyrosine residues. These kinases play major roles in mitogenic signaling and can be divided into two subfamilies: receptor tyrosine kinases, that have an extracellular ligand binding domain, a single transmembrane domain and an intracellular tyrosine kinase domain and nonreceptor tyrosine kinases, which are soluble, cytoplasmic kinases. EC 2.7.10.1 and EC 2.7.10.2 SYNONYMS: protein tyrosine kinases, PTK | http://cancerweb.ncl.ac.uk/omd/ |
| UDGT | UDP glucuronosyltransferase | The enzymatic addition of sugars to fat-soluble chemicals is an important process that increases their solubility in water and aids in their excretion. The UDP glucuronosyltransferases that carry out this reaction are part of a super family of UDP glycosyltransferases found in animals, plants and bacteria. Other name(s): 1-naphthol glucuronyltransferase; 1-naphthol-UDP-glucuronosyltransferase; 17beta-hydroxysteroid UDP-glucuronosyltransferase; 3alpha-hydroxysteroid UDP-glucuronosyl-transferase; 4-hydroxybiphenyl UDP-glucuronosyltransferase; 4-methylumbelliferone UDP-glucuron-osyltransferase; 4-nitrophenol UDP-glucuronyltransferase; 4-nitrophenol UDPGT; 17-OH steroid UDPGT; 3-OH androgenic UDPGT; bilirubin uridine diphosphoglucuronyltrans-ferase; bilirubin UDP-glucuronosyl-transferase; bilirubin monoglucuron-ide glucuronyl-transferase; bilirubin UDPGT; bilirubin glucuronyltrans-ferase; ciramadol UDP-glucuronyl-transferase; estriol UDP-glucurono-syltransferase; estrone UDP-glucuronosyltransferase; uridine diphosphoglucurono-syltransferase; uridine diphosphoglucuronatebili-rubin glucuronoside glucuronosyl-transferase; uridine diphosphoglu-curonate-bilirubin glucuronosyltrans-ferase; uridine diphosphoglucu-ronate-estriol glucuronosyltransfer-ase; uridine diphosphoglucuronate-estradiol glucuronosyltransferase; uridine diphosphoglucuronate-4-hydroxybiphenyl glucuronosyltrans-ferase; uridine diphosphoglucuron-ate-1,2-diacylglycerol glucuronosyl-transferase; uridine diphosphoglu-curonate-estriol 16alpha-glucurono-syltransferase; uridine diphospho- | www.unisa.edu.au/pharm_medsci/Gluc_trans/intro.htm and http://www.chem.qmul.ac.uk |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | glucuronosyl-transferase; GT; morphine glucu-ronyltransferase; p-hydroxybiphenyl UDP glucuronyl-transferase; p-nitrophenol UDP-glucuronosyl-transferase; p-nitro-phenol UDP-glucuronyltransferase; p-nitrophenylglucuronosyltransfer-ase; p-phenylphenol glucuronyl-transferase; phenyl-UDP-glucurono-syltrans-ferase; PNP-UDPGT; UDP glucuronate-estradiol-glucuronosyl-transferase; UDP glucuronosyl-transferase; UDP glucuronate-estriol glucuronosyltransferase; UDP glucuronic acid transferase; UDP glucuronyltransferase; UDP-glucuronate-4-hydroxybiphenyl glucuronosyltransferase; UDP-glucuronate-bilirubin glucuronyl-transferase; UDP-glucuronosyl-transferase; UDP-glucuronyltrans-ferase; UDPGA transferase; UDPGA-glucuronyltransferase; UDPGT; uridine diphosphoglucu-ronyltransferase; uridine diphospho-glucuronate-bilirubin glucuronosyl-transferase; uridine diphosphate glucuronyltransferase; uridine 5'-diphosphoglucuronyltransferase; uridine diphosphoglucuronosyl-transferase | |
| UDPG | UDP glucose pyrophosphorylase | UDP glucose pyrophosphorylase. Other names: UTPþglucose-1-phosphate uridylyltransferase, glucose-1-phosphate uridylyltransferase; UDPG phosphorylase; UDPG pyrophosphorylase; uridine 5'-diphosphoglucose pyrophosphorylase; uridine diphosphoglucose pyrophosphorylase; uridine diphosphate-D-glucose pyrophosphorylase; uridine-diphosphate glucose pyrophosphorylase | |
| URSE | Urease Activity | An enzyme that breaks urea down into carbon dioxide and ammonia, its typically used to measure urea concentrations. | http://cancerweb.ncl.ac.uk/omd/ |
| UDPT | Uridine Diphosphate (Udp) Glucuronyl Transferase | No definition available. | |
| URON | Uronolactonase | Also known as glucuronolactonase, an enzyme involve in the metabolism of L-ascorbic acid. | ECOREF 58373 |

| **ENZ Enzyme Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| UPIS | Uroporphyrinogen I synthetase | Uroporphyrinogen I synthetase is an enzyme. Also: hydroxymethylbilane synthase, HMB-synthase; porphobilinogen deaminase; pre-uroporphyrinogen synthase; uroporphyrinogen I synthase; uroporphyrinogen synthase; uroporphyrinogen synthetase; porphobilinogen ammonia-lyase (polymerizing); (4-[2-carboxyethyl]-3-[carboxymethyl]pyrrol-2-yl)methyltransferase (hydrolysing) | http://www.chem.qmul.ac.uk |
| UP3S | Uroporphyrinogen III synthase | Uroporphyrinogen III synthase is an enzyme. Also: porphobilinogenase; uroporphyrinogen isomerase; uroporphyrinogen III cosynthase; URO-synthase; hydroxymethylbilane hydro-lyase (cyclizing) | http://www.chem.qmul.ac.uk |
| UPDC | Uroporphyrinogen decarboxylase | Uroporphyrinogen decarboxylase, also known as UROD, is an enzyme. Also: uroporphyrinogen III decarboxylase; porphyrinogen carboxy-lyase; porphyrinogen decarboxylase; uroporphyrinogen-III carboxy-lyase. | http://www.chem.qqmu.ac.uk and www.wikipedia.org/wiki |
| VAAM | Valine aminopeptidase | Valine, an amino acid combined with aminopeptidase which is an enzyme that removes the N terminal amino acid from a protein or peptide. | partial definition from http://cancerweb.ncl.ac.uk/omd/ |
| XODA | Xanthine Oxidase | Dehydrogenases involved in conversion of hypoxanthine to xanthine and xanthine to uric acid, as the final catabolism of purines. Deficient in the human disease xanthinuria. | http://cancerweb.ncl.ac.uk/omd/ |
| XBME | Xenobiotic metabolizing enzymes | Enzymes that metabolize synthetic compounds not normally found in nature. Examples of xenobiotic compounds include; pesticides, herbicides, insecticides, fungicides, detergents, plastics and other synthetic polymers. | |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name |
|---|---|

| HRM Hormone Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | |
| HZ11 | (Z)11-Hexadecenal: | (Z)11-Hexadecenal: is an insect phermone | http://www.pherobase.net |
| 11BA | 11 beta-hydroxyandrostenedione | 11 beta-hydroxyandrostenedione refers to an Androstenedione without isomeric designation. Also known as: 11-hydroxy-4-androstene-3,17-dione; 11-hydroxyandrostenedione, (11alpha)-isomer; 11-hydroxyandrostenedione, (11beta)-isomer; 11-hydroxyandrostenedione, (9beta,10alpha,11alpha)-isomer; 11-hydroxyandrostenedione, (9beta,10alpha,11beta)-isomer; 11 beta-hydroxyandrost-4-ene-3,17-dione. | (http://www.ncbi.nlm.nih.gov) |
| 11BT | 11beta - hydroxytestosterone | 17 beta-hydroxy-4-androsten-3-ones. Testosterone derivatives formed by the substitution of one or more hydroxyl groups in any position. | http://cancerweb.ncl.ac.uk/omd/ |
| 11DC | 11-Deoxycortisol | The immediate precursor of cortisol, accumulates in the peripheral circulation when there is a deficiency of adrenal 11b-hydroxylase activity. | http://www.sas-centre.org/hormones/hormpages/hormone11deoxycortisol.html |
| DECL | 11-Deoxycortisol glucuronide | 11-Deoxycortisol is the immediate precursor of cortisol, accumulates in the peripheral circulation when there is a deficiency of adrenal 11b-hydroxylase activity. (http://www.sas-centre.org/hormones/hormpages/hormone11deoxycortisol.html) Glucuronide is a substance produced by attaching glucuronic acid to another substance with glycosidic bonds | http://cancerweb.ncl.ac.uk/omd/ |
| KTST | 11-Ketotestosterone | Steroid hormone produced by the testes, along with testosterone responsible for the appearance of male secondary sex characteristics. | |
| 15AP | 15-alpha-Hydroxyprogesterone | 15-alpha-Hydroxyprogesterone is an oxidative product of progesterone. | ECOTOX |
| 15AT | 15-alpha-Hydroxytestosterone | 15-alpha-Hydroxytestosterone is an oxidative product of testosterone. | ECOTOX |
| 15BH | 15 Beta- | An oxidative product of | ECOTOX |

| HRM Hormone Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | hydroxytestosterone | testosterone. | |
| 16BH | 16 beta-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 16AH | 16-alpha-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 16AT | 16alpha-Testosterone | Male sex hormone (androgen) secreted by the interstitial cells of the testis of mammals and responsible for triggering the development of sperm and of many secondary sexual characteristics. | http://cancerweb.ncl.ac.uk/omd/ |
| AHPG | 17 alpha-Hydroxyprogesterone | Also known as:17a-Hydroxy-4-pregnen-3,20-dione. A precursor of the androgens and adrenocortical hormones. | http://cancerweb.ncl.ac.uk/omd/ |
| BDPG | 17,20beta-Dihydroxy-4-pregnen-3-one | A female preovulatory hormone. | |
| DHPT | 17alpha,20beta-dihydroxyprogesterone | A maturation-inducing hormone | Pang,Y. and Ge, W., Biol Reprod. (1999) 61(4):987-992 |
| ESDL | 17-beta Estradiol | An estrogenic hormone produced by follicle cells of the ovary; provokes estrus and proliferation of the human endometrium. | |
| ELTR | 17beta-estradiol:Testosterone ratio | The ratio of the amount of 17beta-estradiol to the amount of testosterone in an organism. | |
| 18HD | 18-Hydroxy-11-deoxycorticosterone | A potassium retaining hormone. | |
| 18HC | 18-Hydroxycorticosterone | A group of corticosteroids carrying hydroxy groups, usually in the 11- or 17- positions. They comprise the bulk of the corticosteroids used systemically. As they are relatively insoluble in water, salts of various esterified forms are often used for injections or solutions. | http://cancerweb.ncl.ac.uk/omd/ |
| 19HD | 19-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 2AHT | 2-alpha-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 2BHT | 2-beta-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| HEDS | 20-hydroxyecdysone | A steroid hormone that regulates the processes of molting or ecdysis in insects. Also: beta-Ecdysone, crustecdysone. | http://www.ncbi.nlm.nih.gov |
| ABBD | 4-androstene- | A steroid | ECOTOX |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | 3beta,17beta-diol | | |
| 6AHT | 6-alpha-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 6BHT | 6-beta-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 6BTT | 6beta-Testosterone | Male sex hormone (androgen) secreted by the interstitial cells of the testis of mammals and responsible for triggering the development of sperm and of many secondary sexual characteristics. | http://cancerweb.ncl.ac.uk/omd/ |
| 7AHT | 7-alpha-Hydroxytestosterone | An oxidative product of testosterone. | ECOTOX |
| 7ATT | 7alpha-Testosterone | Male sex hormone (androgen) secreted by the interstitial cells of the testis of mammals and responsible for triggering the development of sperm and of many secondary sexual characteristics. | http://cancerweb.ncl.ac.uk/omd/ |
| ABSA | Abscisic Acid | A common plant hormone that inhibits plant growth | |
| ACTH | Adrenocorticotropic hormone | A hormone that stimulates adrenal steroid biosynthesis. | |
| ALDS | Aldosterone | A steroid hormone produced by the adrenal cortex, that controls salt and water balance in the kidney. Abnormally high levels of this hormone cause sodium retention, high blood pressure, heart rhythm irregularities and possibly paralysis. | http://cancerweb.ncl.ac.uk/omd/ |
| AMSH | Alpha-Melanocyte Stimulating Hormone | Alpha-Melanocyte Stimulating Hormone (alpha-MSH)is produced by an intermediate lobe of the pituitary gland. Its secretion causes a dramatic darkening of the skin. | |
| ANDR | Androgen | Substances that conduces masculinization; such as testicular hormones. | |
| ABPT | Androgen binding protein | A protein secreted by testicular Sertoli cells along with inhibin and mullerian inhibiting substance. Androgen binding protein probably maintains a high concentration of androgen in the seminiferous tubules. | http://cancerweb.ncl.ac.uk/omd/ |
| ADDL | Androstanediol | A steroid metabolite. Also called: 5alpha-Androstane-3b,17b-diol | http://cancerweb.ncl.ac.uk/omd/ |
| ADDN | Androstenedione | An androgenic steroid produced by the testis, adrenal cortex and ovary. | http://cancerweb.ncl.ac.uk/omd/ |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | It occurs in nature as a 4-delta-androstenedione and 5-delta-androstenedione. Androstenediones can be converted metabolically to testosterone and other androgens. | |
| ASTN | Androstenone | Androstenone, or 5alpha-androst-16-en-3-one, is a steroid found in both male and female sweat and urine. | (http://en.wikipedia.org/wiki) |
| AUXN | Auxin | A plant hormone. | |
| <BOES> Code ESDL | beta-Oestradiol (E2) | A hormone (272 D) synthesized mainly in the ovary, but also in the placenta, testis and possibly adrenal cortex. A potent oestrogen. | http://cancerweb.ncl.ac.uk/omd/ |
| CTCL | Catecholamine | A type of biogenic amine derived from tyramine, characterized as alkylamino derivatives of o dihydroxybenzene. Catecholamines include adrenaline, noradrenaline and dopamine, with roles as hormones and neurotransmitters. | |
| CORT | Corticosterone (Corticoid) | A steroid produced by the adrenal cortex that stimulates carbohydrate synthesis and protein breakdown. | |
| CRTS | Cortisol | Cortisol is a steroid hormone that is released from the zona fasciculata of the adrenal cortex in response to stress. | |
| CRCT | Cortisol and cortisone | Cortisol is a steroid hormone that is released from the zona fasciculata of the adrenal cortex in response to stress. Cortisone: Derived from cortisol and with similar physiological actions. | http://cancerweb.ncl.ac.uk/omd/ |
| CTKY | Cytokines | Cytokines are small secreted proteins which mediate and regulate immunity, inflammation, and hematopoiesis. | http://microvet.arizona.edu/Courses/MIC419/Tutorials/cytokines.html |
| CYTK | Cytokinin | Class of plant hormones that induce cell division | |
| DOCS | Deoxycorticosterone | Also known as 11-Deoxycorticosterone; 21-hydroxypregn-4-ene-3,20-dione. An adrenocortical steroid, principally a biosynthetic precursor of corticosterone and possibly aldosterone, that rarely appears in adrenocortical secretions; a potent mineralocorticoid with no appreciable glucocorticoid activity. | http://cancerweb.ncl.ac.uk/omd/ |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| DHTR | Dihydrotestosterone | The synthetic form is stanolone. (5alpha,17beta)-17-Hydroxyandrostan-3-one | Dorland's medical dictionary |
| DITS | Diiodotyrosine | One of the hormones that are combined to create T3 (triiodotyrosine), Diiodotyrosine (DIT); tyrosine is iodinated twice. | |
| DOPA | Dopamine | A monoamine formed in the body; an intermediate product in the synthesis of norepinephrine, acts as a neurotransmitter in the CNS. | |
| ECDY | Ecdysone | A steroid hormone that regulates the processes of molting or ecdysis in insects | http://www.ncbi.nlm.nih.gov |
| ECDS | Ecdysteroids | Ecdysteroids are cholesterol derivitives that control molting and reproduction in insects and crustaceans | ECOREF #86051 |
| EPIN | Epinephrine | Secreted by the adrenal medulla and acts to increase blood pressure due to the stimulation of heart action and constriction of blood vessels (Synonym = adrenaline). | |
| EPNO | Epinephrine to norepinephrine ratio | Ratio of epinephrine to norepinephrine | ECOTOX |
| ESTR | Estrogen (oestrogen) | Any of various natural or synthetic substances possessing the biological activity of estrus-producing hormones. | |
| ESTO | Estrone | 3-hydroxyestra-1,3,5(10)-trien-17-one. A metabolite of estradiol but possessing less biological activity. | http://cancerweb.ncl.ac.uk/omd/ |
| FOSH | Follicle stimulating hormone (FSH) | One of the most important hormones involved in the natural menstrual cycle as well as in pharmacological (drug-induced) stimulation of the ovaries. It is the main hormone involved in producing mature eggs. | |
| FHBU | Follicle Stimulating Hormone, beta Subunit | The beta subunit of follicle stimulating hormone. It is a 15-kDa glycopolypeptide. Mutation of the FSHB gene causes delayed puberty, or infertility. | http://www.ncbi.nlm.nih.gov |
| GAST | Gastrin | Gastrins belong to a family of gastrointestinal peptide hormones that excite the secretion of gastric juice. They may also occur in the central nervous system where they are presumed to be | http://www.ncbi.nlm.nih.gov |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | neurotransmitters. | |
| GHRL | Ghrelin | A 28-amino acid, acylated, orexigenic peptide that is a ligand for growth hormone secretagogue receptors. Ghrelin is widely expressed but primarily in the stomach in the adults. Ghrelin acts centrally to stimulate growth hormone secretion and food intake, and peripherally to regulate energy homeostasis. | http://www.ncbi.nlm.nih.gov |
| GIBB | Gibberellin | A plant hormone. | |
| GCRT | Glucocorticoid | Corticosteroid substances (drugs or hormones) that are involved in carbohydrate metabolism by promoting gluconeogenesis and the formation of glycogen at the expense of lipid and protein synthesis. They are steroid based and possess anti-inflammatory and immunosuppressive properties. Glucocorticoids are also produced normally by the adrenal cortex and provide for the response to stress. | http://cancerweb.ncl.ac.uk/omd/ |
| GBDP | Glucoronidated 17,20beta-Dihydroxy-4-pregnen-3-one | A female preovulatory hormone with glucoronidate. | |
| G11K | Glucuronidated 11-Ketotestosterone | A metabolite of 11-Ketotestosterone | ECOTOX |
| GHAU | Glycoprotein Hormones, alpha Subunit | The alpha chain of pituitary glycoprotein hormones (thyrotropin; follicle stimulating hormone; luteinizing hormone) and the placental chorionic gonadotropin. Within a species, the alpha subunits of these four hormones are identical; the distinct functional characteristics of these glycoprotein hormones are determined by the unique beta subunits. Both subunits, the non-covalently bound heterodimers, are required for full biologic activity. | (http://www.ncbi.nlm.nih.gov) |
| GNTP | Gonadotropin | A substance that acts to stimulate the gonads. | |
| GRHM | Gonadotropin releasing hormone | The peptide hormone that control reproductive function. It produced and released by the hypothalamus and controls the production and release of gonadotrophins from the pituitary gland. It causes the production of luteinising hormone | http://cancerweb.ncl.ac.uk/omd/ |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | and follicle stimulating hormone. | |
| GTHH | Growth hormone | A polypeptide hormone secreted by the anterior pituitary which promotes an increase in body size. Any hormone that regulates growth in plants and animals. | |
| GHRM | Hormone, General Changes in | Change in hormone concentrations. | |
| HCHH | Hyperglycemic hormone, crustacean | Crustacean hyperglycemic hormone ia a neuropeptide primarily synthesized within the eyestalk which controls glucose concentration. Also: CHH | ECOREF#116681 and http://www.ncbi.nlm.nih.gov/ |
| IPTH | Immunoreactive parathyroid hormone | No definition available. | |
| INHI | Inhibin | Polypeptide hormone secreted by the hypophysis, that selectively suppresses the secretion of pituitary follicle stimulating hormone. The molecule has two subunits (14 & 18 kD) and is a product of the gene family that includes TGF. There are two forms, __A and __B, the _ subunit being shared with activin. Inhibin is now, on the basis of gene knockout experiments, considered to be a tumor suppressor, the key gene being that for inhibin. | http://cancerweb.ncl.ac.uk/omd/ |
| INHB | Inhibin B | Inhibin B is a form of inhibin that suppresses the secretion of pituitary follicle stimulating hormone. | http://www.ncbi.nlm.nih.gov |
| INSL | Insulin | A polypeptide hormone found in both vertebrates and invertebrates. Secreted by the cells of the pancreas in response to high blood sugar levels, it induces hypoglycemia. Defective secretion of insulin is the cause of diabetes mellitus. Insulin is also a mitogen, has sequence homologies with other growth factors and is a frequent addition to cell culture media for demanding cell types. | http://cancerweb.ncl.ac.uk/omd/ |
| LPTN | Leptin | A peptide hormone that is produced by fat cells and plays a role in body weight regulation by acting on the hypothalamus to suppress appetite and burn fat stored in adipose tissue. | http://www.merriam-webster.com |
| 4TO3 | L-thyroxine outer ring 5'-monodeiodination | The conversion of L-Thyroxine (T4) to triiodotyrosine (T3) where the T4 enters target cells where it | ECOREF#73485 |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | undergoes outer ring 5'-monodeiodination to T3. | |
| LUTH | Luteinizing hormone (LH) | Stimulates secretion of sex steroids from the gonads. | |
| LHBU | Luteinizing Hormone, beta Subunit | The beta subunit of luteinizing hormone. It is a 15-kDa glycopolypeptide with structure similar to the beta subunit of the placental chorionic gonadatropin. Mutation of the LHB gene causes hypogonadism and infertility. | |
| MELA | Melatonin | A hormone secreted by the pineal gland. In lower vertebrates causes aggregation of pigment in melanophores and thus lightens skin. | http://cancerweb.ncl.ac.uk/omd/ |
| MITS | Monoiodotyrosine | One of the hormones that are combined to create T3 (triiodotyrosine), Monoiodotyrosine (MIT); tyrosine becomes iodinated. | |
| NORD | Noradrenaline | Catecholamine neurohormone, the neurotransmitter of most of the sympathetic nervous system (of so called adrenergic neurons): binds more strongly to adrenergic receptors. Stored and released from chromaffin cells of the adrenal medulla. | http://cancerweb.ncl.ac.uk/omd/ |
| NORE | Norepinephrine | Secreted by chromaffin cells of the adrenal medulla; acts as a vasoconstrictor and mediates transmission of sympathetic nerve impulses. | |
| PTHH | Parathyroid hormone (PTH) | A polypeptide hormone secreted by the parathyroid glands which performs the essential role of maintaining intracellular calcium levels in the body. Parathyroid hormone increases intracellular calcium by promoting the release of calcium from bone, increases the intestinal absorption of calcium, increases the renal tubular reabsorption of calcium, and increases the renal excretion of phosphates. Alternate names: parathormone, parathyrin | http://www.ncbi.nlm.nih.gov |
| PRGN | Pregnenolone | An unsaturated hydroxy steroid ketone C21H32O2 that is formed by the oxidation of steroids (as cholesterol) and yields progesterone on dehydrogenation. | http://www.m-w.com/ |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PRGS | Progesterone | A steroid produced in the corpus luteum, placenta, testes, and adrenals; plays an important physiological role in the luteal phase of the menstrual cycle and in the maintenance of pregnancy. | |
| PRLC | Prolactin | A protein hormone produced by the adenohypophysis; stimulates lactation and promotes functional activity of the corpus luteum. | |
| SRTN | Serotonin | A vasoconstrictor, serves as a central neurotransmitter, also called 5-Hydroxytryptamine. | |
| SMTC | Somatomedin C (or IGF-1) | Somatotropin or human growth hormone is secreted by the pituitary gland under the influence of growth hormone releasing hormone. IGF-I is the main effector of growth hormone activity.3 IGF-I or Somatomedin C is the major member of a family of proteins synthesized by the liver in response to growth hormone stimulus. It circulates in the peripheral blood bound on a tertiary complex with IGFBP-3 and acid labile subunit (ALS) | http://www.aal.xohost.com/IGF-1.htm |
| SMMD | Somatomedins | Insulin-like polypeptides made by the liver and some fibroblasts and released into the blood when stimulated by somatotropin. They cause sulfate incorporation into collagen, RNA, and DNA synthesis, which are prerequisites to cell division and growth of the organism. Also known as: Insulin Like Growth Factors (I & II), Sulfation Factor. | http://www.ncbi.nlm.nih.gov |
| SRIF | Somatostatin | A polypeptide hormone that is produced by the hypothalamus and inhibits the release of growth hormone by the anterior pituitary. It is also produced in the delta cells of the endocrine pancreas where it inhibits the secretion of insulin and glucagon and decreases intestinal motility and absorption. | www.harcourt.com/dictionary |
| STRD | Steroids | A group name for lipids that contain a hydrogenated cyclopentanoperhydrophenanthrene ring system. Some of the substances included in this group are progesterone, adrenocortical hormones, the gonadal hormones, | http://cancerweb.ncl.ac.uk/omd/ |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | cardiac aglycones, bile acids, sterols (such as cholesterol), toad poisons, saponins and some of the carcinogenic hydrocarbons. | |
| S11K | Sulfated 11-Ketotestosterone | A metabolite of 11-Ketotestosterone | ECOTOX |
| SBDP | Sulfated 17,20-beta-Dihydroxy-4-pregnen-3-one | Metabolite of 17,20-beta-Dihydroxy-4-pregnen-3-one | ECOTOX |
| STST | Sulfated Testosterone | A metabolite of Testosterone | |
| TSTR | Testosterone | A steroid hormone which is necessary for male sexual reproduction and may also play a role in female sexual response. It is responsible for such male secondary sexual characteristics as body hair. In males, is produced in the Leydig cells of the testes; in both sexes, it is produced in smaller quantities by the adrenal glands. | |
| TGLD | Testosterone glucuronide | A metabolite of testosterone. Testosterone glucuronide comes from the hepatic transformation of testosterone, DHT and androstenedione. | http://www.estetik.com/datamed/Anti_Aging/male_hormones.htm |
| TSHT | Thyrotropin | Thyrotropin or thyroid-stimulating hormone (TSH), is a hormone released by the anterior pituitary gland that stimulates the thyroid gland to release thyroxine. | |
| TRHH | Thyrotropin Releasing Hormone | Thyrotropin Releasing Hormone is a tripeptide that stimulates the release of thyrotropin and prolactin. It is synthesized by the neurons in the paraventricular nucleus of the hypothalamus. Also: Protirelin, Thyroliberin, TRH, TRF | http://www.ncbi.nlm.nih.gov |
| THYR | Thyroxine | (T4) an iodine-containing hormone C15H11I4NO4 that is an amino acid produced by the thyroid gland as a product of the cleavage of thyroglobulin, increases metabolic rate. | |
| T4T3 | Thyroxine:Triidothyronine | The ratio of Thyroxine (T4) and Triiodothyronine (T3). | |
| ST5T | Total (Delta)5-sterols | Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility. | |

| **HRM Hormone Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ST8T | Total (Delta)8-sterols | Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility. | |
| ME4T | Total 4a-Methylsterols | Sterol - steroids with long aliphatic side chains at position 17 and at least one alcoholic hydroxyl group, usually at position 3 with lipid-like solubility. | |
| T3T4 | Triidothyronine (T3) to thyroxine (T4) | The ratio of Triiodothyronine (T3) to Thyroxine (T4). | |
| TRII | Triiodothyronine | (T3) an iodine-containing hormone C15H12I3NO4 that is an amino acid derived from thyroxine , the more active form of thyroid hormone which crosses cell membranes to exert an effect on metabolic rates within an organism. | |
| VASO | Vasopressin | A peptide hormone released from the posterior pituitary lobe but synthesised in the hypothalamus. There are 2 forms, differing only in the amino acid at position 8: arginine vasopressin is widespread, while lysine vasopressin is found in pigs. Have antidiuretic and vasopressor actions. Used in the treatment of diabetes insipidus. | http://cancerweb.ncl.ac.uk/omd/ |

## GRO GROWTH GROUP

| **DVP Development Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| 68CL | 6-8 Cell stage | Cleavage stage during embryonic development which contains 6-8 cells. | |

| **DVP Development Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ABNM | Abnormal | Effects which occur to the organism that has been directly exposed (compare to teratogenic effects). Effects included under this measurement include nonspecific physical malformations, deformities, defects, discoloration, anomalies, vegetative vigor, etc. | ECOTOX makes every effort to code the specific abnormalities (e.g. imposex, limb deformities , lesions, etc.), but when an author does not clearly state the specific type of abnormality or combines multiple types of abnormalities into one data point DVP ABNM is used. |
| AAFR | Age at first reproduction | The age when an organism starts to reproduce. A life table parameter | ECOTOX |
| ANGG | Angiogenesis | Angiogenesis is the formation and differentiation of blood vessels. | http://www.merriam-webster.com/dictionary |
| AOPT | Anophthalmia | Congenital absence of the eye or eyes. Also Anophthalmos | http://www.ncbi.nlm.nih.gov |
| BSCY | Blastocyst stage | An early metazoan embryo typically having the form of a hollow fluid-filled rounded cavity bounded by a single layer of cells | |
| CCLV | Cell Cleavage | No definition available. | |
| CLFT | Cleft palate | A congenital fissure in the roof of the mouth forming a communication between the nasal passages and the oral cavity. | http://cancerweb.ncl.ac.uk/omd/ |
| COAT | Coat development | Development of primary coat. | ECOTOX |
| COLR | Color | No definition available. | |
| CORK | Cryptorchidism | A developmental defect in which a testis or both testes failed to descend from high in the abdomen to the bottom of the scrotum. Testicular descent is essential to normal spermatogenesis which requires temperature lower than the body temperature. Cryptorchidism can be subclassified by the location of the maldescended testis | (http://www.ncbi.nlm.nih.gov) |
| DFRM | Deformation/ Malformations | A physical blemish or distortion | |
| GDVP | Development, General | Change in ability to grow to a more mature life stage and in time between separate life stages. | Used when more than one measurement is coded for an AQUIRE record. |

| **DVP Development Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| EARO | Ear opening | The development stage when the ears open | ECOTOX |
| EARP | Ear pinna detachment | The detachment of the ear pinna | |
| EMRG | Emergence | Change in the emergence from larval stage into the adult stage. Also includes plant emergence. | |
| ENDD | Endoderm Differentiation | No definition available. | |
| EVFO | Envelope Formation | No definition available. | |
| EYOP | Eye opening | The development stage when the eyes open. | |
| FIRM | Firmness | No definition available. | |
| FLDG | Fledged/Female or /Brood | No definition available. | |
| FURR | Fur Development | Development of fur. | |
| GSTL | Gastrulation | During embryonic development of most animals a complex and co-ordinated series of cellular movements occurs at the end of cleavage. The details of these movements, gastrulation, vary from species to species, but usually result in the formation of the three primary germ layers, ectoderm, mesoderm and endoderm. | http://cancerweb.ncl.ac.uk/omd/ |
| GRRT | Growth Rate | No definition available. | |
| INCT | Incubation time | To maintain (as an embryo or a chemically active system) under conditions favorable for hatching, development, or reaction. | Webster's |
| LRCF | Loricae formation | Tintinnid ciliates form stiff, vase-shaped or barrel-shaped coverings called loricae, around themselves. | |
| MATR | Maturation | The process of coming to full development. | |
| MMPH | Metamorphosis | A marked structural change in an animal during postembryonic development. | |
| MOPT | Microphthalmia | Congenital or developmental anomaly in which the eyeballs are abnormally small. Also Microphthalmos | http://www.ncbi.nlm.nih.gov |
| MOLT | Molting | To shed an outer covering as part of periodic process of growth. | |

| **DVP Development Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| MRLA | Morula stage | A globular solid mass of blastomeres formed by cleavage of a zygote that typically precedes the blastula. | |
| NORM | Normal | No definition available. | |
| FORM | Organ/Tissue Formation | No definition available. | |
| PHRV | Post Harvest Character Influenced | No definition available. | |
| PHRN | Post Harvest Character No Effect | No definition available. | |
| PUPA | Pupation | Change in percent pupation or pupation duration. | |
| RSPN | Resorption (Tail Resorption in Frogs) | No definition available. | |
| SXDP | Sexual Development | No definition available. | |
| DVLP | Slowed, Retarded, Delayed or Non-development | No definition available. | |
| STGE | Stage of development | A period or step in a progress, activity, or development; especially: one of the distinguishable periods of growth and development of a plant or animal. | http://www.m-w.com |
| TERA | Teratogenesis | The origin or mode of production of a malformed foetus; the disturbed growth processes involved in the production of a malformed neonate. | Use this code when exposure of adults results in quantifiable occurrence of abnormal offspring. |
| TEMR | Time to First Emergence | No definition available. | |
| TFLW | Time to Flower | No definition available. | |
| THED | Time to heading | The time it takes for grain to reach maturity. | |
| TRRA | Transformation Ratio | (Weight of Roots + Sprouts/weight of Original Seed) | |
| WEAN | Weaned | Permanent deprivation of breast milk and commencement of nourishment with other food. | http://cancerweb.ncl.ac.uk/omd/ |
| WGHT | Weight | The heaviness of an object. | |
| YLKA | Yolk sac absorption, Yolk sac utilization | A bag-like ventral extension of the gut containing nutritive materials that first appears in the fish embryo and is later absorbed by the larva during the stage after hatching and before feeding. | filaman.uni-kiel.de/LarvalBase/Glossary |

| **GRO Growth Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| <ABNM> | Abnormal | Effects which occur to the organism that has been directly exposed (compare to teratogenic effects). Effects included under this measurement include nonspecific physical malformations, deformities, defects, discoloration, anomalies, vegetative vigor, etc. | DO not code GRO ABNM. ABNM should be coded under MPH (when adult body structures are changing) or DVP (when embryo or juveniles are becoming abnormal throughout different lifestages) |
| AREA | Area | Change in area of an entire organism. | (Use AREA MPH (Morphology) when measuring specific response sites. |
| BMAS | Biomass | Includes harvest yield, fruit or seed yield, mass of population, standing crop, productivity. | |
| <BDBN> | Body Burden | No definition available. | This will need maintenance. If the measurement occurs with and endpoint than the measurement should change to EBCN. |
| CRCM | Circumference | The outer boundary, especially of a circular area. | http://cancerweb.ncl.ac.uk/omd/ |
| COND | Condition Index or Condition Factor | Fitness factor. Condition factor (K) is measured by K=wt/length$^3$ x 100. | Condition Factor ECOREF#61168 |
| DNSY | Density | No definition available. | |
| DMTR | Diameter | The length of a straight line through the center of an object. | http://www.m-w.com/dictionary/diameter |
| DIST | Distance grown | No definition available. | |
| NNOD | Dry Mass/Plant Roots Not Nodulated | No definition available. | |
| DWGT | Dry Weight (AQUIRE Only) | Measurable change in dry weight of test organism. | |
| EBCN | Effective Body Concentration | The body residue of a chemical that is associated with an effect. | |
| GREI | Growth Efficiency Index | No definition available. | |

| **GRO Growth Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| <GGRT> | Growth Rate Index | No definition available. | |
| GGRO | Growth, General | Used when more than one measurement is coded for an AQUIRE record. | |
| HGHT | Height | Measurable change in height of test organism. | |
| LGTH | Length | Measurable change in length of test organism. | |
| RGNR | Limb/ Body Part Regeneration | Change in ability to regenerate a body part, byssus production. | |
| LINT | Lint | A fibrous coat of thick convoluted hairs borne by cotton seeds that yields the cotton staple. | http://www.m-w.com/ |
| NGAN | Net gain | Net weight gain (total weight gain - placental and fetal weight) | |
| NODE | Nodulated Plant Roots /# Nodules | No definition available. | |
| NLEF | Number of leaves | Number of leaves found on a plant. | |
| NROT | Number of roots | Number of roots | ECOTOX |
| PMTR | Perimeter | No definition available. | |
| RADI | Radius | A line segment extending from the center of a circle or sphere to the circumference or bounding surface. | |
| RLGR | Relative Growth Rate | The size increase per unit interval of time. | |
| SIZE | Size | The physical magnitude, extent, or bulk: relative or proportionate dimensions. | |
| SPGR | Specific Growth Rate | Individual growth measurement calculated by using the net weight divided by time, also relative growth rate. | |
| STNT | Stunting | To hinder from growing to the natural size; to prevent the growth of; to stint, to dwarf; as, to stunt a child; to stunt a plant. | http://cancerweb.ncl.ac.uk/omd/ |
| THIK | Thickness | Having or being of relatively great depth or extent from one surface to its opposite | |
| THRV | Time to harvest | No definition available. | |
| VGOR | Vigor | Usually a combination of growth and injury effects. | |
| VOLU | Volume | The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts | |

| **GRO Growth Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | or liters) : cubic capacity | |
| WGHT | Weight | Measurable change in weight of test organism. | |
| GAIN | Weight gain | Increase in body weight over existing weight. | http://cancerweb.ncl.ac.uk/omd/ |
| WWGT | Wet Weight (AQUIRE Only) | Measurable change in the wet weight of an organism. | |
| WDTH | Width | Measurable change in width of test organism. | |

| **MPH Morphology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ABNM | Abnormal | Effects which occur to the organism that has been directly exposed (compare to teratogenic effects). Effects included under this measurement include nonspecific physical malformations, deformities, defects, discoloration, anomalies, vegetative vigor, etc. | Use this effect-measurement combination when adult body structures are becoming abnormal. |
| ABST | Absence, absent, Missing | Not present. Agenesis. A tissue, organ, or bodily structure missing or failing to develop in an organism. | ECOTOX and http://www.merriam-webster.com/dictionary |
| ANGG | Angiogenesis | Angiogenesis is the formation and differentiation of blood vessels. | http://www.merriam-webster.com/dictionary |
| ABDS | Apex to Base Distance | No definitions available. | |
| AREA | Area | Area of an organ or response site. | |
| BVSL | Blood vessels | Any of the tubular vessels conveying the blood (arteries, arterioles, capillaries, venules, and veins). | http://cancerweb.ncl.ac.uk/omd/ |
| CAWT | Calcium weight | The ratio of calcium in the bone to the weight of the bone. A measure of bone density. | |
| COSC | Caudal Ossification Center | No definition available. | |
| SHPE | Change in Shape | No definition available. | |
| CRCM | Circumference | The outer boundary, especially of a circular area. | http://cancerweb.ncl.ac.uk/omd/ |
| DMTR | Diameter | The diameter of an organ or tissue. The length of a straight line through the center of an object. | http://www.m-w.com/dictionary/diameter |

| **MPH Morphology Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NLRG | Enlargement | To increase in size. | |
| FSSR | Fissure | Any cleft or groove, normal or otherwise, especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. | http://cancerweb.ncl.ac.uk/omd/ |
| GMPH | General Morphological Changes | Used when more than one measurement is coded for an AQUIRE record. | |
| HGHT | Height | Measurable change in height of test organism. | (existing SOP definition) |
| IMPS | Imposex, Intersex Conditions | Simultaneous presence of both male and female reproductive organs | http://epa.gov/endocrine/Pubs/ankley.pdf |
| IPOS | Inter-parietal Ossification | The formation of bone or of a bony substance, the conversion of fibrous tissue or of cartilage into bone or a bony substance between the parietal bones or cartilages. | http://cancerweb.ncl.ac.uk/omd/ |
| LGTH | Length | Measurable change in length of a response site. | ECOTOX |
| LFLV | Lens focal length variability | Measure of the sharpness of focus | ECOREF#57008 |
| MOSC | Metacarpal Ossification Center | No definition available. | |
| NORM | Normal | Conforming to a type, standard, or regular pattern. | http://www.m-w.com/ |
| RIBS | Number of ribs | Amount of rib bones present. | |
| OSSC | Ossification center | An area where the formation of bone or of a bony substance, the conversion of fibrous tissue or of cartilage into bone or a bony substance occurs. | http://cancerweb.ncl.ac.uk/omd/ |
| OSTD | Osteoid | Uncalcified bone matrix | http://medical.merriam-webster.com |
| POSC | Parietal Ossification | The formation of bone or of a bony substance, the conversion of fibrous tissue or of cartilage into bone or a bony substance located near the parietal bone | http://cancerweb.ncl.ac.uk/omd/ |
| PULP | Pulp | The soft succulent portion of a fruit. | McGraw-Hill,1994 |
| QNTY | Quantity | Quantity, number, count, or amount of an anatomical structure or tissue that can be quantified. | ECOTOX and http://wordnet.princeton.edu |
| RADI | Radius | A line segment extending from the center of a circle or sphere to the circumference or bounding surface. | from SOP |

| **MPH Morphology Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| RATO | Ratio | Ratio of the size of body parts. | |
| CTTK | Ratio of cortical thickness to diameter | The ratio of cortical thickness to the diameter. | |
| STBD | Seminiferous tubule diameter | The diameter of any of the coiled threadlike tubules that make up the bulk of the testis and are lined with a layer of epithelial cells from which the spermatozoa are produced. | |
| DEPO | Shell Deposition | Change in the ability to grow a shell. | |
| SSRB | Short supernumerary rib | A partial rib that exceed the expected number of ribs. | |
| SIZE | Size | The size of an organ or tissue. | |
| SMIX | Somatic Index | Organ Weight in Relationship to Body Weight. | |
| SMTE | Somite | Segmentally arranged blocks of mesoderm lying on either side of the notochord and neural tube during development of the vertebrate embryo. | |
| SOSC | Sternal Ossification Center | No definition available. | |
| STTO | Strength and Tone | No definition available. | |
| STRC | Structural Changes | No definition available. | |
| SFRB | Supernumerary full rib | A full rib that exceed the expected number of ribs. | |
| SRIB | Supernumerary Ribs | No definition available. | |
| SVTE | Supernumerary vertebrae | Having more than the expected number of vertebrae. | |
| THIK | Thickness | Having or being of relatively great depth or extent from one surface to its opposite. | |
| TKWD | Thickness:width | Ratio of thickness to width. | |
| VOLU | Volume | The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters): cubic capacity. | |
| WEAR | Wearing | To cause to deteriorate by use. To impair or diminish by use or attrition. To consume or waste gradually. | www.m-w.com |
| WGHT | Weight | The heaviness of an object. | |
| WDTH | Width | Wideness; the distance from one side of an object or area to the other. | http://cancerweb.ncl.ac.uk/omd/ |

## CEL CELLULAR GROUP

| CEL Cellular Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| Measurement Code | Measurement Name | Measurement Definition | Notes |
| AGGR | Aggregation/ Adhesion | No definition available. | |
| ANGR | Androgen Receptors | Proteins, generally found in the cytoplasm, that specifically bind androgens and mediate their cellular actions. The complex of the androgen and receptor migrates to the cell nucleus where it induces transcription of specific segments of DNA. | http://www.ncbi.nlm.nih.gov |
| AREA | Area of the cell or cell mass | Area of the cell or cell mass. | |
| ARGY | Argyrophilic cells | An enteroendocrine cell. | |
| AHRC | Aryl Hydrocarbon Receptor | The Aryl hydrocarbon receptor (AhR) is member of the family of basic-helix-loop-helix transcription factors. AhR is a cytosolic transcription factor that is normally inactive, bound to several co-chaperones. Upon ligand binding to chemicals such as 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), the chaperones dissociate resulting in AhR translocating into the nucleus and dimerizing with ARNT (AhR nuclear translocator), leading to changes in gene transcription | http://en.wikipedia.org |
| BASO | Basophil | A structure, cell or other histologic element staining readily with basic dyes; a granular leukocyte with an irregular shaped, relatively pale-staining nucleus that is partially constricuted into 2 lobes; also called basophilic leukocytes; a beta cell of the adenohypophysis - see also gonadotroph and thyrotroph | |
| BSNC | Basophilic normoblast (erythroblast) | Basophilic normoblast (also basophilic rubricyte, erythroblast) is the second stage in the erythrocytic series, in which the cytoplasm is basophilic, the nucleus is large with clumped chromatin, and the nucleoli have disappeared. | medical-dictionary.thefreedictionary.com, http://cancerweb.ncl.ac.uk/omd/, and http://en.wikipedia.org |

| **CEL Cellular Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| BCEL | B-cell | A type of lymphocyte normally involved in the production of antibodies to combat infection. It is a precursor to a plasma cell. During infections, individual B-cell clones multiply and are transformed into plasma cells, which produce large amounts of antibodies against a particular antigen on a foreign microbe. This transformation occurs through interaction with the appropriate CD4 T helper cells. | http://cancerweb.ncl.ac.uk/omd/ |
| BADR | Beta-adrenergic receptor | Reactive components of effector tissues, most of which are innervated by adrenergic postganglionic fibres of the sympathetic nervous system. Such receptor's can be activated by norepinephrine and/or epinephrine and by various adrenergic drugs; receptor activation results in a change in effector tissue function, such as contraction of arteriolar muscles or relaxation of bronchial muscles; adrenergic receptors are divided into alpha-receptors and beta-receptors, on the basis of their response to various adrenergic activating and blocking agents. Synonyms: adrenoceptor, adrenoreceptors | http://cancerweb.ncl.ac.uk/omd/ |
| BPCL | Bipolar Cell | A class of retinal interneurons, named after their morphology, that receive input from the photoreceptors and send it to the ganglion cells. | http://cancerweb.ncl.ac.uk/omd/ |
| BWDD | Blood-water diffusion distance | The distance between the lamellar epithelium to the nearest erythrocytic surface | ECOREF 16098 |
| CCHG | Cell Changes | Cytology, change in organelle structure, cell size or cell volume. Used when more than one measurement is coded for an AQUIRE record. | (do not use GRO), phagocytosis. For algae, use for change in optical density, location of pigments, cell shape, size. Another example of where it might be appropriate to initiate use of a morph code. |
| CDRT | Cell division rate | Cell division = The process by which living cells multiply; may be mitotic or amitotic. | McGraw-Hill, 1994 |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CMGR | Cell migration | Implies movement of a population of cells from one place to another as in movement of neural crest cells during morphogenesis | |
| CTRV | Cell Turnover | No definition available. | |
| CVIA | Cell Viability | The quality or state of being viable or alive | http://cancerweb.ncl.ac.uk/omd/ |
| CLCE | Chloride Cell | No definition available. | |
| CIRC | Choline acetyltransferase (ChAT) immunoreactive cells | Cell exhibiting an immunologic reaction to Choline acetyltransferase which is an enzyme that controls the production of acetylcholine. | partial definition: http://cancerweb.ncl.ac.uk/omd/ |
| CILR | Ciliated Type II Receptors | No definition available. | |
| CRCM | Circumference | The outer boundary, especially of a circular area. | http://www.m-w.com/ and http://cancerweb.ncl.ac.uk/omd/ |
| CESR | Cytosolic Estrogen Receptor | When the cytosolic estrogen receptor binds hormone, the complex moves into the nucleus where it acts as a transcription factor, binding to estrogen responsive elements (ERE) in the DNA and thereby modulating a myriad of cellular functions. | http://www.invitrogen.com/downloads/FP4.pdf |
| CYTO | Cytotoxicity | No definition available. | |
| DEND | Dendrite Receptors | No definition available. | |
| DNSY | Density | No definition available. | |
| DPTH | Depth | The perpendicular measurement downward from a surface or the direct linear measurement from front to back. | http://www.m-w.com/ |
| DMTR | Diameter | The diameter of a cell. The length of a straight line through the center of an object. | http://www.m-w.com/dictionary/diameter |
| DIVC | Dividing Cells | No definition available. | |
| EOSN | Eosinophil | A structure, cell or histologic element readily stained by eosin, especially a granular leukocyte with a nucleus that usually has two lobes connected by chromatin. | |
| ERTH | Erythoroblasts | Any type of nucleated erythrocyte, also designating an immature cell from which a red corpuscle develops. | |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ESRS | Estradiol receptor sites | Cytoplasmic proteins that bind estradiol, migrate to the nucleus, and regulate DNA transcription. | http://cancerweb.ncl.ac.uk/omd/ |
| FOCI | Foci | Foci = The origin or center of a disseminated disease | http://cancerweb.ncl.ac.uk/omd/ |
| GABR | gamma aminobutyric acid receptor | Ligand gated chloride ion channel forming receptor opened by gamma aminobutyric acid. Two distinct types: A and B. Also known as GABA receptor. | http://cancerweb.ncl.ac.uk/omd/ |
| GTIM | Generation time | Time taken for a cell population to double in numbers and thus equivalent to the average length of the cell cycle. | http://cancerweb.ncl.ac.uk/omd/ |
| GLCL | Gland Cells | No definition available. | |
| GLCR | Glucocorticoid receptor | The glucocorticoid receptor (GR) or nuclear receptor subfamily 3, group C, member 1 is a ligand-activated intracytoplasmatic transcription factor that interacts with high affinity to cortisol and other glucocorticoids. | Wikipedia |
| GBLT | Goblet Cells | A unicellular, mucus-secreting intra-epithelial gland that is distended on the free surface. Also known as Chalice cell. | |
| GNDT | Gonadotrophs | The cells of the anterior pituitary that regulate reproduction are known as gonadotrophs and make the gonadotrophins- luteinizing hormone and follicle-stimulating hormone. | mumus.med.monash.edu.au |
| GRAN | Granulocyte | Any cell containing granules, especially a leukocyte containing neutrophil, basophil, or eosinophil granules in its cytoplasm. | |
| HGHT | Height | The height of a cell. | |
| HMPS | Hematopoiesis | The formation and development of blood cells involving both proliferation and differentiation from stem cells. In adult mammals usually occurs in bone marrow. | http://cancerweb.ncl.ac.uk/omd/ |
| HSCS | Hematopoietic stem cells | Hematopoietic Stem Cells are progenitor cells from which all blood cells derive. Also hemocytoblast. | http://www.ncbi.nlm.nih.gov/ and http://en.wikipedia.org/wiki |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HCYT | Hemocyte | Blood cell (haemoctye), associated with a haemocoel, particularly those of insects and crustacea. Despite the name they are more leucocyte like, being phagocytic and involved in defence and clotting of hemolymph and not involved in transport of oxygen. | http://cancerweb.ncl.ac.uk/omd/ |
| HTCY | Heterocyst frequency | Specialized cell type found at regular intervals along the filaments of certain Cyanobacteria, site of nitrogen fixation. | |
| HLCR | Heterophil to lymphocyte cell ratio | Ratio of heterophil to lymphocyte cells. | ECOTOX |
| ILDS | Interlamellar distance | The distance between lamellae | http://cancerweb.ncl.ac.uk/omd/ |
| LMFI | Lamellar fusion index | An index related to the fusion of the lamellae which is an area of the gills where exchange of gasses / waste products takes place. | partial definition http://www.aquatext.com/list-l.htm#Lamellae |
| LGTH | Length | Measurable change in length of test cell | |
| LEUK | Leukocytes | White blood cell | |
| LMPH | Lymphocyte | Any of the mononuclear, nonphagocytic leukocytes found in the blood, lymph and lymphoid tissues. | |
| MPGC | Macrophage | Relatively long lived phagocytic cell of mammalian tissues, derived from blood monocyte. Macrophages from different sites have distinctly different properties. Macrophages play an important role in killing of some bacteria, protozoa and tumour cells, release substances that stimulate other cells of the immune system and are involved in antigen presentation. | http://cancerweb.ncl.ac.uk/omd//omd/ |
| MAST | Mast Cells | Granulated cells that are found in almost all tissues, most abundantly in the skin and the gastrointestinal tract. Like the basophils, mast cells contain large amounts of histamine and heparin. Unlike basophils, mast cells normally remain in the tissues and do not circulate in the blood. Mast cells, derived from the bone marrow stem cells, are regulated by the stem cell factor | http://www.ncbi.nlm.nih.gov |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MTMC | Metamyelocyte | A transitional form of myelocyte having a nuclear construction intermediate between the mature myelocyte and the two-lobed granulocyte. | The American Heritage Medical Dictionary |
| NCPC | Micronucleated Normochromatic cell to micronucleated Polychromatic cell ratio | Ratio of micronucleated Normochromatic cells to micronucleated polychromatic cells | |
| MONO | Monocyte | A large, agranulated leukocyte with a relatively small, eccentric, oval or kidney-shaped nucleus. | |
| MUCR | Muscarinic Cholinergic Receptor | One of the two major classes of cholinergic receptors. Muscarinic receptors were originally defined by their preference for muscarine over nicotine. There are several subtypes (usually M1, M2, M3....) that are characterized by their cellular actions, pharmacology, and molecular biology. Also: Muscarinic receptor, Muscarinic Acetylcholine Receptors, or mAChR | www.wikipedia.org/en and http://www.ncbi.nlm.nih.gov |
| MYLO | Myelocyte | A motile cell produced by and found in the bone marrow which develops into granular leukocytes. | http://cancerweb.ncl.ac.uk/omd/ |
| MYCT | Myocyte | A muscle cell | http://cancerweb.ncl.ac.uk/omd/ |
| NEUT | Neutrophil | A large granular leukocyte with a highly variable nucleus, consisting of three to five lobes, and cytoplasmic granules which stain with neutral dyes and eosin. | |
| NCRC | Nicotinic receptors | A class of cholinergic receptors on skeletal muscle cells that are linked to ion channels in the cell membrane. Also: Nicotinic Acetylcholine Receptors or nAChR | http://cancerweb.ncl.ac.uk/omd/, www.wikipedia.org/en and http://www.ncbi.nlm.nih.gov |
| NMDR | NMDA Receptor | Glutamate receptor sub type. N methyl D aspartate receptor channels seem to be potentiated by intracellular arachidonic acid. Also known as N-methyl, D-aspartic acid or NMDA receptor. | http://cancerweb.ncl.ac.uk/omd/ |
| NCCM | Normochromatic cells, micronucleated | Being normal in color; referring especially to red blood cells that possess the normal quantity of hemoglobin. | |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| NESR | Nuclear Estrogen Receptor | Nuclear hormone receptor proteins form a class of ligand activated proteins that, when bound to specific sequences of DNA serve as on-off switches for transcription within the cell nucleus. These switches control the development and differentiation of skin, bone and behavioral centers in the brain, as well as the continual regulation of reproductive tissues. | http://www.ks.uiuc.edu/Research/pro_DNA/ster_horm_rec/ |
| NRBC | Nucleated red blood cells | Nucleated red blood cells, (nrbcs or normoblasts), represent the stages of a red blood cell before it matures. Cells of this stage are usually seen in newborn infants, and in patients with responses to hemolytic crises, such as in megaloblastic anemia and iron deficiency anemia. The average size of the normoblast is 7-12 Φm in diameter. The cytoplasm is pink. The nucleus is pyknotic (a homogeneous blue-black mass with no structure). | http://www.wadsworth.org/chemheme/heme/microscope/nrbc.htm |
| NLEI | Nuclei | The major organelle of eukaryotic cells, in which the chromosomes are separated from the cytoplasm by the nuclear envelope. | http://cancerweb.ncl.ac.uk/omd/ |
| NCEL | Number/Frequency of Cells | No definition available. | |
| OGNL | Organelle | A specialized subcellular structure, such as a mitochondrion, having a special function. | |
| OCNC | Orthochromatic normoblast (erythroblast) | Orthochromatic normoblast is the fourth stage in the erythrocytic series, the final stage before nuclear loss, in which the nucleus is small and ultimately becomes a blue-black homogeneous structureless mass. Also orthochromatophilic, acidophilic normoblast, metarubricyte | medical-dictionary.thefreedictionary.com, http://en.wikipedia.org and http://cancerweb.ncl.ac.uk/omd |
| OSRS | Osmotic Resistance/RBC | No definition available. | |
| OSCT | Osteoclast | A large multinuclear cell associated with the absorption and removal of bone. An odontoclast, also called cementoclast, is cytomorphologically the same as an osteoclast and is involved in cementum resorption. | http://cancerweb.ncl.ac.uk/omd/ |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PRKY | Perikarya, perikaryon | Cell body surrounding nucleus of a neuron does not include axonal and dendritic processes. | http://cancerweb.ncl.ac.uk/omd/ |
| PSMC | Plasma cells | Special white blood cells that produce antibodies. Also called plasmacyte. | http://cancerweb.ncl.ac.uk/omd/ |
| PLAS | Plasmolysis | Contraction or shrinking of the protoplams of a plant cell due to the loss of water by osmotic action. | |
| PCRC | Polychromatic cells | A primitive erythrocyte in bone marrow, ,a polychromatic cell is the third stage in the erythrocytic series, with basophilic material as well as hemoglobin (acidophilic) in the cytoplasm. Synonym: polychromatophil cell. polychromatophillic erythroblast (normoblast) | http://cancerweb.ncl.ac.uk/omd amd en.wikipedia.wiki/wiki |
| PCCM | Polychromatic cells, micronucleated | A primitive erythrocyte in bone marrow, with basophilic material as well as hemoglobin (acidophilic) in the cytoplasm. Synonym: polychromatophil cell. | |
| PCNC | Polychromatic to normochromatic micronucleated cells ratio | Ratio of polychromatic micronucleated cells to normochromatic micronucleated cells | ECOTOX |
| PMNC | Polymorphonuclear cells | Having nuclei of varied forms; denoting a variety of leukocyte. | http://cancerweb.ncl.ac.uk/omd/ |
| PGRC | Progesterone Receptor | A specific protein bound to progesterone that moves with the hormone into the nucleus and forms a transcription factor. | (http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/P/Progesterone.html) |
| PNBL | Pronormoblast | The earliest of four stages in development of the normoblast. Synonym: lymphoid haemoblast of Pappenheim, proerythroblast, rubriblast. | http://cancerweb.ncl.ac.uk/omd/ |
| PKNJ | Purkinje cells | Largest brain neuron involved synaptic processing. | www.omnimag.com/live_science/purkwrld |
| PKNS | Pyknosis | Contraction of nuclear contents to a deep staining irregular mass, sign of cell death. | http://cancerweb.ncl.ac.uk/omd/ |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ROXB | Reactive oxygen species scavenging capacity | Reactive oxygen species scavenging capacity related to the converstion or consumption of reactive oxygen species, including both radicals and non-radicals. Oxidative stress is the imbalance between the production of reactive oxygen and a biological system's ability to convert the reactive intermediates or repair the resulting damage. | http://en.wikipedia.org/wiki and ECOTOX |
| RSBC | Receptor site, binding capacity | No definition available. | |
| RBCE | Red Blood Cell | Erythrocyte - found in peripheral blood. | |
| RDCP | Relative diffusing capacity | The gas exchange area over the blood-water diffusion distance of the experiment organism divided by the gas exchange area over the blood-water diffusion distance of the experiment organism. | ECOREF 89704 |
| RETI | Reticulocytes | A young red blood cell showing a basophilic reticulum under vital staining. | |
| RTMC | Reticulum cell | Cells of the reticuloendothelial system, found particularly in lymph nodes, bone marrow and spleen. In lymph nodes they are stromal cells and probably not reticuloendothelial cells in the current sense of that term. | http://cancerweb.ncl.ac.uk/omd/ |
| NROD | Rods | Elongated cells or elements of the sensory layer of the retina, some of which are cylindrical, others somewhat conical. | http://cancerweb.ncl.ac.uk/omd/ |
| SRTL | Sertoli cells | Elongated cells in the tubules of the testis to which the spermatids become attached. They provide support, protection, and, apparently, nutrition until the spermatids become transformed into mature spermatozoa. | http://cancerweb.ncl.ac.uk/omd/ |
| SGDN | Signal Density | No definition available. | |
| SIZE | Size | The physical magnitude, extent, or bulk: relative or proportionate dimensions of a cell. | |
| SPLO | Splenocytes | The monocyte characteristic of the spleen. | |

| **CEL Cellular Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| STCL | Stippled cells | Cells that have an appearance of being engraved by means of dots and flicks. | partial definition: http://www.m-w.com/ |
| STRC | Structural Changes | No definition available. | |
| TCEL | T-cell | A class of lymphocytes, so called because they are derived from the thymus and have been through thymic processing. Involved primarily in controlling cell-mediated immune reactions and in the control of B-cell development. The T-cells coordinate the immune system by secreting lymphokine hormones. | http://cancerweb.ncl.ac.uk/omd/ |
| TCRA | T-cell receptor ab (TCR) | No definition available. | |
| THRM | Thrombocytes | A blood platelet. | |
| VOLU | Volume | The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters): cubic capacity. | from SOP |
| TWBC | White Blood Cell Count, Total | Measure of total WBC. | |
| WBCI | White blood cell index | white blood cell count multiplied by the percentage of immature white blood cells called marrow blasts | http://patient.cancerconsultants.com/leukemia_cancer_news.aspx?id=17792 |
| UBWB | White Blood Cell, Undifferentiated Blasts | Absence of normal differentiation of white blood cell blasts. | |
| WDTH | Width of the cell | Width of the cell. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| BHMR | 17 beta-hydroxysteroid dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to 17 beta-hydroxysteroid dehydrogenase | ECOTOX |
| 20BM | 20 beta-hydroxysteroid dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to 20 beta-hydroxysteroid dehydrogenase | ECOTOX |
| HHMR | 3B-Hydroxysteroid dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to 3B-Hydroxysteroid dehydrogenase. | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| 3HMM | 3-Hydroxy-3-methylglutaryl coenzyme A reductase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to 3-hydroxy-3-methylglutaryl coenzyme A reductase | ECOTOX |
| 5RMR | 5alpha-reductase 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to 5alpha-reductase. | ECOTOX |
| ACRD | Abnormal chromosomal distribution | Abnormal chromosomal distribution. Aneuploidy is the chromosomal constitution of cells which deviate from the normal by the addition or subtraction of chromosomes, chromosome pairs, or chromosome fragments. | http://www.ncbi.nlm.nih.gov |
| ACHR | Acetylcholinesterase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ACHE (acetylcholinesterase) | ECOTOX |
| ABBM | Activin beta B subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to activin beta B subunit | ECOTOX |
| AA1R | Adenosine A1 receptor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Adenosine A1 receptor | ECOTOX |
| ADHR | Alcohol dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to alcohol dehydrogenase | ECOTOX |
| ADHD | Aldehyde dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to aldehyde dehydrogenase | ECOTOX |
| ALFR | Allele frequency | The frequency of any one of a series of two or more different genes that occupy the same position (locus) on a chromosome. | http://cancerweb.ncl.ac.uk/omd/ |
| ATRN | Alpha-induced tumor necrosis factor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to alpha-induced tumor necrosis factor | ECOTOX |
| AVMR | alpha vitelline envelope protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to alpha vitelline envelope protein. | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| AMHR | amh mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to amh. | ECOTOX |
| APOP | Apoptosis, Programmed Cell Death, DNA Fragmentation | Programmed cell death as signalled by the nuclei in normally functioning human and animal cells when age or state of cell health and condition dictates. An active process requiring metabolic activity by the dying cell, often characterized by cleavage of the DNA into fragments that give a so called laddering pattern on gels. Cells that die by apoptosis do not usually elicit the inflammatory responses that are associated with necrosis, though the reasons are not clear. Cancerous cells, however, are unable to experience the normal cell transduction or apoptosis-driven natural cell death process. | http://cancerweb.ncl.ac.uk/omd/ |
| AAMR | Aromatase A mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to aromatase A | ECOTOX |
| AHMR | Aryl Hydrocarbon Receptor protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Aryl Hydrocarbon Receptor protein (AhR) | ECOTOX |
| AHRR | aryl hydrocarbon receptor repressor (AhRR) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to aryl hydrocarbon receptor repressor (AhRR) | ECOTOX |
| BAXR | bax mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Bcl-2–associated X protein, or BAX | ECOTOX |
| BADF | beta-Actin cDNA fragments | cDNA is DNA that is synthesized from a messenger RNA template, the single-stranded form is often used as a probe in physical mapping to locate the gene or can be cloned in the double stranded form. In this case specific to the protein beta-actin. | http://cancerweb.ncl.ac.uk/omd/ |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ACMR | beta-Actin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. Beta-Actin is a muscle protein that is the chief constituent of the Z-band myofilaments of each sarcomere. | |
| BVMR | beta vitelline envelope protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to beta vitelline envelope protein. | ECOTOX |
| BHTR | betaine homocysteine S-methyltransferase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to betaine homocysteine S-methyltransferase mRNA | ECOTOX |
| BNFM | Brain-derived neurotrophic factor mRNA | Small basic protein purified from pig brain, a member of the family of neurotrophic factors that also includes Nerve Growth Factor and neurotrophin 3. In contrast to nerve growth factor, brain-derived neurotrophic factor is predominantly (though not exclusively) localized in the CNS. It supports the survival of primary sensory neurons originating from the neural crest and ectodermal placodes that are not responsive to NGF.In the brain brain-derived neurotrophic factor has a trophic action on retinal, cholinergic, and dopaminergic neurons, and in the peripheral nervous system it acts on both motor and sensory neurons. Messenger RNA | http://cancerweb.ncl.ac.uk/omd/ |
| BAI2 | Brain-specific angiogenesis inhibitor 2 (BAI2) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Brain-specific angiogenesis inhibitor 2 (BAI2). | ECOTOX |
| BAI3 | Brain-specific angiogenesis inhibitor 3 (BAI3) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Brain-specific angiogenesis inhibitor 3 (BAI3). | ECOTOX |
| CBP9 | CaBP-9K mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CaBP-9K. (Calbindin-D9K) | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CP3R | Caspase 3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to caspase 3 mRNA | ECOTOX |
| CARN | CD36 antigen mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CD36 antigen | ECOTOX |
| CFSM | c-fos mRNA | Retrovirus-associated DNA sequences (fos) originally isolated from the Finkel-Biskis-Jinkins (FBJ-MSV) and Finkel-Biskis-Reilly (FBR-MSV) murine sarcoma viruses. The proto-oncogene protein c-fos codes for a nuclear protein which is involved in growth-related transcriptional control. The insertion of c-fos into FBJ-MSV or FBR-MSV induces osteogenic sarcomas in mice. The human c-fos gene is located at 14q21-31 on the long arm of chromosome 14. | http://cancerweb.ncl.ac.uk/omd/ |
| CHLM | Chlorophyll Mutation/Albino Mutants | Mutation: a change in form, quality or some other characteristic; in genetics - a permanent transmissible change in the genetic material. | |
| CHDF | Choriogenin H cDNA fragments | cDNA is DNA that is synthesized from a messenger RNA template, the single-stranded form is often used as a probe in physical mapping to locate the gene or can be cloned in the double stranded form. In this case specific to the protein Choriogenin H. | http://cancerweb.ncl.ac.uk/omd/ |
| CHMR | Choriogenin H mRNA | Choriogenin H is the high molecular weight liver derived precursor protein (ZI-1,2) of the inner layer subunits of the egg envelope. mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Choriogenin H. | ECOREF 64021 |
| CLDF | Choriogenin L cDNA fragments | cDNA is DNA that is synthesized from a messenger RNA template, the single-stranded form is often used as a probe in physical mapping to locate the gene or can be cloned in the double stranded form. In this case specific to the protein Choriogenin L. | http://cancerweb.ncl.ac.uk/omd/ |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CLMR | Choriogenin L mRNA | Choriogenin L is the low molecular weight liver derived precursor protein (ZI-3) of the inner layer subunits of the egg envelope. mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Choriogenin L. | ECOREF 64021 |
| CABR | Chromosomal aberrations | Modification of the normal chromosome complement due to deletion, duplication, or rearrangement of genetic material. | |
| BRAK | Chromosomal breaks | Chromosome breakage - A type of chromosomal aberration which may result from spontaneous or induced breakage. Alkylating agents, various types of irradiation and chemical mutagens have been found to cause induced chromosomal breakage. Breakage can induce base pair translocations, deletions, or chromatid breakage**.** | |
| CGAP | Chromosomal gap | A localized area of thinning in a chromatid which may simulate a complete break. | http://cancerweb.ncl.ac.uk/omd/ |
| POLY | Chromosomal Polyploidy | Polyploidy: the state of having more than two full sets of homologous chromosomes. | |
| GCS3 | Colony stimulating factor 3. Granulocyte , mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Granulocyte Colony stimulating factor 3. | ECOTOX |
| GMC2 | Colony stimulating factor 2, Granulocyte-macrophage, mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Granulocyte-macrophage Colony stimulating factor 2. | ECOTOX |
| CDNA | Complementary DNA (cDNA) | cDNA. DNA that is synthesised from a messenger RNA template, the single-stranded form is often used as a probe in physical mapping to locate the gene or can be cloned in the double stranded form. | http://cancerweb.ncl.ac.uk/omd/ |
| CUTR | Copper transporter I mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Copper transporter I | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CUZR | Copper zinc superoxide dismutase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to copper zinc superoxide dismutase | ECOTOX |
| CRFA | Corticotropin releasing factor mRNA to Acidic ribosomal phosphoprotein P0 mRNA ratio | Ratio of Corticotropin releasing factor mRNA to Acidic ribosomal phosphoprotein P0 mRNA. | ECOTOX |
| CX1R | Cox1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cox1 mRNA | ECOTOX |
| CBMR | Cyclin B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyclin B | ECOTOX |
| 11BR | CYP11beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP11beta. Also: CYP11B1. | ECOTOX |
| C19M | CYP19 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP19 | ECOTOX |
| C1A1 | CYP19A1 | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP19A1 | ECOTOX |
| C9A2 | CYP19A2 | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP19A2 | ECOTOX |
| CA1M | CYP1A1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp1A1. | |
| CA3M | CYP1A3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp1A3. | |
| CYRN | Cyp1b1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp1b1 | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| C212 | CYP2B1/2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP2B1/2 | ECOTOX |
| CB10 | Cyp2b10 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp2b10 | ECOTOX |
| 2E1R | CYP2E1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP2E1. | ECOTOX |
| 2KMR | Cyp2K mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp2K. | |
| 2K1R | CYP2K1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP2K1 | ECOTOX |
| 2M1R | CYP2M1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP2E1 | ECOTOX |
| 3A27 | CYP3A27 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to CYP3A27 | ECOTOX |
| CCOI | Cytochrome C oxidase chain I mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cytochrome C oxidase chain I. | ECOTOX |
| CPRN | Cytochrome P1A Messenger RNA (Cyp1A mRNA) | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cyp1A. | |
| CA2M | Cytochrome P-450 1A2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cytochrome P-450 1A2. Also: CYP1A2 mRNA | ECOTOX |
| C2BR | Cytochrome P-450 2B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cytochrome P-450 2B . | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| P3AM | Cytochrome P450 3A mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to cytochrome P450 3A | ECOTOX |
| CAAM | Cytochrome P450 aromatase A mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to cytochrome P450 aromatase A | ECOTOX |
| AMRN | Cytochrome P450 aromB mRNA | Cytochrome P450 aromatase messenger RNA. Part of an enzyme which converts androgens to oestrogens by desaturating ring a of the steroid. mRNA (messenger RNA) is the mediating template between DNA and proteins. P450arom is a major player in estrogen signaling. Also known as Cytochrome P450 aromatase mRNA and Estrogen sythetase mRNA | |
| CALM | Cytochrome P450 c17 alpha hydroxylase/17,20 lyase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to cytochrome P450 c17 alpha hydroxylase/17,20 lyase | ECOTOX |
| C2MR | Cytochrome P4502N2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Cytochrome P4502N2 | ECOTOX |
| CKMR | cytokine mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to cytokine. | ECOTOX |
| DAMG | Damage | No definition available. | |
| DPLT | Diplotene | A stage of meiotic prophase which follows the pachytene and during which the paired homologous chromosomes begin to separate and chiasmata become visible. | Webster's |
| DMRT | dmrt1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to dmrt1. | ECOTOX |
| DNAD | DNA Adducts | Adducts are damaged cellular machinery when compounds bind irreversibly with DNA, proteins or other cellular components. | www.vetmed.ucdavis.edu |
| DNAB | DNA binding | DNA binding to chemical. | |
| DNAC | DNA Concentration | No definition available. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| DNAS | DNA Synthesis Rate | The linking together of nucleotides (as deoxyribonucleotide triphosphates) to form DNA. In vivo, most synthesis is DNA replication, but incorporation of precursors also occurs in repair. In the special case of retroviruses, DNA synthesis is directed by an RNA template (see reverse transcriptase). H3 thymidine incorporation - Thymidine, an essential DNA building block can be radioactively labeled with H3 (tritium) and used to measure DNA synthesis as a reflection of cell division. | |
| DNPR | DNA to protein ratio | A ratio of DNA to protein. | |
| DPTR | Dopamine Transporter Expression | The dopamine transporter or DAT is a monoamine transporter that is specific for clearing the neurotransmitter dopamine out of the synaptic cleft and into a glial cell or the presynaptic neuron. | http://en.wikipedia.org/wiki/Dopamine_transporter |
| DTMR | Dopamine transporter mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Dopamine transporter | ECOTOX |
| EGFR | egfr mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to epidermal growth factor receptor. Also known as Errp; ERBB1; ErbB-1 | http://www.ncbi.nlm.nih.gov |
| EMRN | Estrogen mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. Estrogen - Any of various natural or synthetic substances possessing the biological activity of estrus-producing hormones. | |
| EMRR | Estrogen receptor : Estrogen mRNA ratio | The ratio of estrogen receptor to estrogen receptor messenger RNA. | |
| ERAM | Estrogen receptor alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to estrogen receptor alpha | ECOTOX |
| ERBR | Estrogen receptor beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to estrogen receptor beta | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ESRG | Estrogen receptor gene | The estrogen-activated receptor binds to its responsive element in the 5' flanking region of estrogen-responsive genes and modulates the transcription of these genes through its interactions with others transcription factors and the components if the transcription initiation complex. | ECOREF 60619 |
| EIMR | Eukaryotic initiation factor 2B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Eukaryotic initiation factor 2B | ECOTOX |
| ETIR | Eukaryotic translation initiation factor 2 subunit 3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Eukaryotic translation initiation factor 2 subunit 3 mRNA | ECOTOX |
| FARN | Fatty acid binding protein 5 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Fatty acid binding protein 5 | ECOTOX |
| FSMR | Follicle stimulating hormone beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to follicle stimulating hormone. | |
| G1PN | G1 Phase Nuclei | No definition available. | |
| G6MR | G6A11 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to G6A11 | ECOTOX |
| GD67 | GAD67 (glutamate decarbosylase) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to GAD67 (glutamate decarbosylase). | ECOTOX |
| GGSM | Gamma glutamylcysteine synthetase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Gamma glutamylcysteine synthetase. | ECOTOX |
| GVMR | gamma vitelline envelope protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to gamma vitelline envelope protein | ECOTOX |
| GEXP | Gene Expression | No definition available. | |
| GGEN | Genetics, General | Changes in the genetic processes of cell (e.g. RNA, DNA). | |
| GTPF | Genotype Frequencies | No definition available. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| GCRR | Glucocorticoid receptor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Glucocorticoid receptor. | ECOTOX |
| GLT1 | Glucose transporter 1 mRNA | Glucose transporter 1 mediates glucose transport into red cells, and throughout the blood brain barrier. It is ubiquitously expressed and transport glucose in most cells. Messenger RNA. | http://www.4adi.com/flr/glutsflr.html |
| GLT3 | Glucose transporter 3 mRNA | Glucose transporter 3 is the main transporter in neurons. Messenger RNA. | http://www.4adi.com/flr/glutsflr.html |
| G65M | Glutamate decarboxylase 65 kDa isoform mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Glutamate decarboxylase 65 kDa isoform mRNA | ECOTOX |
| G67M | Glutamate decarboxylase 67 kDa isoform mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to glutamate decarboxylase 67 kDa isoform | ECOTOX |
| GORN | Glutamate oxaloacetate transaminase 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to glutamate oxaloacetate transaminase 1 | ECOTOX |
| RNGT | Glutathione S-transferase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Glutathione S-transferase. | ECOTOX |
| GLRR | Glutathione reductase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Glutathione reductase. | ECOTOX |
| GRHR | gonadotrophin releasing hormone (GnRH) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to gonadotrophin releasing hormone (GnRH). | ECOTOX |
| GNRR | gonadotrophin releasing hormone (GnRH) receptor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to gonadotrophin releasing hormone (GnRH) receptor. | ECOTOX |
| GASR | Gonadotropin alpha subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Gonadotropin alpha subunit. | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| GBPR | Gonadotropin beta-like protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Gonadotropin beta-like protein. | ECOTOX |
| GZBR | Granzyme B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Granzyme B. | ECOTOX |
| GDRN | Growth arrest and DNA-damage-inducible 45 beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Growth arrest and DNA-damage-inducible 45 beta | ECOTOX |
| GHMR | Growth hormone mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. Growth hormone is a polypeptide hormone secreted by the anterior pituitary which promotes an increase in body size. Any hormone that regulates growth in plants and animals. | |
| H90R | HSP90 (Heat shock protein 90) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to HSP90 (Heat shock protein 90) | ECOTOX |
| HC1R | Hemocyanin alpha (or 1) chain mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Hemocyanin alpha (or 1) chain mRNA | ECOTOX |
| HC2R | Hemocyanin beta (2-like) chain mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Hemocyanin beta (2-like) chain mRNA | ECOTOX |
| H4AR | Hepatocyte nuclear factor 4 alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to HNF-4alpha | ECOTOX |
| HTZY | Heterozygosity | The presence of different alleles at one or more loci on homologous chromosomes. | |
| HH3R | Histone H3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to histone H3 mRNA | ECOTOX |
| H23R | HR23B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to HR23B | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| H70R | HSP70 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to HSP70 (Heat shock protein 70). | ECOTOX |
| INS3 | insl3 (insulin-like peptide 3) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to insl3 (insulin-like peptide 3) | ECOTOX |
| IFGR | Interferon gamma mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interferon gamma. | ECOTOX |
| I1AR | Interleukin 1 alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 1 alpha. | ECOTOX |
| I1BR | Interleukin 1 beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 1 beta. | ECOTOX |
| IL2R | Interleukin-2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin-2. | ECOTOX |
| I3MR | Interleukin 3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 3. | ECOTOX |
| I4MR | Interleukin 4 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 4. | ECOTOX |
| I6MR | Interleukin 6 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 6. | ECOTOX |
| I10R | Interleukin 10 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 10. | ECOTOX |
| I12A | Interleukin 12a mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 12a. | ECOTOX |
| I12B | Interleukin 12b mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 12b. | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| I17R | Interleukin 17 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Interleukin 17. | ECOTOX |
| LDBR | Lactate Dehydrogenase B mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Lactate Dehydrogenase B. | ECOTOX |
| LFNR | lactoferrin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to lactoferrin. | ECOTOX |
| LEPT | Leptotene | A stage of meiotic prophase immediately preceding synapsis in which the chromosomes appear as fine discrete threads. | |
| LCTR | Leucine Specific tRNA | A transfer RNA which is specific for carrying leucine to sites on the ribosomes in preparation for protein synthesis. | http://www.ncbi.nlm.nih.gov |
| LPDN | Lipid to DNA ratio | The amount of lipid as compared to the amount of DNA in a sample. | |
| LLRN | Lipoprotein lipase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Lipoprotein lipase | ECOTOX |
| LLRM | Low-density lipoprotein receptor associated protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to low-density lipoprotein receptor associated protein | ECOTOX |
| LHMR | Lutenizing hormone mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Lutenizing hormone. | |
| LHAR | Luteinizing hormone alpha-subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to luteinizing hormone alpha-subunit | ECOTOX |
| LHBR | Luteinizing hormone beta-subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to luteinizing hormone beta-subunit | ECOTOX |
| MGRN | Magnesium superoxide dismutase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Magnesium superoxide dismutase. | ECOTOX |
| MEIR | Meiosis Rate | No definition available. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ME1A | Meiotic Abnormalities, 1st Anaphase | No definition available. | |
| ME1M | Meiotic Abnormalities, 1st Metaphase | No definition available. | |
| ME2A | Meiotic Abnormalities, 2nd Anaphase | No definition available. | |
| ME2M | Meiotic Abnormalities, 2nd Metaphase | No definition available. | |
| MEDM | Meiotic Abnormalities, Diakinesis and 1st Metaphase | No definition available. | |
| MEIA | Meiotic Abnormalities, General | No definition available. | |
| MEIX | Meiotic Index | The number of round spermatids for each pachytene primary spermatocytes | http://www.biolreprod.org/cgi/content/short/biolreprod.102.010652v1 |
| MRNA | Messenger RNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. | |
| MMRN | Metallothionein mRNA | No definition available. | |
| MRMT | Metallothionein mRNA metallothionein ratio | The ratio of metallothionein messenger RNA to metallothionein. | |
| M1MR | Metallothionein-I mRNA | A metallothionein isoform messenger RNA. | ECOTOX |
| M2MR | Metallothionein-II mRNA | A metallothionein isoform messenger RNA. | ECOTOX |
| MNUC | Micronuclei Increase | No definition available. | |
| MTOS | Mitosis | A method of indirect division of a cell, consisting of a complex of various processes, by means of which the two daughter nuclei normally receive identical complements of the number of chromosomes characteristic of the somatic cells of the species. Mitosis, the process by which the body grows and replaces cells, is divided into four phases. | http://cancerweb.ncl.ac.uk |
| MIAT | Mitotic Abnormalities, Ana-telophase | No definition available. | |
| MIBC | Mitotic Abnormalities, Binucleate Cell | No definition available. | |
| MIBG | Mitotic Abnormalities, Bridge | No definition available. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MICL | Mitotic Abnormalities, Clumping | No definition available. | |
| MICY | Mitotic Abnormalities, Cytomixis | No definition available. | |
| MIPO | Mitotic Abnormalities, Disturbed Polarity | No definition available. | |
| MIES | Mitotic Abnormalities, Early Separation | No definition available. | |
| MIEX | Mitotic Abnormalities, Exclusion | No definition available. | |
| MIFR | Mitotic Abnormalities, Fragment | No definition available. | |
| MITA | Mitotic Abnormalities, General | No definition available. | |
| MIIN | Mitotic Abnormalities, Interphase Cells | No definition available. | |
| MILG | Mitotic Abnormalities, Laggard | No definition available. | |
| MIMT | Mitotic Abnormalities, Metaphase | No definition available. | |
| MIMN | Mitotic Abnormalities, Micronuclei | No definition available. | |
| MINB | Mitotic Abnormalities, Nuclear Budding | No definition available. | |
| MINF | Mitotic Abnormalities, Nuclear Fusion | No definition available. | |
| MIPR | Mitotic Abnormalities, Prophase | No definition available. | |
| MISK | Mitotic Abnormalities, Stickiness | No definition available. | |
| MITI | Mitotic Index (#Mitoses/Total Cells) | No definition available. | |
| MITR | Mitotic Rate | The proportion of cells in a tissue that are undergoing mitosis, expressed as a mitotic index or, roughly, as the number of cells in mitosis in each microscopic high-power field in tissue sections. | http://cancerweb.ncl.ac.uk/omd/ |
| MUTA | Mutation | Mutation: a change in form, quality or some other characteristic; in genetics - a permanent transmissible change in the genetic material. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| RNRD | NAD(P)H dehydrogenanse, quinone 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to NAD(P)H dehydrogenanse, quinone 1 | ECOTOX |
| NOSR | nitric oxide synthase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to nitric oxide synthase mRNA | ECOTOX |
| NGRN | Notch gene homolog 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Notch gene homolog 1 | ECOTOX |
| NQO1 | Nqo1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Nqo1 mRNA | ECOTOX |
| NABN | Nuclear Abnormalities | No definition available. | |
| NCPF | Nuclear phase frequency | Number of phases that a cell goes through during cell division. | |
| NLMR | Nucleolin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Nucleolin. Nucleolin = A major nucleolar protein (100 kD) that functions as a shuttle protein between nucleus and cytoplasm and is also found on the cell surface. Nucleolin binds midkine and heparin binding growth associated molecule (HB GAM). | (http://cancerweb.ncl.ac.uk/omd//omd/) |
| OCHM | omChgH mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to omChgH | ECOTOX |
| OCLM | omChgL mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to omChgL | ECOTOX |
| OXNR | Orexin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to orexin | ECOTOX |
| OAP8 | OsAPx8 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to OsAPx8 | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PAMR | P450-17alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to P450-17alpha. | ECOTOX |
| P4MR | P450scc mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to P450scc. Also:Cholesterol side chain cleavage mRNA | ECOTOX |
| PACH | Pachytene | The stage of meiotic prophase that immediately follows the zygotene and that is characterized by paired chromosomes thickened and visibly divided into chromatids and by the occurrence of crossing-over. | |
| PARK | Parkin | Parkin encodes for a protein-ubiquitin E3 ligase. Mutations are linked to Parkinson#s disease | http://www.acsu.buffalo.edu/~jianfeng/parkin-DAT.pdf |
| PCNA | PCNA Index | Proliferating cell nuclear a. (PCNA) a 36-kd nuclear acidic protein whose levels in the body correlate with the rates of DNA synthesis and cellular proliferation in transformed cells of certain tumors. Called also cyclin. | http://www.mercksource.com/pp/us/ |
| PONR | Peroxinectin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to peroxinectin mRNA | ECOTOX |
| PHFQ | Phenotype frequencies | The frequency at which a phenotype is displayed. A phenotype is the total characteristics displayed by an organism under a particular set of environmental factors, regardless of the actual genotype of the organism. Results from interaction between the genotype and the environment. | http://cancerweb.ncl.ac.uk/omd/ |
| PCRN | Phosphoenolpyruvate carboxykinase 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Phosphoenolpyruvate carboxykinase 1 | ECOTOX |
| NAP4 | Phospholipase C gamma-binding protein (NAP4) mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to phospholipase C gamma-binding protein (NAP4). | ECOTOX |
| PSMR | Pituitary specific transcription factor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. | |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| PRMR | Progesterone receptor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Progesterone receptor | ECOTOX |
| PR2M | Progestin membrane receptor component 2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to progestin membrane receptor component 2 | ECOTOX |
| PLMR | Prolactin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. Prolactin is a protein hormone produced by the adenohypophysis; stimulates lactation and promotes functional activity of the corpus luteum. | |
| PRDN | Protein to DNA ratio | The amount of protein as compared to the amount of DNA in a sample. | |
| PRRN | Protein to RNA ratio | The ratio of Protein to RNA in a sample. | ECOTOX |
| RASO | Ras Oncogene mutation | A gene that causes cancer in an animal. The gene specifies the structure of an enzyme that catalyzes events that can induce cancerous growth. Ras is a protein found in chromosomes and when mutated it is permanently switched on telling the cell to grow regardless of whether the receptors on the cell surface are activated or not. | McGraw-Hill,1994 |
| DNRN | Ratio of DNA to RNA | The ratio between DNA and RNA concentrations in a sample. | |
| RBPR | Retinol-binding protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to retinol-binding protein | ECOTOX |
| RNAC | RNA Concentration | No definition available. | |
| RNAS | RNA Synthesis Rate | No definition available. | |
| RNDN | RNA to DNA Ratio | No definition available. | |
| RNPR | RNA to protein ratio | A ratio of RNA to protein. | |
| ELH3 | rtERalphaL mRNA to histone H3 mRNA ratio | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ratio of rtERalphaL mRNA to histone H3 mRNA | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ESH3 | rtERalphaS mRNA to histone H3 mRNA ratio | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ratio of rtERalphaS mRNA to histone H3 mRNA | ECOTOX |
| AMSR | S-adenosylmethionine synthetase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to S-adenosylmethionine synthetase mRNA | ECOTOX |
| G1H3 | sGnRH1 mRNA to histone H3 mRNA ratio | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ratio of sGnRH1 mRNA to histone H3 mRNA | ECOTOX |
| G2H3 | sGnRH2 mRNA to histone H3 mRNA ratio | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ratio of sGnRH2 mRNA to histone H3 mRNA | ECOTOX |
| SEXE | Sex Expression Change | No definition available. | |
| SCEX | Sister chromatid exchange | An aberrant crossing-over event in which there is an exchange of segments between the sister chromatids of a chromosome, either between the sister chromatids of a meiotic tetrad or between the sister chromatids of a duplicated somatic chromosome. It can be induced by ultraviolet and ionizing radiation or by mutagenic agents and is observed by autoradiography. | http://cancerweb.ncl.ac.uk/omd/ |
| SHR2 | SpSHR2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to SpSHR2 (Orphan Steroid Hormone Receptor 2) | ECOTOX |
| SRRN | Steroidogenic Acute Regulatory protein mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Steroidogenic Acute Regulatory protein. Also StAR mRNA | ECOTOX |
| SDF1 | Steroidogenic factor-1 expression | The orphan nuclear receptor that controls the expression of many of the enzymes associated with the steroidogenic metabolic pathway | ECOREF#94090 |
| SRBR | Sterol regulatory element binding protein 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to sterol regulatory element binding protein 1, SREBP1 | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| THRA | Thyroid hormone receptor alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to thyroid hormone receptor alpha. | ECOTOX |
| TRAB | Thyroid hormone receptor alpha mRNA to Thyroid hormone receptor beta mRNA ratio | Ratio of Thyroid hormone receptor alpha mRNA to Thyroid hormone receptor beta mRNA | ECOTOX |
| TRBM | Thyroid Hormone Receptor beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to thyroid hormone receptor beta | ECOTOX |
| TAMR | Thyroid Stimulating Hormone alpha mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to thyroid stimulating hormone alpha. | ECOTOX |
| TBMR | Thyroid Stimulating Hormone beta mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to thyroid stimulating hormone beta | ECOTOX |
| TFNR | Transferrin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to transferrin | ECOTOX |
| TSLE | Translocation Efficiency | No definition available. | |
| TTRR | Transthyrethin mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to transthyrethin | ECOTOX |
| TP1R | Trypsin 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Trypsin 1 mRNA | ECOTOX |
| TB1R | Tubulin-beta-1-chain mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Tubulin-beta-1-chain mRNA | ECOTOX |
| GA2R | Type-II gonadotrophin alpha subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Type-II gonadotrophin alpha subunit. | ECOTOX |
| GB2R | Type-II gonadotrophin beta subunit mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Type-II gonadotrophin beta subunit. | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| UCHR | Ubiquitin carboxyl terminal hydrolase isozyme L5 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Ubiquitin carboxyl terminal hydrolase isozyme L5 mRNA | ECOTOX |
| UCER | Ubiquitin-conjugating enzyme E2-17 kDa mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Ubiquitin-conjugating enzyme E2-17 kDa mRNA | ECOTOX |
| UGRN | UDP-glucose dehydrogenase mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to UDP-glucose dehydrogenase | ECOTOX |
| UDMR | UDP-glucuronosyltransferase Messenger RNA | UDP-glucuronosyltransferase Messenger RNA. Also known as UGT1 mRNA. | ECOTOX |
| U1MR | UGT1a1 mRNA | UGT1A1 is the only isoform that preferentially binds the substrate bilirubin. | http:www.genes-4u.comgenesg4_024.htm |
| U6MR | UGT1a6 mRNA | UGT1A1 is the only isoform that preferentially binds the substrate bilirubin - wild type mutation at position 6. | http:www.genes-4u.comgenesg4_024.htm |
| U7MR | UGT1a7 mRNA | UGT1A1 is the only isoform that preferentially binds the substrate bilirubin - wild type mutation at position 7. | http:www.genes-4u.comgenesg4_024.htm |
| UIAP | Urotensin I mRNA to Acidic ribosomal phosphoprotein P0 mRNA ratio | Ratio of Urotensin I mRNA to Acidic ribosomal phosphoprotein P0 mRNA. | ECOTOX |
| VMA2 | Vesicular monoamine transporter isoform 2 (VMAT2) | The vesicular monoamine transporter is a transport protein located within the presynaptic cell, one of two isoforms namely VMAT2 | http://en.wikipedia.org/wiki/Vesicular_monoamine_transporter |
| VDNA | Vitellogenin cDNA | cDNA is DNA that is synthesized from a messenger RNA template, the single-stranded form is often used as a probe in physical mapping to locate the gene or can be cloned in the double stranded form. In this case specific to the protein vitellogenin. | http://cancerweb.ncl.ac.uk/omd/ |
| VGH3 | Vitellogenin mRNA to histone H3 mRNA ratio | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to ratio of vitellogenin mRNA to histone H3 mRNA | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| VT1M | Vitellogenin isoform 1 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to vitellogenin isoform 1 | ECOTOX |
| VT3M | Vitellogenin isoform 3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to vitellogenin isoform 3 | ECOTOX |
| VMRN | Vitellogenin Messenger RNA | No definition available. | |
| VTPM | Vitellogenin precursor mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to vitellogenin precursor | ECOTOX |
| WTDN | Weight to DNA ratio | The weight of a sample as compared to the amount of DNA in a sample. | |
| XLRL | X-linked recessive lethal | X-linked recessive lethal are genes which result in the premature death of the organism (homozygote). The gene on the X chromosome expresses itself only when there is no different gene present at that locus (spot on the chromosome). Also called sex-linked recessive lethal. | http://cancerweb.ncl.ac.uk/omd and http://www.ncbi.nlm.nih.gov |
| XPAR | XPA mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to XPA | ECOTOX |
| XPCR | XPC mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to XPC | ECOTOX |
| XPDR | XPD mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to XPD | ECOTOX |
| XPFR | XPF mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to XPF | ECOTOX |
| XSLG | Xslug mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Xslug. | ECOTOX |
| ZP3M | Zona pellucida glycoprotein3 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Zona pellucida glycoprotein3 | ECOTOX |

| **GEN Genetic Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ZP2M | Zona pellucida protein2 mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins, in this case specific to Zona pellucida protein2 | ECOTOX |
| ZRMR | Zona radiata mRNA | mRNA (messenger RNA) is the mediating template between DNA and proteins. | |
| ZYGO | Zygotene | The stage of meiotic prophase which immediately follows the leptotene and during which synapsis of homologous chromosomes occurs. | |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ACTO | Acanthosis | An increase in the thickness of the stratum spinosum of the epidermis. Synonym: hyperacanthosis. | http://cancerweb.ncl.ac.uk/omd |
| ASLT | Alpha Islets | Alpha cell, pancreatic: A type of cell in the pancreas, within the pancreas, the alpha cells are located in areas called the islets of Langerhans. Alpha cells make and release glucagon which raises the level of glucose (sugar) in the blood. | |
| ANAG | Anagen | Growth phase of the hair cycle, lasting about 3 to 6 years in human scalp hair. | http://cancerweb.ncl.ac.uk/omd |
| ANSK | Anisokaryosis | Inequality in the size of the nuclei of cells. | Dorland's Medical Dictionary |
| ACAP | Arterial Cuff Atrophy | Arterial - pertaining to an artery or to the arteries. Cuff - A small bandlike structure encircling a part. Atrophy - a wasting away; a diminution in the size of a cell, tissue, or organ. | Dorland's Medical Dictionary |
| ARTS | Arteriosclerosis | A degenerative arterial disease marked by hardening and thickening of the vessel walls. | |
| ASCT | Ascites | Accumulation of serous fluid in the spaces between tissues and organs in the cavity of the abdomen. | Webster's. |
| ATRS | Atresia | Imperforation or closure of a natural orifice or passage of the body. | |
| ATPH | Atrophy | Diminution in the size of a cell, tissue, or organ that was once fully developed of normal size. | |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| ALYS | Autolysis | Self-digestion by body cells following somatic or organ death or ischemic injury. | |
| BSLT | Beta Islets | Beta cell, pancreatic: A type of cell in the pancreas. Within the pancreas, the beta cells are located in areas called the islets of Langerhans. They constitute the predominant type of cell in the islets. The beta cells are important because they make insulin. Degeneration of the beta cells is the main cause of type I (insulin-dependent) diabetes mellitus. | |
| BLSS | Blue Sac Syndrome | Blue-sac syndrome is a fatal abnormality characterized by the gross edema of the yolk sac. The outward symptoms of blue-sac occur two weeks before hatching. | http://www.albion.edu/library/Isaac/IsaacSympBk%202002.pdf |
| BODS | Bodies | A mass of matter distinct from other masses. | Webster's |
| CATG | Catagen | A regressing phase of the hair growth cycle during which cell proliferation ceases, the hair follicle shortens, and an anchored club hair is produced. | http://cancerweb.ncl.ac.uk/omd |
| CTRT | Cataracts | A clouding of the lens of the eye or of its surrounding transparent membrane that obstructs the passage of light. | http://www.m-w.com/cgi-bin/dictionary |
| DISO | Cellular Disorganization | No definition available. | |
| CSTD | Cestodiasis | Tapeworm infestation, infestation with cestodes, a group of flattened and tape-like hermaphroditic worms that are intestinal parasites in humans and other animals, producing larvae that may invade body tissues. | |
| CLPG | Clumping Pigment Granules | No definition available. | |
| CLFL | Collapsed Follicles | Follicle - A sac or pouch-like depression or cavity. | Dorland's Medical Dictionary |
| CTHN | Colloid thinning | Thinning of the colloid layer | |
| CLLD | Colloids | Microscopic particles between one nanometer and one micrometer in size and can be macromolecules. | http://cancerweb.ncl.ac.uk/omd/ |
| CNGT | Congestion | Excessive or abnormal accumulation of blood in a part. | http://cancerweb.ncl.ac.uk/omd/ |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| CORN | Cornification | Cornification is the process of forming an epidermal barrier in stratified squamous epithelial tissue. | http://en.wikipedia.org/wiki |
| CRYT | Crystals | Formations of small irregular solid material often composed of calcium, uric acid and phosphate. | http://cancerweb.ncl.ac.uk/omd/ |
| CSTS | Cyst | Any closed cavity or sac that is lined by epithelium often contains liquid or semi-solid material. | http://cancerweb.ncl.ac.uk/omd/ |
| CYTM | Cytomegaly | Enlargement of both the cytoplasm and nucleus while maintaining a normal N/C ratio. | www.csi-net.net/suzanne/page22.htm |
| CYTP | Cytoplasm | The organized complex of inorganic and organic substances external to the nuclear membrane of a cell and including the cytosol and membrane-bound organelles (as mitochondria or chloroplasts). | Webster's |
| CYIN | Cytoplasmic Inclusions | A foreign substance, either liquid or solid, usually of minute size, inclosed in the mass of the cytoplasm. | http://cancerweb.ncl.ac.uk/omd/ |
| CYVC | Cytoplasmic Vacuoles | Spaces or cavities within the cytoplasm. | |
| DBRS | Debris | An accumulation of fragments. | Webster's |
| DEGN | Degeneration | Deterioration of cellular integrity with no sign of response to injury or disease. | |
| DLAT | Dilation | The process of enlargement or expansion. | http://cancerweb.ncl.ac.uk/omd/ |
| EDMA | Edema | An excessive accumulation of fluid in the cells, tissue spaces, or body cavities due to a disturbance in the fluid exchange mechanism. | |
| ENCP | Encephalopathy | Any degenerative disease of the brain. | http://cancerweb.ncl.ac.uk/omd/ |
| ENDR | Endarteritis | Inflammation of the inner lining of an artery. | |
| EHYP | Erythroid Hyperplasia | The abnormal multiplication or increase in the number of normal cells in normal arrangement in the erythroid. | http://cancerweb.ncl.ac.uk/omd/ |
| ESPH | Esophagitis | Inflammation of the esophagus. | |
| XCPH | Exencephaly | Condition in which the skull is defective with the brain exposed or extruding. Synonym: exencephalia. | http://cancerweb.ncl.ac.uk/omd/ |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| EXPT | Exophthalmia | Abnormal protrusion of the eye from the orbit. | http://cancerweb.ncl.ac.uk/omd/ |
| EXCS | Extracellular space | Interstitial space between cells, occupied by fluid as well as amorphous and fibrous substances. | http://cancerweb.ncl.ac.uk/omd/ |
| FBRS | Fibrosis | A condition marked by increase of interstitial fibrous tissue. | http://www.m-w.com/ |
| FUSE | Fuse, fused | To become blended or joined by or as if by melting together. | Webster's |
| GRNM | Granuloma | A relatively small nodular inflammatory lesion containing grouped mononuclear phagocytes, caused by infectious and noninfectious agents. | http://www.ncbi.nlm.nih.gov |
| GLSN | Gross Lesions | Any pathological or traumatic discontinuity of tissue or loss of function of a part. | http://cancerweb.ncl.ac.uk/omd/ |
| HEMR | Hemorrhage | Change or presence of hemorrhaging. | |
| HRNA | Hernia | The protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. | http://cancerweb.ncl.ac.uk/omd/ |
| GHIS | Histological Changes, General | Presence of physical damage or change to tissues or cells (for example, lesions, neoplasms); gross histological effects such as whole plant injury; disintegration of roots, stems or leaves; root fragmentation. For animals such effects include cell sloughing. | The specifics of the histology effect will be reported in EE_Remarks for AQUIRE or the Result Remarks for TERRETOX. Used when more than one measurement is coded for an ECOTOX record. |
| HDPC | Hydropericardium | A noninflammatory accumulation of fluid in the pericardial sac. | http://cancerweb.ncl.ac.uk/omd/ |
| HYDS | Hydropic Swelling | No definition available. | |
| HYCR | Hyperchromicity | An increase in the optical density of a solution with nucleic acids in it such that it is able to absorb more ultraviolet radiation, which occurs when the double-stranded nucleic acid molecules denature into single-stranded molecules | http://cancerweb.ncl.ac.uk/omd/ |
| HFLX | Hyperflexion | Flexion of a limb or part beyond the normal limit. Synonym: superflexion. | |
| HKTO | Hyperkeratosis | Hypertrophy of the corneous layer of the skin. | http://www.merriam-webster.com |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| HYPL | Hyperplasia | Increase in cell number causing an increase in the size of a tissue or organ. | |
| HYPT | Hypertrophy | Increase in cell size causing an increase in the size of an organ or tissue. | |
| HYCE | Hypocellularity | No definition available. | |
| IHGT | Increased Height | Increase in height of an object such a cells or cellular components. | |
| IMVL | Increased Medullary Volume | Medullary - pertaining to the marrow or to any medulla. Medulla - The inmost part. A general term for the most interior portion of an organ or structure. Called also marrow. | Dorland's Medical Dictionary |
| IPHM | Increased Perivenous Homogeneity | Perivenous - around the vein. | Dorland's Medical Dictionary |
| IPDY | Increased Portal Density | Portal: Of or pertaining to a porta, especially the porta of the liver; as, the portal vein, which enters the liver at the porta, and divides into capillaries after the manner of an artery. | http://cancerweb.ncl.ac.uk/omd/ |
| ININ | Intranuclear inclusions | A foreign substance, either liquid or solid, usually of minute size, enclosed within the nucleus of a cell. | |
| LMLL | Lamellae, Lamella | A thin, plate-like layer, the layer between the walls of two adjacent plant cells. | http://cancerweb.ncl.ac.uk/omd/ |
| LESI | Lesions | A structural or functional alteration due to injury or disease. | |
| LPHD | Lymphoid depletion | Loss of structure found within the lymphatic system that consists of lymphocytes within a network of fibers. | http://cancerweb.ncl.ac.uk/omd/ |
| MELM | Melanomacrophages | No definition available. | |
| MAPH | Microphthalmia and anophthalmia | An unnatural smallness of the eyes, occurring as the result of disease or of imperfect development or congenital absence of all tissues of the eyes. | http://cancerweb.ncl.ac.uk/omd/ |
| MALN | Misalign, misaligned | Not to be in or come into precise adjustment or correct relative position. | Webster's |
| MHYP | Myeloid Hyperplasia | The abnormal multiplication or increase in the number of normal cells in normal arrangement in myeloid. | http://cancerweb.ncl.ac.uk/omd/ |

| **HIS Histology Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| MYOP | Myopathy | Disorder of muscle tissue or muscles. | |
| NCRO | Necrosis | Death of a cell or group of cells as a result of injury, disease, or other pathologic state. | |
| NCRL | Necrotic Lesions | No definition available. | |
| NPHG | Nephrogenesis | Development or growth of the kidney. | |
| NPHR | Nephrosis | Degenerative or retrogressive renal lesions, distinct from inflammation (nephritis) or vascular involvement (nephrosclerosis), especially as applied to tubular lesions. | |
| NCVS | Nuclear Vesiculation | Vesiculation -the presence or formation of vesicles. Nuclear - Of or pertaining to a nucleus; as, the nuclear spindle or the nuclear fibrils of a cell; the nuclear part of a comet, etc. | Dorland's Medical Dictionary http://cancerweb.ncl.ac.uk/omd/ |
| PKTO | Parakeratosis | Persistence of the nuclei in the cells of the stratum corneum of the epidermis. | http://cancerweb.ncl.ac.uk/omd/ |
| PNCH | Parenchyma | The essential elements of an organ, used in anatomical nomenclature as a general term to designate the functional elements of an organ, as distinguished from its framework or stroma. Also known as parenchymal cells. | http://cancerweb.ncl.ac.uk/omd/ |
| CTYP | Percent Cell Type | No definition available**.** | |
| PRLF | Proliferation | The reproduction or multiplication of similar forms, especially of cells and morbid cysts. | http://cancerweb.ncl.ac.uk/omd/ |
| PRVN | Proventriculitis | Inflammation of the glandular first portion of the stomach of birds, in which food from the crop (crop, avian) is mixed with peptic enzymes and passed to the gizzard. | |
| RCVL | Reduced Corticle Volume | Decrease in corticle volume. | |
| RFSZ | Reduced Follicle Size | Decrease in follicle size. | |
| RPCD | Reduced Periarteriolar Lymphocyte Sheath Cell Density | As an arteriole leaves a septum and enters the interior volume of the spleen it immediately acquires a continuous coating of lymphocytes. This "sleeve" of lymphocytes is the periarteriolar lymphocyte sheath, or PALS. | http://education.vetmed.vt.edu/Curriculum/VM8054/Labs/Lab13/Lab13.htm |

| HIS Histology Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| SMLN | Severe misalignment | Not to be in or come into precise adjustment or correct relative position. | Webster's |
| SCNG | Sinus Congestion | Blockage of one or more of the four pairs of sinus passageways in the skull. Blockage may result from inflammation and swelling of the nasal tissues, obstruction by one of the small bones of the nose (deviated septum) or from secretion of mucus | http://www.healthwell.com/healthnotes/Concern/Sinus_Congestion.cfm |
| SHMT | Sinus Haematopoiesis | The formation and development of blood cells involving both proliferation and differentiation from stem cells in the sinus. | http://cancerweb.ncl.ac.uk/omd/ |
| SHYP | Sinus Hyperplasia | The abnormal multiplication or increase in the number of normal cells in normal arrangement in the sinus. | http://cancerweb.ncl.ac.uk/omd/ |
| SMMN | Slight to moderate misalignment | Not to be in or come into precise adjustment or correct relative position. | Webster's |
| SOSS | Surpernumerary ossification | Beyond the normal number of ossifications. | |
| SWEL | Swelling, Swollen | No definition available. | |
| SNAP | Synapses | The point at which a nervous impulse passes from one neuron to another. | Webster's |
| TELG | Telogen | Resting phase of hair cycle. | |
| TFLR | Tissue Damage Measured by Fluorescence under Dyes or in Uv Light | No definition available. | |
| USTR | Ultrastructural Changes | No definition available. | |
| VCLZ | Vacuolization | The process of forming vacuoles; the condition of being vacuolated. | |

## MOR MORTALITY OR SURVIVORSHIP GROUP

| MOR Mortality Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| BDAY | Bird days | This is a measure of survivorship. Bird days is equal to the number of birds alive on day X * X days. | ECOREF 36364 |

| **MOR Mortality Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| DTTM | Death with tumors | Mortalities that occurred with tumors. | |
| DLMT | Dominant lethal mutations | (1-live embryos per test female/live embryos per control female) X 100. | |
| EBCN | Effective Body Concentration | The body residue of a chemical that is associated with an effect. | |
| HTCH | Hatch | Change in percent hatch, time to hatch or number of eggs hatched. | |
| TKNO | Knockdown | No definition available. | |
| LBCN | Lethal Body Concentration | Also Lethal Body Burden. The body residue of a chemical that is associated with mortality. | *Use this effect-measurement pair if the author reports an endpoint based on lethal body burden or lethal body concentration (internal chemical concentrations).* |
| LIFE | Life Expectancy | Longevity, the average length of life of individuals in a population. | http://cancerweb.ncl.ac.uk/omd/ |
| LFSP | Lifespan or longevity | The normal or average duration of life of members of a given species. | http://cancerweb.ncl.ac.uk/omd/ |
| MDTH | Mean Time of Death | No definition available. | |
| MORT | Mortality | Effect expressed as % death or % survival. A lethal effect may describe mortality (MORT) or an observed behavior that indicates mortality (e.g., shell valve closures for bivalves (VACL), immobilization (IMBL) for invertebrates, or detachment (DTCH) for sessile organisms). "MORT" differs from "ABND" in that an initial number of organisms is known for the mortality effect and results are expressed in terms of the initial number (e.g., percent survival). | If the author defines criteria used to determine that the organism was dead, and then identifies the effect as a lethal effect, "MORT" will be coded in the EFFECT field. MORT may be coded as an effect with either LC, EC, LD, NOEC, or LOEC endpoints. |
| GMOR | Mortality/Survival, General | Used when more than one measurement is coded for an AQUIRE record. | (General mortality is a place holder for AQUIRE transfers) |
| PSUR | Probability of Survival | Survival probability, g(x), describes the probability of survival from age x to age x+1, given thatan individual has already survived to age x. To calculate g(x), divide the survivorship schedule at age x+1:l(x+1) by the survivorship schedule at age | |
| SURV | Survival | No definition available. | |

| **MOR Mortality Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| SVVS | Survivorship | Number alive at beginning of an age class from original cohort | |
| TLET | Time to 100% Mortality | No definition available. | |
| TDTH | Time to Death | No definition available. | |

## PHY PHYSIOLOGICAL GROUP

| **IMM Immunity Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ABSC | Abscess | A localized pus-forming (suppurative) bacterial infection. | http://cancerweb.ncl.ac.uk/omd/ |
| PARA | Amount or Percent Organisms Infested with Parasites | No definition available. | |
| ABDT | Antibody Titres | Measure of the amount of antibody present, usually given in units per millilitre of serum. | http://www.pestmanagement.co.uk/lib/glossary/glossary_a.shtml |
| ASHG | Anti-sheep Red Blood Cell Hemaglutinin | No definition available. | |
| DHYP | Delayed Type Hypersensitivity | No definition available. | |
| ENCY | Endocytosis | Uptake of material into a cell by the formation of a membrane bound vesicle. | http://cancerweb.ncl.ac.uk/omd/ |
| HEAL | Healing | To make sound or whole [heal a wound] | |
| HTPL | Heterophiles | An antibody raised against an antigen from one species that also reacts against antigens from other species. | |
| HMRL | Humoral immunity | Immune responses moderated by antibodies. | http://cancerweb.ncl.ac.uk/omd/ |
| GIMM | Immunity, General | Used when more than one measurement is coded for an AQUIRE record. | |
| IGMG | Immunoglobin G | The classical immunoglobulin class also called 7S IgG (150 kD). Composed of two identical light and two identical heavy chains, the constant region sequence of the heavy chains being of the type. The molecule can be described in another way as being composed of two Fab and an Fc fragment. | http://cancerweb.ncl.ac.uk/omd/ |

| **IMM Immunity Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| IGMM | Immunoglobin M | An immunoglobulin M molecule (970 kD) is built up from five immunoglobulin G type monomers joined together, with the assistance of J chains, to form a cyclic pentamer. Immunoglobulin M binds complement and a single molecule bound to a cell surface can lyse that cell. Immunoglobulin M is usually produced first in an immune response before immunoglobulin G. | http://cancerweb.ncl.ac.uk/omd/ |
| IGMT | Immunoglobulin | A specific protein substance that is produced by plasma cells to aid in fighting infection. | http://cancerweb.ncl.ac.uk/omd/ |
| IGMA | Immunoglobulin A | Immunoglobulin A protects the bodys mucosal surfaces from infection and in secretions, it is found as a dimer (400 kD) joined by a short J chain and linked to a secretory portion or transport piece. In serum found as a monomer (170 kD). Immunoglobulin A is the main mechanism for providing local immunity against infections in the gut or respiratory tract and may act by reducing the binding between an immunoglobulin A coated micro organism and a host epithelial cell. Present in human colostrum but not transferred across the placenta. Have heavy chains. | http://cancerweb.ncl.ac.uk/omd/ |
| IGME | Immunoglobulin E | Class of immunoglobulin (188 kD) associated with immediate type hypersensitivity reactions and helminth infections. Present in very low amounts in serum and mostly bound to mast cells and basophils that have an immunoglobulin E specific Fc receptor (FceR). Immunoglobulin E has a high carbohydrate content and is also present in external secretions. Heavy chain of epsilon type. | http://cancerweb.ncl.ac.uk/omd/ |
| IFCT | Infected | Contaminated with a disease-producing substance or agent. | Webster's |
| INTS | Intussusception | Intussusception refers to a telescoping of one portion of the intestine into another. This results in reduced blood supply to the affected portion of the intestine. | http://cancerweb.ncl.ac.uk/omd/ |

| **IMM Immunity Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| LKMA | Leukemia | An acute or chronic disease of unknown cause in man and other warm blooded animals that involves the blood forming organs, is characterized by an abnormal increase in the number of leucocytes in the tissues of the body with or without a corresponding | http://cancerweb.ncl.ac.uk/omd/ |
| LYMP | Lymphocyte Activity | No definition available. | |
| LYPA | Lymphoma | Malignant tumor of lymphoblasts derived from B lymphocytes. | http://cancerweb.ncl.ac.uk/omd/ |
| MCPG | Macrophage activity | Relatively long lived phagocytic cell of mammalian tissues, derived from blood monocyte. Macrophages from different sites have distinctly different properties. In response to foreign materials they may become stimulated or activated. Macrophages play an important role in killing of some bacteria, protozoa and tumor cells. They release substances that stimulate other cells of the immune system and are involved in antigen presentation. | http://cancerweb.ncl.ac.uk/omd/ |
| MPHG | Microphage Function, Activity | No definition available. | |
| MYEL | Myelosis | A condition characterized by abnormal proliferation of tissue or cellular elements. | http://cancerweb.ncl.ac.uk/omd/ |
| NKCA | Natural Killer Cell Activity | No definition available. | |
| PRNF | Parasitic Infection | No definition available. | |
| PHAG | Phagocytosis | A specialized form of macropinocytosis in which cells engulf large solid objects such as bacteria and deliver the internalized objects to special digesting vacuoles. | |
| PFCR | Plaque forming cell response | Plaque forming cell - An antibody-producing cell detected in vitro by its ability to lyse antigen-sensitized erythrocytes in the presence of complement. | http://www.fleshandbones.com/immunology/roitt/glossary.cfm?letter=P |
| PNMA | Pneumonia | Inflammation of the lungs with consolidation. | http://cancerweb.ncl.ac.uk/omd/ |
| PRTU | Proteuria | The presence of an excess of serum proteins in the urine; called also albuminuria (also known as proteinuria). | Dorland's Medical Dictionary |

| **IMM Immunity Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| RBST | Respiratory Burst activity | Respiratory activity of cell measured as an immune response; production of extra- and intra-cellular radicals | ECOREF 80857 |
| RSTT | Rosette Response, Rosette Forming Cell Concentration | No definition available. | |
| THYM | Thymocyte Activity | Lymphocyte within the thymus, term usually applied to an immature lymphocyte. | http://cancerweb.ncl.ac.uk/omd/ |

| **INJ Injury Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ABSN | Abrasion | A superficial injury to the skin or other body tissue caused by rubbing or scraping resulting in an area of body surface denuded of skin or mucous membrane. | |
| ADNM | Adenoma | A benign epithelial tumor in which the cells form recognizable glandular structures or in which the cells are clearly derived from glandular epithelium. | http://cancerweb.ncl.ac.uk/omd/ |
| AMLD | Amyloidosis | Deposition of amyloid. A common complication of several diseases (leprosy, tuberculosis), often associated with perturbation of the immune system, although there may be immunosuppression or enhancement. | http://cancerweb.ncl.ac.uk/omd/ |
| AUTO | Autotomy | Constriction and/or loss of segments. The act of casting off a body part as a means of escape. | ECOREF 47717 http://cancerweb.ncl.ac.uk |
| BTMR | Benign tumor | A nonmalignant clone of neoplastic cells that does not invade locally or spread to other parts of the body (metastasize), having lost growth control but not positional control. Usually surrounded by a fibrous capsule of compressed tissue. | http://cancerweb.ncl.ac.uk/omd/ |
| CLRS | Chlorosis | A form of macrocytic anemia in young females characterized by marked reduction in hemoglobin and a greenish skin color. A disease condition of green plants seen as yellowing of green parts of the plant. | |

| **INJ Injury Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CURV | Curvature | No definition available. | |
| DAMG | Damage | No definition available. | |
| DESI | Desiccation | The permanent decrease or disappearance of water. | |
| HDCP | Hydrocephaly | An increased quantity of cerebrospinal fluid (CSF) inside the brain that can result in increased pressure. Often the result of a disturbance (obstruction) in the normal CSF circulation or the over-production of CSF. | http://cancerweb.ncl.ac.uk/omd |
| IFLM | Inflammation | A localized protective response elicited by injury or destruction of tissues, which serves to destroy, dilute or wall off (sequester) both the injurious agent and the injured tissue. | http://cancerweb.ncl.ac.uk/omd/ |
| GINJ | Injury, General | Used when more than one measurement is coded for an AQUIRE record. | |
| MTMR | Malignant tumor | A tumor that tends to become progressively worse and to result in death. Having the properties of anaplasia, invasion and metastasis. | |
| MUTI | Mutigenesis | The occurrence or induction of mutation. | |
| OCTB | Occult blood | Blood that is in the faeces or vomitus that is not obvious by general inspection. Used as a diagnostic screening test for colon cancer. Tests for occult blood are generally colourimetric. Stool sample will turn blue when a particular chemical reagent is mixed with the specimen on test paper. | http://cancerweb.ncl.ac.uk/omd/ |
| WART | Papilloma, wart | Wart, benign tumor of the epithelium. | |
| PLYP | Polyp | A projecting mass of swollen and hypertrophied or tumorous membrane. | |
| SYMP | Symptom Severity Index | No definition available. | |
| THMB | Thrombosis | Aggregations of blood factors, primary platelets and fibrin with entrapment of cellular elements, frequently causing vascular obstruction at the point of its formation. | |
| TUMR | Tumor Induction | No definition available. | |

| **INJ Injury Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ULCR | Ulcer | A local defect or excavation, of the surface of an organ or tissue, which is produced by the sloughing of inflammatory necrotic tissue. | |
| VASC | Vascular Disruption | No definition available. | |

| **ITX Intoxification Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ANOR | Anorexia | Loss of appetite. | |
| ATAX | Ataxia | Lack of muscular coordination due to any of several nervous system diseases. | |
| CONV | Convulsions | An episode of involuntary, generally violent muscular contractions. Also observed as tremors, trembling, shaking or quivering. | http://cancerweb.ncl.ac.uk |
| IMBL | Immobile | Change in the failure to respond or lack of movement after mechanical stimulation. | |
| INCO | Incoordination | No definition available. | |
| GITX | Intoxication, General | Used when more than one measurement is coded for an AQUIRE record. | |
| MBLT | Mobility | No definition available. | |
| PARL | Paralysis | Complete or partial loss of motor or sensory function. | |
| TINT | Time to Signs of Intoxication | No definition available. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| 2DOG | 2-deoxy-D-glucose | Amount of L-2-deoxy-D-glucose taken in by an organism or an organism's tissues. | ECOTOX |
| AECG | Abnormal ECG | Electrocardiogram (ECG / EKG) is an electrical recording of the heart. | |
| ABSC | Abscission | A physiological process promoted by abscisic acid whereby plants shed a part, such as a leaf, flower, seed, or fruit. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| AECH | Adenylate energy charges (AEC) | The Adenylate energy charge (AEC) accounts for the regulation of enzymatic activity by ATP, ADP and/or AMP. | digital.library.okstate.edu/oas/oas_pdf/v74/p31_36.pdf |
| ADPE | Adsorption Efficiency | No definition available. | |
| APCT | Aerobic Protein Catabolism | No definition available. | |
| AHIN | A-H Intervals | The time from the initial rapid deflection of the atrial wave to the initial rapid deflection of the His bundle (H) potential; it approximates the conduction time through the A-V node (normally 50-120 msec). | http://cancerweb.ncl.ac.uk/omd/ |
| HLSS | Alopecia, Hair loss | Absence of hair from skin areas where it is normally present. | |
| ALEX | Aluminum excretion | Aluminum excreted by organism | ECOTOX |
| ALAE | Aminolevulinic acid excretion | Aminolevulinic acid excreted by organism | |
| AEXR | Ammonia Excretion | No definition available. | |
| AMQU | Ammonia Quotient (AQ) | Ammonia quotient is the ratio between ammonia excreted and oxygen consumed (mol/mol). | ECOTOX |
| NHUP | Ammonia uptake | The uptake of ammonia into an organism or tissue | ECOTOX |
| ANBC | Aniline Binding Capability | No definition available. | |
| ATFL | Aortic flow | The amount of blood flowing through the aorta. | |
| ASUP | Arsenic uptake | Amount of arsenic taken in by an organism or an organism's tissues. | |
| ASML | Assimilation Efficiency | Change in efficiency of trophic transfers between different levels in the food chain, e.g. between primary producers and grazers. | |
| AVCD | AtrioVentricular conduction delay | Delays in conduction below the bifurcation of Bundle of His cause bundle branch or fascicular blocks, while atrioventricular conduction is maintained, unless all three fascicles are simultaneously affected. The causes are both intrinsic and extrinsic. However, since the AV node and bundle of His provide a special connection of the atria to the ventricles, focal injury from heart attacks, infections, catheter trauma, is common. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ADTH | Auditory Threshold | The audibility limit of discriminating sound intensity and pitch. | http://fred.hmc.psu.edu/ds/retrieve/fred/meshdescriptor/D001309 |
| AXSS | Axis shift | Related to the mean electrical axis of an EKG. The mean electrical axis of the QRS complex is the average of the total depolarization of the ventricles in the frontal plane. There is a correlation between the mean electrical axis of the QRS complex and the electrical activity of the heart. Therefore, in pathologic hypertrophy of either ventricle (ie. when there is more muscle being depolarized), the axis tends to shift in the direction of the hypertrophied ventricle. | |
| BNDS | Bending strength | A measure of the load an object can bear if its ends are supported and a weight is attached to the middle, i.e. it is how many pounds of lateral force the object takes before it breaks. Yield strength is the amount of stress at which permanent deformation becomes measurable. | |
| BLUM | Bioluminescence | The emission of visible light by living organisms. | |
| BDFW | Blood flow | The flow or movement of blood in the cardiovascular system. | www.wikipedia.org/wiki |
| BLPR | Blood pressure | Pressure that is exerted by the blood upon the walls of the blood vessels and especially arteries and that varies with the muscular efficiency of the heart, the blood volume and viscosity, the age and health of the individual, and the state of the vascular wall. | |
| BDVL | Blood Volume | No definition available. | |
| BTMP | Body Temperature\ | No definition available. | |
| BEXC | Boron Excretion | Boron excreted by organism | ECOTOX |
| BTFT | Butter fat | The natural fat of milk and chief constituent of butter consisting essentially of a mixture of glycerides (as those derived from butyric, capric, caproic, and caprylic acids). | http://www.m-w.com/ |
| ATUP | C-14 Acetate uptake | The uptake of C-14 Acetate into a sample | ECOTOX |
| C14U | C-14 Uptake | Amount or process of Carbon-14 uptake by a cell. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CDEX | Cadmium excretion | Cadmium excreted by organism | ECOTOX |
| CDUP | Cadmium Uptake | No definition available. | |
| CAAS | Calcium assimilation | Amount of calcium assimilated. | |
| CAEX | Calcium excretion | Calcium excreted by organism. | |
| CANU | Calcium not excreted | Calcium utilized/Calcium ingested * 100. | |
| CARE | Calcium retained | Calcium retained/Calcium ingested * 100. | |
| CARU | Calcium retention to utilization ratio | Ratio of Calcium retained (Utilized - Transferred to Egg) to Calcium utilized (ingest - excreted). | |
| CATR | Calcium transfer | Per cent of calcium transferred to the egg, Calcium in egg/Calcium utilized x 100. | |
| CATU | Calcium transfer to utilization ratio | Per cent of calcium transferred to the egg in relation to calcium utilized. | |
| CAUP | Calcium Uptake | No definition available. | |
| CLRC | Caloric content | The energy derived from food is described by its caloric content. | |
| CPCT | Capacitance | The property of an electric nonconductor that permits the storage of energy as a result of the separation of charge that occurs when opposite surfaces of the nonconductor are maintained at a difference of potential | Webster's |
| CASS | Carbon assimilation | Assimilation of carbon into an organism or tissue. | |
| CO2A | Carbon dioxide assimilation | Assimilation of carbon dioxide into an organism or tissue. | |
| CO2T | Carbon Dioxide Tension, Partial Pressure of Carbon Dioxide, PCO2 | No definition available. | |
| CFIX | Carbon Fixation | No definition available. | |
| CTSL | Carbon translocation | The transfer of carbon from one part of an organism to another. | |
| CDIN | Cardiac index | The heart output per unit of time over body surface, usually expressed in terms of liters per minute per square meter. | |
| CDOP | Cardiac output | A measurement of the blood flow through the heart to the systemic (and pulmonary) circulation. Cardiac output is expressed as volume of blood per unit time or liters/minute. | http://cancerweb.ncl.ac.uk/omd/ |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| IRAX | Cell Migration Inhibition (Immune Response Activity) | Cell Migration Inhibition is cell-mediated immunity measurement of the in vitro inhibition of the migration or phagocytosis of antigen-stimulated leukocytes or macrophages. Specific cell migration assays have been developed to estimate levels of migration inhibitory factors, immune reactivity against tumor-associated antigens, and immunosuppressive effects of infectious microorganisms. | http://www.ncbi.nlm.nih.gov |
| CRSP | Cellular respiration | The conversion within the cell of nutrients (such as sugar molecules) into chemical energy in the form of ATP, by reacting the food with oxygen (O2) until the food has completely been degraded into carbon dioxide and H2O. | http://cancerweb.ncl.ac.uk/omd/ |
| CLCL | Chloride clearance | The rate at which chloride is removed from the body. | http://cancerweb.ncl.ac.uk/omd/ |
| CLEX | Chloride excretion | Chloride excreted in the urine by an organism. | |
| CLFX | Chloride flux | Rate of movement of Chloride ions across membranes. | |
| CLUP | Chloride uptake | Amount of chloride taken in by an organism or an organism's tissues. | ECOTOX |
| CMRB | Cholinergic muscarinic receptor binding | Distinct from the nicotinic cholinergic receptor in having no intrinsic ion channel, the receptor is formed from one protein chain with 7 transmembrane regions. The receptors produce their effect via activation of GTP-binding proteins. | http://cancerweb.ncl.ac.uk/omd/ |
| CREX | Chromium excretion | Chromium excreted in the urine by an organism. | |
| CRUP | Chromium uptake | Amount of chromium taken in by an organism or an organism's tissues. | |
| CLNC | Clearance | The rate at which a substance is removed from the blood. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CTIM | Clotting Time | The time required for blood to coagulate; prolonged in haemophilia and in the presence of obstructive jaundice, some anemias and leukemias, and some of the infectious diseases. May be measured as partial thromboplastin time (PTT) or activated partial thromboplastin time (aPTT or APTT). | http://cancerweb.ncl.ac.uk/omd/ and http://en.wikipedia.org/wiki |
| CO2F | CO2 Fixation | A mean in which photosynthetic bacteria obtain carbon for biosynthesis. Most commonly utilizing the Calvin cycle to convert CO2 to organic carbon. | instruct1.cit.cornall.edu/courses/biomi290/CO2FIX.html |
| COEX | Cobalt excretion | Cobalt excreted by organism | ECOTOX |
| COUP | Cobalt uptake | Amount of cobalt taken in by an organism or an organism's tissues. | ECOTOX |
| CCCL | Coccolith formation | One of the small, interlocking calcite plates covering members of the Coccolithophorida (unicellular, biflagellate, golden brown algae). | |
| COLD | Cold Hardiness | No definition available. | |
| CMPS | Compression strength | The maximum load an object can withstand before failure (or specified deformation) under standard test conditions. Yield strength is the amount of stress at which permanent deformation becomes measurable. | |
| CNVY | Conductivity | Degree to which a substance transmits (conducts) a given physical property, such as heat or electricity. | http://cancerweb.ncl.ac.uk/omd/ |
| CRAT | Contraction rate | The rate at which a site contracts (e.g. muscle contraction). | |
| CUEX | Copper excretion | Copper excreted by organism | ECOTOX |
| CUUP | Copper Uptake | No definition available. | |
| CFLW | Coronary flow | The amount of blood flowing through the coronary artery. | |
| COGH | Cough | A rapid expulsion of air from the lungs typically in order to clear the lung airways of fluids, mucus, or material | http://cancerweb.ncl.ac.uk/omd/ |
| COCE | Coupling coefficient | The voltage change observed in a neuron when current is injected into another cell to which it is coupled by electrical synapses. | http://www.nature.com/cgi-taf/DynaPage.taf?file=/nrn/journal/v2/n6/abs/nrn0601_425a_r.html |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| CYSU | Cystine uptake | Amount of cystine taken in by an organism or an organism's tissues. | ECOTOX |
| CEBS | Cytosolic estrogen-binding sites | Measure of estrogen binding with sites within cytosol. | |
| DFIX | Dark Fixation | No definition provided | |
| QRSV | Decreased QRS voltage | QRS Complex = The deflections in an electrocardiographic tracing and represent ventricular activity of the heart. | |
| DRRH | Diarrhea | Abnormally frequent intestinal evacuations with more or less fluid stools. | Webster's |
| DSPS | Diastolic pressure | The intracardiac pressure during or resulting from the diastolic relaxation of a cardiac chamber; the lowest arterial blood pressure reached during any given ventricular cycle | http://cancerweb.ncl.ac.uk/omd/ |
| DGST | Digestion | Digestion/digestibility. The conversion of food, in the stomach and intestines, into soluble and diffusible products, capable of being absorbed by the blood. | http://cancerweb.ncl.ac.uk/omd/ |
| DCRG | Discharge | A flowing or issuing out or something that is emitted. | Webster's |
| DPAU | Dopamine uptake | The uptake of dopamine into an organism or tissue. | ECOTOX |
| DORB | Dormancy Break | No definition available. | |
| DORI | Dormancy Induction | No definition available. | |
| EFFC | Efficiency | The ratio of the useful energy delivered by a dynamic system to the energy supplied to it. | http://www.m-w.com/ |
| ECTG | Electrocorticogram | A record of electrical activity derived directly from the cerebral cortex. | http://cancerweb.ncl.ac.uk/omd/ |
| EECG | Electroencephalogram | No definition available. | |
| ETSA | Electron Transfer System Activity | No definition available. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| EOCL | Electro-oculography | Recording of the average amplitude of the resting potential arising between the cornea and the retina in light and dark adaptation as the eyes turn a standard distance to the right and the left. The increase in potential with light adaptation is used to evaluate the condition of the retinal pigment epithelium. Electrodes are placed on the skin adjacent to the eyes measure changes in standing potential between the front and back of the eyeball as the eyes move. A sensitive electrical test for detection of retinal pigment epithelium dysfunction. | http://cancerweb.ncl.ac.uk/omd/ |
| EPYR | Electrophysiological response | Pertaining to electrophysiology, the electrical results produced through physiological agencies, or by change of action in a living organism | http://cancerweb.ncl.ac.uk/omd/ |
| ERLD | Electroretinography light peak:darl trough ratio implicit time | The ratio of light peaks to dark troughs of the waves of the response of the test an in which an electrode is placed on the cornea of the eye to measure the electrical response of the rods and cones in the retina. It is useful in the evaluation of hereditary and acquired disorders of the retina. A normal test will show the appropriate pattern responses during moments of increased light intensity. Abnormal results can indicate arteriosclerosis of the retina, retinal detachment, temporal arteritis (with eye involvement) or vitamin A deficiency. | http://cancerweb.ncl.ac.uk/omd/ |
| ERWV | Electroretinography wave | A test in which an electrode is placed on the cornea of the eye to measure the electrical response of the rods and cones in the retina. It is useful in the evaluation of hereditary and acquired disorders of the retina. A normal test will show the appropriate pattern responses during moments of increased light intensity. Abnormal results can indicate arteriosclerosis of the retina, retinal detachment, temporal arteritis (with eye involvement) or vitamin A deficiency. | http://cancerweb.ncl.ac.uk/omd/ |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ERWA | Electroretinography wave amplitude | The wave amplitude response of the test an in which an electrode is placed on the cornea of the eye to measure the electrical response of the rods and cones in the retina. It is useful in the evaluation of hereditary and acquired disorders of the retina. A normal test will show the appropriate pattern responses during moments of increased light intensity. Abnormal results can indicate arteriosclerosis of the retina, retinal detachment, temporal arteritis (with eye involvement) or vitamin A deficiency. | http://cancerweb.ncl.ac.uk/omd/ |
| ERWI | Electroretinography wave implicit time | The wave implicit time response of the test an in which an electrode is placed on the cornea of the eye to measure the electrical response of the rods and cones in the retina. It is useful in the evaluation of hereditary and acquired disorders of the retina. A normal test will show the appropriate pattern responses during moments of increased light intensity. Abnormal results can indicate arteriosclerosis of the retina, retinal detachment, temporal arteritis (with eye involvement) or vitamin A deficiency. | http://cancerweb.ncl.ac.uk/omd/ |
| ERWL | Electroretinography wave latent time | The wave latent time response of the test an in which an electrode is placed on the cornea of the eye to measure the electrical response of the rods and cones in the retina. It is useful in the evaluation of hereditary and acquired disorders of the retina. A normal test will show the appropriate pattern responses during moments of increased light intensity. Abnormal results can indicate arteriosclerosis of the retina, retinal detachment, temporal arteritis (with eye involvement) or vitamin A deficiency. | http://cancerweb.ncl.ac.uk/omd/ |
| EMCN | Emaciation | Extremely thin or physically wasted. | http://cancerweb.ncl.ac.uk/omd/ |
| ENST | Encystment | The process of forming or becoming enclosed in a cyst or capsule. | |
| EEUR | Endogenous Excreted Urea | No definition available. | |
| NRGA | Energy Assimilation | No definition available. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ECPT | Energy charge potential | No definition available. | |
| NRGX | Energy excreted | No definition available. | |
| NRGI | Energy intake | No definition available. | |
| EYTH | Erythema | A name applied to redness of the skin produced by congestion of the capillaries, which may result from a variety of causes, the etiology or a specific type of lesion often being indicated by a modifying term. | http://cancerweb.ncl.ac.uk/omd/ |
| ESGM | Estrogen metabolism | The metabolism of estrogen to its breakdown products. | |
| ECYC | Estrous cycle | The correlated phenomena of the endocrine and generative systems of a female mammal from the beginning of one period of estrus to the beginning of the next. | http://www.m-w.com/ |
| EXCR | Excretion Rate | No definition available. | |
| FEPP | Fecal production | No definition available. | |
| FVOL | Fluid volume | The amount of space occupied by a three-dimensional object as measured in cubic units. | http://www.m-w.com/ |
| FDAR | Food absorption rate | The rate of uptake of substances from food into microorganisms, tissues, and organs. | (http://www.ncbi.nlm.nih.gov and ECOTOX) |
| FDCV | Food Conversion Efficiency | Ratio of body weight to food intake. Also known as Food efficiency ratio. | ECOTOX |
| GLFO | Galactocele formation | A clogged milk duct, often associated with childbirth. | http://cancerweb.ncl.ac.uk/omd/ |
| GSTF | Gas Transfer | No definition available. | |
| GFRT | Glomerular Filtration Rate | No definition available. | |
| GLGN | Glucogenesis | The making of molecules of the sugar glucose within a living cell from something other than glycogen (a polysaccharide of glucose molecules). Also: Gluconeogenesis | http://cancerweb.ncl.ac.uk/omd/ |
| GLUP | Glucose uptake | Amount of glucose taken in by an organism or an organism's tissues. | ECOTOX |
| GYCU | Glycerol uptake | Amount of glycerol taken in by an organism or an organism's tissues. | ECOTOX |
| GLYU | Glycine uptake | Amount of glycine taken in by an organism or an organism's tissues. | ECOTOX |
| GLSY | Glycogen synthesis | The rate at which glycogen is produced in an organism. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GYEX | Glycolate excretion | The excretion of a salt or ester of glycolic acid. | http://cancerweb.ncl.ac.uk/omd/ |
| GAEX | Glycolic acid excretion | Excretion of glycolic acid, which often serves as a basic component of the extracellular compounds of microalgae and is also the main substrate of photorespiration. | |
| GRAU | Granule/Grain Creation | No definition available. | |
| H3UP | H-3 Uptake | Amount of H-3 taken in by an organism or an organism's tissues. | ECOTOX |
| HTDP | Heart Double Product | Heart rate * cardiac output. | |
| HTRT | Heart Rate | No definition available. | |
| HPRR | Heat production rate | No definition available. | |
| H3BD | Hemicholium-3 binding | A potent inhibitor of the high affinity uptake system for choline. It has less effect on the low affinity uptake system. Since choline is one of the components of acetylcholine, treatment with hemicholinium can deplete acetylcholine from cholinergic terminals. | http://cancerweb.ncl.ac.uk/omd/ |
| HPSR | High pressure | Increase in pressure in an organ or tissue | ECOTOX |
| HYDR | Hydration | The incorporation of molecular water into a complex molecule with the molecules or units of another species. | |
| HCFX | Hydrogen carbonate flux | Rate of movement of Hydrogen Carbonate ions across membranes | |
| HNPH | Hydronephrosis | Abnormal enlargement of a kidney, may occur secondary to acute ureteral obstruction (kidney stone) or chronic kidney disease. | http://cancerweb.ncl.ac.uk/omd/ |
| HYPR | Hyperactivity | General restlessness or excessive movement such as that characterizing children with attention deficit disorder or hyperkinesis | http://cancerweb.ncl.ac.uk/omd/ |
| HYTN | Hypertension | Persistently high arterial blood pressure. Hypertension may have no known cause (essential or idiopathic hypertension) or be associated with other primary diseases (secondary hypertension). | http://cancerweb.ncl.ac.uk/omd/ |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| INRE | Input resistance | The input resistance, is defined as the ratio between the strengths of the resultant voltage response and the current that is injected in a neuron. | http://mrb.niddk.nih.gov/hagai/publ/decpoi/DefsMeth.html |
| IVCD | Intraventricular conduction defects | Nonspecific intraventricular conduction defects are diagnosed when the QRS is modestly prolonged (< 120 msec) and the QRS pattern and axis are not typical of a hemiblock. The conduction delay is considered to occur beyond the Purkinje's myocardial gates and arises from slow cell-to-cell conduction. The phenomenon is common in patients with acute MI. No treatment is indicated. | |
| IUPT | Iodine Uptake | Amount of iodine taken in by an organism or an organism's tissues. | ECOTOX |
| <IOUP> | Ion Uptake | No definition available. | |
| FEEX | Iron excretion | Iron excreted by organism | ECOTOX |
| FEUP | Iron Uptake | No definition available. | |
| IRRI | Irritation | No definition available. | |
| JRAC | Junctional resistance (AC) | Measured by AC current. Measured junctional resistance is isolated from ground potential by seals and peripheral membrane resistances. | http://link.springer-ny.com/link/service/journals/00424/fpapers/esc/contents/02/00896/paper/s00424-002-0896-8ch100. |
| JRDC | Junctional resistance (DC) | Measured by DC current. Measured junctional resistance is isolated from ground potential by seals and peripheral membrane resistances. | http://link.springer-ny.com/link/service/journals/00424/fpapers/esc/contents/02/00896/paper/s00424-002-0896-8ch100. |
| TEAR | Lacrimation, Tearing | Shedding of tears. | |
| TIRD | Languid, tired, weak | Drooping or flagging from exhaustion; indisposed to exertion; without animation; weak. | |
| PBEX | Lead excretion | Lead excreted by organism. | |
| PBUP | Lead Uptake | No definition available. | |
| LABS | Leucine absorption | The absorption of luecine into an organism | |
| LEUT | Leucine Transport | The transport of the most abundant amino acid found in proteins. Confers hydrophobicity and has a structural rather than a chemical role. | http://cancerweb.ncl.ac.uk/omd/ |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| LTSP | Leucine transport | The transport of leucine in an organism. | |
| LPBS | Lipid biosynthesis | The building up of a chemical compound in the physiologic processes of a living organism, in this case lipids. | http://cancerweb.ncl.ac.uk/omd/ |
| LDGT | Lipid digestion | The conversion of lipid, in the stomach and intestines, into soluble and diffusible products, capable of being absorbed by the blood. | |
| LDMT | Lipid metabolism | Metabolism of lipid or fat by an organism | ECOTOX |
| LDPX | Lipid Peroxidation | No definition available. | |
| LTPT | Long-term potentiation | A prolonged increase in synaptic responses that can be induced in certain neural pathways by a brief tetanic stimulation. | ECOREF#75007 |
| TSUP | L-Tyrosine uptake | Amount of L-Tyrosine taken in by an organism or an organism's tissues. | ECOREF #98664 |
| MGEX | Magnesium Excretion | Magnesium excreted by organism | ECOTOX |
| MGUP | Magnesium Uptake | No definition available. | |
| MCCL | Malocclusion | Inappropriate contact between the teeth on closure. | |
| MNEX | Manganese excretion | Manganese excreted by organism | ECOTOX |
| MNTL | Manganese translocation | The ability of an organism to move manganese from one location to another. | |
| MNUP | Manganese Uptake | No definition available. | |
| MBPT | Membrane Potential | The membrane potential is the voltage difference across a membrane. For cellular membranes they are computed by subtracting the voltage measured outside the membrane from the voltage measured inside the membrane. They result from differences of inside versus outside concentration of potassium, sodium, chloride, and other ions across cells' or organelles' membranes. | http://www.ncbi.nlm.nih.gov |
| HGUP | Mercury uptake | Amount of mercury taken in by an organism or an organism's tissues. | |
| NRGF | Metabolic efficiency | No definition available. | |
| NRGM | Metabolized energy | No definition available. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| MBCR | Metallothionein Binding Capacity Ratio | The ratio of toxicant to toxicant-binding capacity of metallothionein (MT) in tissues. The ratio of unbound metal to metal binding capacity of metallothionein within an organism. | |
| MCCN | Microorganism Cenosis | A group of organisms in a self-sufficient community naturally occupying a small area with a uniform environment throughout. | |
| MILK | Milk | A fluid secreted by the mammary glands of females for the nourishment of their young. | http://www.m-w.com/ |
| MNER | Mineralization | Process of converting mineral or inorganic form. | http://www.m-w.com/ |
| MIOS | Miosis | Miosis is the contraction of the pupils. | http://cancerweb.ncl.ac.uk/omd |
| MOEX | Molybdenum excretion | Molybdenum excreted by organism | ECOTOX |
| MCUS | Mucus Production | No definition available. | |
| MYCO | Mycorrhizal Colonization | No definition available. | |
| NCOS | Na and Cl osmolality | The fractional contribution of Na+ and Cl- to osmolality (Na+ + Cl-/osmolality). | ECOREF 48368 |
| NAST | Nastic Movements | Movement of a flat plant part, oriented relative to the plant body and produced by diffuse stimuli causing disproportionate growth or increased turgor pressure in the tissues of one surface. | |
| NVAR | Nerve absolute refractory period | The period following excitation when no response is possible regardless of the intensity of the stimulus. | http://cancerweb.ncl.ac.uk/omd/ |
| NVCV | Nerve conduction velocity | Time it takes for a nerve to transmit a signal. | |
| NRXN | Nerve reaction | Amount of time or a response of a nerve to a stimulus. | |
| NVRR | Nerve relative refractory period | The period between the effective refractory period and the end of the refractory period; fibres then respond only to high intensity stimuli and the impulses conduct more slowly than normally. | http://cancerweb.ncl.ac.uk/omd/ |
| NPRA | Net Photosynthetic Rate | No definition available. | |
| NRSP | Neuroresponse | No definition available. | |
| NRUP | Neutral Red Uptake | No definition available. | |
| NIEX | Nickel excretion | Nickel excreted by organism | ECOTOX |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NIUP | Nickel Uptake | No definition available. | |
| NO3U | Nitrate Uptake (NO3-) | The ability of an organism to remove nitrate from a substrate and take nitrate into its body. Nitrate (NO3-) is a salt or ester of nitric acid | www.m-w.com and ECOTOX |
| NO2U | Nitrite Uptake (NO2-) | The ability of an organism to remove nitrite from a substrate and take nitrite into its body. A salt of nitrous acid. | ECOTOX.and http://cancerweb.ncl.ac.uk/omd/ |
| NASM | Nitrogen assimilation | Amount of nitrogen assimilated. | |
| NEXC | Nitrogen excretion | Nitrogen excreted by organism. | |
| NFIX | Nitrogen Fixation | Change in ability of plants to fix nitrogen. | |
| NTSL | Nitrogen translocation | The ability of an organism to move nitrogen from one location to another. | |
| NUPT | Nitrogen Uptake | No definition available. | |
| NMYC | Non-mycorrhizal colonization | No definition available. | |
| NUUP | Nutrient Uptake | The process of nutrient uptake by plants refers to the transfer of the nutrient ions across the soil root interfaces into the plant cell. | http://www.krishiworld.com/html/soil_ferti1.html |
| FATT | Obese | Heavy, overweight. | |
| OSMO | Osmolality | The osmolality of an ideal solution of a nondissociating substance that exerts the same osmotic pressure as the solution being considered. | |
| OSFG | Osmotic fragility | The susceptibility, or lack of resistance, of erythrocytes to haemolysis when exposed to increasingly hypotonic saline solutions. Measured by the erythrocyte fragility test. | http://cancerweb.ncl.ac.uk/omd/ |
| ADPO | Oxidative Phosphorylation | Conversion of inorganic phosphate to the energy-rich phosphate of adenosinetriphosphatase by reactions associated with the electron transfer system. | |
| OCCP | Oxygen Carrying Capacity | No definition available. | |
| OXYG | Oxygen Consumption | Quantifiable change in oxygen uptake by the test organism. | for plants see PSYN (photosynthesis). |
| OXYT | Oxygen Tension, Partial Pressure of Oxygen Dioxide, Po2 | No definition available. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TO2F | Oxygen transfer factor [TO2] | The transfer factor is a measure of the relative ability of the respiratory surface to exchange gases, and is affected by changes in surface area available for exchange, as well as the diffusion distance between blood and water. Also referred to as diffusing capacity. | Randall, et al. The Exchange Of Oxygen And Carbon Dioxide Across The Gills Of Rainbow Trout. J. Exp. Biol. (1967), 6, 339-348 |
| PAMP | P amplitude | The P wave represents atrial depolarization - the time necessary for an electrical impulse from the sinoatrial (SA) node to spread throughout the atrial musculature. | http://www.utoledo.edu/~xflores/ekgs-interpretation.htm |
| PERM | Permeability, tissue, membrane | The ability of a membrane or other material to permit a substance to pass through it. | |
| PPEX | Phosphate excretion | Phosphate excreted by organism. | ECOTOX |
| PPUP | Phosphate uptake | The ability of an organism to remove phosphate from a substrate and take phosphate into its body. | |
| PEXC | Phosphorus excretion | Phosphorus excreted by organism. | |
| PNUT | Phosphorus not excreted | Phosphorus utilized/Calcium ingested * 100. | |
| PRET | Phosphorus retained | Phosphorus retained/Calcium ingested * 100. | |
| PRUT | Phosphorus retention to utilization ratio | Ratio of Phosphorus retained (Utilized - Transferred to Egg) to Phosphorus utilized (ingested - excreted). | |
| PTRN | Phosphorus transfer | Per cent of phosphorus transferred to the egg, Phosphorus in egg/Phosphorus utilized x 100. | |
| PTUT | Phosphorus transfer to utilization ratio | Percent of phosphorus transferred to the egg in relation to phosphorus utilized. | |
| PUPT | Phosphorus Uptake | No definition available. | |
| PSYN | Photosynthesis | Change in plant productivity indicated by change in 14C or $CO_2$ uptake or oxygen production. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PSYI | Photosystem I (PSI) Electron Transport Activity | Photosynthetic system in chloroplasts in which light of up to 700 nm is absorbed and its energy used to bring about charge separation in the thylakoid membrane. The electrons are passed to ferredoxin and then used to reduce NADP to NADPH noncyclic electron flow or to provide energy for the phosphorylation of ADP to ATP (cyclic photophosphorylation). | http://cancerweb.ncl.ac.uk/omd/ |
| PSII | Photosystem II (PSII) Electron Transport Activity | Photosynthetic system in chloroplasts in which light of up to 680 nm is absorbed and its energy used to split water molecules, giving rise to a high energy reductant, Q and oxygen. The Hill reaction is a property of photosystem II | http://cancerweb.ncl.ac.uk/omd/ |
| GPHY | Physiology, General | Change in the organic processes or functions of a plant or an organism. Examples of effects in this category include caloric content, cough frequency, granule or concretion formation, heartbeat, membrane permeability, metabolic stress, osmoregulation, urine frequency, ventilatory rate. Used when more than one measurement is coded for an AQUIRE record. | Currently an AQUIRE ONLY code. |
| PGPL | Pigment plug ejection | A disturbance of the digestive system where the ejection of pigment plugs from the rectum occurs | ECOREF#65576 |
| PIGM | Pigmentation | Quantitative (ie., compared to the control) change in the pigment, e.g. melanization. | Does not include chlorophyll (see CLR). If pigment levels are reported code in BCM. |
| PBAL | Ponderal balance | Is equal to [(Urine + Feces - Drinking Water - Consumed Food + (Weight Change/Initial Weight)] * 100) | ECOREF 56796 |
| KPCL | Potassium clearance | The rate at which potassium is removed from the body. | http://cancerweb.ncl.ac.uk/omd/ |
| KEXC | Potassium excretion | Potassium excreted by organism | ECOTOX |
| KUPT | Potassium Uptake | No definition available. | |
| PRIN | PR Intervals | The PR interval measures the beginning of arterial depolarization through the beginning of ventricular depolarization. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PSSR | Pressure | The act of pressing, or the condition of being pressed; compression; a squeezing; a crushing. | |
| PAEX | Primary amine excretion | Excreation of an amine containing the amido group, or a derivative of ammonia in which only one atom of hydrogen has been replaced by a basic radical; -- distinguished from secondary & tertiary amines. | (Merriam-Webster Medical Dictionary) |
| PGSY | Prostaglandein synthesis | Any of a group of components derived from unsaturated 20 carbon fatty acids, primarily arachidonic acid, via the cyclooxygenase pathway that are extremely potent mediators of a diverse group of physiologic processes. The abbreviation for prostaglandin is PG, specific compounds are designated by adding one of the letters A through I to indicate the type of substituents found on the hydrocarbon skeleton and a subscript (1, 2 or 3) to indicate the number of double bonds in the hydrocarbon skeleton for example, PGE2. All of the prostaglandins act by binding to specific cell surface receptors causing an increase in the level of the intracellular second messenger cyclic AMP (and in some cases cyclic GMP also). The effect produced by the cyclic AMP increase depends on the specific cell type. Increased cyclic AMP increases prostaglandin synthesis leading to further increases in cyclic AMP. See also individual prostaglandins. | http://cancerweb.ncl.ac.uk/omd/ |
| PDGT | Protein digestion | The conversion of protein, in the stomach and intestines, into soluble and diffusible products, capable of being absorbed by the blood. | |
| PERA | Protein Efficiency Ratio | No definition available. | |
| PRSY | Protein Synthesis | No definition available. | |
| PTUC | Protein Utilization Coefficient | No definition available. | |
| PTIM | Prothrombin time | The clotting of blood, also known as coagulation time or clotting time. | |
| QAMP | Q amplitude | Depolarization of the septum. It is the first downward (negative) deflection before the R wave. | http://www.udel.edu/HESC/physLab/TotalReview.htm |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| QTIN | QT Interval | Time from electrocardiogram Q wave to the end of the T wave corresponding to electrical systole. | http://cancerweb.ncl.ac.uk/omd/ |
| RAMP | R amplitude | Depolarization of the apex. It is an upward (positive) deflection. | http://www.udel.edu/HESC/physLab/TotalReview.htm |
| FLUX | Rate of Movement of Ions Across Membranes | No definition available. | |
| BAAT | rBAT induced amino acid transfer | The transport of amino acids via the rBAT induced system involves an electrogenic exchange of neutral and dibasic amino acids. rBAT is a protein that is located in the brush border membranes of intestine and renal proximal tubule cells. | ECOREF 45834 |
| RFLT | Reflectivity | Fraction of incident radiant energy which is reflected by a given surface. (The power which is not reflected is either absorbed or transmitted.) | http://cancerweb.ncl.ac.uk/omd/ |
| RBCD | Relative bradycardia | The term relative bradycardiais used to explain a heart rate that, while not technically below 60 beats per minute, is considered too slow for the individual's current medical condition | http://en.wikipedia.org/wiki/Bradycardia |
| RCRA | Renal Clearance Ratio | No definition available. | |
| RSNV | Resin volume | Resin volume, amount or yield. Resin is a hydrocarbon secretion of many plants, particularly coniferous trees, containing a complex mixture of different substances including organic acids, named the resin acids. Solidified resin is known as rosin. Resins when soft are known as oleoresins. Resin is not sap. Resin flow and production can increase after injury or infestation. | (http://www.wikipedia.org/wiki) |
| RESQ | Respiration Quotient | No definition available. | |
| RESP | Respiration, O2 Production, CO2 Production | No definition available. | |
| RSQU | Respiratory Quotient | Molar ratio of carbon dioxide production to oxygen consumption. | http://cancerweb.ncl.ac.uk/omd/ |
| RPRT | Respiratory Rate | No definition available. | |
| SAMP | S amplitude | Depolarization of the ventricular wall. The S wave a downward (negative) deflection after an R wave. | http://www.udel.edu/HESC/physLab/TotalReview.htm |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SLVN | Salivation | To have a flow of saliva especially in excess. | Webster's |
| SCGR | Scope for Growth | SFG= (energy consumed * assimilation efficiency) - energy lost through respiration. | |
| SCTN | Secretion | Secretion is the discharge across the cell membrane, into the extracellular space or ducts, of endogenous substances resulting from the activity of intact cells of glands, tissues, or organs. | http://www.ncbi.nlm.nih.gov |
| SZRE | Seizure | A sudden attack or convulsion due to involuntary electrical activity in the brain. | http://cancerweb.ncl.ac.uk/omd/ |
| SEUP | Selenium Uptake | No definition available. | |
| SENE | Senescence | The study of the biological changes related to aging. | |
| SENI | Senescence Induced/Accelerated | No definition available. | |
| SENR | Senescence Retarded | No definition available. | |
| SIDP | Siderophore production | Production of natural iron binding compounds that chelate ferric ions (which form insoluble colloidal hydroxides at neutral pH and are then inaccessible) and are then taken up together with the metal ion. | http://cancerweb.ncl.ac.uk/omd/ |
| AGUP | Silver uptake | The ability of an organism to remove silver from a substrate. | ECOTOX |
| NACL | Sodium clearance | The rate at which sodium is removed from the body. | http://cancerweb.ncl.ac.uk/omd/ |
| NAEX | Sodium excretion | Sodium excreted by organism | |
| NAFX | Sodium flux | Rate of movement of sodium ions across membranes. | |
| NAUP | Sodium uptake | The ability of an organism to remove sodium from a substrate and take sodium into its body. | |
| SRLO | Spectral Reflectance/Shift to Longer Wavelengths | No definition available. | |
| SRSH | Spectral Reflectance/Shift to Shorter Wavelengths | No definition available. | |
| STCG | S-T changes | Related to EKG, S-T Segment. The line between the end of the S wave and the beginning of the T wave. | |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| STIN | ST interval | Time interval from the ending of the S-wave until the ending of the T-wave (in milliseconds). | http://bct.tn.utwente.nl/Definitions.htm |
| SMTR | Standard Metabolic Rate | An ectothermic animal's resting and fasting metabolism at a given body temperature. | http://www.cartage.org.lb/en/themes/Sciences/Zoology/AnimalPhysiology/Glossary/S/standardmetabolicrate.htm |
| STAS | Stasis | A state of static balance or equilibrium. | |
| STOM | Stomatal Aperture | No definition available. | |
| STOC | Stomatal Conductance | A plant property related to the ease with which water vapor escapes from plant leaves through small pores in the leaves known as stomata. | http://www.co2science.org/dictionary/define_s.htm |
| STVL | Stroke volume | The total volume of blood pumped by the heart in a single beat. | |
| STWK | Stroke Work | The work done by the ventricle to eject a volume of blood into the aorta. | http://www.oucom.ohiou.edu/CVPhysiology/CF019.htm |
| SUUP | Sucrose uptake | The uptake of sucrose into an organism or tissue. | ECOTOX |
| SOXA | Sulfide oxidation activity | No definition available. | |
| SUPT | Sulfur uptake | A nonmetallic element that occurs either free or combined especially in sulfides and sulfates, is a constituent of proteins, exists in several allotropic forms including yellow orthorhombic crystals, resembles oxygen chemically but is less active and more acidic, and is used especially in the chemical and paper industries, in rubber vulcanization, and in medicine for treating skin diseases. | |
| SOXG | Superoxide Generation | No definition available. | |
| SWEL | Swelling | No definition available. | |
| SBNF | Swim bladder inflation | The ability for inflation of the swim bladder, a gas filled cavity found in the body cavity of most bony fishes. | |
| SYPS | Systolic Pressure | The pressure exerted on the walls of the arteries during the contraction phase of the heart. Considered abnormally elevated if consistently over 150 mmHg. Systolic blood pressure varies with age, sex, size and relative condition. | http://cancerweb.ncl.ac.uk/omd/ |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TAMP | T amplitude | The T wave represents the repolarization of the ventricles. On rare occasions, a U wave can be seen following the T wave. | http://www.utoledo.edu/~xflores/ekgs-interpretation.htm |
| T34C | T3/T4 Conversion rate | The turnover of T3 divided by the turnover of T4 times 100 is the conversion rate. | ECOREF 65157 |
| TNST | Tensile Strength | The maximum stress a material subjected to a stretching load can withstand without tearing. Yield strength is the amount of stress at which permanent deformation becomes measurable. | http://cancerweb.ncl.ac.uk/omd/ |
| TEXT | Texture Change | No definition available. | |
| THTS | Thermal hysteresis | Thermal hysteresis, or Thermal hysteresis activity, is the difference between the melting point and freezing point in a fluid. The addition of AFPs at the solid ice and liquid water interface inhibits the thermodynamically favored growth of the ice crystal. Ice growth is kinetically inhibited by the antifreeae proteins (AFP) covering the water-accessible surfaces of ice. | http://en.wikipedia.org/wiki |
| THRG | Thermoregulation | No definition available. | |
| THBR | Thyroid Hormone Binding Ratio | Recommended nomenclature for T3 Uptake test. A ratio of the solid matrix uptake and the serum uptake. | http://www.abbottdiagnostics.com/glossary/glossary_t.htm |
| TEUR | Total Excreted Urea | No definition available. | |
| TEVG | trans-epithelial voltage gradient | Measured by an electro-olfactogram. Ions of opposite charge actively transported across the apical membrane barrier through the paracellular pathway in response to the transepithelial voltage gradient. The osmotic gradient created by the net transepithelial flow of ions thus provides the driving force for liquid movement across the airway epithelium. | http://jap.physiology.org/cgi/content/full/91/2/797 |
| TRAN | Transpiration | The passage of a gas or liquid (in the form of vapor) through the skin, a membrane, or other tissue. | |
| TCO2 | Transpiration Carbon Dioxide assimilation ratio | The ratio between transpiration and Carbon Dioxide (CO2) assimilation | ECOTOX |

| **PHY Physiological Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| TTKG | Transtubular potassium gradient | The trans-tubular potassium gradient (TTKG) is an index reflecting the conservation of potassium in the cortical collecting ducts of the kidneys. | http://en.wikipedia.org/wiki |
| TRGE | Triglyceride excretion | Triglyceride excreted by organism | ECOTOX |
| VCDT | Vascular conductance | Vascular conductance is the ease with which blood enters and flows through a vessel, the blood flow divided by the blood pressure. | http://cancerweb.ncl.ac.uk/omd/ and ECOREF#100416 |
| VSCR | Vascular resistance | An expression of the resistance offered by the systemic arterioles, and to a lesser extent by the capillaries, to the flow of blood. | http://cancerweb.ncl.ac.uk/omd/ |
| VMRS | Vasomotor response | Vasomotor = Pertaining to the regulation of the constriction or expansion of blood vessels. | |
| VENT | Ventilation, Opercular Movements, Undulatory Movements | No definition available. | |
| WATB | Water balance | Water balance is water retained to water intake ratio | ECOREF 85555 |
| WLSS | Water loss | A decrease in water in cells, organs tissues or bodies. | ECOTOX |
| PH2O | Water potential, plant | Plant water potential is a mid-day measurement of the water tension, water stress or water deficit in a plant utililizing a pressure chamber. | ECOTOX and http://en.wikipedia.org/wiki |
| WTUP | Water uptake | No definition available. | |
| WILT | Wilt | No definition available. | |
| ZNEX | Zinc excretion | Zinc excreted by organism | ECOTOX |
| ZNUP | Zinc Uptake | No definition available. | |

## POP POPULATION GROUP

| **POP Population Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ABND | Abundance (Number of Organisms/Area; Density) | Number of individuals of a taxon per unit area equivalent to density. Comparison to controls; not related to time. | Use for coding efficacy of removal of lice from fish. |
| PBMS | Biomass or Weight of | No definition available. | |

| **POP Population Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | Entire Population | | |
| PBRA | Biomass Turnover Ratio (Population/Biomass) | A measure that depends directly on growth and reproduction and indirectly on fertility through the rate of increase. | |
| BMAS | Biomass; | Includes Harvest Yield, Fruit or Seed Yield, Mass of Organism, Mass of Population. | |
| CHLA | Chlorophyll A Content | Pigment found in photosynthetic cells; occurs in all organisms exhibiting aerobic photosynthesis. | |
| CHLO | Chlorophyll Content | Pigment found in photosynthetic cells. Measurable change in chlorophyll content including chlorophyll content, chlorosis. | |
| RCLN | Colonization Rate | Change in ability to colonize an uninhibited substrate under toxicant stress. | |
| CNTL | Control | To reduce the incidence or severity of, especially of weeds or insects to innocuous levels. | |
| COVR | Cover, Canopy | Area covered by canopy. Amount of area covered by plants | |
| DMTR | Diameter | The length of a straight line through the center of an object. | http://www.m-w.com/dictionary/diameter |
| DVRS | Diversity, Evenness | Change in number of species in a given area or index of species diversity (e.g. species richness, evenness). | |
| DRFT | Drift | Change in the number of larval aquatic insects to travel a given distance in a stream. | |
| DBMS | Dry Biomass | Biomass measured on a dry weight basis | |
| EBCN | Effective Body Concentration | The body residue of a chemical that is associated with an effect. | |
| GENT | Generation Time | No definition available. | |
| INDX | Index to Population Size; Count, Number, Abundance | No definition available. | |
| IRIN | Intrinsic Rate of Increase | Intrinsic Rate of Increase (r): A measure of the rate of growth of a population. This is the instantaneous rate of change (per individual per time interval), assuming the population is in stable age distribution. It is equal to the | http://darkwing.uoregon.edu/~bsl/demography/glossary.html#Intrinsic |

| **POP Population Effect** | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | natural log (ln) of the Finite Rate of Increase. | |
| LAGT | Lagtime | No definition available. | |
| LCON | Length/duration of a chemical effectiveness | Represents the duration of time that a chemical retains its efficacy against a species or population. Usually reported as the first day after application that a species appears in the treated area. | ECOTOX |
| LCYC | Lifecycle | Total time taken by adults to produce new adults. | |
| NGEN | Number of generations | Number of generations in a population. | |
| PSYN | Photosynthesis | Photosynthesis of an entire population usually algae. Change in productivity indicated by change in 14C or $CO_2$ uptake or oxygen production. | |
| PCBL | Phycobilin | Phycobilins are open chain tetrapyrroles that function as light harvesting chromophores in phycobiliproteins. | http://www.ncbi.nlm.nih.gov |
| PCCP | Population Carrying Capacity | Change in the carrying capacity of the population. | |
| NCHG | Population Change (Change in N/Change in Time) | No definition available. | |
| GPOP | Population Changes, General | Used when more than one measurement is coded for an AQUIRE record. | |
| DBLT | Population doubling time | The time (usually reported in years) that it takes a population to double it present size. | |
| PGRT | Population Growth Rate | Rate of growth. Equivalent tomaximum possible rate of growth for species populations and colonies. Calculated by relating biomass or abundance to time life table data and germination are part of REP. | |
| PRPE | Predator/Prey Dynamics | No definition available. | |
| RCPR | Recapture Ratio | Measure of size of an animal population; used to estimate the population size of a single species of highly mobile animals | |
| STTL | Settling | No definition available. | |
| SEXR | Sex Ratio | Includes sex ratios of counts, numbers, clutchs, litters, broods, | |

| POP Population Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| | | progeny | |
| SZDS | Size distribution | Number of organisms at certain lengths or weights measured within a population. | |
| SURF | Surface Area | No definition available. | |
| THCH | Thatch accumulation | No definition available. | |
| TRAP | Trappability | No definition available. | |
| VIDX | Viability index | Number of survivors on day 4/numbers of survivors on day 1. | |
| WGHT | Weight | No definition available. | |

## REP REPRODUCTION GROUP

| REP Reproductive Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| <ABNM> | Abnormal | Effects which occur to the organism that has been directly exposed (compare to teratogenic effects). Effects included under this measurement include nonspecific physical malformations, deformities, defects, discoloration, anomalies, vegetative vigor, etc. | DO not code REP ABNM. ABNM should be coded under MPH (when adult body structures are changing) or DVP (when embryo or juveniles are becoming abnormal throughout different lifestages) |
| ABRT | Abort | To miscarry; to bring forth young prematurely. | http://cancerweb.ncl.ac.uk/omd/ |
| ARFS | Accessory reproductive fluid | Accessory reproductive fluids are lymph-like fluid and/or foam produced during natural copulation. An example is foam produced by the proctodeal glands in Japanese quail. | Noboru Fujihara. "Accessory reproductive fluids and organs in male domestic birds". World's Poultry Science Journal (1992), 48:39-56 Cambridge University Press and Elizabeth Adkins-Regan. The Auk 116(1):184-193, 1999 |
| AFST | Atretic follicle stage | The stage of development of the follicles in the ovary marked by degenerative follicles with shrunken, irregular borders. | ECOREF 52243 |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| BTCF | Beat/Cross frequency | A standard sperm motility measurement, the beats per second divided by the number of times the head crosses the mean head trajectory per second. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |
| <BMAS> | Biomass; | Includes Harvest Yield, Fruit or Seed Yield, Mass of Organism, Mass of Population. | |
| BDEP | Bird day egg production | Number of eggs produced/number of birds alive * 100. | |
| BRED | Bred | To propagate plants or animals sexually. | |
| CYNG | Care of Young, Nest Attentiveness | No definition available. | |
| CRCE | Circular cells | A standard sperm motility measurement, the number of spermatozoa swimming in circles. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |
| CLNE | Cloning efficiency | The ability of an organism to produce clones. | |
| CLUB | Clubbing (Hydra Reproduction) | No definition available. | |
| CLLT | Clutch length | Number of days in a row on which a hen lays an egg is referred to as the clutch length. | |
| CLPD | Clutch production | The time it takes to produce a clutch or the number of eggs in a clutch. | |
| NCLU | Corpus Lutea, Number of | No definition available. | |
| COUR | Courtship Behavior, Sexual behavior | No definition available. | |
| DSTR | Diestrus | Period of sexual quiescence separating phases of the estrous cycle in polyestrous animals. | http://cancerweb.ncl.ac.uk/omd/ |
| EREM | Early resorbed embryos | Embryos resorbed during the early part of the reproductive cycle. | |
| EBCN | Effective Body Concentration | The body residue of a chemical that is associated with an effect. | |
| EGPN | Eggs per Nest or clutch | No definition available. | |
| EPTT | Epididymal transit time | The duration of sperm transit through epididymis and vas deferens | ECOREF#74183 |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| ETRS | Estrus | That portion or phase of the sexual cycle of female animals characterized by willingness to permit coitus; readily detectable behavioral and other signs are exhibited by animals during this period. | http://cancerweb.ncl.ac.uk/omd/ |
| FCND | Fecundity | The innate potential reproductive capacity of the individual organism, as denoted by its ability to form and separate from the body the mature germ cells. | |
| FTCC | Fertile cocoons | No definition available**.** | |
| FERT | Fertile, Fertility | Fertility - The capacity to conceive or induce conception. | |
| FIDX | Fertility index | (Number fertile/Number cohabitated)*100. | |
| FERZ | Fertilization | The physiochemical processes involved in the union of the male and female gametes to form the zygote. | |
| FLOR | Floral Induction | No definition available**.** | |
| FRMS | Frames, Bees | No definition available**.** | |
| FRUT | Fruit, fruiting | The usually edible reproductive body of a seed plant; especially one having a sweet pulp associated with the seed. | Webster's |
| OOCY | Fully Developed Oocytes | No definition available. | |
| GMET | Gamete production | Creation of a sex cell, egg, or sperm. Includes spermatogenesis. | |
| GCCT | Germ cell count | Number of sperm or eggs in the gonad or sample. | |
| GERM | Germination | The beginning or the process of development of a spore or seed. | |
| GMEN | Germination Energy | GE = [(n1-n0)/t1 + (n2-n1)/t2 + (n3-n2)/t3 +.....(ni-ni-1)/ti] * 100/R =0/0 n1, n2, n3...ni = Cumulative germination counts on consecutive days t1, t2, t3...ti = numbers of days after beginning of test R = constant obtained by dividing 100 (which is a perfect germination percentage value for any species) by number of days on which first germination evaluations were made under international rules | |
| GIDX | Gestation Index | No definition available**.** | |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| GEST | Gestation Rate | The percentage of mated females that delivered at least one viable fetus | ECOREF 58044 |
| GSTT | Gestation Time | Gestation period = The period in mammals from fertilization to birth. | |
| GFST | Graafian follicle stage | The stage of development of the follicles in the ovary marked by large follicles bordered by an amphophilic egg membranes with a central core of eosinophilic yolk proteins. | ECOREF 52243 |
| HDEP | Hen-day egg production | Number of eggs produced / number of live hens x 100. | |
| HHEP | Hen-housed egg production | The cumulative number of eggs produced by the flock divided by the number of birds originally placed in the flock. | http://www.aphis.usda.gov/vs/ceah/cahm/Poultry/lay99de2.htm |
| INFT | Infertile | No definition available. | |
| IFCC | Infertile cocoons | No definition available. | |
| INFL | Inflorescence | The group or arrangement in which flowers are borne on a plant. Number of flowers on a plant. | http://cancerweb.ncl.ac.uk/omd/ |
| LACG | Lactating | To secrete milk. | http://www.m-w.com/ |
| LIDX | Lactation index | Percent of animals alive at the 4 days that survive the 21 day lactation period. | |
| LREM | Late resorbed embryos | Embryos resorbed during the late part of the reproductive cycle. | |
| LNRY | Linearity | A standard sperm motility measurement, the distance in straight line divided by actual distance traveled. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |
| LBIX | Live Birth Index | Number of live offspring/number of offspring delivered x 100 | ECOREF#81595 |
| MIDX | Mating index | Number of animals with seminal plugs or sperm/number of animals mated times 100. | www.ilo.org/public/english/protection/safework/ghs/ghsfinal/ghsc11.pdf |
| LHMX | Maximum amplitude of lateral head displacement | A standard sperm motility measurement, the maximal deviation of the head displacement from the mean head trajectory. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |
| LHMN | Mean amplitude of lateral head displacement | A standard sperm motility measurement, the average of all deviations of the head displacement from the mean head trajectory. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| MSPW | Mean spawns per female | The mean number of times a female has spawned. | |
| MSTR | Metestrus | Short period following estrus during which the phenomena of estrus subside in those animals in which pseudopregnancy does not occur. | http://cancerweb.ncl.ac.uk/omd/ |
| MOTL | Motility | Sperm motility. | |
| MONT | Mounting, Copulation, Intercourse, Mating | A reproductive behavior in which one animal climbs atop a second animal. Also copulation, intercourse, and mating. | |
| NSTI | Nest Initiation | No definition available. | |
| NTSZ | Nest Size | No definition available. | |
| NANT | Nests Abandoned | No definition available. | |
| NRPR | Net Reproductive Rate | (Ro) Average number of offspring or seeds produced by an individual in a population during its lifetime. Figured by the life table equation: Ro=Sum lx mx , where lx =the probability of survival from birth to age x and mx = the average number of births per individual of age x. | www.muw.edu/~mharvill/studch10.rtf and Population Biology: The Evolution and Ecology of Populations, Chapter 12, P.W.Hedrick |
| 0RSM | No resorbed embryos | No resorbed embryos. | |
| NMNT | Non-mount | A reproductive behavior which does not occur. This includes one animal climbing atop a second animal. Also copulation, intercourse, and mating. | |
| NREP | Non-reproducing organisms | Barren plants or organisms. | |
| NVIB | Non-viable | Not capable of living; especially: not capable of surviving outside the womb without artificial support. | Webster's |
| NPRG | Not pregnant | Not containing unborn young within the body. | |
| NSTS | Number of Active Nests | No definition available. | |
| NDAY | Number of Days Between Eggs Laid | No definition available. | |
| NEGI | Number of Eggs Incubated | No definition available. | |
| NOIM | Number of implantations | The number of embryos that attached to the maternal uterine wall. | http://www.m-w.com/ |
| NINC | Number of Nests Incubated | No definition available. | |
| NSTS | Number of Nests Produced | No definition available. | |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| NOPN | Number of Organisms per Nest | No definition available. | |
| NFOL | Number of ovarian follicles | An ovarian follicle, an oocyte surrounded by one or more layers of granulosa cells. As the ovarian follicle develops a cavity forms and it is then termed a Graafian follicle. | http://cancerweb.ncl.ac.uk/omd/ |
| NPOD | Number of Pods | No definition available. | |
| NSPN | Number Spawning | Number of organisms participating in spawning or attempting to spawn. | ECOTOX |
| OEGP | Onset of Egg Production | No definition available. | |
| OBRD | Open Brood | No definition available. | |
| OVRT | Ovulation Rate | No definition available. | |
| BNDG | Pair Bonding Nesting Behavior | No definition available. | |
| PLBR | Pairs with Litter or Brood | No definition available. | |
| PRTH | Parthenocarpy | Production of fruit without fertilization. | |
| TMSC | Penile Tumescence | The state of the penis when the erectile tissue becomes filled or swollen (tumid) with blood and causes the penis to become rigid and elevated. Also: Erection, | (http://www.ncbi.nlm.nih.gov) |
| FRUH | Percent Fruit Harvested | No definition available. | |
| PIPD | Pipped | To break through the shell | http://www.inhs.uiuc.edu/chf/pub/virtualbird/glossary.html |
| PCNT | Placentation | In mammals, the process of a placenta forming during gestation. In plants, the arrangement of placentas, and hence of ovules, within an ovary. | http://cancerweb.ncl.ac.uk/omd/ |
| PILS | Post-implantation loss | The loss of implanted embryos. This is calculated by determining the ratio of dead to total implants from the treated group compared to the ratio of dead to total implants from the control group. | |
| PRFM | Pregnant Females in a Population | No definition available. | |
| PREG | Pregnant, paris or gravid | Containing unborn young within the body, distended with or full of eggs. | |
| PRPL | Preimplantation loss | Loss of an embryo before uterine implantation. | http://www.m-w.com/ |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| PFST | Primary follicle stage | The stage of development of the follicles in the ovary marked by large nucleus, abundant basophilic cytoplasm and no yolk vesicles. | ECOREF 52243 |
| PSTR | Proestrus | Phase of the estrous cycle preceding estrus during which the Graafian follicle undergoes maturation. Applies to animals. | http://cancerweb.ncl.ac.uk/omd/ |
| PROG | Progeny | Includes Counts, Numbers, Clutch, Litter or Brood Size, Progeny Produced Within a Specified Time Period, Numbers of Progeny per Parent Organism. | |
| PSPG | Pseudopregnancy | False pregnancy. The term sometimes refers also to the premenstrual stage of the endometrium because it resembles the endometrium just before implantation of the blastocyst. | http://cancerweb.ncl.ac.uk/omd/ |
| RPLM | Repeat bloom | Repeat bloom, or bloom in the next year. | http://www.cahe.nmsu.edu/pubs/_h/h-321.html) |
| REPO | Reproducing organisms | Organisms that have produced offspring. | |
| GREP | Reproduction, General | Change in male and/or female reproductive ability; fertilization and fertilization rate; vegetation reproductive processes. Used when more than one measurement is coded for an AQUIRE record. | |
| RBEH | Reproductive Behavior Changes | No definition available. | |
| RPRD | Reproductive Capacity | No definition available. | |
| RSUC | Reproductive Success (General) | No definition available. | |
| RSEM | Resorbed Embryos | No definition available. | |
| SBRD | Sealed Brood | No definition available. | |
| SFST | Secondary follicle stage | The stage of development of the follicles in the ovary marked by the presence of numerous eosinophilic yolk vesicles. | ECOREF 52243 |
| SEED | Seed Number | No definition available. | |
| SDIX | Seed Index | Grams per 100 seeds. | definition from paper |
| SEPD | Seed or spore production | Production of seed or spore by vegetative process | |
| SSET | Seed Set (No. Seeds/No. Florets) | No definition available. | |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SPNF | Spawning frequency | The number of times an organism spawns. | |
| SPCL | Sperm Cell Counts | No definition available. | |
| SPMC | Spermatocytes | A cell giving rise to sperm cells; especially: a cell that is derived from a spermatogonium and ultimately gives rise to four haploid spermatids. | Webster's |
| SPMG | Spermatogonia | A primitive male germ cell. | |
| SPRD | Sporophyte Production | No definition available. | |
| PSTG | Stage of Pregnancy | No definition available. | |
| STRL | Sterility | The inability to reproduce because of congenital or acquired reproductive system disorders involving lack of gamete production or production of abnormal gametes. | |
| NSNT | Successful Nests | No definition available. | |
| T50P | Time to 50% production | Number of days to achieve 50% egg production. | |
| TFPG | Time to first progeny | Number of days to produce first litter. | |
| TINF | Time to flower | Time to flower, or Inflorescence | ECOTOX |
| TMNT | Time to mounting | Time it takes for a reproductive behavior to be exhibited. This includes one animal climbing atop a second animal. Also copulation, intercourse, and mating. | |
| TTPR | Time to peak reproduction | The time it take for adults to reach peak reproductive output. | |
| TPRG | Time to pregnancy/gravidity | Time from mating to first gravidity. | |
| TSPN | Time to Spawn | No definition available. | |
| <TPRD> | Total Production | No definition available. | |
| TUPR | Tuber production | Tuber = The enlarged end of a rhizome in which food accumulates, as in potato. | |
| USTS | Unknown estrus stage | Unknown/undetermined stage of the estrus cycle. | |
| NUNT | Unsuccessful Nests | No definition available. | |
| VAOP | Vaginal opening | A method used to determine puberty in a female organism. Also called vaginal patency. | http://www.epa.gov/scipoly/oscpendo/docs/edmvs/femalearrayprotocol0830ed02.pdf |

| **REP Reproductive Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| VPLG | Vaginal/Copulatory plug | A plug formed by the coagulation of semen; found in the vagina after copulation in certain animals, such as the baboon, rat, and squirrel. | http://cancerweb.ncl.ac.uk/omd/ |
| VEGR | Vegetative Reproduction | No definition available. | |
| VCTY | Velocity | A standard measure of sperm motility, the total distance traveled divided by time. | Proc. Natl. Acad. Sci. (1997) Vol. 94, pp. 6842-6846 |
| VIAB | Viable Offspring or Seed | No definition available. | |
| VITG | Vitellogenesis | The production and storage of yolk in the oocyte which is usually initiated after the first meiotic division. | http://cancerweb.ncl.ac.uk/omd/ |

| **AEG Avian Egg Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| ALEG | Albumen Eggshell Quality (Haugh Units) | Haugh Units Scale objectively combines the thickness of the egg albumen and the weight of the egg to a single score that can be compared across all types of eggs. | http://www.sunnyqueen.com.au/03_quality/quality.htm |
| BSCP | Basal cap | A roughly circular mass of crystalline material that tips mammillae. | |
| BLSP | Blood spots | Also called meat spots. Occasionally found on an egg yolk. Contrary to popular opinion, these tiny spots do not indicate a fertilized egg. Rather, they are caused by the rupture of a blood vessel on the yolk surface during formation of the egg or by a similar accident in the wall of the oviduct. Less than 1% of all eggs produced have blood spots. | http://www.georgiaeggs.org/pages/bloodspots.html |
| CRAK | Cracking | No definition available. | |
| LSTE | Eggs lost | Eggs missing from the nest (could be due to parents eating eggs or removing eggs from the nest). | |
| ESIN | Eggshell Index | No definition available. | |
| FERT | Fertile, Fertility | The quality or state of being fertile. | Webster's Use this effect-measurement pair when the fertility of avian eggs is studied. |
| LGTH | Length | Measurable change in length of an egg | |
| MMMC | Mammillary core | Structures composed of organic knobs which serve as crystallization sites on the outer surface of eggshell membranes. | |
| QUAL | Quality | No definition available. | |

| **AEG Avian Egg Effect** TABLE SORTED BY SECOND COLUMN - Measurement Name | | | |
|---|---|---|---|
| SHLL | Shell, Percent | No definition available. | |
| SIZE | Size | The physical magnitude, extent, or bulk **:** relative or proportionate dimensions. | |
| SOFT | Softness | No definition available. | |
| STGH | Strength | The quality or state of being strong, power to resist force. | |
| THIK | Thickness | Having or being of relatively great depth or extent from one surface to its opposite. | |
| VIAB | Viable | No definition available. | |
| VOLU | Volume | The amount of space occupied by a three-dimensional object as measured in cubic units (as quarts or liters): cubic capacity. | |
| WGHT | Weight | The heaviness of an object. | |
| WDTH | Width | The horizontal measurement taken at right angles to the length. | |
| YOLK | Yolk, Percent | No definition available. | |

## SYS ECOSYSTEM GROUP

| PRS System Processes Effect | TABLE SORTED BY SECOND COLUMN - Measurement Name | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| BGCM | Biogeochemical | Changes in whole system biogeochemical processes, e.g. sulfate reduction, denitrification, methanogenesis, nitrification, ammonification, net N or P removal. | |
| CMIN | Carbon Mineralization | No definition available. | |
| CO2P | $CO_2$ Evolution | No definition available. | |
| CO2G | $CO_2$ Generation | Carbon dioxide generation in a soil/litter microcosm system. | |
| DCMP | Decomposition | Change in rate of degradation of plant material. | |
| TROP | Efficiency of Trophic Transfer Between Different Levels in the Food Chain; Assimilation Efficiency | Change in efficiency of trophic transfers between different levels in the food chain, e.g. between primary producers and grazers. | |
| GPPR | Gross Primary Productivity/Respiration | Change in ratio of system-level gross primary productivity to respiration. | |
| NMIN | Net Mineralization | No definition available. | |
| NITR | Nitrification | No definition available. | |
| OUPT | Oxygen uptake | Oxygen uptake in a soil/litter microcosm system. | |
| PPRO | Primary Productivity | No definition available. | |
| SPRO | Secondary Productivity | Change in production of consumer level organisms (e.g. macroinvertebrates). | |
| GPRS | System processes, General | General code for AQUIRE. | |
| SRES | System Respiration | Change in rate of oxygen uptake by entire ecosystem, as opposed to individual or groups of organisms. | |

## NOC NO GROUP CODE

| NOC No Group Code Effect | | | |
|---|---|---|---|
| **Measurement Code** | **Measurement Name** | **Measurement Definition** | **Notes** |
| MULT | Multiple Effects Reported as One Result | Change in more than one effect when data were reported as one result; this code is used with reservation. The use must be verified through consultation with at least one other reviewer to ensure that the effects can not be reported individually. | |
| <NONE> | None | | |
| NRNR | Endpoint Reported Without a Specific Effect | The author reported an endpoint, but not a specific effect.. This code is used with reservation. The use must be verified through consultation with at least one other reviewer to ensure that there are no effect reported. | |
| ~XXX [This is an EFFECT code- NOT A MEASURENT CODE] | Delayed Effect | Currently an AQUIRE ONLY code. An effect (xxx) reported after the organisms are transferred to toxicant-free test chambers. A specific exception is clearance prior to tissue analysis; e.g., “after the exposure the organisms were placed in clean water for 10 hours to allow the organism to clear the stomach contents”. This type of clearance is distinguished from depuration and is not coded as a delayed effect (see also page 4.C-10). Refer to Section 4.C-5. Test Result Parameters in the guidelines for additional information regarding coding of delayed effects. | |

# Appendix T. Endpoint Codes and Definitions

| ECOTOX ENDPOINTS | | |
|---|---|---|
| **DATABASE USAGE** | **ENDPOINT** | **DEFINITION** |
| TERRETOX | **ATCN** | Asymptotic threshold concentration: The concentration of a chemical at which some percentage of a population of test organisms is in a state of approximate homeostasis for some prolonged period of time. |
| TERRETOX | **BAF** | Bioaccumulation factor: A value that is the "ratio of the concentration of a chemical in the organism to that in the medium (usually water). Bioaccumulation refers to both uptake of dissolved chemicals from water (bioconcentration) and uptake from ingested food and sediment residues." (Casarett et.al. 1986) For TERRETOX, use BAF to reflect concentration/ accumulation in tissues regardless of whether the author addresses the ratio as BAF or BCF. The use of a BCF code in the TERRETOX database will require prior approval. |
| AQUIRE | **BCF** | Bioconcentration factor: A term describing the degree to which a chemical can be concentrated in the tissues of an organism in the *aquatic environment* as a result of exposure to waterborne chemical at steady state during uptake phase. The BCF is a value which is equal to the concentration of a chemical in one or more tissues of the exposed aquatic organism divided by the average exposure water concentration of a chemical in the test. (Rand 1995)<br><br>Use BCF only when reported by author for water exposures ie., AQUIRE; if BCF reported for terrestrial organisms/plants code as BAF.<br><br>BCFs of less than 1 and negative BCF values are suspect and should be looked at by the EPA data base coordinator. Reviewers will code the data and send the paper on to the EPA data base coordinator for review and approval. The BCFs less than 1 are coded as reported by the author and negative BCF values are coded as <1. |
| AQUIRE | **BCFD** | Bioconcentration factor calculated using dry weight tissue concentration |
| TERRETOX<br>AQUIRE | **BMCxx** | Benchmark Concentration at xx% level of response above background. Benchmark Concentration is an exposure to a concentration of a substance associated with a specified low incidence of risk, generally in the range of 1% to 10% of a health effect; or the concentration associated with a specified measure or change of a biological effect. Note the BMCL should be coded in the range/CI fields as the lowest value, since it is from the one-side 95% CI |

| **ECOTOX ENDPOINTS** | | |
|---|---|---|
| **DATABASE USAGE** | **ENDPOINT** | **DEFINITION** |
| TERRETOX<br>AQUIRE | **BMDxx** | Benchmark Dose at xx% level of response above background. Benchmark Dose is an exposure due to a dose of a substance associated with a specified low incidence of risk, generally in the range of 1% to 10% of a health effect; or the dose associated with a specified measure or change of a biological effect. Note the BMDL should be coded in the range/CI fields as the lowest value, since it is from the one-side 95% CI. |
| TERRETOX<br>AQUIRE | **ECxx** | Effective concentration for xx% of tested organisms. |
| TERRETOX<br>AQUIRE | **EC100** | Effective concentration to 100% of test organisms |
| AQUIRE | **EDxx** | Effective dose for xx% of tested organisms |
| AQUIRE<br>TERRETOX | **ERxx** | Tissue concentration of toxicant needed to cause xx% effect in the test population. (ECOREF#51644) The ERxx concentration should be coded into the Concentration field and not the BCF field. |
| AQUIRE | **ETxx** | Effective time response to xx% of organisms. The time associated with the response is coded in the DURATION field. |
| TERRETOX<br>AQUIRE | **ICxx** | Inhibition concentration to xx% of organisms. |
| TERRETOX<br>AQUIRE | **IDxx** | Inhibition dose to xx% of organisms. |
| TERRETOX<br>AQUIRE | **LCxx** | Lethal concentration to xx% of test animals. |
| TERRETOX<br>AQUIRE | **LDxx** | Lethal dose to xx% of test animals |
| AQUIRE | **LETC** | Lethal Threshold Concentration: Toxicity curve asymptotic concentration indicating an incipient LC50 value. Acute lethal action has essentially ceased. |
| AQUIRE | **LOEC** | Lowest observable effect concentration |
| TERRETOX | **LOEL** | Lowest-observable-effect-level: lowest dose (concentration) producing effects that were significantly different (as reported by authors) from responses of controls (LOEAL/LOEC) |
| TERRETOX<br>AQUIRE | **LOER** | Lowest Observed Effects Residue: The lowest residue concentration producing effects that were significantly different from responses of controls according to author's reported statistical test |

| **ECOTOX ENDPOINTS** | | |
|---|---|---|
| **DATABASE USAGE** | **ENDPOINT** | **DEFINITION** |
| AQUIRE | **LRxx** | Lethal Residue Concentration. Tissue concentration of toxicant needed to cause xx% mortality in the test population. (ECOREF#20453) The LRxx concentration should be coded into the Concentration field and not the BCF field. |
| TERRETOX<br>AQUIRE | **LTxx** | Lethal time, median: time required for xx% of a population to die from a given dose; also reported as “STxx” - survival time for xx% of a population. The time associated with the response is coded in the DURATION field. |
| TERRETOX<br>AQUIRE | **MATC** | Maximum Acceptable Toxicant Concentration: Hypothetical threshold concentration that is the geometric mean between the NOEC and LOEC concentration. The term Chronic Value (ChV) is encoded as MATC. Refer to companion endpoint note under LOEC definition |
| TERRETOX<br>AQUIRE | **MATR** | Maximum Allowable Toxicant Residue: Hypothetical threshold residue concentration that is the geometric mean between the NOER and LOER values. |
| AQUIRE | **NOEC** | No observable effect concentration |
| TERRETOX | **NOEL** | No-observable-effect-level: highest dose (concentration) producing effects not significantly different from responses of controls according to author's reported statistical test (NOEAL/NOEC) |
| TERRETOX<br>AQUIRE | **NOER** | No Observed Effects Residue: The highest residue concentration producing effects not significantly different from responses of controls according to author's reported statistical test |
| TERRETOX<br>AQUIRE | **NR** | Not reported |
| TERRETOX<br>AQUIRE | **NR-LETH** | 100% mortality |
| TERRETOX<br>AQUIRE | **NR-ZERO** | 0% mortality |

NOTE: When coding endpoints with number values (e.g. LCxx) the format to be used for single digit numbers is: 0X (e.g. LC01, LC05).

# Appendix U. Response Site Codes

| CODE | Site Name | Site Definition/Notes |
|---|---|---|
| **A** | | |
| AB | Aboveground Portion, Plant | |
| ABD | Abdomen | 1. The portion of the vertebrate body between the thorax and the pelvis or the cavity of this part of the body. 2. The elongate region posterior to the thorax in arthropods. |
| ABP | Abdominal process | Found in a parthenogenic female cladoceran. A long second abdominal process of the post abdomen that extends beyond the base of the anal setae (www.epa.gov/waterscience/wet/disk2/pdf/apxal-a3.pdf) |
| AD | Adipose Tissue | A type of connective tissue specialized for lipid storage. |
| ADC | Auditory center | Area of the brain that detects auditory stimulus |
| AF | Amniotic Fluid | A substance that fills the amnion to protect the embryo from desiccation and shock. Also Chorioallantoic fluid |
| AG | Accessory Gland | A mass of glandular tissue separate from the main body of a gland.<br>A gland associated with the male reproductive organs in insects. |
| AL | Albumen | Egg white |
| ALG | Albumen Gland | Organ opening into the hermaphroditic duct and secreting a viscous substance, which surrounds the fertilized ovum and contributes to the development of the egg.(http://visual.merriam-webster.com/animal-kingdom/mollusks/snail/anatomy-snail.php) |
| AM | Adductor Muscle | Any muscle that draws a part of the body toward the median axis. |
| AMG | Amygdala | Denoting the cerebellar tonsil, as well as the lymphatic tonsils (pharyngeal, palatine, lingual, laryngeal, and tubal). |
| ANG | Antennal Gland | (Green gland) An excretory organ in the cephalon of adult crustaceans |

| | | |
|---|---|---|
| ANT | Antenna (Antennae) | A movable, articulated organ of sensation, attached to the heads of insects and Crustacea. There are two in the former, and usually four in the latter. They are used as organs of touch, and in some species of Crustacea the cavity of the ear is situated near the basal joint. In insects, they are popularly called horns, and also feelers. The term in also applied to similar organs on the heads of other arthropods and of annelids. (http://cancerweb.ncl.ac.uk/omd/) |
| AO | Anogenital | Pertaining to the anus and external genitals. |
| AP | Appendages | Any subordinate or nonessential structure associated with a major body part. Any jointed, peripheral extension, especially limbs, or arthropod and vertebrate bodies. |
| AR | Adrenal Gland | An endrocrine organ located close to the kidneys of vertebrates and consisting of two morphologically distinct components, the cortex and medulla. |
| ART | Artery | A vascular tube that carries blood away from the heart. |
| AS | Air Sac | One of large, thin-walled structures associated with the tracheal system of some insects. In birds, any of the small vesicles that are connected with the respiratory system and located in bones and muscles to increase buoyancy. |
| AT | Alimentary Tract | Pertaining to the organs of digestion |
| ATA | Aorta | The largest artery in the body which has its origin at the heart. It gives off branches to the extremities, neck and major organs for the purpose of supplying oxygenated blood. (Gray's) |
| ATH | Abdomen and thorax | Sample consists of abdomen and thorax tissue. |
| ATM | Atrium | The chamber or either of the chambers of the heart that receives blood from the veins and forces it into the ventricle or ventricles (Webster's) |
| AX | Axons | The process or nerve fiber of a neuron that carries the unidirectional nerve impulse away from the cell body. |
| **B** | | |
| BA | Bark | |

| | | |
|---|---|---|
| BB | Bulb | |
| BBL | Barbel | A barbel on a fish is a slender, whiskerlike tactile organ near the mouth. (http://en.wikipedia.org/wiki) |
| BC | Buccal mass | |
| BCT | Bract | A leaf-like structure, different from the foliage leaves and without an auxiliary bud, associated with an inflorescence or flower (Gray's) |
| BD | Bud | An embryonic shoot containing the growing stem tip surrounded by young leaves or flowers or both and frequently enclosed by bud scales. |
| BDW | Body wall | Consists of the layers of tissue, including skin, connective tissue, and hypaxial muscle, which surround and contain the internal structures of the body |
| BG | Breeding (Nuptial) Gland | A nuptial pad (or thumb pad, nuptial ball, nuptial excrescence) is a secondary sex characteristic present on some mature male frogs and salamanders. This breeding gland is used primarily by males to grasp females during amplexus. (http://en.wikipedia.org/wiki) |
| BI | Bile | An alkaline fluid secreted by the liver and delivered to the duodenum to aid in the emulsification, digestion, and absorption of fats. |
| BDT | Bile duct | A duct that carries bile from the liver and gallbladder to the duodenum (first part of the small intestine). (http://cancerweb.ncl.ac.uk/omd/) |
| BIL | Bill | |
| BIT | Biliary tract | The biliary tract is a system of ducts that transports bile out of the liver into the small intestine (http://arbl.cvmbs.colostate.edu/hbooks/pathphys/digestion/liver/anatomy.html) |
| BK | Beak | A prominent terminal projection. |
| BL | Blood | A fluid connective tissue consisting of the plasma and cells that circulate in the blood vessels. |
| BLC | Blood cells | An erythrocyte (red blood cell) or leukocyte (white blood cell) |
| BM | Bone Marrow | A vascular modified connective tissue occurring in the long bones and certain flat bones of vertebrates. |
| BMC | Bone marrow cells | Cells found in the bone marrow |

| | | |
|---|---|---|
| BMP | Bone marrow plasma | Plasma from the bone marrow. |
| BO | Bone | One of the parts constituting a vertebrate skeleton. |
| BOL | Bolls | A pod or capsule, as of cotton and flax. |
| BR | Brain | The portion of the vertebrate central nervous system enclosed in the skull. |
| BRN | Branches | |
| BRS | Brain stem | |
| BT | Breast | |
| BU | Bursa | A simple sac or cavity with smooth walls containing a clear, slightly sickly fluid and interposed between two moving surfaces of the body to reduce friction. |
| BF | bursa of Fabricius | a blind glandular sac that opens into the cloaca of birds and functions in B cell production (http://www2.merriam-webster.com/cgi-bin/mwmednlm) |
| BV | Blood Vessel | A tubular channel for blood transport. |
| BW | Bee's Wax | Yellow to grayish-brown solid wax obtained from bee honeycombs by boiling and straining. |
| BY | Byssus | |
| **C** | | |
| CA | Cartilage | A specialized connective tissue which is bluish, translucent, and hard but yielding. |
| CAE | Caecum | The blind end of a cavity, duct, or tube, especially the sac at the beginning of the large intestine. |
| CAN | Canopy | The uppermost spreading branchy layer of a forest. Also: Crown |
| CAP | Cap, Mushroom | The convex, concave, or flattened spore-bearing structure of some basidiomycetes that is attached superiorly to the stem and typically is expanded with gills or pores on the underside -- called also pileus. |
| CB | Cob | 1 : the axis on which the kernels of Indian corn are arranged. 2 : an ear of Indian corn . |

| | | |
|---|---|---|
| CBC | Cerebral cortex | The outer portion of the brain, consisting of layers of nerve cells and the pathways that connect them. The cerebral cortex is the part of the brain in which thought processes take place. (http://cancerweb.ncl.ac.uk/omd/) |
| CBH | Cerebral hemisphere | The two halves of the cerebrum, the largest part of the brain. |
| CBM | Cerebrum | An enlarged anterior or upper part of the brain; especially : the expanded anterior portion of the brain that in higher mammals overlies the rest of the brain, consists of cerebral hemispheres and connecting structures, and is considered to be the seat of conscious mental processes |
| CC | Cocoon | A protective case formed by the larvae of many insects, in which they pass the pupa stage. |
| CCM | Cecum | the blind pouch at the beginning of the large intestine into which the ileum opens from one side and which is continuous with the colon (www.m-w.com) |
| CDB | Caudal Bone | |
| CDP | Caudal peduncle | The caudal peduncle is the narrow part of the fish's body to which the caudal or tail fin is attached. (http://en.wikipedia.org/wiki) |
| CDV | Caudal vertebrae | The vertebrae that form the skeleton of the tail. (http://cancerweb.ncl.ac.uk/omd/) |
| CE | Coelomic fluid | |
| CEL | Cell | The microscopic functional and structural unit of all living organisms. |
| CG | Cloacal gland | A secretory gland in the cloaca of lower vertebrates, as birds, snakes or amphibians. |
| CGG | Coagulating gland | Also known as the dorsal prostate, responsible for formation of a copulatory vaginal plug - preventing backflow of deposited semen (http://www.uwyo.edu/wjm/repro/maleanat.htm) |
| CRG | Cerebral ganglion | |
| CH | Spinal Cord, | The cordlike posterior portion of the central nervous system contained within the spinal canal of the vertebral column of all vertebrates. |

| | | |
|---|---|---|
| CHC | Chloragogen tissue | Chloragogen tissue are brown or greenish cells, located in the intestinal wall or heart of at least some annelids that function similarly to the liver in vertebrates. They store glycogen and neutralize toxins. (http://en.wikipedia.org/wiki) |
| CHO | Chorion | Protective membrane around the eggs of insects and fishes. Extraembryonic membrane surrounding the embryo of amniote vertebrates. The outer epithelial layer of the chorion is derived from the tropoblast. (http://cancerweb.ncl.ac.uk/omd/) |
| CHN | Choana | The Choana is the opening into the nasopharynx of the nasal cavity on either side. Synonym: isthmus pharyngonasalis, posterior naris, postnaris. (http://cancerweb.ncl.ac.uk) |
| CHP | Choroid plexus | Organ found within the ventricles of the brain and in the subarachnoid space around the brain and spinal cord that produces cerebrospinal fluid (http://www.ets.uidaho.edu/med532/choroid.htm) |
| CIL | Cilia | Relatively short, centriole-based, hairlike processes on certain anatomical cells and motile organisms. |
| CL | Claw | |
| CLM | Coelomocytes | A corpuscle, including amebocytes and eleocytes, in the coelom of certain animals, especially annelids. |
| CLN | Colon | The part of the large intestine that extends from the cecum to the rectum |
| CLT | Clitoris, Clitoral gland | a small erectile organ at the anterior or ventral part of the vulva homologous to the penis. (Webster's) |
| CLU | Clitellum | Clittelum is a thickened glandular section of the body wall of some annelids that secretes a viscid sac in which the eggs are deposited. (http://www.merriam-webster.com) |
| CLV | Calvarium | the portion of the skull including the braincase and excluding the lower jaw and facial portion |
| CM | Crown to Rump | |
| CMB | Comb | a fleshy crest on the head of the domestic fowl and other gallinaceous birds. (Webster's) |
| CN | Cotyledon | The first leaf of the embryo of seed plants. |

| | | |
|---|---|---|
| CNS | Central Nervous System | Pertaining to the brain, cranial nerves and spinal cord. It does NOT include muscles or peripheral nerves. In invertebrates, the central nervous system is composed of the segmental ganglia of the ventral nerve cord together with the fused ganglia or brain at the anterior end. Acronym: CNS (http://cancerweb.ncl.ac.uk) |
| CO | Collagen | A fibrous protein found in all multicellular animals, especially in connective tissue. |
| COL | Coleoptile | The first leaf of a monocotyledon seedling. |
| COR | Corm | A short, erect, fleshy underground stem, usually broader than high and covered with membrane scales. |
| COS | Corpuscles of Stannius | These are islands of eosinophilic granular cells located in paired organs on the ventral surface of the kidney. This organ secretes a protein called hypocalcin (teleocalcin) which acts with calcitonin to regulate calcium metabolism. (http://www.afip.org/vetpath/POLA/POLA96/fish.txt ) |
| CP | Capat | |
| CPG | Cowper's Gland | Cowper's or Bulbourethral Glands are situated on each side of the prostate that secrete a fluid component of the seminal fluid into the urethra. (http://www.ncbi.nlm.nih.gov) |
| CPS | Carpus | The joint, or the region of the joint, between the hand and the arm. The wrist. |
| CPT | Chloroplast | The photosynthetic organelle of higher plants. |
| CR | Crop | 1) A plant or animal grown for it commercial value.<br>2) A distensible saccular diverticulum near the lower end of the esophagus of birds which serves to hold and soften food before passage into the stomach. |
| CRB | Cerebellum | Part of the vertebrate hindbrain, concerned primarily with somatic motor function, the control of muscle tone and the maintenance of balance. |
| CRI | Cervical rib | A rib which arises from the seventh cervical vertebrae (above the normal first rib). Occurs in only about 0.5% of people. May cause nerve and artery problems. (Gray's) |

| | | |
|---|---|---|
| CRN | Cornea | The transparent structure forming the anterior part of the fibrous tunic of the eye.(http://cancerweb.ncl.ac.uk/omd/) |
| CRP | Carapace | A dorsolateral, chitinous case covering the cephalothorax of many arthropods. |
| CRR | Cerebellar region | |
| CS | Chromosome | Any of the complex, threadlike structures seen in animal and plant nuclei during kariokinesis which carry the linearly arranged genetic material. |
| CSF | Cerebrospinal fluid | a clear liquid which is very similar to the liquid portion of blood(plasma) and contains various salts and products such as sodium, calcium, bicarbonate, chloride, magnesium and glucose. The purpose of the CSF is as a medium for the transport of the chemicals to and from the brain, and also to provide buoyancy and protection for the brain. |
| CST | Cisternae | Membrane bounded saccules of the smooth and rough endoplasmic reticulum and Golgi apparatus. |
| CT | Cephalothorax | the body division comprising the united head and thorax of arachnids and higher crustaceans |
| CTE | Ctenidium | The comb or featherlike respiratory apparatus of certain mollusks or a row of spines on the head or thorax of some fleas (MHSD) |
| CU | Culture Cells | |
| CUT | Cuticle | A layer of more or less solid substance which covers the free surface of an epithelial cell. |
| CV | Caudal Vertebra | Any of the small bones of the vertebral column that support the tail in vertebrates. |
| CVV | Cervical vertebrae | The seven segments of the vertebral column located in the neck. Synonym: vertebrae cervicales (http://cancerweb.ncl.ac.uk/omd/) |
| CVM | Calvarium | One of the bones that makes up the vault of the skull (in humans these are the frontal, 2 parietals, occipital and 2 temporals). (Gray's) |
| CVX | Cervix | The narrow outer end of the uterus |
| CX | Caudex | The main axis of a plant, including stem and roots. |

| | | |
|---|---|---|
| CY | Cytosol | The fluid portion of the cytoplasm, that is, the cytoplasm exclusive of organelles and membranes. |
| CYT | Cytoplasm | The organized complex of inorganic and organic substances external to the nuclear membrane of a cell and including the cytosol and membrane-bound organelles (as mitochondria or chloroplasts) |
| **D** | | |
| DG | Digestive Gland | Any structure that secretes digestive enzymes. |
| DGT | Digit | One of the terminal divisions of a limb appendage; a finger or toe. (http://cancerweb.ncl.ac.uk/omd/) |
| DI | Diaphragm | The thin muscle below the lungs and heart that separates the chest from the abdomen.(http://cancerweb.ncl.ac.uk/omd/) |
| DN | Diencephalon | In vertebrate CNS the most rostral part of the brainstem, consisting of the thalamus, hypothalamus, subthalamus and epithalamus. It is a key relay zone for transmitting information about sensation and movement and also contains (in the hypothalamus) important control mechanisms for homeostatic integration. |
| DO | Duodenum | |
| DT | Digestive Tract | The alimentary canal. |
| **E** | | |
| EAL | Ear leaf (Corn) | |
| EAR | Ear | In animals, the organ of hearing; the external ear. (http://cancerweb.ncl.ac.uk/omd/) In plants, the common term used to describe the female inflorescence, or spike, in corn and other cereals with compact spikelets. (ECOTOX) |
| EC | Excreta | Excretion products; waste materials excreted by the body. |
| ED | Endometrium | The tissue lining the uterus, it is sloughed off during the woman's menstrual period, and afterward grows back and slowly gets thicker and thicker until the next period. (http://cancerweb.ncl.ac.uk/omd/) |
| EG | Egg | Ova |

| | | |
|---|---|---|
| EF | Efferent ducts | Efferent ducts (or efferent ductules or ductuli efferentes) connect the rete testis with the initial section of the epididymis. (http://en.wikipedia.org/wiki) |
| EL | Elytrom | |
| EM | Embryo | 1) In animals, those derivatives of the fertilized ovum that eventually become the offspring during their period of most rapid development.<br>2) In plants, the element of the seed that develops into a new individual. |
| EMS | Embryonic shoot cells | |
| EN | Entrails | |
| EO | Endothelium | A layer of epithelium that lines the heart, blood vessels (ENDOTHELIUM, VASCULAR), lymph vessels (ENDOTHELIUM, LYMPHATIC), and the serous cavities of the body. |
| EP | Endoplasmic Reticulum | A vacuolar system of the cytoplasm in differentiated cells that functions in protein synthesis and sequestration. |
| EPD | Epididymis | A system of ductules emerging posteriorly from the testis that holds sperm during maturation and that forms a tangled mass before uniting into a single coiled duct which is continuous with the vas deferens |
| ER | Erythrocyte | A type of blood cell that contains a nucleus in all in the cytoplasm also known as red blood cell (RBC) or corpuscle. |
| ES | Esophagus | The tubular portion of the alimentary canal interposed between the pharynx and the stomach. |
| ET | Edible Tissue | |
| EU | Egg Cuticle | |
| EV | Exuviae | |
| EX | Exoskeleton | The external supportive covering of certain invertebrates, such as arthropods. |
| EY | Eye | |
| EYS | Eyestalk | One of the moveable peduncles bearing an eye at the tip in a decapod crustacean (Merriam-Webster) |

| | | |
|---|---|---|
| EZ | Enzyme | Any of a group of catalytic proteins that are produced by living cells and that mediate and promote the chemical processes of life without themselves being altered or destroyed. |
| **F** | | |
| F1 | F1 Generation | The immediate offspring of a parent generation |
| FAC | Face | The part of the head in which the eyes, cheeks, nose, and mouth are situated. (Gray's) |
| FB | Frontal Bone | Of or pertaining to the forehead or the anterior part of the roof of the brain case; as, the frontal bones. |
| FBR | Forebrain | The anterior of the three primary divisions of the developing vertebrate brain or the corresponding part of the adult brain that includes especially the cerebral hemispheres, the thalamus, and the hypothalamus and that especially in higher vertebrates is the main control center for sensory and associative information processing, visceral functions, and voluntary motor functions -- called also prosencephalon. (Webster's) |
| FC | Feces | The waste material eliminated by the gastrointestinal tract. |
| FD | Frond | The leaf of a palm or fern. |
| FE | Feathers | |
| FG | Foregut | The anterior part of the alimentary canal of a vertebrate embryo that develops into the pharynx, esophagus, stomach, and extreme anterior part of the intestine |
| FI | Fin | A paddle-shape appendage on fish and other aquatic animals that is used for propulsion, balance, and guidance. |
| FIB | Fibula | A long bone in the lower leg that is adjacent to the tibia. The fibula supports approximately 1/6th of the body weight and produces the lateral (outer) prominence of the ankle. (http://cancerweb.ncl.ac.uk/omd/) |
| FL | Fillet | A boneless slice of meat or fish. |
| FLB | Flower Bud | |
| FLW | Flower/ Inflorescence | |
| FM | Femur | The proximal bone of the hind or lower limb in vertebrates. |

| | | |
|---|---|---|
| FMD | Femur diaphysis | The shaft of the femur. (Gray's) |
| FME | Femur ephiphisis | The part of a femur where bone growth occurs. (http://cancerweb.ncl.ac.uk/) |
| FMM | Femur metaphysis | A conical section of the femur between the epiphysis (area where growth occurs) and diaphysis (the shaft of the bone). (Gray's) |
| FO | Foot | |
| FOD | Fodder | |
| FOL | Foliage | The aggregate of leaves of one or more plants.(MW on-line) |
| FOR | Forage | A vegetable food for domestic animals. |
| FP | Fatpad | |
| FR | Fruit | A fully matured plant ovary with or without other floral or shoot parts united with it at maturity. |
| FRL | Forelimb | The fore limb of an animal; anything resembling an arm. (http://cancerweb.ncl.ac.uk/omd/) |
| FX | Frontal cortex | Cortex of the frontal lobe of the cerebral hemisphere, originally, the entire cortical expanse anterior to the central sulcus, including the agranular motor and premotor cortex (Brodmann's areas 4 and 6), the dysgranular cortex (area 8), and the granular frontal (prefrontal) cortex anterior to the latter, now more often refers to the granular frontal (prefrontal) cortex. |
| **G** | | |
| GA | Granum (plural grana) | Stack of thylakoids in the chloroplast, containing the light harvesting system and the enzymes responsible for the light dependent reactions of photosynthesis. (http://cancerweb.ncl.ac.uk/omd/) |
| GB | Gall Bladder | A hollow, muscular organ in vertebrates which receives dilute bile from the liver, concentrates it, and discharges it into the duodenum. |
| GF | Green forage | |
| GG | Green Gland | (antennal gland) An excretory organ in the cephalon of adult crustaceans |
| GI | Gills | The respiratory organ of water-breathing animals. (Also branchia) |
| GC | Gland Complex | |

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| GL | Ganglion | A mass of nerve tissue containing nerve cells external to the brain or spinal cord. |
| GMT | Germ tube | |
| GNP | Genital papillae | Tactile or sensory organs located near genitalia as raised bumps or nipples on a tissue surface |
| GNT | Gnathopod | A gnathopodite or maxilliped which is any leglike appendage of a crustacean, when modified wholly, or in part, to serve as a jaw, especially. (http://cancerweb.ncl.ac.uk/omd/) |
| GO | Gonads | A primary sex gland; an ovary or a testis. |
| GOL | Golgi Apparatus | A cellular organelle that is part of the cytoplasmic membrane system; it is composed of regions of stacked cisternae and it functions in secretory processes. |
| GP | Gills+Palps | |
| GPD | Gonopodium | The pelvic fins of male fish that have been converted into genital organs. (http://www.exotictropicals.com/encyclo/information/aquarium_glossary.htm) |
| GR | Grain | |
| GS | Germinated seed | |
| GT | Gastrointestinal Tract | The stomach and intestine. |
| GU | Gut | The intestine. The embryonic, digestive tube. |
| GY | Gametophyte | A plant, or phase of a plant's life cycle, that bears gametes. (http://cancerweb.ncl.ac.uk/omd/) |
| GZ | Gizzard | The muscular portion of the stomach of most birds where food is ground with the aid of ingested pebbles. |
| **H** | | |
| HA | Hair | A threadlike outgrowth of the epidermis of animals. Also: fur, wool |
| HYA | Hyalinocyte | A type of nongranular leukocyte (http://cancerweb.ncl.ac.uk/omd/). |
| HAP | Haptonema | Filament extending between the paired flagella of certain unicellular algae (haptophytes). Supported by 6 or 7 microtubules (not in an axoneme like array) and apparently used for capturing prey in a manner analogous to the axopodia of heliozoa. |
| HAY | Hay | Hay |

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|---|---|---|
| HB | Hindbrain | The posterior of the three principal divisions of the brain, including the epencephalon and metencephalon. Sometimes restricted to the epencephalon only.(http://cancerweb.ncl.ac.uk/omd/) |
| HC | Hypocotyl callus cells | |
| HD | Head | |
| HDG | Hindgut | The posterior part of the alimentary canal. (Webster's) |
| HDK | Head Kidney (Pronephros) | The definitive excretory organ of primitive fishes. In the embryos of higher vertebrates, a vestigial structure consisting of a series of tortuous tubules emptying into the cloaca by way of the primary nephric duct; in the human embryo, the pronephros is a very rudimentary and temporary structure, followed by the mesonephros and still later by the metanephros. (http://cancerweb.ncl.ac.uk/omd/) |
| HE | Heart | |
| HIP | Hippocampus | A curved elongated ridge that extends over the floor of the descending horn of each lateral ventricle of the brain and consists of gray matter covered on the ventricular surface with white matter. (Webster's) |
| HKG | Husk and grain | |
| HL | Hemolymph | The circulating fluid of the open circulatory systems of many invertebrates. |
| HLB | Hindlimb | Either of two extremities of four-footed non-primate land animals. It usually consists of a femur, tibia and fibula, tarsals, metatarsals, and toes. (http://cancerweb.ncl.ac.uk/omd/) |
| HM | Humerus | The proximal bone of the forelimb in vertebrates. |
| HMC | Hemocyte | A cellular element of blood, especially in invertebrates. |
| HMG | Hemoglobin | Four subunit globular oxygen carrying protein of the erythrocytes of vertebrates and some invertebrates. (http://cancerweb.ncl.ac.uk/omd/). Also spelled Haemoglobin. |
| HO | Honey | The sweet, viscous secretion composed principally of levulose and dextrose that is deposited in the honeycomb by the honeybee. |

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| HOD | Hyoid | Of or pertaining to the bony or cartilaginous arch which supports the tongue (Gray's). |
| HP | Hepatopancreas | A gland in crustaceans and certain other invertebrates that combines the digestive functions of the liver and pancreas of vertebrates. |
| HPG | Hypopharyngeal gland | Gland used in the production of brood food. (http://www.ncbka.org.uk/BeeAnatomy26204.htm) |
| HSK | Husk | The external covering or envelope of certain fruits or seeds; glume; hull; rind (http://cancerweb.ncl.ac.uk/omd/) |
| HTC | Heterocyst | Clear, thick-walled cell occurring at intervals along the filament of certain blue-green algae. |
| HTG | Hatching gland | A transversely oriented set of cells located deep to the enveloping layer on the pericardial membrane, especially during the pharyngula period because of the brightly refractile cytoplasmic granules containing hatching enzymes in the cells. (http://www.purethrottle.com/briancoad/Dictionary/H.html) |
| HY | Hypothalamus | The floor of the third brain ventricle; site of production of several substances that act on the adenohypophysis. |
| HYA | Hypha | Also known as Hyphae or Hyphal. One of the threads that make up the mycelium of a fungus, increase by apical growth, and are coenocytic or transversely septate. (Webster's) |
| HYD | Hypodermis | 1. The outermost cell layer of the cortex of plants, aka exodremis. 2. The layer of cells that underlies and secretes the cuticle in arthropods and other invertebrates. |
| HYP | Hypocotyl | The portion of the embryonic plant axis below the cotyledon. |
| **I** | | |
| IB | Interparietal Bone | Between the parietal bones or cartilages; as, the interparietal suture. |
| IE | Ileum | The last portion of the small intestine that communicates with the large intestine. |
| IL | Ilium | The dorsal, upper, and largest one of the three bones composing either lateral half of the pelvis. |
| IN | Intestinal Tract | |

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| INC | Inclusions | The residual elements of the cytoplasm that are metabolic products of the cell e.g. pigment granules or crystals. |
| IR | Interrenal gland | |
| IT | Internode | The interval between two nodes, as on a stem or along a nerve fiber. |
| **J** | | |
| JA | Jaw | Either of two bones forming the skeleton of the mouth of vertebrates. Also known as mandible. |
| JE | Jejunum | The section of the small intestine that comprises the first two fifths beyond the duodenum and that is larger, thicker-walled, and more vascular and has more circular folds than the ileum. (Webster's) |
| JV | Juvenile | Physiologically immature or undeveloped lifestage. |
| **K** | | |
| KI | Kidney | Either of a pair of organs involved with the elimination of water and waste products from the body of vertebrates. |
| KIL | Kidney, left | Either of a pair of organs involved with the elimination of water and waste products from the body of vertebrates. |
| KIR | Kidney, right | Either of a pair of organs involved with the elimination of water and waste products from the body of vertebrates. |
| KR | Kernal | A whole grain or seed of a cereal plant, such as corn or barley. |
| **L** | | |
| LAM | Laminae | The expanded part of a foliage leaf |
| LC | Leaf chloroplast | A type of cell plastid occurring in the green parts of plants, containing chlorophyll pigments, and functioning in photosynthesis and protein synthesis. |
| LD | Lipid, Fat | One of a class of compounds which contain long-chain aliphatic hydrocarbons and their derivatives; includes waxes, fats, and derived compounds. |
| LE | Leaf /Needle | |
| LEI | Leaf Index | |
| LEN | Lens | |

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| LEO | Leaf, Old | |
| LEU | Leukocytes | Also known as white blood cells. White corpuscles in the blood. They are spherical, colorless and nucleated masses involved with host defenses. (http://cancerweb.ncl.ac.uk/omd/) |
| LEY | Leaf, Young | |
| LG | Leg | |
| LGT | Ligament | Shiny, flexible bands of fibrous tissue connecting together articular extremities of bones or the hinge joint in bivalves. They are pliant, tough, and inextensile. (http://www.ncbi.nlm.nih.gov and ECOTOX) |
| LI | Liver | A large vascular gland in the body of vertebrates consisting of a continuous parenchymal mass covered by a capsule; secretes bile, manufactures certain blood proteins and enzymes, and removes toxins from the systemic circulation. |
| LIG | Leiblein's Gland | Leiblein's Gland is a long, thin, brownish organ in gastropods which produces hydrolytic enzymes. (http://webs.lander.edu/rsfox/invertebrates/busycon.html) |
| LIM | Liver microsomes | In the hepatocyte, any of the vesicular fragments of endoplasmic reticulum formed after disruption and centrifugation of cells. (Gray's) |
| LIN | Large intestine | The more terminal division of the vertebrate intestine that is wider and shorter than the small intestine, typically divided into cecum, colon, and rectum, and concerned especially with the resorption of water and the formation of feces |
| LIP | Lip | Either of the two fleshy folds which surround the orifice of the mouth. (Websters Dictionary) |
| LIT | Litters | Offspring |
| LM | Limb | 1) An extremity or appendage used for locomotion or prehension.<br>2) A large primary tree branch |
| LMP | Lymphocyte | White cell of the blood that are derived from stem cells of the lymphoid series. (http://cancerweb.ncl.ac.uk/omd/) |
| LMV | Lumbar vertebrae | The vertebrae, usually five in number, located in the lumbar region of the back. Synonym: vertebrae lumbales. (http://cancerweb.ncl.ac.uk/omd/) |

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| LMW | Low Molecular Weight Biomolecules (e.g., amino acids). | Specifically: Amino acids, Organic acids and monosaccarides (ECOREF#89645) |
| LN | Lymph node | Small, bean-shaped organs located throughout the lymphatic system. The lymph nodes store special cells that can trap cancer cells or bacteria that are traveling through the body in lymph. Also called lymph glands. |
| LP | Labial Palps | 1) Either of a pair of fleshy appendages on either side of the mouth of certain bivalve mollusks.<br>2) A jointed appendage attached to the labium of certain insects. |
| LU | Lungs | Either of the paired air-filled sacs which function as organs of respiration. |
| LV | Left ventricle | The muscular chamber of the heart which accepts blood from the left atrium and ejects it into the aorta to the systemic circulation. (http://www.graylab.ac.uk/cgi-bin/omd?left+ventricle) |
| LYS | Lysosome | A specialized cell organelle surrounded by a single membrane and containing a mixture of hydrolytic (digestive) enzymes. |
| **M** | | |
| MA | Mantle | An enveloping layer, as the external body wall lining the shell of many invertebrates, or the external meristematic layers in a stem apex. |
| MB | Muscle+Bone | |
| MBR | Midbrain | The part of the brain above the pons and below the thalamus, it is the uppermost part of the brainstem, and is involved in basic, unconscious body function. (Gray's) |
| MC | Microsome | A fragment of the endoplasmic reticulum. A minute granule of protoplasm. |
| MDP | Madreporite | Madreporite is a perforated or porous body that is situated at the distal end of the stone canal in echinoderms (http://www.merriam-webster.com) |
| ME | Meristem (apical or axillary) | Meristem - Formative plant tissue composed of undifferentiated cells capable of dividing and giving rise to other meristemic cells as well as specialized cell types. |

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| MES | Mesentery | The membranes, or one of the membranes (consisting of a fold of the peritoneum and enclosed tissues), which connect the intestines and their appendages with the dorsal wall of the abdominal cavity. The mesentery proper is connected with the jejunum and ileum, the other mesenteries being called mesoccum, mesocolon, mesorectum, etc. (http://cancerweb.ncl.ac.uk/omd/) |
| MI | Midgut and Midgut Gland | The middle portion of the digestive tube in vertebrate embryos. |
| MIT | Mitochondria | Minute cytoplasmic organelles in the form of spherical granules, short rods, or long filaments found in almost all living cells. |
| MK | Milk, lactating females | |
| ML | Melanophore | A eumelanin (a type of melanin) containing cell especially of fishes, amphibians, and reptiles. (www.merriam-webster.com/dictionary and en.wikipedia.org/wiki) |
| MM | Mammary Tissue | |
| MNS | Manus (carpus + forefoot) | The distal segment of the forelimb, including the carpus and forefoot or hand. (http://cancerweb.ncl.ac.uk/omd/) |
| MO | Mucous | A viscid fluid secreted by mucus glands |
| MOB | Medulla oblongata | The lowest subdivision of the brainstem, immediately adjacent to the spinal cord. Houses important cardiac and respiratory regulatory centres. |
| MOM | Mother cells, pollen | |
| MPG | Macrophage | The relatively long-lived phagocytic cell of mammalian tissues that are derived from blood monocytes. (http://www.ncbi.nlm.nih.gov) |
| MPT | Malpighian tubule | Malpighian tubules, part of the excretory and osmoregulatory system, are slender tubes normally found in the posterior regions of arthropod alimentary canals. Each tubule consists of a single layer of cells that is closed off at the distal end with the proximal end joining the alimentary canal at the junction between the midgut and hindgut. (http://en.wikipedia.org/wiki) |

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| MR | Membrane | A thin layer of tissue surrounding a part of the body, separating adjacent cavities, lining cavities, or connecting adjacent structures. |
| MRC | Motor cortex | Area of the frontal lobe concerned with primary motor control. It lies anterior to the central sulcus. (http://cancerweb.ncl.ac.uk/omd/) |
| MS | Mesenteric Lymph Node | |
| MSI | Mucosa of the Small Intestines | The mucous coat of the small intestine. |
| MSC | Mesencephalon | The middle segment of the brain; the midbrain. |
| MT | Multiple Tissue/ Organs | AQUIRE code. Used when multiple sites are coded for one record. The individual sites are reported as a REMARK. This code will be changed to MUL at a later date. |
| MTC | Metacarpus | The part of the hand or forefoot that contains the metacarpals. |
| MTM | Mentum | The front median plate of the labium in insects (http://cancerweb.ncl.ac.uk/omd/) |
| MU | Muscle | A tissue composed of cells containing contractile fibers; three types are smooth, cardiac, and skeletal. |
| MUL | Multiple Sites | |
| MV | Microvilli | One of the filiform processes that form a brush border on the surfaces of certain specialized cells, such as intestinal epithelium. |
| MYC | Mycellium | Mass of interwoven filamentus hyphae that forms especially the vegetative portion of the thallus of a fungus. |
| MYM | Myometrium | Uterine smooth muscle.(http://cancerweb.ncl.ac.uk/omd/) |
| **N** | | |
| NAC | Nucleus accumbens | The largest neuronal nucleus in the septal region of the diencephalon in the brain. (Gray's) |
| NB | Nasal Bone | Either of two small elongated rectangular bones that together form the bridge of the nose. |
| NC | Nerve Cord | a hollow tube that runs beneath the dorsal surface of the animal above the notochord (the principle nerve cord in the invertebrates, by contrast, is almost always located near the ventral surface |

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| ND | Nodule, root | A bulbous enlargement found on roots of legumes and certain other plants, whose formation is stimulated by symbiotic, nitrogen-fixing bacteria that colonize the roots. |
| NE | Nervous Tissue | The nerve cells and neuroglia of the nervous system. |
| NEM | Neuromasts | Neuromasts consist of hair cells, supporting cells and mantle cells with a gelatinous cupula overlying the apical surface of the sensory macula in fish. Neuromasts are classified as superficial, found across the body surface or canal, found along the lateral line. (David H. Evans; James B. Claiborne. 2005. The Physiology of Fishes. CRC Press) |
| NG | Nasal Gland | |
| NI | Nipple | The protuberance through which milk is drawn from the breast or mamma; the mammilla; a teat; a pap. |
| NK | Neck | A constricted portion, such as the part connecting the head and trunk of the body. |
| NL | Needle | A slender-pointed leaf, as of the firs and other evergreens. |
| NOC | Notochord | An axial mesodermal tissue found in embryonic stages of all chordates and protochordates, often regressing as maturity is approached. Typically a rod shaped mass of vacuolated cells. It lies immediately below the nerve cord and may provide mechanical strength to the embryo.(http://cancerweb.ncl.ac.uk/omd/) |
| NR | Not Reported | |
| NT | Neural Tube | A tube of ectodermal tissue in an embryo that will give rise to the Central Nervous system, including the Spinal Cord and the Brain. Lumen within the neural tube is called neural canal which gives rise to the central canal of the spinal cord and the ventricles of the brain. (http://www.ncbi.nlm.nih.gov) |
| NU | Nuclei | |
| NVL | Navel | A mark or depression in the middle of the abdomen; the umbilicus. (Gray's) |

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| NY | Nymph | Any of various immature insects; especially: a larva of an insect with incomplete metamorphosis that differs from the adult especially in size and in its incompletely developed wings and genitalia. |
| **O** | | |
| OC | Oocyte | An egg before the completion of maturation |
| OD | Oviduct | A tube that serves to conduct ova from the ovary to the exterior or to an intermediate organ such as the utersu (Fallopian tube) |
| OF | Orifice | An opening, or aperture, (as a vent, mouth, or hole) through which something may pass (Webster's) |
| OG | Organ | A differentiated structure of an organism composed of various cells or tissues and adapted for a specific function. |
| OL | Olfactory | Pertaining to olfaction, or the sense of smell. |
| OPN | Optic Nerve | The 2nd cranial nerve. The optic nerve conveys visual information from the retina to the brain. The nerve carries the axons of the retinal ganglion cells which sort at the optic chiasm and continue via the optic tracts to the brain. The largest projection is to the lateral geniculate nuclei; other important targets include the superior colliculi and the suprachiasmatic nuclei. Though known as the second cranial nerve, it is considered part of the central nervous system. (http://www.ncbi.nlm.nih.gov/) |
| OPR | Operculum | |
| OR | Organelle | A specialized subcellular structure, such as mitochondrion, having a special function. |
| OS | Osphradium | in Littorina; an organ capable of sensing chemical changes in the environment |
| OT | Opisthaptor | The posterior and usually complex adhesive organ of a monogenetic trematode. (http://medical.merriam-webster.com/medical) |
| OTO | Otoliths | A calcareous concretion on the end of a sensory hair cell in the vertebrate ear and in some invertebrates. |
| OV | Ovaries | A glandular organ that produces hormones and give rise to ova in female vertebrates. |

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| OVF | Ovarian follicle | An oocyte-containing structure in the cortex of the ovary. (http://www.ncbi.nlm.nih.gov) |
| OVP | Ovipositor | A specialized organ for depositing eggs. An ovipositor is a tubular structure at the end of the abdomen, found in many female insects and some fishes (http://www.merriam-webster.com and http://wordnetweb.princeton.edu) |
| **P** | | |
| PA | Palps | Any of various sensory, usually fleshy appendages near the oral aperture of certain invertebrates. |
| PAN | Panicle | A branched or compound raceme in which the secondary branches are often racemose as well. |
| PAT | Parathyroid gland | Two small paired endocrine glands in the region of the thyroid gland. They secrete parathyroid hormone and are concerned with the metabolism of calcium and phosphorus. (http://cancerweb.ncl.ac.uk/omd/) |
| PB | Pseudobranch | |
| PBD | Projectile body | A body projected through cell membranes. |
| PC | Pyloric ceca | 1) One of the tubular pouches that open into the vertriculus of an insect.<br>2) One of the paired tubes having lateral glandular diverticula in each ray of a starfish.<br>3) One of the tubular pouches that open from the pyloric end of the stomach into the alimentary canal of most fishes. |
| PCL | Peduncle | A peduncle is a stalk bearing a flower or flower cluster or a fructification. (http://www.merriam-webster.com) |
| PD | Pod | A leguminous fruit of the pea family (Fabaceae), including beans, lentils and peanuts. (http://cancerweb.ncl.ac.uk/omd/) |
| PDG | Pedal ganglion | The pedal ganglia are in the base of the foot of bivalves (http://www.britannica.com/ebc/article-35747) |
| PE | Penis | The male organ of copulation in vertebrates. Also known as phallus. |
| PEP | Pecten epipharyngis | |

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| PES | Petiole and Stem | Both the a slender stem that supports the blade of a foliage leaf and the main trunk of a plant or a primary plant axis that develops buds and shoots instead of roots |
| PF | Pseudofeces | |
| PG | Prostate Gland | A gland in the male which surrounds the neck of the bladder and the urethra. The prostrate contributes to the seminal fluid. |
| PGL | Preening gland | A relatively large, compact bilobed secretory organ located at the base of the tail (uropygium) of most birds having a keeled sternum. Also known as oil gland or uropygial gland. (McGraw-Hill) |
| PHG | Pheromone gland | A gland that secretes a chemical stimulant/attractant that is released into the surrounding environment, either air or water. |
| PHL | Phalanges | The finger bones (http://cancerweb.ncl.ac.uk/omd/) |
| PI | Pituitary Gland | (hypophysis) An epithelial body located at the base of the brain. Consists of two lobes. Secretes hormones. |
| PL | Plasma | The fluid portion of blood or lymph. |
| PLA | Platelet | A discoid cell (3m diameter) found in large numbers in blood, important for blood coagulation and for haemostasis by repairing breaches (small breaks) in the walls of blood vessels. (http://cancerweb.ncl.ac.uk/omd/) |
| PLC | Placenta | 1) A vascular organ that unites the fetus to the wall of the uterus.<br>2) A plant surface bearing a sporangium. |
| PLL | Pellicle | The outer membrane of protozoans. |
| PLN | Popiteal nodes | Two groups of nodes located in the popliteal fossa: the superficial popliteal lymph nodes, located around the termination of the small saphenous vein, that drain the skin of the back of the leg and lateral side of the foot; and the deep popliteal lymph nodes, located around the popliteal vessels, that drain the superficial group, the deep structures of the leg, and the knee joint. Also, Popiteal lymph node, nodi lymphatic popliteales |
| PLP | Pulp | The soft, succulent part of a fruit usually composed of mesocarp (MW) |

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| PLT | Palate | The roof of the mouth. (http://cancerweb.ncl.ac.uk/omd/) |
| PLV | Pelvis | The pelvis is a basin shaped cavity bordered by the pelvic girdle and sacrum, containing and protecting the bladder, rectum and reproductive organs.(http://cancerweb.ncl.ac.uk/omd/) |
| PLY | Polysaccharide | Polymers of (arbitrarily) more than about ten monosaccharide residues linked glycosidically in branched or unbranched chains. (http://cancerweb.ncl.ac.uk/omd/) |
| PM | Pons + Medulla | A rounded eminence off the ventral surface of the brainstem (pons) and the lowest subdivision of the brainstem, immediately adjacent to the spinal cord (medulla). (Gray's) |
| PNG | Pineal gland | A small, flat gland found within the brain which produces the hormones melatonin and serotonin.(http://cancerweb.ncl.ac.uk/omd/) |
| PO | Pollen, pollen grain | |
| PPD | Parapodium | Plural - Parapodia. 1) Either of a pair of fleshy lateral processes borne by most segments of a polychaete worm. 2) a lateral expansion on each side of the foot usually forming a broad swimming organ in some gastropods (www.m-w.com) |
| PPG | Preputial gland | A small scent gland in the human male which secretes the smegma. Also known as Tyson's gland.<br>(McGraw-Hill) |
| PR | Proventriculus | 1) A sac anterior to the gizzard in earthworms.<br>2) The true stomach of a bird, usually separated from the gizzard by a constriction. |
| PRC | Pericardium | A double membranous sac which envelops and protects the heart. The layer in contact with the heart is referred to as the visceral layer, the outer layer in contact with surrounding organs is the parietal pericardium. In between the two layers is the pericardial space. (http://cancerweb.ncl.ac.uk/omd/) |
| PRF | Particulate fraction | |
| PRG | Progeny | Offspring, descendants |

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| PRO | Protein | Any of a group of complex organic compounds which contain carbon, hydrogen, oxygen, nitrogen and usually sulphur, the characteristic element being nitrogen and which are widely distributed in plants and animals. Proteins, the principal constituents of the protoplasm of all cells, are of high molecular weight and consist essentially of combinations of a amino acids in peptide linkages. (http://cancerweb.ncl.ac.uk/omd/) |
| PRT | Peritoneum | also peritoneum. The smooth serous membrane which lines the cavity of the abdomen, or the whole body cavity when there is no diaphragm, and, turning back, surrounds the viscera, forming a closed, or nearly closed sac (Grey on-line medical Dictionary) |
| PS | Pancreas | A composite gland in most vertebrates that produces and secretes digestive enzymes, as well as at least two hormones, insulin and glucagon. |
| PSG | Plastglobuli | Globules found in plastids, containing principally lipid, including plastoquinone. (http://cancerweb.ncl.ac.uk/omd/) |
| POS | Pod + Seed | |
| PT | Petioles | The stem which supports the blade of a leaf. |
| PTB | Parietal Bone | The side bone of the skull. |
| PTG | Parotid gland | A salivary gland situated in front of and below the ear. (Gray's) |
| PTU | Plant, Unspecified | |
| PU | Pollen tube | The tube produced by the wall of a pollen grain which enters the embryo sac and provides a passage through which the male nuclei reach the female nuclei. |
| PV | Perivitelline space | The space between the vitelline membrane and the zona pellucida, appearing in an ovum immediately following fertilization. (http://cancerweb.ncl.ac.uk/omd/) |
| PX | Pharynx | A chamber at the oral end of the vertebrate alimentary canal, leading to the esophagus. |
| PYR | Pyrenoid | A Small body found within some chloroplasts, that may contain protein. In green algae may be involved in starch synthesis. |
| **R** | | |

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| RA | Radius | One of two bones which constitute the forearm. The largest portion of the radius is at the wrist joint where it articulates with the carpal bones of the hand. (http://cancerweb.ncl.ac.uk/omd/) |
| RAC | Rachis | Elongated axis of an inflorescence. |
| RAD | Radius, distal | One of two bones which constitute the forearm situated away from the point of attachment or origin. The largest portion of the radius is at the wrist joint where it articulates with the carpal bones of the hand. (http://cancerweb.ncl.ac.uk/omd/) |
| RB | Rib | One of the curved bones attached to the vertebral column and supporting the lateral walls of the thorax. (http://cancerweb.ncl.ac.uk/omd/) |
| RC | Rectum | The portion of the large intestine between the sigmoid flexure and the anus. |
| RD | Radicle | |
| RE | Retina | Light sensitive layer of the eye. (http://cancerweb.ncl.ac.uk/omd/) |
| RTE | rete testis | The network of channels formed at the termination of the straight seminiferous tubules in the mediastinum testis. Rete testis channels drain into the efferent ductules that pass into the caput epididymis. (http://www.ncbi.nlm.nih.gov) |
| RG | Rectal gland | In Sharks: rectal gland is a highly specialized organ whose only function is to pump salt |
| RNM | renal medulla | The centre portion of the kidney. (http://cancerweb.ncl.ac.uk/omd/) |
| RNC | renal cortex | The part of the kidney consisting of renal lobules in the outer zone beneath the capsule and also the lobules of the renal columns that are extensions inward between the pyramids; contains the renal corpuscles and the proximal and distal convoluted tubules. Synonym: cortex renis. (http://cancerweb.ncl.ac.uk/omd/) |
| RH | Rhizome | An underground horizontal stem, often thickened and tuber-shaped, and processing buds, nodes, and scale-like leaves. |
| RL | Root, Lateral | |
| RLP | Root, Primary lateral | |
| RLS | Root, Secondary lateral | |

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| RM | Retractor Muscle | A muscle that draws a limb or other body part toward the body. |
| RO | Root | The absorbing and anchoring organ of a vascular plant; it bears neither leaves nor flowers and is usually subterranean. |
| ROC | Root Cortex | |
| ROE | Root, epidermis | |
| ROI | Root, Inner cortex | |
| ROO | Root, Outer cortex | |
| ROS | Root, Stele | The arrangement of vascular bundles in roots |
| RP | Root, Primary | |
| RPP | Renal papilla | The apex of a renal pyramid that projects into a minor calyx; some 10 to 25 openings of papillary ducts occur on its tip, forming the area cribrosa. (Gray's) |
| RR | Residual, Remnant, Carcass | |
| RS | Root + Stem | |
| RT | Reproductive Tissue | |
| RTC | Root tip cells | |
| RTP | Root tips | Terminal end of a root. |
| RU | Radius-Ulna | |
| RV | Right Ventricle | The muscular chamber of the heart which accepts blood from the right atrium and pumps it through the pulmonary artery into the lungs. |
| RZ | Root + Rhizome | |
| **S** | | |
| SA | Salt Gland | A compound tubular gland, located around the eyes and nasal passages in certain marine turtles, snakes, and birds, which copiously secretes a watery fluid containing a high percentage of salt. |
| SAP | Sap | The fluid part of a plant; specifically: a watery solution that circulates through |
| SB | Shell, Membrane | |
| SB2 | Stem/Stalk, Lower Half | |

| | | |
|---|---|---|
| SC | Scale | 1) A flat calcified or cornified platelike structure on the skin of most fishes and of some tetrapods.<br>2) The bract of a catkin. |
| SCH | Starch | Storage carbohydrate of plants. |
| SCM | Scrotum | The external pouch that in most mammals contains the testes. (Webster's) |
| SCP | Scapula | A large, flat, triangular bone that forms the posterior portion of the shoulder. It articulates with the clavicle (at the acromion process) and the humerus (at the glenoid). (http://cancerweb.ncl.ac.uk/omd/) |
| SCV | Sacral vertebrae | The segments of the vertebral column, usually five in number, that fuse to form the sacrum. Synonym: vertebrae sacrales. (http://cancerweb.ncl.ac.uk/omd/) |
| SD | Seed | A fertilized ovule containing an embryo which forms a new plant upon germination. |
| SDL | Seedling | A plant grown from a seed. |
| SDM | Subdermis | area below the skin |
| SE | Sensory Organs | |
| SEM | Semen | a viscid whitish fluid of the male reproductive tract consisting of spermatozoa suspended in secretions of accessory glands |
| SG | Shell Gland | 1) An organ that secretes the embryonic shell in many mollusks.<br>2) A specialized structure attached to the oviduct in certain animals that secretes the egg-shell material. |
| SH | Stomach | The tubular of saccular organ of the vertebrate digestive system located between the esophagus and the intestine and adapted for temporary food storage and for the preliminary stages of food breakdown. |
| SHF | Stomach or rumen fluid | Fluid found in the stomach or rumen |
| SI | Siphon | 1) A tubular element in various algae.<br>2) A tubular structure for intake or output of water in bivalves and other mollusks.<br>3) The sucking-type of proboscis in many arthropods. |

| | | |
|---|---|---|
| SIN | Small intestine | the part of the intestine that lies between the stomach and colon, consists of duodenum, jejunum, and ileum, secretes digestive enzymes, and is the chief site of the absorption of digested nutrients |
| SINM | Small intestine mucosa | A mucous membrane or tunica mucosa of the small intestine (Gray's) |
| SINS | Small intestine serosa | One of the delicate membranes of connective tissue which line the internal cavities of the small intestine. (Grays) |
| SK | Skin, Epidermis | The external covering of the vertebrate body, consisting of two layers, the outer epidermis and the inner dermis. |
| SKL | Skull | The bones and cartilages of the vertebrate head which forms the cranium and the face. |
| SKM | Skeletal Muscle | the striated muscle of vertebrates that is under voluntary control (http://cancerweb.ncl.ac.uk/omd/) |
| SLL | Shell | The hard covering of an egg. A hard calcareous, outer covering on an animal body, as of bivalves and turtles. In plants see Husk and Pod. (http://cancerweb.ncl.ac.uk/omd/) |
| SLK | Silk | The silky styles on an ear of corn. |
| SLV | Stem to Leaves | |
| SM | Sperm | A mature male germ cell. (Spermatozoa) |
| SMT | Spermatheca | A sac in the female for receiving and storing sperm in fertilization; found in many invertebrates and certain vertebrates. (Seminal receptacle) |
| SCY | Spermatocyte | Cells of the male reproductive system that undergo two meiotic divisions to give haploid spermatids.(http://cancerweb.ncl.ac.uk/omd/) |
| SN | Skeleton | The hard framework of the animal body, especially the boney framework of the body of higher vertebrate animals. |
| SO | Shoot | The aerial portion of a plant, including stem, branches, and leaves. A new, immature growth on a plant. |
| SOT | Shoot tip | The tip of shoot |
| SP | Spleen | A blood-forming lymphoid organ of the circulatory system, present in most vertebrates. (McGraw-Hill) |

| | | |
|---|---|---|
| SPB | Sphenoid bone | An irregularly shaped bone in front of the occipital in the base of the skull of the higher vertebrates. It is composed of several foetal bones which become united the adult. (Gray's) |
| SPI | Spine, Backbone | An articulated series of vertebrae forming the axial skeleton of the trunk and the tail. Spinal column, vertebral column |
| SPK | Spikelet | The compound inflorescence of a grass consisting of one or several bracteate spikes. |
| SPR | Sporophyte | A multicellular sporophyte generation or phase is present in the life cycle of all land plants and in some green algae. Plants alternate between the haploid gametophyte and diploid sporophyte production. (www.wikipedia.org/wiki and ECOTOX) |
| SPS | Spines, protuberant structures | Various protuberant structures commonly termed spines. Examples: Cladoceran tail and head spines, neckteeth and helmets. (ECOTOX and www.wikipedia.org/wiki) |
| SPT | Spermatid | The haploid product of the second meiotic division in spermatogenesis. Differentiate into mature spermatozoa. (Gray's) |
| SR | Serum | The liquid portion that remains when blood clots spontaneously and the formed and clotting elements are removed by centrifugation; it differs from plasma by the absence of fibrinogen. |
| SRB | Strobilus (mega-, micro-, etc.) | 1) Conelike structure made up of sporophyllus or spore-bearing leaves.<br>2) The cone membranes of the Pinophyta |
| SRC | Secretory Cell | A cell that secretes a fluid. |
| SS | Stem/Stalk | The organ of vascular plant that usually develops branches and bears leaves and flowers. |
| SSI | Serosa of the Small Intestines | Serous coat of the small intestine; the peritoneal covering of the external surface of the small intestine |
| SSC | Somatosensory center | Area of the brain that detects sensation relating to the body's superficial and deep parts |
| SSP | Stem plus Petioles | The stem and stock of the leaf that is attached to the stem. |
| ST | Soft Tissue | |

| | | |
|---|---|---|
| STA | Setae | A slender, usually rigid bristle or hair. Also known as chaeta. |
| STB | Seminiferous tubules | Any of the tubercles of the testes which produce spermatozoa. (McGraw-Hill) |
| STE | Sternum or sternebrae | a compound ventral bone or cartilage of most vertebrates other than fishes that connects the ribs or the shoulder girdle or both and in humans consists of the manubrium, gladiolus, and xiphoid process -- called also breastbone (Webster's) |
| STG | Straw and grain | |
| STH | Straw and husk | |
| STL | Stolon | Horizontal branch from the base of a plant that produces new plants from buds at its tip or nodes. |
| STM | Striatum | The corpus striatum, a part of the brain (Webster's Dictionary) |
| STR | Straw | |
| STV | Stover | Mature cured stalks of grain with the ears removed that are used as feed for livestock (MW online)] |
| SU | Stalk/Stem, Upper Half | |
| SV | Seminal Vesicle | A saclike, glandular diverticulum on each ductus deferens in male vertebrates; it is united with the excretory duct and serves for temporary storage of semen. Also: Sperm duct gland. |
| SVA | Saliva | A slightly alkaline secretion of water, mucin, protein, salts, and often a starch-splitting enzyme (as ptyalin) that is secreted into the mouth by salivary glands, lubricates ingested food, and often begins the breakdown of starches (http://www.m-w.com/dictionary/saliva) |
| SVG | Salivary gland | Any of the saliva-secreting exocrine glands of the oral cavity. (Gray's) |
| SWB | Swim Bladder | A gas-filled cavity found in the body cavities of most bony fishes; has various functions in different fishes, acting as a float, a lung, a hearing aid, and a sound producing organ. |
| SX | Submaxillary Gland | (Submandibular gland) A large seromucous or mixed salivary gland located below the mandible on each side of the jaw. |
| **T** | | |

| | | |
|---|---|---|
| TA | Tail | 1) The caudal fin of a fish or aquatic mammal.<br>2) The usually slender appendage that arises immediately above the anus in many vertebrates and contains the caudal vertebrae. |
| TAK | Thylakoid | Membranous cisternae of the chloroplast, found as part of the grana and also as single cisternae interconnecting the grana. Contain the photosynthetic pigments, reaction centres and electron transport chain. Each thylakoid consists of a flattened sac of membrane enclosing a narrow intra thylakoid space. (http://cancerweb.ncl.ac.uk/omd/) |
| TB | Tibia | The larger of the two leg bones, articulating with the femur, fibula, and talus |
| TBC | Tubercules | A small knoblike prominence. |
| TCH | Trachea | The windpipe. A fibrocartilaginous tube lined with mucous membrane passing from the larynx to the bronchi. (http://cancerweb.ncl.ac.uk/omd/) |
| TEL | Testicle, left | The testicle located on the left side of the body |
| TER | Testicle, right | The testicle located on the right side of the body |
| TCV | Thoracic vertebrae | The segments of the vertebral column, usually twelve, which articulate with ribs to form part of the thoracic cage. Synonym: vertebrae thoracicae. (http://cancerweb.ncl.ac.uk/omd/) |
| TD | Transudate | A fluid that passes through the pores or interstices of a membrane. |
| TE | Testes | The male reproductive glands in vertebrates; after sexual maturity, the source of sperm and hormones |
| TF | Tuber Flesh | Tuber = The enlarged end of a rhizome in which food accumulates, as is the potato. |
| TG | Thigh muscle | Thigh - The upper part of the leg, from the pelvis to the knee. |
| TH | Thorax | 1) The chest; the cavity of the mammalian body between the neck and the diaphragm, containing the heart, lungs, and mediastinal structures.<br>2) The middle of three principal divisions of the body of certain classes of arthropods. |
| TI | Tissue | An aggregation of cells more or less similar morphologically and functionally. |

| | | |
|---|---|---|
| TIL | Tillers | A shoot that develops from an axillary or adventitious bud at the base of a stem. |
| TK | Trunk | the main stem of a tree apart from limbs and roots or the human or animal body apart from the head and appendages |
| TKK | Trunk Kidney | The posterior trunk kidney is composed of numerous nephrons surrounded by interstitial lymphoid tissue. Right and left sides of the trunk kidney are fused and form a deep saddle which occupies the space between the two chambers of the gas bladder. (http://aquaticpath.umd.edu/fhm/renal.html) |
| TLE | Trifoliolate Leaf/Leaves | A leaf consisting of three leaflets. |
| TLI | Thalli | Thallus = A plant body that is not differentiated into special tissue systems or organs and may vary from a single cell to a complex, branching multicellular structure. |
| TLM | Thalamus | Either of two large ovoid masses, consisting chiefly of gray substance, situated one on each side of and forming part of the lateral wall of the third ventricle. (Grey's on-line dictionary) |
| TLN | Telencephalon | The anterior subdivision of the embryonic forebrain or the corresponding part of the adult forebrain that includes the cerebral hemispheres and associated structures. (Webster's) |
| TLS | Talus | the human tarsal bone that bears the weight of the body and that together with the tibia and fibula forms the ankle joint (Webster's) |
| TM | Tarsus-Metatarsus | |
| TMR | Tumor | An abnormal mass of tissue that results from excessive cell division that is uncontrolled and progressive, also called a neoplasm. Tumours perform no useful body function. They may be either benign (not cancerous) or malignant. |
| TN | Tentacles | Any of various elongate, flexible processes with tactile, prehensile, and sometimes other functions, and which are borne on the head or about the mouth of many animals. |

| | | |
|---|---|---|
| TO | Tongue | A muscular organ located on the floor of the mouth of most vertebrates which may serve various functions, such as taking and swallowing food or tasting or as a tactile organ or sometimes as a prehensile organ. |
| TOP | Tops (Plant) | |
| TOR | Torso | Portion of the body excluding the head and limbs; trunk |
| TP | Tuber Peeling | |
| TR | Tarsus | The instep of the foot consisting of the calcaneus, talus, cuboid, navicular, medial, intermediate, and lateral cuneiform bones. |
| TRD | Tear duct | also known as harderian, glandula lacrimalis, Lacrimal or lachrymal gland, a gland on the inner side of the orbit of many animals which have a third eyelid, or nictitating membrane. (http://cancerweb.ncl.ac.uk/omd/) |
| TS | Thymus | A lymphoid organ in the neck or upper thorax of all vertebrates; it is prominent in early life and is essential for normal development of the circulating pool of lymphocytes. |
| TSC | Thymus cortex | The outer layer of an organ or other body structure, as distinguished from the internal substance, in this case of the Thymus. (Grays) |
| TSL | Tassel | The terminal male inflorescence of some plants and especially corn. |
| TSM | Thymus medulla | The inner portion of an organ, in this case of the thymus. (Grays) |
| TT | Tibiotarsus | Pertaining to the tibia and the tarsus.<br>Tibia - shin bone<br>Tarsus - The seven bones constituting the articulation between the foot and the leg. |
| TTH | Tooth, teeth | One of the bony structures supported by the jaws in mammals and by other bones in the mouth and pharynx in lower vertebrates serving principally for prehension and mastication. |
| TU | Tuber | Tuber = The enlarged end of a rhizome in which food accumulates, as is the potato. |

| | | |
|---|---|---|
| TY | Thyroid | An endocrine gland found in all vertebrates that produces, stores, and secretes the thyroid hormones. |
| **U** | | |
| UB | Urinary Bladder | A hollow organ which serves as a reservoir for urine. |
| UBG | Ultimobranchial gland | In biology, any of the small bodies in the pharynx that develop behind the fifth pair of gill pouches in the vertebrate embryo. In mammals the ultimobranchial tissue has become incorporated into the parafollicular cells of the thyroid gland. Ultimobranchial glands produce the hormone calcitonin, which reduces the amount of calcium in the blood.(http://www.britannica.com/eb/article-9001367/ultimobranchial-gland) |
| UG | Uropygial Gland | A relatively large, compact, bilobed, secretory organ located at the base of the tail of most birds having a keeled sternum. Also known as oil gland. |
| UL | Ulna | One of the bones that comprise the forearm. The largest aspect articulates with the humerus at the elbow joint and the smallest portion of the ulna articulates with the carpal bones in the wrist. (http://cancerweb.ncl.ac.uk/omd/) |
| ULE | Unifoliate (Primary) Leaf/Leaves | A single leaf. |
| UNT | Urinary tract | The organs of the body that produce and discharge urine. These include the kidneys, ureters, bladder, and urethra. (http://cancerweb.ncl.ac.uk/omd/) |
| UP | Urogenital papillae | Urogenital = pertaining to the urinary and genital apparatus.<br>Papillae = A small nipple-like projection, elevation, or structure. |
| UR | Urine | The fluid excreted by the kidneys |
| UTH | Urethra | A tube that transports urine from the urinary bladder to the outside of the body in both the sexes. It also has a reproductive function in the male by providing a passage for sperm. (http://www.ncbi.nlm.nih.gov) |
| URT | Ureter | The tube passing from each kidney to the bladder for the conveyance of urine. Its average length is 25 to 30 centimeters. (Gray's) |

| | | |
|---|---|---|
| UT | Uterus | The organ of gestation in mammals which receives and retains the fertilized ovum, holds the fetus during development, and becomes the principal agent of its explusion at term. |
| **V** | | |
| VA | Vagina | The canal from the vulvar opening to the cervix uteri.<br>(McGraw-Hill) |
| VAS | Vasculature | Arterial, capillary, and venous systems of an organ or region. The cardiovascular and lymphatic system's collectively. Also: vascular system or circulatory system (http://cancerweb.ncl.ac.uk and http://www.ncbi.nlm.nih.gov) |
| VC | Visual center | Area of the brain that detects visual stimulus |
| CL | Vacuole | a small cavity or space in the tissue of an organism containing air or fluid (Webster's) |
| VD | Vas Deferens | The portion of the excretory duct system of the testis which runs from the epididymal duct to the ejaculatory duct. |
| VE | Vertebra | One of the bones that make up the spine in vertebrates. |
| VEN | Vein | Blood vessel that returns blood from the microvasculature to the heart, walls thinner and less elastic than those of artery.(http://cancerweb.ncl.ac.uk/omd) |
| VG | Vegetative portion | WO - SD or FR |
| VGL | Visceral Ganglion | Any of the various ganglia that are part of the autonomic nervous system and are located along the sympathetic trunks, on the peripheral plexuses, and within the walls of organs. Also called visceral ganglion. (/medical-dictionary.thefreedictionary.com/) |
| VI | Viscera | The organs within the cavities of the body of an organism |
| VL | Villi | villus = A fingerlike projection from the surface of a membrane. |
| VN | Vines | A plant whose stem requires support and which climbs by tendrils or twining or creeps along the ground; also : the stem of such a plant |

| | | |
|---|---|---|
| VNT | Ventricle | A chamber of the heart which receives blood from a corresponding atrium and from which blood is forced into the arteries. (Webster's) |
| VSC | Vesicle | A closed membrane shell, derived from membranes by a physiological process. |
| VV | Valve | One shell of a double shelled mollusc such as a clam or oyster. (http://cancerweb.ncl.ac.uk/omd/) |
| **W** | | |
| WD | Wolffian Duct | The Wolffian duct (also known as archinephric duct, Leydig's duct, mesonephric duct, or nephric duct) is a paired organ found in mammals including humans during embryogenesis. (http://en.wikipedia.org/wiki/Wolffian_duct) |
| WI | Wings | Any of the paired appendages serving organs of flight on many animals |
| WL | Wall, Body | |
| WM | White matter | Brain tissue composed of myelin-coated nerve cell fibers. |
| WO | Whole Organism | |
| **Y** | | |
| YO | Yolk | The yellow spherical mass of food material that makes up the central portion of the egg of a bird or reptile. |
| YS | Yolk sac | A membranous sac that is attached to an embryo and encloses food yolk, that is continuous in most forms through the yolk stalk with the intestinal cavity of the embryo, that being abundantly supplied with blood vessels is throughout embryonic life and in some forms later the chief organ of nutrition, and that in placental mammals is nearly vestigial and functions chiefly prior to the elaboration of the placenta. (Webster's) |
| **Z** | | |
| ZP | Zona pellucida | Pellucid zone: a thick, transparent, noncellular layer or envelope of uniform thickness surrounding an oocyte; also called oolemma. Under a microscope it appears radially striated and is therefore also called zona radiata, zona striata or striated membrane |

# Appendix V. Common Keywords for Other Effects Text Field

| |
|---|
| age efcts |
| Alkalinity efcts |
| Bacteria |
| Biological Toxicant |
| BLM [endpoint] also reported |
| Conductivity efcts |
| Critical Level |
| Diet Study |
| Depuration |
| D.O. efcts |
| Effluent |
| Elimination |
| fate |
| Feeding efcts |
| Field Study |
| Food Chain Study |
| Genotoxicity threshold |
| Hardness efcts |
| Humic Acid |
| Hypoxia efcts |
| Ind Taxon Result |
| in vitro |
| Kinetics |
| Lethal Body Burden |
| log LC50 |
| Market |
| Metabolism |
| metabolites |
| Microtox |
| Mixture |
| nutrient study |
| Oil |
| Org_C efcts |
| pH efcts |
| Pre-Exposure Study |

| |
|---|
| QSAR |
| Radiolabel |
| Recovery |
| Residual Toxicity |
| Safe Conc (Safe Concentration) |
| Salinity efcts |
| Sediment |
| Sex efcts |
| Size efcts |
| Statistical analysis comparison |
| Strain efcts |
| Surgically altered |
| Temperature efcts |
| Toxicity Symptoms |
| Transport |
| Uptake |
| Vehicle efcts |

# Appendix W. Water Chemistry Units (AQUIRE only)

| Code | Definition |
|---|---|
| % | percent |
| % Sat | Percent saturation |
| C | Celsius |
| kDa | kilo Daltons |
| F | Fahrenheit |
| K | Kelvin |
| N | Normal |
| NR | Not reported |
| PSU | practical salinity units |
| cm | centimeters |
| cm3/L | cubic centimeters per liter |
| dH | degrees hardness, may be used for various obsolete units: degrees general hardness, degrees German hardness, degrees American hardness, degrees Clark hardness, degrees French hardness, etc (http://en.wikipedia.org/wiki and ECOTOX) specific hardness to be noted in Remarks |
| dS/m | deciSiemens per meter |
| FS | French Hardness |
| ft | feet |
| g CaCO3 | grams Calcium carbonate |
| g/dm3 | grams per cubic decimeter |
| g/kg | grams per kilograms |
| g/L | grams per liter |
| g/L CaCO3 | grams per liter Calcium Carbonate |
| g/m3 CaCO3 | grams per cubic meter Calcium carbonate |
| g/3.5L | grams per 3.5 liters |
| HARD | Hard water |
| HCO3 | Hydrogen carbonate |
| in | inches |
| m | meters |
| M | Molar |
| M NaCl | Molar Sodium Chloride |
| mho | A unit of conductance equal to the reciprocal of an ohm |
| mho/cm | mho per centimeter |

| Code | Definition |
|---|---|
| mM | millimolar |
| mM CaCO3 | millimolar Calcium carbonate |
| mN | millinormal |
| mOhm | milliohms |
| mS | milli Siemens |
| mS/cm | milli Siemens per centimeter |
| mS/cm2 | milli Siemens per square centimeter |
| mS/m | milli Siemens per meter |
| meq | milli equivalents |
| meq/L | milli equivalents per liter |
| meq/100 g | milli equivalents per 100 grams |
| mg/dm3 | milligram per cubic decimeter |
| mg/g | milligrams per gram |
| mg/ml CaCO3 | milligrams per milliliter CaCO3 |
| mg/L | milligrams per liter |
| mg/L C | milligrams per liter Carbon |
| mg/L CO3 | milligrams per liter carbonate |
| mg/L CaCO3 | milligrams per liter Calcium carbonate |
| mg/L CaO | milligrams per liter Calcium Oxide |
| mg/L EDTA | milligrams per liter EDTA |
| mg/L FA | milligrams per liter fulvic acid |
| mg/L HA | milligrams per liter Humic acid |
| mg/L HCO3 | milligrams per liter Hydrogen Carbonate |
| mg/L Mg | milligrams per liter Magnesium |
| mg/L MO | milligrams per liter Methyl Orange |
| mg/L phenolpththalein | milligrams per liter phenolphthalein |
| mg/L, Ca | milligrams per liter, Calcium Hardness |
| mg/15 ml | milligrams per 15 milliliters |
| mg/ml | milligrams per milliliter |
| ml/L | milliliter per liter |
| ml HCl | milliliters HCl |
| ml N/10 HCl | milliliters nitrogen per 10 HCl |
| ml N/100 HCl | milliliter Nitrogen per 100 Hydrochloric acid |
| mm | millimeters |
| mm Hg | millimeters Mercury |

| Code | Definition |
|---|---|
| mmhos * | milli ohms |
| mmhos/cm * | milliohms per centimeter |
| mmol | millimoles |
| mmol/l | millimoles per liter |
| mmol/L CaCO3 | millimoles per Liter Calcium Carbonate |
| mmol/L OH | millimoles per liter Hydroxide |
| mol/L | moles per liter |
| mOsm | milliosmoles |
| mV | millivolts |
| ohms | ohms |
| ohm/cm | ohms per centimeter |
| ppm | parts per million |
| ppm CaCO3 | parts per million CaCO3 |
| ppm MO | parts per million Methyl Orange |
| ppm phenolphthalein | parts per million phenolphthalein |
| 0/00 | parts per thousand |
| ppt | parts per trillion |
| S | Siemens |
| S/m | Siemens per meter |
| SAT | Saturated |
| SOFT | Soft water |
| ug/dm3 | micrograms per cubic decimeter |
| ug/kg | micrograms per kilogram |
| ug/L | micrograms per liter |
| ug/L CaCO3 | micrograms per liter Calcium carbonate |
| uS | micro Siemens |
| uS/cm | microSiemens per centimeter |
| uS/L | microSiemens per liter |
| uS/s | microSiemens per second |
| ueq/L | micro equivalents per liter |
| uM | micromolar |
| uM/cm | micromolar per centimeter |
| Umhos * | micro ohms |
| umhos/cm * | micro ohms per centimeter |
| umhos/cm2 * | micro ohms per square centimeter |

| **Code** | **Definition** |
|---|---|
| umhos/L | micromhos per liter |
| umhos/s | micromhos per second |
| umhos/um | micromhos per micrometer |
| umol/L | micromoles per liter |
| umol/L CaCO3 | micromoles per liter Calcium Carbonate |
| umol/ml | micromoles per milliliter |

*** See ALP prior to assigning this code**

# Appendix X. Habitat Codes and Common Descriptors

| Code | Habitat | Definition | Descriptors |
|---|---|---|---|
| E | Estuarine | “deepwater tidal habitats... with sporadic access to open ocean...ocean water... is diluted by freshwater...”; Salinity range between 0.5-30ppt | Bay<br>Marsh, brackish, salt, tidal<br>Estuary<br>Swamp |
| L | Lacustrine | “permanently flooded lakes and reservoirs, intermittent lakes and tidal lakes with salinity <= 0.5ppt”; total area exceeds 8 ha (8 acres) and 2 m water depth. | Bay<br>Cove<br>Impoundment<br>Lake |
| M | Marine | “open ocean overlying the continental shelf and it associated.... coastline; includes shallow coastal indentations or bays; salinity [typically] exceed 30 ppt” | Bay<br>Gulf<br>Open Ocean<br>Reef<br>Seaweed bed |
| P | Palustrine | “small, shallow, permanent or intermittent fresh water bodies”; total area <= 8 ha (20 acres) and <=2m water depth | Bog<br>Fen<br>Marsh<br>Rice fields<br>Swamp<br>Wetland |
| R | Riverine | “a channel, an open conduit either naturally or artificially created which periodically or continuously contains moving water or which forms a connecting link between two bodies of standing water” salinity <= 0.5ppt | Creek<br>River<br>Stream<br>Tidal River<br>Tributary |
| D | Desert | Occur where rainfall is less than 50 cm/year. | Hot and Dry<br>Semiarid<br>Coastal<br>Cold |
| F | Forest | Biological communities that are dominated by trees and other woody vegetation, Distinct forest types also occur within each of these broad groups. | Tropical (rainforest)<br>Temperate<br>Boreal forests (taiga) |
| G | Grasslands | Characterized as lands dominated by grasses rather than large shrubs or trees | Tropical (savannas)<br>Temperate (prairie) |

| Code | Habitat | Definition | Descriptors |
|---|---|---|---|
| | | | Agriculture (monoculture) |
| T | Tundra | Extremely cold climate with low biotic diversity, simple vegetation structure, limitation of drainage (permafrost), short growing season. | Arctic (polar)<br>Alpine (mountain) |
| NR | Not Reported | | |

# Appendix Y. Substrate Codes (AQUIRE only)

| Code | Definition |
|---|---|
| CL | Clay |
| GR | Gravel |
| M | Mineral |
| MX | Mixed substrate |
| MU | Mud |
| NR | Not Reported |
| O | Organic |
| SA | Sand |
| SI | Silt |

# Appendix Z. Depth Units

| Code | Definition |
|---|---|
| NR | Not reported |
| cm | Centimeters |
| ft | Feet |
| in | Inches |
| m | Meters |
| mm | Millimeters |

# Appendix AA. Field Location Abbreviations (AQUIRE only)

| | |
|---|---|
| Aqu | Aquatic |
| Agric | Agricultural |
| Co | County |
| Cr | Creek |
| Dev | Development |
| Dis | District |
| E* | East |
| Env | Environmental |
| Exp | Experimental |
| Fish | Fisheries |
| Inst | Institute |
| Isl | Island |
| L | Lake |
| Lab | Laboratory |
| Natl | National |
| N* | North |
| NE* | Northeast |
| NW* | Northwest |
| MT | Mountain |
| R | River |
| Res | Research |
| Resvr | Reservoir |
| S* | South |
| SE* | Southeast |
| SW* | Southwest |
| St | Saint |
| Sta | Station |
| USFWS | United States Fish and Wildlife |
| Univ | University |
| W* | West |

*Do not abbreviate directional information that is part of the proper name of a location (e.g. South L or Northwest Territory)

# Appendix BB. Geographic Text (AQUIRE only)

AF AFGHANISTAN

| | |
|---|---|
| AF01 | Badakhshan |
| AF02 | Badghis |
| AF03 | Baghlan |
| AF30 | Balkh |
| AF05 | Bamian |
| AF06 | Farah |
| AF07 | Faryab |
| AF08 | Ghazni |
| AF09 | Ghowr |
| AF10 | Helmand |
| AF11 | Herat |
| AF31 | Jowzjan |
| AF13 | Kabol |
| AF23 | Kandahar |
| AF13 | Kapisa |
| AF15 | Konar |
| AF24 | Kondoz |
| AF16 | Laghman |
| AF17 | Lowgar |
| AF18 | Nangarhar |
| AF19 | Nimruz |
| AF20 | Oruzgan |
| AF21 | Paktia |
| AF22 | Paktika |
| AF22 | Parvan |
| AF32 | Samangan |
| AF33 | Sar-e Pol |
| AF26 | Takhar |
| AF27 | Vardak |
| AF28 | Zabol |

AL ALBANIA

| | |
|---|---|
| AL01 | Berat |
| AL02 | Dibre |
| AL03 | Durres |
| AL04 | Elbasan |
| AL05 | Fier |
| AL06 | Gjirokaster |
| AL07 | Gramsh |
| AL08 | Kolonje |
| AL09 | Korce |
| AL10 | Kruje |
| AL11 | Kukes |
| AL12 | Lezhe |
| AL13 | Librazhd |
| AL14 | Lushnje |
| AL15 | Mat |
| AL16 | Mirdite |
| AL17 | Permet |
| AL18 | Pogradec |
| AL19 | Puke |
| AL20 | Sarande |
| AL21 | Shkoder |
| AL22 | Skrapar |
| AL23 | Tepelene |
| AL28 | Tirane |
| AL26 | Tropoje |
| AL27 | Vlore |

AG ALGERIA

| | |
|---|---|
| AG34 | Adrar |
| AG35 | Ain Defla |
| AG36 | Ain Temouchent |
| AG01 | Alger |
| AG37 | Annaba |
| AG03 | Batna |
| AQ38 | Bechar |
| AG18 | Bejaia |
| AG19 | Biskra |
| AG20 | Blida |
| AG39 | Bordj Bou Arreridj |
| AG21 | Bouira |
| AG40 | Boumerdes |
| AG41 | Chlef |
| AG04 | Constantine |
| AG22 | Djelfa |
| AG42 | El Bayadh |
| AG43 | El Oued |
| AG44 | El Tarf |
| AG45 | Ghardaia |
| AG23 | Guelma |
| AG46 | Illizi |
| AG24 | Jijel |
| AG47 | Khenchela |
| AG25 | Laghouat |
| AG26 | Mascara |
| AG06 | Medea |
| AG48 | Mila |
| AG07 | Mostaganem |
| AG27 | M'sila |
| AG49 | Naama |
| AG09 | Oran |
| AG50 | Ouargla |
| AG29 | Oum el Bouaghi |
| AG51 | Relizane |
| AG10 | Saida |
| AG12 | Setif |
| AG30 | Sidi Bel Abbes |
| AG31 | Skikda |
| AG52 | Souk Ahras |
| AG53 | Tamanghasset |
| AG33 | Tebessa |
| AG13 | Tiaret |
| AG54 | Tindouf |
| AG55 | Tipaza |
| AG56 | Tissemsilt |
| AG14 | Tizi Ouzou |
| AG15 | Tlemcen |

AQ AMERICAN SAMOA

AN ANDORRA

| | |
|---|---|
| AN01 | Andorra |
| AN02 | Canillo |
| AN03 | Encamp |
| AN04 | La Massana |
| AN05 | Ordino |
| An06 | Sant Julia de Loria |

AO ANGOLA

AO19 Bengo

AO01 Benguela

AO02 Bie

AO03 Cabinda

AO04 Cuando Cubango

AO05 Cuanza Norte

AO06 Cuanza Sul

AO07 Cunene

AO08 Huambo

AO09 Huila

AO20 Luanda

AO17 Lunda Norte

AO18 Lunda Sul

AO12 Malanje

AO14 Moxico

AO15 Uige

AO16 Zaire

AV ANGUILLA

AY ANTARCTICA

AC ANTIGUA AND BARBUDA

AC01 Barbuda

AC03 Saint George

AC04 Saint John

AC05 Saint Mary

AC06 Saint Paul

AC07 Saint Peter

AC08 Saint Philip

AR ARGENTINA

AC01 Buenos Aires

AC02 Catamarca

AR03 Chaco

AR04 Chubut

AR05 Cordoba

AR06 Corrientes

AR07 Distrito Federal

AR08 Entre Rios

AR09 Formosa

AR10 Jujuy

AR11 La Pampa

AR12 La Rioja

AR13 Mendoza

AR14 Misiones

AR15 Neuquen

AR16 Rio Negro

AR17 Salta

AR18 San Juan

AR19 San Luis

AR20 Santa Cruz

AR21 Santa Fe

AR22 Santiago del Estero

AR23 Tierra del Fuego, Antartidae Islas del Atlantico Sur

AR24 Tucuman

AM ARMENIA

AA ARUBA

AT ASHMORE AND CARTIER ISLANDS

* AS AUSTRALIA

AS01 Australian Capital Territory

AS02 New South Wales

AS03 Northern Territory

AS04 Queensland

AS05 South Australia

AS06 Tasmania

AS07 Victoria

AS08 Western Australia

AU AUSTRIA

AU01 Burgenland

AU02 Karnten

AU03 Niederosterreich

AU04 Oberosterreich

AU05 Salzburg

AU06 Steiermark

AU07 Tirol

AU08 Vorarlberg

AU09 Wien

AJ AZERBAIJAN

BF BAHAMAS, THE

BF24 Acklins and Crooked Islands

BF05 Bimini

BF06 Cat Island

BF10 Exuma

BF25 Freeport

BF26 Fresh Creek

BF27 Governor's Harbour

BF28 Green Turtle Cay

BF22 Harbour Island

BF29 High Rock

BG13 Inagua

BF30 Kemps Bay

BF15 Long Island

BF31 Marsh Harbour

BF16 Mayaguana

BF23 New Providence

BF32 Nichollstown and Berry Islands

BF18 Ragged Island

BF33 Rock Sound

BF34 Sandy Point

BF35 San Salvador and Rum Cay

BA BAHRAIN

BA01 Al Hadd

BA02 Al Manamah

BA08 Al Mintaqah al Gharbiyah

BA11 Al Mintaqah al Wusta

BA10 Al Mintaqah ash Shamaliyah

BA03 Al Muharraq

BA13 Ar Rifa` wa al Mintaqah al Janubiyah

BA05 Jidd Hafs

BA14 Madinat Hamad

BA12 Madinat `Isa

BA09 Mintaqat Juzur Hawar

BA06 Sitrah

FQ BAKER ISLAND

BG BANGLADESH

BG22 Bagerhat

BG04 Bandarban

BG25 Barguna
BG01 Barisal
BG23 Bhola
BG24 Bogra
BG26 Brahmanbaria
BG27 Chandpur
BG28 Chapai Nawabganj
BG29 Chattagram
BG30 Chuadanga
BG05 Comilla
BG31 Cox's Bazar
BG32 Dhaka
BG33 Dinajpur
BG34 Faridpur
BG35 Feni
BG36 Gaibandha
BG37 Gazipur
BG38 Gopalganj
BG39 Habiganj
BG40 Jaipurhat
BG41 Jamalpur
BG42 Jessore
BG43 Jhalakati
BG44 Jhenaidah
BG45 Khagrachari
BG46 Khulna
BG47 Kishorganj
BG48 Kurigram
BG49 Kushtia
BG50 Laksmipur
BG51 Lalmonirhat
BG52 Madaripur
BG53 Magura
BG54 Manikganj
BG55 Meherpur
BG56 Moulavibazar
BG57 Munshiganj
BG12 Mymensingh
BG58 Naogaon
BG59 Narail
BG60 Narayanganj
BG61 Narsingdi
BG62 Nator
BG63 Netrakona
BG64 Nilphamari
BG13 Noakhali
BG65 Pabna
BG66 Panchagar
BG67 Parbattya Chattagram
BG15 Patuakhali
BG68 Pirojpur
BG69 Rajbari
BG70 Rajshahi
BG71 Rangpur
BG72 Satkhira
BG73 Shariyatpur
BG74 Sherpur
BG75 Sirajganj
BG76 Sunamganj
BG77 Sylhet
BG78 Tangail
BG79 Thakurgaon

BB BARBADOS
BB01 Christ Church
BB02 Saint Andrew
BB03 Saint George
BB04 Saint James
BB05 Saint John
BB06 Saint Joseph
BB07 Saint Lucy
BB08 Saint Michael
BB09 Saint Peter
BB10 Saint Philip
BB11 Saint Thomas

BS BASSAS DA INDIA

BO BELARUS

BE BELGIUM
BE01 Antwerpen
BE02 Brabant
BE03 Hainaut
BE04 Liege
BE05 Limburg
BE06 Luxembourg
BE07 Namur
BE08 Oost-Vlaanderen
BE09 West-Vlaanderen

BH BELIZE
BH01 Belize
BH02 Cayo
BH03 Corozal
BH04 Orange Walk
BH05 Stann Creek
BH06 Toledo

BN BENIN
BN01 Atakora
BN02 Atlantique
BN03 Borgou
BN04 Mono
BN05 Oueme
BN06 Zou

BD BERMUDA
BD01 Devonshire
BD03 Hamilton
BD03 Hamilton
BD04 Paget
BD05 Pembroke
BD06 Saint George
BD07 Saint George's
BD08 Sandys
BD09 Smiths
BD10 Southampton
BD11 Warwick

BT BHUTAN
BT05 Bumthang
BT06 Chhukha
BT07 Chirang
BT08 Daga
BT09 Geylegphug
BT10 Ha
BT11 Lhuntshi
BT12 Mongar
BT13 Paro
BT14 Pemagatsel
BT15 Punakha

BT16 Samchi
BT17 Samdrup
BT18 Shemgang
BT19 Tashigang
BT20 Thimphu
BT21 Tongsa
BT22 Wangdi Phodrang

BL BOLIVIA
BL01 Chuquisaca
BL02 Cochabamba
BL03 El Beni
BL04 La Paz
BL05 Oruro
BL06 Pando
BL07 Potosi
BL08 Santa Cruz
BL09 Tarija

BK BOSNIA AND HERZEGOVINA

* BC BOTSWANA
BC01 Central
BC02 Chobe
BC03 Ghanzi
BC04 Kgalagadi
BC05 Kgatleng
BC06 Kweneng
BC07 Ngamiland
BC08 North-East
BC09 South-East
BC10 Southern

BV BOUVET ISLAND

* BR BRAZIL
BR01 Acre
BR02 Alagoas
BR03 Amapa
BR04 Amazonas
BR05 Bahia
BR06 Ceara
BR07 Distrito Federal
BR08 Espirito Santo
BR29 Goias
BR13 Maranhao
BR14 Mato Grosso
BR11 Mato Grosso do Sul
BR15 Minas Gerais
BR16 Para
BR17 Paraiba
BR18 Parana
BR30 Pernambuco
BR20 Piaui
BR21 Rio de Janeiro
BR22 Rio Grande do Norte
BR23 Rio Grande do Sul
BR24 Rondonia
BR25 Roraima
BR26 Santa Catarina
BR27 Sao Paulo
BR28 Sergipe
BR31 Tocantins

IO BRITISH INDIAN OCEAN TERRITORY

VI BRITISH VIRGIN ISLANDS

BX BRUNEI
BX01 Belait
BX02 Brunei and Muara
BX03 Temburong
BX04 Tutong

BU BULGARIA
BU29 Burgas
BU30 Grad Sofiya
BU31 Khaskovo
BU32 Lovech
BU33 Mikhaylovgrad
BU34 Plovdiv
BU35 Razgrad
BU36 Sofiya
BU37 Varna

* UV BURKINA
UV15 Bam
UV16 Bazega
UV17 Bougouriba
UV18 Boulgou
UV19 Boulkiemde
UV20 Ganzourgou
UV21 Gnagna
UV22 Gourma
UV23 Houet
UV24 Kadiogo
UV25 Kenedougou
UV26 Komoe
UV27 Kossi
UV28 Kouritenga
UV29 Mouhoun
UV30 Namentenga
UV31 Naouri
UV32 Oubritenga
UV33 Oudalan
UV34 Passore
UV35 Poni
UV36 Sanguie
UV37 Sanmatenga
UV38 Seno
UV39 Sissili
UV40 Soum
UV41 Sourou
UV42 Tapoa
UV43 Yatenga
UV44 Zoundweogo

BM BURMA
BM02 Chin State
BM03 Irrawaddy
BM04 Kachin State
BM05 Karan State
BM06 Kayah State
BM07 Magwe
BM08 Mandalay
BM13 Mon State
BM09 Pegu
BM01 Rakhine State
BM14 Rangoon
BM10 Sagaing
BM11 Shan State

BM12 Tenasserim

BY BURUNDI

BY09 Bubanza
BY02 Bujumbura
BY10 Bururi
BY11 Cankuzo
BY12 Cibitoke
BY13 Gitega
BY14 Karuzi
BY15 Kayanza
BY16 Kirundo
BY17 Makamba
BY05 Muramvya
BY18 Muyinga
BY19 Ngozi
BY20 Rutana
BY21 Ruyigi

CB CAMBODIA

CB01 Batdambang
CB02 Kampong Cham
CB03 Kampong Chhnang
CB04 Kampong Spoe
CB05 Kampong Thum
CB06 Kampot
CB07 Kandal
CB08 Kaoh Kong
CB09 Kracheh
CB10 Mondol Kiri
CB11 Phnum Penh
CB12 Pouthisat
CB13 Preah Vihear
CB14 Prey Veng
CB15 Rotanokiri
CB16 Siemreab-Otdar Meanchey
CB17 Stoeng Treng
CB18 Svay Rieng
CB19 Takev

* CM CAMEROON

CM10 Adamaoua
CM11 Centre
CM04 Est
CM12 Extreme-Nord
CM05 Littoral
CM13 Nord
CM07 Nord-Ouest
CM08 Ouest
CM14 Sud
CM09 Sud-Ouest

* CA CANADA

* CA01 Alberta
* CA02 British Columbia
* CA03 Manitoba
* CA04 New Brunswick
* CA05 Newfoundland
* CA06 Northwest Territories
* CA07 Nova Scotia
* CA08 Ontario
* CA09 Prince Edward Island
* CA10 Quebec
* CA11 Saskatchewan
* CA12 Yukon Territory

CV CAPE VERDE

CV01 Boa Vista
CV02 Brava
CV03 Fogo
CV04 Maio
CV05 Paul
CV06 Praia
CV07 Ribeira Grande
CV08 Sal
CV09 Santa Catarina
CV10 Sao Nicolau
CV11 Sao Vicente
CV12 Tarrafal

CJ CAYMAN ISLANDS

CJ01 Creek
CJ02 Eastern
CJ03 Midland
CJ04 South Town
CJ05 Spot Bay
CJ06 Stake Bay
CJ07 West End
CJ08 Western

CT CENTRAL AFRICAN REPUBLIC

CT01 Bamingui-Bangoran
CT18 Bangui
CT02 Basse-Kotto
CT15 Gribingui
CT03 Haute-Kotto
CT04 Haute-Sangha
CT05 Haut-Mbomou
CT06 Kemo-Gribingui
CT07 Lobaye
CT08 Mbomou
CT09 Nana-Mambere
CT17 Ombella-Mpoko
CT11 Ouaka
CT12 Ouham
CT13 Ouham-Pende
CT16 Sangha
CT14 Vakaga

CD CHAD

CD01 Batha
CD02 Biltine
CD03 Borkou-Ennedi-Tibesti
CD04 Chari-Baguirmi
CD05 Guera
CD06 Kanem
CD07 Lac
CD08 Logone Occidental
CD09 Logone Oriental
CD10 Mayo-Kebbi
CD11 Moyen-Chari
CD12 Ouaddai
CD13 Salamat
CD14 Tandjile

CI CHILE

CI02 Aisen del General Carlos Ibanez del Campo
CI03 Antofagasta
CI04 Araucania
CI05 Atacama
CI06 Bio-Bio

CI07 Coquimbo
CI08 Libertador General Bernardo O'Higgins
CI09 Los Lagos
CI10 Magallanes y de la Antartica Chilena
CI11 Maule
CI12 Region Metropolitana
CI13 Tarapaca Valparaiso

* CH CHINA
CH01 Anhui
CH22 Beijing
CH07 Fujian
CH15 Gansu
CH30 Guangdong
CH16 Guangxi
CH18 Guizhou
CH31 Hainan
CH10 Hebei
CH08 Heilongjiang
CH09 Henan
CH12 Hubei
CH11 Hunan
CH04 Jiangsu
CH03 Jiangxi
CH05 Jilin
CH19 Liaoning
CH20 Nei Mongol
CH21 Ningxia
CH06 Qinghai
CH26 Shaanxi
CH25 Shandong
CH23 Shanghai
CH24 Shanxi
CH27 Sichuan
CH28 Tianjin
CH13 Xinjiang
CH14 Xizang
CH29 Yunnan
CH02 Zhejiang
KT CHRISTMAS ISLAND

IP CLIPPERTON ISLAND

CK COCOS (KEELING) ISLANDS

CO COLOMBIA
CO01 Amazonas
CO02 Antioquia
CO03 Arauca
CO04 Atlantico
CO35 Bolivar
CO36 Boyaca
CO37 Caldas
CO08 Caqueta
CO32 Casanare
CO09 Cauca
CO10 Cesar
CO11 Choco
CO12 Cordoba
CO33 Cundinamarca
CO34 Distrito Especial
CO15 Guainia
CO14 Guaviare
CO16 Huila
CO17 La Guajira
CO38 Magdalena
CO19 Meta
CO20 Narino
CO21 Norte de Santander
CO22 Putumayo
CO23 Quindio
CO24 Risaralda
CO25 San Andres y Providencia
CO26 Santander
CO27 Sucre
CO28 Tolima
CO29 Valle del Cauca
CO30 Vaupes
CO31 CVichada

CN COMOROS
CN01 Anjouan
CN02 Grande Comore
CN03 Moheli

CF CONGO
CF01 Bouenza
CF12 Brazzaville
CF03 Cuvette
CF04 Kouilou
CF05 Lekoumou
CF06 Likouala
CF07 Niari
CF08 Plateaux
CF11 Pool
CF10 Sangha

CW COOK ISLANDS

CR CORAL SEA ISLANDS

CS COSTA RICA
CS01 Alajuela
CS02 Cartago
CS03 Guanacaste
CS04 Heredia
CS06 Limon
CS07 Puntarenas
CS08 San Jose

IV COTE D'IVOIRE
IV01 Abengourou
IV35 Abidjan
IV04 Aboisso
IV05 Adzope
IV06 Agboville
IV36 Bangolo
IV37 Beoumi
IV07 Biankouma
IV38 Bondoukou
IV27 Bongouanou
IV39 Bouafle
IV40 Bouake
IV11 Bouna
IV12 Boundiali
IV03 Dabakala
IV41 Daloa
IV14 Danane
IV42 Daoukro

IV43 Dimbokro
IV16 Divo
IV44 Duekoue
IV17 Ferkessedougou
IV18 Gagnoa
IV45 Grand-Lahou
IV46 Guiglo
IV28 Issia
IV20 Katiola
IV21 Korhogo
IV29 Lakota
IV47 Man
IV30 Mankono
IV48 Mbahiakro
IV23 Odienne
IV31 Oume
IV49 Sakassou
IV50 San Pedro
IV51 Sassandra
IV25 Seguela
IV52 Sinfra
IV32 Soubre
IV53 Tabou
IV54 Tanda
IV55 Tiassale
IV33 Tingrela
IV26 Touba
IV56 Toumodi
IV57 Vavoua
IV58 Yamoussoukro
IV34 Zuenoula

HR CROATIA

CU CUBA
CU05 Camaguey
CU07 Ciego de Avila
CU08 Cienfuegos
CU02 Ciudad de la Habana
CU09 Granma
CU10 Guantanamo
CU12 Holguin
CU04 Isla de la Juventud
CU11 La Habana
CU13 Las Tunas
CU03 Matanzas
CU01 Pinar del Rio
CU14 Sancti Spiritus
CU15 Santiago de Cuba
CU16 Villa Clara

CY CYPRUS
CY01 Famagusta
CY02 Kyrenia
CY03 Larnaca
CY05 Limassol
CY04 Nicosia
CY06 Paphos

* EZ CZECH REPUBLIC

* DA DENMARK
DA01 Arhus
DA02 Bornholm
DA03 Frederiksborg
DA04 Fyn
DA05 Kobenhavn
DA07 Nordjylland
DA08 Ribe
DA09 Ringkobing
DA10 Roskilde
DA11 Sonderjylland
DA06 Staden Kobenhavn
DA12 Storstrom
DA13 Vejle
DA14 Vestsjalland
DA15 Viborg

DJ DJIBOUTI
DJ01 `Ali Sabih
DJ02 Dikhil
DJ03 Djibouti
DJ04 Obock
DJ05 Tadjoura

DO DOMINICA
DO02 Saint Andrew
DO03 Saint David
DO04 Saint George
DO05 Saint John
DO06 Saint Joseph
DO07 Saint Luke
DO08 Saint Mark
DO09 Saint Patrick
DO10 Saint Paul
DO11 Saint Peter

DR DOMINICAN REPUBLIC
DR01 Azua
DR02 Baoruco
DR03 Barahona
DR04 Dajabon
DR05 Distrito Nacional
DR06 Duarte
DR11 Elias Pina
DR28 El Seibo
DR08 Espaillat
DR29 Hato Mayor
DR09 Independencia
DR10 La Altagracia
DR12 La Romana
DR30 La Vega
DR14 Maria Trinidad Sanchez
DR31 Monsenor Nouel
DR15 Monte Cristi
DR32 Monte Plata
DR16 Pedernales
DR17 Peravia
DR18 Puerto Plata
DR19 Salcedo
DR20 Samana
DR21 Sanchez Ramirez
DR33 San Cristobal
DR23 San Juan
DR24 San Pedro De Macoris
DR25 Santiago
DR26 Santiago Rodriguez
DR27 Valverde

EC ECUADOR
EC02 Azuay
EC03 Bolivar

EC04 Canar
EC05 Carchi
EC06 Chimborazo
EC07 Cotopaxi
EC08 El Oro
EC09 Esmeraldas
EC01 Galapagos
EC10 Guayas
EC11 Imbabura
EC12 Loja
EC13 Los Rios
EC14 Manabi
EC15 Morona-Santiago
EC21 Napo
EC17 Pastaza
EC18 Pichincha
EC22 Sucumbios
EC19 Tungurahua
EC20 Zamora-Chinchipe

* EG EGYPT
EG01 Ad Daqahliyah
EG02 Al Bahr al Ahmar
EG03 Al Buhayrah
EG04 Al Fayyum
EG05 Al Gharbiyah
EG06 Al Iskandariyah
EG07 Al Isma'iliyah
EG08 Al Jizah
EG09 Al Minufiyah
EG10 Al Minya
EG11 Al Qahirah
EG12 Al Qalyubiyah
EG13 Al Wadi al Jadid
EG14 Ash Sharqiyah
EG15 As Suways
EG16 Aswan
EG17 Asyut
EG18 Bani Suwayf
EG19 Bur Sa'id
EG20 Dumyat
EG26 Janub Sina'
EG21 Kafr ash Shaykh
EG22 Matruh
EG23 Qina
EG27 Shamal Sina'
EG24 Suhaj

ES EL SALVADOR
ES01 Ahuachapan
ES02 Cabanas
ES03 Chalatenango
ES04 Cuscatlan
ES05 La Libertad
ES06 La Paz
ES07 La Union
ES08 Morazan
ES09 San Miguel
ES10 San Salvador
ES11 Santa Ana
ES12 San Vicente
ES13 Sonsonate
ES14 Usulutan

EK EQUATORIAL GUINEA
EK03 Annobon
EK04 Bioko Norte
EK05 Bioko Sur
EK06 Centro Sur
EK07 Kie-Ntem
EK08 Litoral
EK09 Wele-Nzas

ER ERITREA

EN ESTONIA
EN01 Harjumaa
EN02 Hiiumaa
EN03 Ida-Virumaa
EN04 Jarvamaa
EN05 Jogevamaa
EN06 Kohtla-Jarve
EN07 Laanemaa
EN08 Laane-Virumaa
EN09 Narva
EN10 Parnu
EN11 Parnumaa
EN12 Polvamaa
EN13 Raplamaa
EN14 Saaremaa
EN15 Sillamae
EN16 Tallinn
EN17 Tartu
EN18 Tartumaa
EN19 Valgamaa
EN20 Viljandimaa
EN21 Vorumaa

ET ETHIOPIA
ET15 Adis Abeba
ET01 Arsi
ET17 Asosa
ET38 Bale
ET18 Borena
ET19 Debub Gonder
ET20 Debub Shewa
ET21 Debub Welo
ET22 Dire Dawa
ET23 Gambela
ET39 Gamo Gofa
ET40 Ilubabor
ET41 Kefa
ET24 Metekel
ET25 Mirab Gojam
ET26 Mirab Harerge
ET27 Mirab Shewa
ET28 Misrak Gojam
ET29 Misrak Harerge
ET30 Nazret
ET31 Ogaden
ET32 Omo
ET33 Semen Gonder
ET34 Semen Shewa
ET35 Semen Welo
ET42 Sidamo
ET37 Tigray
ET43 Welega

EU EUROPA ISLAND

FK FALKLAND ISLANDS (ISLAS MALVINAS)

FO FAROE ISLANDS

FM FEDERATED STATES OF MICRONESIA

FM03 Chuuk

FM01 Kosrae

FM02 Pohnpei

FM04 Yap

FJ FIJI

FJ01 Central

FJ02 Eastern

FJ03 Northern

FJ04 Rotuma

FJ05 Western

* FI FINLAND

FI01 Ahvenanmaa

FI02 Hame

FI03 Keski-Suomi

FI04 Kuopio

FI05 Kymi

FI06 Lappi

FI07 Mikkeli

FI08 Oulu

FI09 Pohjois-Karjala

FI10 Turku ja Pori

FI11 Uusimaa

FI12 Vaasa

* FR FRANCE

FRC1 Alsace

FR97 Aquitaine

FR98 Auvergne

FR99 Basse-Normandie

FRA1 Bourgogne

FRA2 Bretagne

FRA3 Centre

FRA4 Champagne-Ardenne

FRA5 Corse

FRA6 Franche-Comte

FRA7 Haute-Normandie

FRA8 Ile-de-France

FRA9 Languedoc-Roussillon

FRB1 Limousin

FRB2 Lorraine

FRB3 Midi-Pyrenees

FRB4 Nord-Pas-de-Calais

FRB5 Pays de la Loire

FRB6 Picardie

FRB7 Poitou-Charentes

FRB8 Provence-Alpes-Cote d'Azur

FRB9 Rhone-Alpes

FG FRENCH GUIANA

FP FRENCH POLYNESIA

FS FRENCH SOUTHERN AND ANTARCTIC LANDS

GB GABON

GB01 Estuaire

GB02 Haut-Ogooue

GB03 Moyen-Ogooue

GB04 Ngounie

GB05 Nyanga

GB06 Ogooue-Ivindo

GB07 Ogooue-Lolo

GB08 Ogooue-Maritime

GB09 Woleu-Ntem

GA GAMBIA, THE

GA01 Banjul

GA02 Lower River

GA03 MacCarthy Island

GA07 North Bank

GA04 Upper River

GA05 Western

GZ GAZA STRIP

GG GEORGIA

* GM GERMANY

GM01 Baden-Wurttemberg

GM02 Bayern

GM16 Berlin

GM11 Brandenburg

GM03 Bremen

GM04 Hamburg

GM05 Hessen

GM12 Mecklenburg-Vorpommern

GM06 Niedersachsen

GM07 Nordrhein-Westfalen

GM08 Rheinland-Pfalz

GM09 Saarland

GM13 Sachsen

GM14 Sachsen-Anhalt

GM10 Schleswig-Holstein

GM15 Thuringen

* GH GHANA

GH02 Ashanti

GH03 Brong-Ahafo

GH04 Central

GH05 Eastern

GH01 Greater Accra

GH06 Northern

GH10 Upper East

GH11 Upper West

GH08 Volta

GH09 Western

GI GIBRALTAR

GO GLORIOSO ISLANDS

GR GREECE

GR31 Aitolia kai Akarnania

GR38 Akhaia

GR36 Argolis

GR41 Arkadhia

GR20 Arta

GR35 Attiki

GR47 Dhodhekanisos

GR04 Drama

GR30 Evritania

GR01 Evros

GR34 Evvoia

GR08 Florina
GR32 Fokis
GR29 Fthiotis
GR10 Grevena
GR39 Ilia
GR12 Imathia
GR17 Ioannina
GR45 Iraklion
GR23 Kardhitsa
GR09 Kastoria
GR14 Kavala
GR27 Kefallinia
GR25 Kerkira
GR15 Khalkidhiki
GR43 Khania
GR50 Khios
GR49 Kikladhes
GR06 Kilkis
GR37 Korinthia
GR11 Kozani
GR42 Lakonia
GR21 Larisa
GR46 Lasithi
GR51 Lesvos
GR26 Levkas
GR24 Magnisia
GR40 Messinia
GR07 Pella
GR16 Pieria
GR19 Preveza
GR44 Rethimni
GR02 Rodhopi
GR48 Samos
GR05 Serrai
GR18 Thesprotia
GR13 Thessaloniki
GR22 Trikala
GR33 Voiotia
GR03 Xanthi
GR28 Zakinthos

GL GREENLAND
GL01 Nordgronland
GL02 Ostgronland
GL03 Vestgronland

GJ GRENADA
GJ01 Saint Andrew
GJ02 Saint David
GJ03 Saint George
GJ04 Saint John
GJ05 Saint Mark
GJ06 Saint Patrick

GP GUADELOUPE

GQ GUAM

GT GUATEMALA
GT01 Alta Verapaz
GT02 Baja Verapaz
GT03 Chimaltenango
GT04 Chiquimula
GT05 El Progreso
GT06 Escuintla
GT07 Guatemala
GT08 Huehuetenango
GT09 Izabal
GT10 Jalapa
GT11 Jutiapa
GT12 Peten
GT14 Quiche
GT13 Quetzaltenango
GT15 Retalhuleu
GT16 Sacatepequez
GT17 San Marcos
GT18 Santa Rosa
GT19 Solola
GT20 Suchitepequez
GT21 Totonicapan
GT22 Zacapa

GK GUERNSEY

GV GUINEA
GV01 Beyla
GV02 Boffa
GV03 Boke
GV04 Conakry
GV05 Dabola
GV06 Dalaba
GV07 Dinguiraye
GV08 Dubreka
GV09 Faranah
GV10 Forecariah
GV11 Fria
GV12 Gaoual
GV13 Gueckedou
GV14 Kankan
GV15 Kerouane
GV16 Kindia
GV17 Kissidougou
GV18 Koundara
GV19 Kouroussa
GV20 Labe
GV21 Macenta
GV22 Mali
GV23 Mamou
GV24 Nzerekore
GV25 Pita
GV26 Siguiri
GV27 Telimele
GV28 Tougue
GV29 Yomou

PU GUINEA-BISSAU
PU01 Bafata
PU12 Biombo
PU11 Bissau
PU05 Bolama
PU06 Cacheu
PU10 Gabu
PU04 Oio
PU02 Quinara
PU07 Tombali

GY GUYANA
GY10 Barima-Waini
GY11 Cuyuni-Mazaruni
GY12 Demerara-Mahaica
GY13 East Berbice-Corentyne
GY14 Essequibo Islands-West

Demerara

GY15 Mahaica-Berbice

GY16 Pomeroon-Supenaam

GY17 Potaro-Siparuni

GY18 Upper Demerara-Berbice

GY19 Upper Takutu-Upper Essequibo

HA HAITI

HA06 Artibonite

HA07 Centre

HA08 Grand' Anse

HA09 Nord

HA10 Nord-Est

HA03 Nord-Ouest

HA11 Ouest

HA12 Sud

HA13 Sud-Est

HM HEARD ISLAND AND MCDONALD ISLANDS

HO HONDURAS

HO01 Atlantida

HO02 Choluteca

HO03 Colon

HO04 Comayagua

HO05 Copan

HO06 Cortes

HO07 El Paraiso

HO08 Francisco Morazan

HO09 Gracias a Dios

HO10 Intibuca

HO11 Islas de la Bahia

HO12 La Paz

HO13 Lempira

HO14 Ocotepeque

HO15 Olancho

HO16 Santa Barbara

HO17 Valle

HO18 Yoro

HK HONG KONG

HQ HOWLAND ISLAND

* HU HUNGARY

HU01 Bacs-Kiskun

HU02 Baranya

HU03 Bekes

HU26 Bekescsaba

HU04 Borsod-Abauj-Zemplen

HU05 Budapest

HU06 Csongrad

HU07 Debrecen

HU27 Dunaujvaros

HU28 Eger

HU08 Fejer

HU25 Gyor

HU09 Gyor-Moson-Sopron

HU10 Hajdu-Bihar

HU11 Heves

HU29 Hodmezovasarhely

HU20 Jasz-Nagykun-Szolnok

HU30 Kaposvar

HU31 Kecskemet

HU12 Komarom-Esztergom

HU13 Miskolc

HU32 Nagykanizsa

HU14 Nograd

HU33 Nyiregyhaza

HU15 Pecs

HU16 Pest

HU17 Somogy

HU34 Sopron

HU18 Szabolcs-Szatmar-Bereg

HU19 Szeged

HU35 Szekesfehervar

HU36 Szolnok

HU37 Szombathely

HU38 Tatabanya

HU21 Tolna

HU22 Vas

HU23 Veszprem

HU39 Veszprem

HU24 Zala

HU40 Zalaegerszeg

IC ICELAND

IC01 Akranes

IC02 Akureyri

IC03 Arnessysla

IC04 Austur-Bardastrandarsysla

IC05 Austur-Hunavatnssysla

IC06 Austur-Skaftafellssysla

IC07 Borgarfjardarsysla

IC08 Dalasysla

IC09 Eyjafjardarsysla

IC10 Gullbringusysla

IC11 Hafnarfjordur

IC12 Husavik

IC13 Isafjordur

IC14 Keflavik

IC15 Kjosarsysla

IC16 Kopavogur

IC17 Myrasysla

IC18 Neskaupstadur

IC19 Nordur-Isafjardarsysla

IC20 Nordur-Mulasysla

IC21 Nordur-Tingeyjarsysla

IC22 Olafsfjordur

IC23 Rangarvallasysla

IC24 Reykjavik

IC25 Saudarkrokur

IC26 Seydisfjordur

IC27 Siglufjordur

IC28 Skagafjardarsysla

IC29 Snafellsnes- og Hnappadalssysla

IC30 Strandasysla

IC31 Sudur-Mulasysla

IC32 Sudur-Tingeyjarsysla

IC33 Vestmannaeyjar

IC34 Vestur-Bardastrandarsysla

IC35 Vestur-Hunavatnssysla

IC36 Vestur-Isafjardarsysla

IC37 Vestur-Skaftafellssysla

* IN INDIA

IN01 Andaman and Nicobar Islands

IN02 Andhra Pradesh

IN30 Arunachal Pradesh

IN03 Assam

IN04 Bihar

IN05 Chandigarh
IN06 Dadra and Nagar Haveli
IN32 Daman and Diu
IN07 Delhi
IN33 Goa
IN09 Gujarat
IN10 Haryana
IN11 Himachal Pradesh
IN12 Jammu and Kashmir
IN19 Karnataka
IN13 Kerala
IN14 Lakshadweep
IN15 Madhya Pradesh
IN16 Maharashtra
IN17 Manipur
IN18 Meghalaya
IN31 Mizoram
IN20 Nagaland
IN21 Orissa
IN22 Pondicherry
IN23 Punjab
IN24 Rajasthan
IN29 Sikkim
IN25 Tamil Nadu
IN26 Tripura
IN27 Uttar Pradesh
IN28 West Bengal

ID INDONESIA
ID01 Aceh
ID02 Bali
ID03 Bengkulu
ID09 Irian Jaya
ID04 Jakarta Raya
ID05 Jambi
ID06 Jawa Barat
ID07 Jawa Tengah
ID08 Jawa Timur
ID11 Kalimantan Barat
ID12 Kalimantan Selatan
ID13 Kalimantan Tengah
ID14 Kalimantan Timur
ID15 Lampung
ID16 Maluku
ID17 Nusa Tenggara Barat
ID18 Nusa Tenggara Timur
ID19 Riau
ID20 Sulawesi Selatan
ID21 Sulawesi Tengah
ID22 Sulawesi Tenggara
ID23 Sulawesi Utara
ID24 Sumatera Barat
ID25 Sumatera Selatan
ID26 Sumatera Utara
ID27 Timor Timur
ID10 Yogyakarta

* IR IRAN
IR01 Azarbayjan-e Bakhtari
IR02 Azarbayjan-e Khavari
IR13 Bakhtaran
IR22 Bushehr
IR03 Chahar Mahall va Bakhtiari
IR28 Esfahan
IR07 Fars
IR08 Gilan
IR09 Hamadan
IR11 Hormozgan
IR10 Ilam
IR29 Kerman
IR30 Khorasan
IR15 Khuzestan
IR05 Kohkiluyeh va Buyer Ahmadi
IR16 Kordestan
IR23 Lorestan
IR24 Markazi
IR17 Mazandaran
IR25 Semnan
IR04 Sistan va Baluchestan
IR26 Tehran
IR31 Yazd
IR27 Zanjan

IZ IRAQ
IZ01 Al Anbar
IZ02 Al Basrah
IZ03 Al Muthanna
IZ04 Al Qadisiyah
IZ17 An Najaf
IZ11 Arbil
IZ05 As Sulaymaniyah
IZ13 At Ta'mim
IZ06 Babil
IZ07 Baghdad
IZ08 Dahuk
IZ09 Dhi Qar
IZ10 Diyala
IZ12 Karbala'
IZ14 Maysan
IZ15 Ninawa
IZ18 Salah ad Din
IZ16 Wasit

EI IRELAND
EI01 Carlow
EI02 Cavan
EI03 Clare
EI04 Cork
EI06 Donegal
EI07 Dublin
EI10 Galway
EI11 Kerry
EI12 Kildare
EI13 Kilkenny
EI15 Laois
EI14 Leitrim
EI16 Limerick
EI18 Longford
EI19 Louth
EI20 Mayo
EI21 Meath
EI22 Monaghan
EI23 Offaly
EI24 Roscommon
EI25 Sligo
EI26 Tipperary
EI27 Waterford
EI29 Westmeath
EI30 Wexford
EI31 Wicklow

* IS ISRAEL

IS01 HaDarom
IS02 HaMerkaz
IS03 HaZafon
IS04 Hefa
IS05 Tel Aviv
IS06 Yerushalayim

* IT ITALY
IT01 Abruzzi
IT02 Basilicata
IT03 Calabria
IT04 Campania
IT05 Emilia-Romagna
IT06 Friuli-Venezia Giulia
IT07 Lazio
IT08 Liguria
IT09 Lombardia
IT10 Marche
IT11 Molise
IT12 Piemonte
IT13 Puglia
IT14 Sardegna
IT15 Sicilia
IT16 Toscana
IT17 Trentino-Alto Adige
IT18 Umbria
IT19 Valle d'Aosta
IT20 Veneto

* JM JAMAICA
JM01 Clarendon
JM02 Hanover
JM17 Kingston
JM04 Manchester
JM07 Portland
JM08 Saint Andrew
JM09 Saint Ann
JM10 Saint Catherine
JM11 Saint Elizabeth
JM12 Saint James
JM13 Saint Mary
JM14 Saint Thomas
JM15 Trelawny
JM16 Westmoreland

JN JAN MAYEN

* JA JAPAN
JA01 Aichi
JA02 Akita
JA03 Aomori
JA04 Chiba
JA05 Ehime
JA06 Fukui
JA07 Fukuoka
JA08 Fukushima
JA09 Gifu
JA10 Gumma
JA11 Hiroshima
JA12 Hokkaido
JA13 Hyogo
JA14 Ibaraki
JA15 Ishikawa
JA16 Iwate
JA17 Kagawa
JA18 Kagoshima
JA19 Kanagawa
JA20 Kochi
JA21 Kumamoto
JA22 Kyoto
JA23 Mie
JA24 Miyagi
JA25 Miyazaki
JA26 Nagano
JA27 Nagasaki
JA28 Nara
JA29 Niigata
JA30 Oita
JA31 Okayama
JA47 Okinawa
JA32 Osaka
JA33 Saga
JA34 Saitama
JA35 Shiga
JA36 Shimane
JA37 Shizuoka
JA38 Tochigi
JA39 Tokushima
JA40 Tokyo
JA41 Tottori
JA42 Toyama
JA43 Wakayama
JA44 Yamagata
JA45 Yamaguchi
JA46 Yamanashi

DQ JARVIS ISLAND

JE JERSEY

JQ JOHNSTON ATOLL

JO JORDAN
JO02 Al Balqa'
JO09 Al Karak
JO10 Al Mafraq
JO11 `Amman
JO12 At Tafilah
JO13 Az Zarqa
JO14 Irbid
JO07 Ma`an

JU JUAN DE NOVA ISLAND

KZ KAZAKHSTAN

*KE KENYA
KE01 Central
KE02 Coast
KE03 Eastern
KE05 Nairobi Area
KE06 North-Eastern
KE07 Nyanza
KE08 Rift Valley
KE09 Western

KQ KINGMAN REEF

KR KIRIBATI
KR01 Gilbert Islands
KR02 Line Islands
KR03 Phoenix Islands

KN KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF

KN01 Chagang-do
KN16 Hamgyong-bukto
KN03 Hamgyong-namdo
KN07 Hwanghae-bukto
KN06 Hwanghae-namdo
KN08 Kaesong-si
KN09 Kangwon-do
KN14 Namp'o-si
KN11 P'yongan-bukto
KN15 P'yongan-namdo
KN12 P'yongyang-si
KN13 Yanggang-do

* KS KOREA, REPUBLIC OF

KS01 Cheju-do
KS03 Cholla-bukto
KS16 Cholla-namdo
KS05 Ch'ungch'ong-bukto
KS17 Ch'ungch'ong-namdo
KS12 Inch'on-jikhalsi
KS06 Kangwon-do
KS18 Kwangju-jikhalsi
KS13 Kyonggi-do
KS14 Kyongsang-bukto
KS08 Kyongsang-namdo
KS10 Pusan-jikhalsi
KS11 Soul-t'ukpyolsi
KS15 Taegu-jikhalsi
KS19 Taejon-jikhalsi

KU KUWAIT

KU01 Al Ahmadi
KU02 Al Kuwayt
KU03 Hawalli

KG KYRGYZSTAN

LA LAOS

LA01 Attapu
LA02 Champasak
LA03 Houaphan
LA04 Khammouan
LA05 Louang Namtha
LA06 Louangphrabang
LA07 Oudomxai
LA08 Phongsali
LA09 Saravan
LA10 Savannakhet
LA11 Vientiane
LA13 Xaignabouri
LA14 Xiangkhoang

LG LATVIA

LE LEBANON

Al Biqa`
Al Janub
Ash Shamal
Bayrut
Jabal Lubnan

LT LESOTHO

LT10 Berea
LT11 Butha-Buthe
LT12 Leribe
LT13 Mafeteng
LT14 Maseru
LT15 Mohales Hoek
LT16 Mokhotlong
LT17 Qachas Nek
LT18 Quthing
LT19 Thaba-Tseka

LI LIBERIA

LI01 Bong
LI03 Grand Bassa
LI04 Grand Cape Mount
LI02 Grand Jide
LI05 Lofa
LI06 Maryland
LI07 Monrovia
LI08 Montserrado
LI09 Nimba
LI10 Sino

LY LIBYA

LY47 Ajdabiya
LY03 Al `Aziziyah
LY48 Al Fatih
LY49 Al Jabal al Akhdar
LY05 Al Jufrah
LY50 Al Khums
LY08 Al Kufrah
LY51 An Nuqat al Khams
LY13 Ash Shati'
LY52 Awbari
LY53 Az Zawiyah
LY54 Banghazi
LY55 Darnah
LY56 Ghadamis
LY57 Gharyan
LY58 Misratah
LY30 Murzuq
LY34 Sabha
LY59 Sawfajjin
LY60 Surt
LY61 Tarabulus
LY41 Tarhunah
LY42 Tubruq
LY62 Yafran
LY45 Zlitan

LS LIECHTENSTEIN

LS01 Balzers
LS02 Eschen
LS03 Gamprin
LS04 Mauren
LS05 Planken
LS06 Ruggell
LS07 Schaan
LS08 Schellenberg
LS09 Triesen
LS10 Triesenberg
LS11 Vaduz

LH LITHUANIA

LU LUXEMBOURG

LU01 Diekirch
LU02 Grevenmacher

LU03 Luxembourg

MC MACAU
MC01 Ilhas
MC02 Macau

MK MACEDONIA

MA MADAGASCAR
MA05 Antananarivo
MA01 Antsiranana
MA02 Fianarantsoa
MA03 Mahajanga
MA04 Toamasina
MA06 Toliara

MI MALAWI
MI24 Blantyre
MI02 Chikwawa
MI03 Chiradzulu
MI04 Chitipa
MI06 Dedza
MI07 Dowa
MI08 Karonga
MI09 Kasungu
MI11 Lilongwe
MI10 Machinga
MI12 Mangochi
MI13 Mchinji
MI14 Mulanje
MI25 Mwanza
MI15 Mzimba
MI17 Nkhata Bay
MI18 Nkhotakota
MI19 Nsanje
MI16 Ntcheu
MI20 Ntchisi
MI21 Rumphi
MI22 Salima
MI05 Thyolo
MI23 Zomba

* MY MALAYSIA
MY01 Johor
MY02 Kedah
MY03 Kelantan
MY15 Labuan
MY04 Melaka
MY05 Negeri Sembilan
MY06 Pahang
MY07 Perak
MY08 Perlis
MY09 Pulau Pinang
MY16 Sabah
MY11 Sarawak
MY12 Selangor
MY13 Terengganu
MY14 Wilayah Persekutuan

MV MALDIVES
MV02 Aliff
MV20 Baa
MV17 Daalu
MV14 Faafu
MV27 Gaafu Aliff
MV28 Gaafu Daalu
MV07 Haa Aliff
MV23 Haa Daalu
MV26 Kaafu
MV05 Laamu
MV03 Laviyani
MV12 Meemu
MV29 Naviyani
MV25 Noonu
MV13 Raa
MV01 Seenu
MV24 Shaviyani
MV08 Thaa
MV04 Waavu

ML MALI
ML01 Bamako
ML02 Gao
ML03 Kayes
ML07 Koulikoro
ML04 Mopti
ML05 Segou
ML06 Sikasso
ML08 Tombouctou

MT MALTA

IM MAN, ISLE OF

RM MARSHALL ISLANDS

* MB MARTINIQUE

MR MAURITANIA
MR07 Adrar
MR03 Assaba
MR05 Brakna
MR08 Dakhlet Nouadhibou
MR04 Gorgol
MR10 Guidimaka
MR01 Hodh Ech Chargui
MR02 Hodh El Gharbi
MR12 Inchiri
MR09 Tagant
MR11 Tiris Zemmour
MR06 Trarza

MP MAURITIUS
MP21 Agalega Islands
MP12 Black River
MP22 Cargados Carajos
MP13 Flacq
MP14 Grand Port
MP15 Moka
MP16 Pamplemousses
MP17 Plaines Wilhems
MP18 Port Louis
MP19 Riviere du Rempart
MP23 Rodrigues
MP20 Savanne

MF MAYOTTE

* MX MEXICO
MX01 Aguascalientes
MX02 Baja California

MX03 Baja California Sur
MX04 Campeche
MX05 Chiapas
MX06 Chihuahua
MX07 Coahuila de Zaragoza
MX08 Colima
MX09 Distrito Federal
MX10 Durango
MX11 Guanajuato
MX12 Guerrero
MX13 Hidalgo
MX14 Jalisco
MX15 Mexico
MX16 Michoacan de Ocampo
MX17 Morelos
MX18 Nayarit
MX19 Nuevo Leon
MX20 Oaxaca
MX21 Puebla
MX22 Queretaro de Arteaga
MX23 Quintana Roo
MX24 San Luis Potosi
MX25 Sinaloa
MX26 Sonora
MX27 Tabasco
MX28 Tamaulipas
MX29 Tlaxcala
MX30 Veracruz-Llave
MX31 Yucatan
MX32 Zacatecas

MQ MIDWAY ISLANDS

MD MOLDOVA

MN MONACO
MN01 La Condamine
MN02 Monaco
MN03 Monte-Carlo

MG MONGOLIA
MG01 Arhangay
MG02 Bayanhongor
MG03 Bayan-Olgiy
MG21 Bulgan
MG05 Darhan
MG06 Dornod
MG07 Dornogovi
MG08 Dundgovi
MG09 Dzavhan
MG22 Erdenet
MG10 Govi-Altay
MG11 Hentiy
MG12 Hovd
MG13 Hovsgol
MG14 Omnogovi
MG15 Ovorhangay
MG16 Selenge
MG17 Suhbaatar
MG18 Tov
MG20 Ulaanbaatar
MG19 Uvs

MW MONTENEGRO

MH MONTSERRAT
MH01 Saint Anthony
MH02 Saint Georges
MH03 Saint Peter

MO MOROCCO
MO01 Agadir
MO02 Al Hoceima
MO03 Azilal
MO05 Beni Mellal
MO04 Ben Slimane
MO06 Boulemane
MO07 Casablanca
MO08 Chaouen
MO09 El Jadida
MO10 El Kelaa des Srarhna
MO11 Er Rachidia
MO12 Essaouira
MO13 Fes
MO14 Figuig
MO33 Guelmim
MO34 Ifrane
MO15 Kenitra
MO16 Khemisset
MO17 Khenifra
MO18 Khouribga
MO35 Laayoune
MO41 Larache
MO19 Marrakech
MO20 Meknes
MO21 Nador
MO22 Ouarzazate
MO23 Oujda
MO24 Rabat-Sale
MO25 Safi
MO26 Settat
MO38 Sidi Kacem
MO27 Tanger
MO36 Tan-Tan
MO37 Taounate
MO39 Taroudannt
MO29 Tata
MO30 Taza
MO40 Tetouan
MO32 Tiznit

MZ MOZAMBIQUE
MZ01 Cabo Delgado
MZ02 Gaza
MZ03 Inhambane
MZ10 Manica
MZ04 Maputo
MZ06 Nampula
MZ07 Niassa
MZ05 Sofala
MZ08 Tete
MZ09 Zambezia

WA NAMIBIA
WA01 Bethanien
WA03 Boesmanland
WA02 Caprivi Oos
WA22 Damaraland
WA04 Gobabis
WA05 Grootfontein
WA23 Hereroland Oos
WA24 Hereroland Wes

WA06 Kaokoland
WA20 Karasburg
WA07 Karibib
WA25 Kavango
WA08 Keetmanshoop
WA09 Luderitz
WA10 Maltahohe
WA26 Mariental
WA27 Namaland
WA11 Okahandja
WA12 Omaruru
WA13 Otjiwarongo
WA14 Outjo
WA15 Owambo
WA16 Rehoboth
WA17 Swakopmund
WA18 Tsumeb
WA21 Windhoek

NR00 NAURU
NR01 Aiwo
NR02 Anabar
NR03 Anetan
NR04 Anibare
NR05 Baiti
NR06 Boe
NR07 Buada
NR08 Denigomodu
NR09 Ewa
NR10 Ijuw
NR11 Meneng
NR12 Nibok
NR13 Uaboe
NR14 Yaren

BQ NAVASSA ISLAND

NP NEPAL
NP01 Bagmati
NP02 Bheri
NP03 Dhawalagiri
NP04 Gandaki
NP05 Janakpur
NP06 Karnali
NP07 Kosi
NP08 Lumbini
NP09 Mahakali
NP10 Mechi
NP11 Narayani
NP12 Rapti
NP13 Sagarmatha
NP14 Seti

* NL NETHERLANDS
NL01 Drenthe
NL12 Dronten
NL02 Friesland
NL03 Gelderland
NL04 Groningen
NL14 Lelystad
NL05 Limburg
NL06 Noord-Brabant
NL07 Noord-Holland
NL08 Overijssel
NL09 Utrecht
NL10 Zeeland
NL13 Zuidelijke IJsselmeerpolders
NL11 Zuid-Holland

NT NETHERLANDS ANTILLES

NC NEW CALEDONIA

* NZ NEW ZEALAND
NZ01 Akaroa
NZ03 Amuri
NZ04 Ashburton
NZ07 Bay of Islands
NZ08 Bruce
NZ09 Buller
NZ10 Chatham Islands
NZ11 Cheviot
NZ12 Clifton
NZ13 Clutha
NZ14 Cook
NZ16 Dannevirke
NZ17 Egmont
NZ18 Eketahuna
NZ19 Ellesmere
NZ20 Eltham
NZ21 Eyre
NZ22 Featherston
NZ24 Franklin
NZ26 Golden Bay
NZ27 Great Barrier Island
NZ28 Grey
NZ29 Hauraki Plains
NZ30 Hawera
NZ31 Hawke's Bay
NZ32 Heathcote
NZD9 Hikurangi
NZ33 Hobson
NZ34 Hokianga
NZ35 Horowhenua
NZD4 Hurunui
NZ36 Hutt
NZ37 Inangahua
NZ38 Inglewood
NZ39 Kaikoura
NZ40 Kairanga
NZ41 Kiwitea
NZ43 Lake
NZ45 Mackenzie
NZ46 Malvern
NZE1 Manaia
NZ47 Manawatu
NZ48 Mangonui
NZ49 Maniototo
NZ50 Marlborough
NZ51 Masterton
NZ52 Matamata
NZ53 Mount Herbert
NZ54 Ohinemuri
NZ55 Opotiki
NZ56 Oroua
NZ57 Otamatea
NZ58 Otorohanga
NZ59 Oxford
NZ60 Pahiatua
NZ61 Paparua
NZ63 Patea
NZ65 Piako

NZ66 Pohangina
NZ67 Raglan
NZ68 Rangiora
NZ69 Rangitikei
NZ70 Rodney
NZ71 Rotorua
NZE2 Runanga
NZE3 Saint Kilda
NZD5 Silverpeaks
NZ72 Southland
NZ73 Stewart Island
NZ74 Stratford
NZD6 Strathallan
NZ76 Taranaki
NZ77 Taumarunui
NZ78 Taupo
NZ79 Tauranga
NZE4 Thames-Coromandel
NZ81 Tuapeka
NZ82 Vincent
NZ83 Waiapu
NZD8 Waiheke
NZ84 Waihemo
NZ85 Waikato
NZ86 Waikohu
NZ88 Waimairi
NZ89 Waimarino
NZ90 Waimate
NZ91 Waimate West
NZ92 Waimea
NZ93 Waipa
NZ95 Waipawa
NZ96 Waipukurau
NZ97 Wairarapa South
NZ98 Wairewa
NZ99 Wairoa
NZA4 Waitaki
NZA6 Waitomo
NZA8 Waitotara
NZE6 Wallace
NZB2 Wanganui
NZE5 Waverley
NZB3 Westland
NZB4 Whakatane
NZA1 Whangarei
NZA2 Whangaroa
NZA3 Woodville

NU NICARAGUA
NU01 Boaco
NU02 Carazo
NU03 Chinandega
NU04 Chontales
NU05 Esteli
NU06 Granada
NU07 Jinotega
NU08 Leon
NU09 Madriz
NU10 Managua
NU11 Masaya
NU12 Matagalpa
NU13 Nueva Segovia
NU14 Rio San Juan
NU15 Rivas
NU16 Zelaya

NG NIGER
NG01 Agadez
NG02 Diffa
NG03 Dosso
NG04 Maradi
NG05 Niamey
NG06 Tahoua
NG07 Zinder

NI NIGERIA
NI34 Abia
NI11 Abuja Capital Territory
NI35 Adamawa
NI21 Akwa Ibom
NI25 Anambra
NI06 Bauchi
NI26 Benue
NI27 Borno
NI22 Cross River
NI36 Delta
NI37 Edo
NI38 Enugu
NI28 Imo
NI39 Jigawa
NI23 Kaduna
NI29 Kano
NI24 Katsina
NI40 Kebbi
NI41 Kogi
NI30 Kwara
NI05 Lagos
NI31 Niger
NI16 Ogun
NI17 Ondo
NI42 Osun
NI32 Oyo
NI19 Plateau
NI10 Rivers
NI33 Sokoto
NI43 Taraba
NI44 Yobe

NE NIUE

NF NORFOLK ISLAND

CQ NORTHERN MARIANA ISLANDS

* NO NORWAY
NO01 Akershus
NO02 Aust-Agder
NO04 Buskerud
NO05 Finnmark
NO06 Hedmark
NO07 Hordaland
NO08 More og Romsdal
NO09 Nordland
NO10 Nord-Trondelag
NO11 Oppland
NO12 Oslo
NO13 Ostfold
NO14 Rogaland
NO15 Sogn og Fjordane
NO16 Sor-Trondelag
NO17 Telemark

NO18 Troms
NO19 Vest-Agder
NO20 Vestfold

MU OMAN

PK PAKISTAN
PK06 Azad Kashmir
PK02 Balochistan
PK01 Federally Administered Tribal Areas
PK08 Islamabad
PK07 Northern Areas
PK03 North-West Frontier
PK04 Punjab
PK05 Sindh

LQ PALMYRA ATOLL

* PM PANAMA
PM01 Bocas del Toro
PM02 Chiriqui
PM03 Cocle
PM04 Colon
PM05 Darien
PM06 Herrera
PM07 Los Santos
PM08 Panama
PM09 San Blas
PM10 Veraguas

PP PAPUA NEW GUINEA
PP01 Central
PP08 Chimbu
PP09 Eastern Highlands
PP10 East New Britain
PP11 East Sepik
PP19 Enga
PP02 Gulf
PP12 Madang
PP13 Manus
PP03 Milne Bay
PP14 Morobe
PP20 National Capital
PP15 New Ireland
PP04 Northern
PP07 North Solomons
PP18 Sandaun
PP05 Southern Highlands
PP06 Western
PP16 Western Highlands
PP17 West New Britain

PF PARACEL ISLANDS

PA PARAGUAY
PA18 Alto Paraguay
PA01 Alto Parana
PA02 Amambay
PA03 Boqueron
PA04 Caaguazu
PA05 Caazapa
PA19 Canindeyu
PA06 Central
PA20 Chaco
PA07 Concepcion
PA08 Cordillera
PA10 Guaira
PA11 Itapua
PA12 Misiones
PA13 Neembucu
PA21 Nueva Asuncion
PA15 Paraguari
PA16 Presidente Hayes
PA17 San Pedro

PE PERU
PE01 Amazonas
PE02 Ancash
PE03 Apurimac
PE04 Arequipa
PE05 Ayacucho
PE06 Cajamarca
PE07 Callao
PE08 Cusco
PE09 Huancavelica
PE10 Huanuco
PE11 Ica
PE12 Junin
PE13 La Libertad
PE14 Lambayeque
PE15 Lima
PE16 Loreto
PE17 Madre de Dios
PE18 Moquegua
PE19 Pasco
PE20 Piura
PE21 Puno
PE22 San Martin
PE23 Tacna
PE24 Tumbes
PE25 Ucayali

RP PHILIPPINES
RP01 Abra
RP02 Agusan del Norte
RP03 Agusan del Sur
RP04 Aklan
RP05 Albay
RPA1 Angeles
RP06 Antique
RPG8 Aurora
RPA2 Bacolod
RPA3 Bago
RPA4 Baguio
RPA5 Bais
RP22 Basilan
RPA6 Basilan City
RP07 Bataan
RP08 Batanes
RP09 Batangas
RPA7 Batangas City
RP10 Benguet
RP11 Bohol
RP12 Bukidnon
RP13 Bulacan
RPA8 Butuan
RPA9 Cabanatuan
RPB1 Cadiz
RP14 Cagayan
RPB2 Cagayan de Oro
RPB3 Calbayog

RPB4 Caloocan
RP15 Camarines Norte
RP16 Camarines Sur
RP17 Camiguin
RPB5 Canlaon
RP18 Capiz
RP19 Catanduanes
RP20 Cavite
RPB6 Cavite City
RP21 Cebu
RPB7 Cebu City
RPB8 Cotabato
RPB9 Dagupan
RPC1 Danao
RPC2 Dapitan
RP24 Davao
RPC3 Davao City
RP25 Davao del Sur
RP26 Davao Oriental
RPC4 Dipolog
RPC5 Dumaguete
RP23 Eastern Samar
RPC6 General Santos
RPC7 Gingoog
RP27 Ifugao
RPC8 Iligan
RP28 Ilocos Norte
RP29 Ilocos Sur
RP30 Iloilo
RPC9 Iloilo City
RPD1 Iriga
RP31 Isabela
RP32 Kalinga-Apayao
RPD2 La Carlota
RP33 Laguna
RP34 Lanao del Norte
RP35 Lanao del Sur
RPD3 Laoag
RPD4 Lapu-Lapu
RP36 La Union
RPD5 Legaspi
RP37 Leyte
RPD6 Lipa
RPD7 Lucena
RP56 Maguindanao
RPD8 Mandaue
RPD9 Manila
RPE1 Marawi
RP38 Marinduque
RP39 Masbate
RP40 Mindoro Occidental
RP41 Mindoro Oriental
RP42 Misamis Occidental
RP43 Misamis Oriental
RP44 Mountain
RPE2 Naga
RPH3 Negros Occidental
RP46 Negros Oriental
RP57 North Cotabato
RP67 Northern Samar
RP47 Nueva Ecija
RP48 Nueva Vizcaya
RPE3 Olongapo
RPE4 Ormoc
RPE5 Oroquieta
RPE6 Ozamis
RPE7 Pagadian
RP49 Palawan
RPE8 Palayan
RP50 Pampanga
RP51 Pangasinan
RPE9 Pasay
RPF1 Puerto Princesa
RPH2 Quezon
RPF2 Quezon City
RP68 Quirino
RP53 Rizal
RP54 Romblon
RPF3 Roxas
RP55 Samar
RPF4 San Carlos, Negros Occidental
RPF5 San Carlos, Pangasinan
RPF6 San Jose
RPF7 San Pablo
RPF8 Silay
RP69 Siquijor
RP58 Sorsogon
RP70 South Cotabato
RP59 Southern Leyte
RP71 Sultan Kudarat
RP60 Sulu
RPF9 Surigao
RP61 Surigao del Norte
RP62 Surigao del Sur
RPG1 Tacloban
RPG2 Tagaytay
RPG3 Tagbilaran
RPG4 Tangub
RP63 Tarlac
RP72 Tawitawi
RPG5 Toledo
RPG6 Trece Martires
RP64 Zambales
RPG7 Zamboanga
RP65 Zamboanga del Norte
RP66 Zamboanga del Su
r

PC PITCAIRN ISLANDS

* PL POLAND
PL23 Biala Podlaska
PL24 Bialystok
PL25 Bielsko
PL26 Bydgoszcz
PL27 Chelm
PL28 Ciechanow
PL29 Czestochowa
PL30 Elblag
PL31 Gdansk
PL32 Gorzow
PL33 Jelenia Gora
PL34 Kalisz
PL35 Katowice
PL36 Kielce
PL37 Konin
PL38 Koszalin
PL39 Krakow
PL40 Krosno
PL41 Legnica
PL42 Leszno
PL43 Lodz

PL44 Lomza
PL45 Lublin
PL46 Nowy Sacz
PL47 Olsztyn
PL48 Opole
PL49 Ostroleka
PL50 Pila
PL51 Piotrkow
PL52 Plock
PL53 Poznan
PL54 Przemysl
PL55 Radom
PL56 Rzeszow
PL57 Siedlce
PL58 Sieradz
PL59 Skierniewice
PL60 Slupsk
PL61 Suwalki
PL62 Szczecin
PL63 Tarnobrzeg
PL64 Tarnow
PL65 Torun
PL66 Walbrzych
PL67 Warszawa
PL68 Wloclawek
PL69 Wroclaw
PL70 Zamosc
PL71 Zielona Gora

PO PORTUGAL
PO02 Aveiro
PO23 Azores
PO03 Beja
PO04 Braga
PO05 Braganca
PO06 Castelo Branco
PO07 Coimbra
PO08 Evora
PO09 Faro
PO11 Guarda
PO13 Leiria
PO14 Lisboa
PO10 Madeira
PO16 Portalegre
PO17 Porto
PO18 Santarem
PO19 Setubal
PO20 Viana do Castelo
PO21 Vila Real
PO22 Viseu

RQ PUERTO RICO

QA QATAR

RE REUNION

RO ROMANIA
RO01 Alba
RO02 Arad
RO03 Arges
RO04 Bacau
RO05 Bihor
RO06 Bistrita-Nasaud
RO07 Botosani
RO08 Braila
RO09 Brasov
RO10 Bucuresti
RO11 Buzau
RO41 Calarasi
RO12 Caras-Severin
RO13 Cluj
RO14 Constanta
RO15 Covasna
RO16 Dimbovita
RO17 Dolj
RO18 Galati
RO19 Gorj
RO42 Giurgiu
RO20 Harghita
RO21 Hunedoara
RO22 Ialomita
RO23 Iasi
RO25 Maramures
RO26 Mehedinti
RO27 Mures
RO28 Neamt
RO29 Olt
RO30 Prahova
RO31 Salaj
RO32 Satu Mare
RO33 Sibiu
RO34 Suceava
RO35 Teleorman
RO36 Timis
RO37 Tulcea
RO38 Vaslui
RO39 Vilcea
RO40 Vrancea

* RS RUSSIA

RW RWANDA
RW01 Butare
RW02 Byumba
RW03 Cyangugu
RW04 Gikongoro
RW05 Gisenyi
RW06 Gitarama
RW07 Kibungo
RW08 Kibuye
RW09 Kigali
RW10 Ruhengeri

SC ST. KITTS AND NEVIS
SC01 Christ Church Nichola Town
SC02 Saint Anne Sandy Point
SC03 Saint George Basseterre
SC04 Saint George Gingerland
SC05 Saint James Windward
SC06 Saint John Capisterre
SC07 Saint John Figtree
SC08 Saint Mary Cayon
SC09 Saint Paul Capisterre
SC10 Saint Paul Charlestown
SC11 Saint Peter Basseterre
SC12 Saint Thomas Lowland
SC13 Saint Thomas Middle Island
SC15 Trinity Palmetto Point

SH ST. HELENA
SH01 Ascension

SH02 Saint Helena
SH03 Tristan da Cunha

ST ST. LUCIA
ST01 Anse-la-Raye
ST03 Castries
ST04 Choiseul
ST02 Dauphin
ST05 Dennery
ST06 Gros-Islet
ST07 Laborie
ST08 Micoud
ST11 Praslin
ST09 Soufriere
ST10 Vieux-Fort

SB ST. PIERRE AND MIQUELON

VC ST. VINCENT AND THE GRENADINES
VC01 Charlotte
VC06 Grenadines
VC02 Saint Andrew
VC03 Saint David
VC04 Saint George
VC05 Saint Patrick

SM SAN MARINO
SM01 Acquaviva
SM06 Borgo Maggiore
SM02 Chiesanuova
SM03 Domagnano
SM04 Faetano
SM05 Fiorentino
SM08 Monte Giardino
SM07 San Marino
SM09 Serravalle

TP SAO TOME AND PRINCIPE
TP01 Principe
TP02 Sao Tome

SA SAUDI ARABIA
SA02 Al Bahah
SA15 Al Hudud ash Shamaliyah
SA03 Al Jawf
SA05 Al Madinah
SA08 Al Qasim
SA09 Al Qurayyat
SA10 Ar Riyad
SA06 Ash Sharqiyah
SA11 `Asir
SA13 Ha'il
SA17 Jizan
SA14 Makkah
SA16 Najran
SA19 Tabuk

SG SENEGAL
SG01 Dakar
SG03 Diourbel
SG09 Fatick
SG10 Kaolack
SG11 Kolda
SG08 Louga
SG04 Saint-Louis
SG05 Tambacounda
SG07 Thies
SG12 Ziguinchor

SR SERBIA

SE SEYCHELLES
SE01 Anse aux Pins
SE02 Anse Boileau
SE03 Anse Etoile
SE04 Anse Louis
SE05 Anse Royale
SE06 Baie Lazare
SE07 Baie Sainte Anne
SE08 Beau Vallon
SE09 Bel Air
SE10 Bel Ombre
SE11 Cascade
SE12 Glacis
SE13 Grand' Anse (Mahe)
SE14 Grand' Anse (Praslin)
SE15 La Digue
SE16 La Riviere Anglaise
SE17 Mont Buxton
SE18 Mont Fleuri
SE19 Plaisance
SE20 Pointe La Rue
SE21 Port Glaud
SE22 Saint Louis
SE23 Takamaka

SL SIERRA LEONE
SL01 Eastern
SL02 Northern
SL03 Southern
SL04 Western Area

SN SINGAPORE

* LO SLOVAKIA

* SI SLOVENIA

BP SOLOMON ISLANDS
BP05 Central
BP06 Guadalcanal
BP07 Isabel
BP08 Makira
BP03 Malaita
BP09 Temotu
BP04 Western

SO SOMALIA
SO01 Bakool
SO02 Banaadir
SO03 Bari
SO04 Bay
SO05 Galguduud
SO06 Gedo
SO07 Hiiraan
SO08 Jubbada Dhexe
SO09 Jubbada Hoose
SO10 Mudug
SO11 Nugaal
SO12 Sanaag
SO13 Shabeellaha Dhexe

SO14 Shabeellaha Hoose
SO15 Togdheer
SO16 Woqooyi Galbeed

SF SOUTH AFRICA
SF01 Cape Province
SF02 Natal
SF03 Orange Free State
SF04 Transvaal

SX SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS

* SP SPAIN
SP51 Andalucia
SP52 Aragon
SP34 Asturias
SP53 Canarias
SP39 Cantabria
SP54 Castilla-La Mancha
SP55 Castilla y Leon
SP56 Cataluna
SP57 Extremadura
SP58 Galicia
SP07 Islas Baleares
SP27 La Rioja
SP29 Madrid
SP31 Murcia
SP32 Navarra
SP59 Pais Vasco
SP60 Valenciana

PG SPRATLY ISLANDS

CE SRI LANKA
CE01 Amparai
CE02 Anuradhapura
CE03 Badulla
CE04 Batticaloa
CE23 Colombo
CE06 Galle
CE24 Gampaha
CE07 Hambantota
CE25 Jaffna
CE09 Kalutara
CE10 Kandy
CE11 Kegalla
CE12 Kurunegala
CE26 Mannar
CE14 Matale
CE15 Matara
CE16 Moneragala
CE27 Mullaittivu
CE17 Nuwara Eliya
CE18 Polonnaruwa
CE19 Puttalam
CE20 Ratnapura
CE21 Trincomalee
CE28 Vavuniya

SU SUDAN
SU26 A`ali an Nil
SU28 Al Istiwa'iyah
SU29 Al Khartum
SU27 Al Wusta
SU30 Ash Shamaliyah
SU31 Ash Sharqiyah
SU32 Bahr al Ghazal
SU33 Darfur
SU34 Kurdufan

NS SURINAME
NS10 Brokopondo
NS11 Commewijne
NS12 Coronie
NS13 Marowijne
NS14 Nickerie
NS15 Para
NS16 Paramaribo
NS17 Saramacca
NS18 Sipaliwini
NS19 Wanica

SV SVALBARD

WZ SWAZILAND
WZ01 Hhohho
WZ02 Lubombo
WZ03 Manzini
WZ05 Praslin
WZ04 Shiselweni

* SW SWEDEN
SW01 Alvsborgs Lan
SW02 Blekinge Lan
SW03 Gavleborgs Lan
SW04 Goteborgs och Bohus Lan
SW05 Gotlands Lan
SW06 Hallands Lan
SW07 Jamtlands Lan
SW08 Jonkopings Lan
SW09 Kalmar Lan
SW10 Kopparbergs Lan
SW11 Kristianstads Lan
SW12 Kronobergs Lan
SW13 Malmohus Lan
SW14 Norrbottens Lan
SW15 Orebro Lan
SW16 Ostergotlands Lan
SW17 Skaraborgs Lan
SW18 Sodermanlands Lan
SW26 Stockholms Lan
SW21 Uppsala Lan
SW22 Varmlands Lan
SW23 Vasterbottens Lan
SW24 Vasternorrlands Lan
SW25 Vastmanlands Lan

* SZ SWITZERLAND
SZ01 Aargau
SZ02 Ausser-Rhoden
SZ03 Basel-Landschaft
SZ04 Basel-Stadt
SZ05 Bern
SZ06 Fribourg
SZ07 Geneve
SZ08 Glarus
SZ09 Graubunden
SZ10 Inner-Rhoden
SZ26 Jura
SZ11 Luzern
SZ12 Neuchatel

SZ13 Nidwalden
SZ14 Obwalden
SZ15 Sankt Gallen
SZ16 Schaffhausen
SZ17 Schwyz
SZ18 Solothurn
SZ19 Thurgau
SZ20 Ticino
SZ21 Uri
SZ22 Valais
SZ23 Vaud
SZ24 Zug
SZ25 Zurich

SY SYRIA
SY01 Al Hasakah
SY02 Al Ladhiqiyah
SY03 Al Qunaytirah
SY04 Ar Raqqah
SY05 As Suwayda'
SY06 Dar`a
SY07 Dayr az Zawr
SY13 Dimashq
SY09 Halab
SY10 Hamah
SY11 Hims
SY12 Idlib
SY08 Rif Dimashq
SY14 Tartus

TI TAJIKISTAN

TZ TANZANIA
TZ01 Arusha
TZ23 Dar es Salaam
TZ03 Dodoma
TZ04 Iringa
TZ05 Kigoma
TZ06 Kilimanjaro
TZ07 Lindi
TZ08 Mara
TZ09 Mbeya
TZ10 Morogoro
TZ11 Mtwara
TZ12 Mwanza
TZ13 Pemba North
TZ20 Pemba South
TZ02 Pwani
TZ24 Rukwa
TZ14 Ruvuma
TZ15 Shinyanga
TZ16 Singida
TZ17 Tabora
TZ18 Tanga
TZ21 Zanzibar Central/South
TZ22 Zanzibar North
TZ25 Zanzibar Urban/West
TZ19 Ziwa Magharibi

TH THAILAND
TH35 Ang Thong
TH28 Buriram
TH44 Chachoengsao
TH32 Chai Nat
TH26 Chaiyaphum
TH48 Chanthaburi
TH02 Chiang Mai
TH03 Chiang Rai
TH46 Chon Buri
TH58 Chumphon
TH23 Kalasin
TH11 Kamphaeng Phet
TH50 Kanchanaburi
TH22 Khon Kaen
TH63 Krabi
TH40 Krung Thep
TH06 Lampang
TH05 Lamphun
TH18 Loei
TH34 Lop Buri
TH01 Mae Hong Son
TH24 Maha Sarakham
TH43 Nakhon Nayok
TH53 Nakhon Pathom
TH21 Nakhon Phanom
TH27 Nakhon Ratchasima
TH16 Nakhon Sawan
TH64 Nakhon Si Thammarat
TH04 Nan
TH31 Narathiwat
TH17 Nong Khai
TH38 Nonthaburi
TH39 Pathum Thani
TH69 Pattani
TH61 Phangnga
TH66 Phatthalung
TH41 Phayao
TH14 Phetchabun
TH56 Phetchaburi
TH13 Phichit
TH12 Phitsanulok
TH36 Phra Nakhon Si Ayutthaya
TH07 Phrae
TH62 Phuket
TH45 Prachin Buri
TH57 Prachuap Khiri Khan
TH59 Ranong
TH52 Ratchaburi
TH47 Rayong
TH25 Roi Et
TH20 Sakon Nakhon
TH42 Samut Prakan
TH55 Samut Sakhon
TH54 Samut Songkhram
TH37 Saraburi
TH67 Satun
TH33 Sing Buri
TH30 Sisaket
TH68 Songkhla
TH09 Sukhothai
TH51 Suphan Buri
TH60 Surat Thani
TH29 Surin
TH08 Tak
TH65 Trang
TH49 Trat
TH71 Ubon Ratchathani
TH19 Udon Thani
TH15 Uthai Thani
TH10 Uttaradit
TH70 Yala
TH72 Yasothon

TO TOGO

TO01 Amlame

TO02 Aneho

TO03 Atakpame

TO15 Badou

TO04 Bafilo

TO05 Bassar

TO06 Dapaong

TO07 Kante

TO08 Klouto

TO14 Kpagouda

TO09 Lama-Kara

TO10 Lome

TO11 Mango

TO12 Niamtougou

TO13 Notse

TO16 Sotouboua

TO17 Tabligbo

TO19 Tchamba

TO20 Tchaoudjo

TO18 Tsevie

TO21 Vogan

TL TOKELAU

TN TONGA

TN01 Ha`apai

TN02 Tongatapu

TN03 Vava`u

TD TRINIDAD AND TOBAGO

TD01 Arima

TD02 Caroni

TD03 Mayaro

TD04 Nariva

TD05 Port-of-Spain

TD06 Saint Andrew

TD07 Saint David

TD08 Saint George

TD09 Saint Patrick

TD10 San Fernando

TD11 Tobago

TD12 Victoria

TE TROMELIN ISLAND

PS TRUST TERRITORY OF THE PACIFIC ISLANDS (PALAU)

TS TUNISIA

TS14 Al Kaf

TS15 Al Mahdiyah

TS16 Al Munastir

TS02 Al Qasrayn

TS03 Al Qayrawan

TS26 Aryanah

TS17 Bajah

TS18 Banzart

TS27 Bin `Arus

TS06 Jundubah

TS28 Madanin

TS19 Nabul

TS29 Qabis

TS10 Qafsah

TS31 Qibili

TS32 Safaqis

TS33 Sidi Bu Zayd

TS22 Silyanah

TS23 Susah

TS34 Tatawin

TS35 Tawzar

TS36 Tunis

TS37 Zaghwan

TU TURKEY

TU01 Adana

TU02 Adiyaman

TU03 Afyon

TU04 Agri

TU75 Aksaray

TU05 Amasya

TU68 Ankara

TU07 Antalya

TU08 Artvin

TU09 Aydin

TU10 Balikesir

TU76 Batman

TU77 Bayburt

TU11 Bilecik

TU12 Bingol

TU13 Bitlis

TU14 Bolu

TU15 Burdur

TU16 Bursa

TU17 Canakkale

TU18 Cankiri

TU19 Corum

TU20 Denizli

TU21 Diyarbakir

TU22 Edirne

TU23 Elazig

TU24 Erzincan

TU25 Erzurum

TU26 Eskisehir

TU27 Gaziantep

TU28 Giresun

TU69 Gumushane

TU70 Hakkari

TU31 Hatay

TU32 Icel

TU33 Isparta

TU34 Istanbul

TU35 Izmir

TU46 Kahraman Maras

TU78 Karaman

TU36 Kars

TU37 Kastamonu

TU38 Kayseri

TU79 Kirikkale

TU39 Kirklareli

TU40 Kirsehir

TU41 Kocaeli

TU71 Konya

TU43 Kutahya

TU44 Malatya

TU45 Manisa

TU72 Mardin

TU48 Mugla

TU49 Mus

TU50 Nevsehir

TU73 Nigde

TU52 Ordu

TU53 Rize
TU54 Sakarya
TU55 Samsun
TU74 Siirt
TU57 Sinop
TU80 Sirnak
TU58 Sivas
TU59 Tekirdag
TU60 Tokat
TU61 Trabzon
TU62 Tunceli
TU63 Urfa
TU64 Usak
TU65 Van
TU66 Yozgat
TU67 Zonguldak

TX TURKMENISTAN

TK TURKS AND CAICOS ISLANDS

TV TUVALU

UG UGANDA
UG05 Busoga
UG18 Central
UG20 Eastern
UG08 Karamoja
UG21 Nile
UG22 North Buganda
UG23 Northern
UG12 South Buganda
UG24 Southern
UG25 Western

* UP UKRAINE
UP01 Cherkas'ka Oblast'
UP02 Chernihivs'ka Oblast'
UP03 Chernivets'ka Oblast'
UP04 Dnipropetrovs'ka Oblast'
UP05 Donets'ka Oblast'
UP06 Ivano-Frankivs'ka Oblast'
UP07 Kharkivs'ka Oblast'
UP08 Khersons'ka Oblast'
UP09 Khmel'nyts'ka Oblast'
UP10 Kirovohrads'ka Oblast'
UP11 Krym, Respublika
UP12 Kyyiv, Misto
UP13 Kyyivs'ka Oblast'
UP14 Luhans'ka Oblast'
UP15 L'vivs'ka Oblast'
UP16 Mykolayivs'ka Oblast'
UP17 Odes'ka Oblast'
UP18 Poltavs'ka Oblast'
UP19 Rivnens'ka Oblast'
UP20 Sevastopol', Misto
UP21 Sums'ka Oblast'
UP22 Ternopil's'ka Oblast'
UP23 Vinnyts'ka Oblast'
UP24 Volyns'ka Oblast'
UP25 Zakarpats'ka Oblast'
UP26 Zaporiz'ka Oblast'
UP27 Zhytomyrs'ka Oblast'

TC UNITED ARAB EMIRATES
TC01 Abu Zaby
TC02 `Ajman
TC04 Al Fujayrah
TC06 Ash Shariqah
TC03 Dubayy
TC05 Ra's al Khaymah
TC07 Umm al Qaywayn

* UK UNITED KINGDOM
UK01 Avon
UK02 Bedford
UK03 Berkshire
UK04 Buckingham
UK05 Cambridge
UK06 Cheshire
UK07 Cleveland
UK08 Cornwall
UK09 Cumbria
UK10 Derby
UK11 Devon
UK12 Dorset
UK13 Durham
UK14 East Sussex
UK15 Essex
UK16 Gloucester
UK17 Greater London
UK18 Greater Manchester
UK19 Hampshire
UK20 Hereford and Worcester
UK21 Hertford
UK22 Humberside
UK23 Isle of Wight
UK24 Kent
UK25 Lancashire
UK26 Leicester
UK27 Lincoln
UK28 Merseyside
UK29 Norfolk
UK31 Northampton
UK32 Northumberland
UK30 North Yorkshire
UK33 Nottingham
UK34 Oxford
UK35 Shropshire
UK36 Somerset
UK37 South Yorkshire
UK38 Stafford
UK39 Suffolk
UK40 Surrey
UK41 Tyne and Wear
UK42 Warwick
UK43 West Midlands
UK44 West Sussex
UK45 West Yorkshire
UK46 Wiltshire
UK52 Antrim
UK53 Ards
UK54 Armagh
UK55 Ballymena
UK56 Ballymoney
UK57 Banbridge
UK58 Belfast
UK59 Carrickfergus
UK60 Castlereagh
UK61 Coleraine
UK62 Cookstown

UK63 Craigavon
UK64 Down
UK65 Dungannon
UK66 Fermanagh
UK67 Larne
UK68 Limavady
UK69 Lisburn
UK70 Londonderry
UK71 Magherafelt
UK72 Moyle
UK73 Newry and Mourne
UK74 Newtownabbey
UK75 North Down
UK76 Omagh
UK77 Strabane
UK78 Borders
UK79 Central
UK80 Dumfries and Galloway
UK81 Fife
UK82 Grampian
UK83 Highland
UK84 Lothian
UK85 Orkney
UK86 Shetland
UK87 Strathclyde
UK88 Tayside
UK89 Western Isles
UK90 Clwyd
UK91 Dyfed
UK92 Gwent
UK93 Gwynedd
UK94 Mid Glamorgan
UK95 Powys
UK96 South Glamorgan
UK97 West Glamorgan

* US UNITED STATES
* US01 Alabama
* US02 Alaska
* US04 Arizona
* US05 Arkansas
* US06 California
* US08 Colorado
* US09 Connecticut
* US10 Delaware
* US11 District of Columbia
* US12 Florida
* US13 Georgia
* US15 Hawaii
* US16 Idaho
* US17 Illinois
* US18 Indiana
* US19 Iowa
* US20 Kansas
* US21 Kentucky
* US22 Louisiana
* US23 Maine
* US24 Maryland
* US25 Massachusetts
* US26 Michigan
* US27 Minnesota
* US28 Mississippi
* US29 Missouri
* US30 Montana
* US31 Nebraska
* US32 Nevada
* US33 New Hampshire
* US34 New Jersey
* US35 New Mexico
* US36 New York
* US37 North Carolina
* US38 North Dakota
* US39 Ohio
* US40 Oklahoma
* US41 Oregon
* US42 Pennsylvania
* US44 Rhode Island
* US45 South Carolina
* US46 South Dakota
* US47 Tennessee
* US48 Texas
* US49 Utah
* US50 Vermont
* US51 Virginia
* US53 Washington
* US54 West Virginia
* US55 Wisconsin
* US56 Wyoming

UY URUGUAY
UY01 Artigas
UY02 Canelones
UY03 Cerro Largo
UY04 Colonia
UY05 Durazno
UY06 Flores
UY07 Florida
UY08 Lavalleja
UY09 Maldonado
UY10 Montevideo
UY11 Paysandu
UY12 Rio Negro
UY13 Rivera
UY14 Rocha
UY15 Salto
UY16 San Jose
UY17 Soriano
UY18 Tacuarembo
UY19 Treinta y Tres

UZ UZBEKISTAN

NH VANUATU
NH05 Ambrym
NH06 Aoba/Maewo
NH07 Banks/Torres
NH08 Efate
NH09 Epi
NH10 Malakula
NH11 Paama
NH12 Pentecote
NH13 Santo/Malo
NH14 Shepherd
NH15 Tafea

VT VATICAN CITY

VE VENEZUELA
VE01 Amazonas
VE02 Anzoategui
VE03 Apure
VE04 Aragua

VE05 Barinas
VE06 Bolivar
VE07 Carabobo
VE08 Cojedes
VE09 Delta Amacuro
VE24 Dependencias Federales
VE10 Distrito Federal
VE11 Falcon
VE12 Guarico
VE13 Lara
VE14 Merida
VE15 Miranda
VE16 Monagas
VE17 Nueva Esparta
VE18 Portuguesa
VE19 Sucre
VE20 Tachira
VE21 Trujillo
VE22 Yaracuy
VE23 Zulia

VM VIETNAM
VM43 An Giang
VM53 Ba Ria-Vung Tau
VM02 Bac Thai
VM03 Ben Tre
VM54 Binh Dinh
VM55 Binh Thuan
VM56 Can Tho
VM05 Cao Bang
VM44 Dac Lac
VM45 Dong Nai
VM46 Dong Thap
VM57 Gia Lai
VM11 Ha Bac
VM58 Ha Giang
VM51 Ha Noi
VM59 Ha Tay
VM60 Ha Tinh
VM12 Hai Hung
VM13 Hai Phong
VM52 Ho Chi Minh
VM61 Hoa Binh
VM62 Khanh Hoa
VM47 Kien Giang
VM63 Kon Tum
VM22 Lai Chau
VM23 Lam Dong
VM39 Lang Son
VM64 Lao Cai
VM24 Long An
VM48 Minh Hai
VM65 Nam Ha
VM66 Nghe An
VM67 Ninh Binh
VM68 Ninh Thuan
VM69 Phu Yen
VM70 Quang Binh
VM29 Quang Nam-Da Nang
VM71 Quang Ngai
VM30 Quang Ninh
VM72 Quang Tri
VM73 Soc Trang
VM49 Song Be
VM32 Son La
VM33 Tay Ninh
VM35 Thai Binh
VM34 Thanh Hoa
VM74 Thua Thien
VM37 Tien Giang
VM75 Tra Vinh
VM76 Tuyen Quang
VM77 Vinh Long
VM50 Vinh Phu
VM78 Yen Bai

* VQ VIRGIN ISLANDS

WQ WAKE ISLAND

WF WALLIS AND FUTUNA

WE WEST BANK

WI WESTERN SAHARA

WS WESTERN SAMOA
WS01 A`ana
WS02 Aiga-i-le-Tai
WS03 Atua
WS04 Fa`asaleleaga
WS05 Gaga`emauga
WS07 Gagaifomauga
WS08 Palauli
WS09 Satupa`itea
WS10 Tuamasaga
WS06 Va`a-o-Fonoti
WS11 Vaisigano

YM YEMEN
YM01 Abyan
YM02 `Adan
YM07 Al Bayda'
YM08 Al Hudaydah
YM09 Al Jawf
YM03 Al Mahrah
YM10 Al Mahwit
YM11 Dhamar
YM04 Hadramawt
YM12 Hajjah
YM13 Ibb
YM06 Lahij
YM14 Ma'rib
YM05 Shabwah
YM15 Sa`dah
YM16 San`a'
YM17 Ta`izz

CG ZAIRE
CG01 Bandundu
CG08 Bas-Zaire
CG02 Equateur
CG09 Haut-Zaire
CG03 Kasai-Occidental
CG04 Kasai-Oriental
CG06 Kinshasa
CG07 Kivu
CG05 Shaba

G1ZA ZAMBIA
ZA02 Central
ZA08 Copperbelt

ZA03 Eastern
ZA04 Luapula
ZA09 Lusaka
ZA05 Northern
ZA06 North-Western
ZA07 Southern
ZA01 Western
ZI ZIMBABWE
ZI01 Manicaland
ZI03 Mashonaland Central
ZI04 Mashonaland East
ZI05 Mashonaland West
ZI06 Matabeleland North
ZI07 Matabeleland South
ZI02 Midlands
ZI08 Masvingo

TW TAIWAN
TW01 Fu-chien
TW02 Kao-hsiung
TW03 T'ai-pei
TW04 T'ai-wan

# Appendix CC. AQUIRE Field Name Codes

| Field Name | Remark Abbreviation |
|---|---|
| Grade | GRADE |
| Purity | PURITY |
| Formulation | FO |
| Characteristics | CHAR |
| Radiolabel | RADIO |
| Carrier or Solvent | CARRIER |
| Solvent Grade | SOLVGRADE |
| Solvent Purity | SOLVPURITY |
| Solvent Formulation | SOLVFO |
| Solvent Characteristics | SOLVCHAR |
| Media | FW,SW |
| Location | LAB,FIELD |
| Organism Source | SOURCE |
| Organism Char | LIFESTG |
| Gender | SEX |
| Control | CONTR |
| Test Number | TESTID |
| Test Method | TMETH |
| Study Type | STYPE |
| Number of Doses | DNUM |
| Concentrations at each dose and Unit | DOSES |
| Intake Rate & Unit | INTAKE |
| Steady State | STST |
| Response Site | SITE |
| Effect | In EE Remark |

| Field Name | Remark Abbreviation |
|---|---|
| Trend | TREND |
| Endpt | In EE Remark |
| Companion Endpoint | COMPEP |
| Measurement | MSMT |
| Effect Percent | EFCT% |
| Signif | SIGNIF |
| Level | LEVEL |
| Concentration | CONC |
| BCF | BCF |
| Observed Time | OTIME |
| Exposure Type | TYPE |
| Exposure Time & Unit | ETIME |
| Method Conc | CONC |
| Temperature | TEMP |
| Hardness | HARD |
| Alkalinity | ALK |
| Dissolved Oxygen | DO |
| Humic acid & Units | HMA |
| Sodium & Units | NA |
| Chlorine & Units | CL |
| Potassium & Units | POT |
| Magnesium & Units | MG |
| Sulfate and Units | SO4 |
| Sulfur and Units | SULF |
| pH | PH |
| Salinity | SALIN |
| Conductivity | COND |
| Organic C | ORG C |

| Field Name | Remark Abbreviation |
|---|---|
| Dissolved Inorganic Carbon & Units | DIC |
| % Lipid | LD |
| Initial Weight | WTINT |
| Weight at time of result | WTAT |
| Dry or Wet Weight % | DW |
| Habitat Descr | HAB |
| Substrate Info | SUBSTR |
| Water Depth | DEPTH |
| Location | LOC |
| Sta/Pro/Country | NONE |
| Latitude | LAT |
| Longitude | LONG |
| AP Type | AP TY |
| AP Frequency | AP FREQ |
| AP Rate | AP RATE |
| Half Life | HALF |
| AP Season | AP SEAS |
| AP Date | AP  DATE |

# Appendix DD. Terretox Field Name Codes

## I. Quality Assurance Parameters

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviation |
|---|---|---|
| Reference Number | REF #, AUTHOR, YEAR | none |
| Total Tests | TOTAL TESTS | none |
| Reviewer/Date | REVIEWER, DATE | none |
| QA Date/Initials | QA DATE, INITIALS | none |
| TestNumber | TEST ID | none |

## II. Test Chemical Parameters

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviations |
|---|---|---|
| Chemical Name, Type | TEST, POSITIVE CONTROL, CARRIER | none, PC<br>CARRIER |
| Grade | GRADE | GRADE |
| Purity | PURITY | none |
| Formulation | FORMULATION | FO |
| Comments | CHARACTERSTICS | CHAR |
| Radiolabel | RADIOLAB | RADIO |
| CAS number | CAS # | none |

## III. Test Information

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviations |
|---|---|---|
| Species Number/Latin Name | SPECIES #/LATIN NAME | none |
| Organism Source | ORG SOURCE | SOURCE |
| Lifestage/Age | LIFESTG/AGE | LIFESTG/ AGE |
| Organism Characteristics | ORG CHAR | OCHAR |
| Test Location | TEST LOCATION | LOC |
| Exposure Type | EXPO TYPE | TYPE |
| Control | CONTROL TYPE | CONTR |
| Number of Doses | DOSE NUM | DNUM |
| Application Frequency | APPL FREQUENCY | AP FREQ |
| Application Date | AP DATE | |
| Application Season | AP SEAS | |
| Application Rate | AP RATE | |

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviations |
|---|---|---|
| Exposure Duration | EXPOSURE DURATION | ETIME |
| Study Duration | STUDY DURATION | STIME |
| Study Type | STYPE | |
| Test Method | TMETH | |
| Trend | TREND | |
| Media Type | MEDIA TYPE | MEDIA |
| Soil Type | SOIL TYPE | SOIL |
| Soil Texture | SOIL TEXTURE | TEXTURE |
| Temperature | TEMP | |
| Media pH | MEDIA PH | pH |
| Media Organic Matter | MEDIA ORGANIC MATTER | OM |
| Media Moisture | MEDIA MOISTURE | MOIST |
| Media CEC | MEDIA CEC | CEC |
| Soil Concentration Measured/ Concentration measured on Dry or Wet Basis | SOIL CONC MEASURED<br>DRY-WET WEIGHT | none |
| Remarks | REMARKS | none |
| Experimental Design | --- | EDES |
| Habitat | HAB | |
| Location | LOC | |
| Habitat Code | HABCODE | |
| Geographic Code | GEO | |
| Latitude | LAT | |
| Longitude | LONG | |
| Effect Percent | EFCT% | |
| Other Effects | none | OEF |

## IV. Exposure Information

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviation |
|---|---|---|
| Dose Number | DOSE NO | none |
| Dose ID | DOSE ID | none |
| Sample Number | N | none |
| Gender | SEX | SEX |
| Concentrations at each dose and Unit | DOSES | |
| Exposure Dose and Unit | DOSE/UNIT | DOSE/ DUNIT |
| Concentration Type | CONCTYPE | |

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviation |
|---|---|---|
| Intake Rate and Unit | INTAKE | |
| Ion | ION | ION |
| Chemical Analysis Method | METHOD | ANALYSIS |
| Steady State | STST | |
| Remark Number | RN | none |
| Remarks | REMARKS | none |

## V. Results Information

| Field Name | Coding Sheet Abbreviation | Remarks Abbreviation |
|---|---|---|
| Dose Number/ID | DOSE NO/ID | none |
| Sample Number and Unit | N/UNIT | SAMPN/ NUNIT |
| Observation Time | O | OTIME |
| Effect | EFFECT | EFCT |
| Effect Measurement | MEASMENT | MSMT |
| Endpoint/Assigned | ENDPT/ASG | ENDPT |
| Result Set | R | none |
| Companion Endpoint | COMPEP | |
| Statistical Significance | SIG/NSIG | SIGNIF |
| Level | LEVEL | none |
| Paper/Reviewer Assigned Data | P R | none |
| Response Site | RESP SITE | RSITE |
| Observed Response Value/ Unit | OBSERV RESPONSE VALUE/UNIT | RVALUE<br>RUNIT |
| Initial Weight | WTINT | |
| Weight at time of result | WTAT | |
| Dry or Wet Weight | DW % | DW |
| Percent Lipid | %LIPID | LD |
| Remark Number | RN | none |
| Remarks | REMARKS | none |

# Appendix EE. Organic Matter Type and Units

## Organic Matter Types

| Code | Definition |
|---|---|
| ASH | Ash Free Dry Mass |
| C | Carbon |
| C:N | Carbon to Nitrogen Ratio |
| CPON | Carbon Particulate Organic Matter |
| Cox | Oxidized Carbon |
| DOC | Dissolved Organic Carbon |
| HUM | Humus |
| LOI | Loss On Ignition |
| N | Nitrogen |
| NR | Not Reported |
| OC | Organic Carbon |
| OM | Organic Matter |
| POC | Particulate Organic Carbon |
| POM | Particulate Organic Matter |
| TOC | Total Organic Carbon |
| peat | Peat |

## Organic Matter Units

| Code | Definition |
|---|---|
| % | percent |
| NR | not reported |
| cmol/kg | centimoles per kilogram |
| g | grams |
| g/100g | grams per 100 grams |
| g/kg | grams per kilogram |
| mg/g soil | milligrams per gram soil |
| mg/100g soil | milligrams per 100 grams of soil |
| mg/kg soil | milligrams per kilogram soil |
| mM | millimolar |
| ug/L | micrograms per liter |
| uM | microMolar |
| umol/g LIT | micromoles per gram litter |
| umol/L | micromoles per liter |

# Appendix FF. Cation Exchange Capacity Units

| Dose | Definition |
|---|---|
| NR | not reported |
| cmol/kg | centimoles per kilogram soil |
| cmol+/kg | centimoles + ions per kilogram soil |
| cmol P+/kg | centimoles P+ per kilogram soil |
| me/100g | milliequivalents per 100 grams s |
| meq | milliequivalents |
| meq A/100 g | milliequivalents NH4 per 100 g |
| meq mg/g | milliequivalent milligrams per g |
| meq/100g | milliequivalents per 100 grams s |
| meq/kg | milliequivalents per kilogram |
| mmol/100g | millimoles per 100 grams soil |
| mmol/kg | millimoles per kilogram soil |
| mmol K+/kg | millimoles K+ per kilogram soil |
| mval/100g | millivalue per 100 grams (mval=ppm*(ion charge)/(atomic weight) |

# Appendix GG. Concentration Types

| Code | Description | Definition |
|---|---|---|
| Organic | | |
| A | Active ingredient | Chemical substance in a product that is responsible for the pesticidal (toxic) effect (Ware, 1978). Reported as "A" when the author refers to the concentration as active ingredient, active principle, active substance (A.S.), acid equivalent or various grades of reagents (ie., Analytical, Reagent or Technical). When coding, a value in the publication may be reported as “AI kg/ha”, "AE kg/ha" or “kg AI/ha”; this type of value is reported as ‘A =’ for CONC TYPE. |
| F | Formulation | Way in which basic pesticide (toxicant) is prepared for practical use (Ware, 1978). Generally reserved for commercial preparation prior to actual use and does not include the final dilution (Insect-Pest Management and Control, 1971) (e.g.; Baythroid, 2,4-D). Also included in this category are organic compounds with no pesticidal activity (e.g.; PCB, dioxin). |
| Metal/Organomentals | | |
| D | Dissolved | Those constituents of an unacidified sample that pass through a 0.45 um membrane filter (e.g. soluble metal) (APHA et.al. 1992). |
| L | Labile | The labile or free ion metal concentration determined by various analytical methods. When coding, the specific labile forms or complexes are not differentiated |
| T | Total | The concentration of metals determined on an unfiltered sample after vigorous digestion, or the sum of the concentrations of metals in both dissolved and suspended fractions (APHA et.al. 1992). Heavy metals and single elements (e.g. Na, Cl, Br) are coded as T. |
| Inorganic non-metals | | |
| T | Total | The dissociated, charged form of nitrogen or hydrogen related chemicals. This can take on numerous forms, e.g.; ammonium (NH+4), nitrite (NO-2), etc. (Rand and Petrocelli, 1985).T is the default for publications that do not state whether Total or Unionized concentrations are reported. |
| U | Unionized | The undissociated, uncharged form of ammonia or hydrogen sulfide. The ammonia molecule, $NH_3$, is the unionized form. (In aqueous solution, ammonia assumes an equilibrium between $NH_3$ and $NH^+_4$.) The $NH_3$ is the toxic entity of the ammonia compound (Rand and Petrocelli, 1985). |

# Appendix HH. ECOTOX Study Type Codes

| Code | Name | Definition |
|---|---|---|
| ACUTE | Acute | Having a sudden onset, lasting a short time. Of a stimulus, severe enough to induce a response rapidly. Can be used to define either the exposure or the response to an exposure (effect). For clarity, the length of the exposure (short, medium, or long) and the nature of the effect end point (lethal or nonlethal) should be specified. The duration of an acute aquatic toxicity test is generally 4d or less and mortality is the response measured. (ECOTOX) |
| ACTELS | Acute Early Life Stage | These tests include continuous exposure of the early life stages which have a sudden onset of a response, lasting a short time. Of a stimulus, severe enough to induce a response rapidly. (ECOTOX) |
| CHRELS | Chronic Early Life Stage | These tests include continuous exposure of the early life stages which involve a stimulus that is lingering or continues for a long time; often signifies periods from several weeks to years, depending of the reproductive life cycle of the organism. (ECOTOX) |
| CHRONIC | Chronic | Involving a stimulus that is lingering or continues for a long time; often signifies periods from several weeks to years, depending of the reproductive life cycle of the aquatic species. Can be used to define either the exposure or the response to an exposure (effect). For clarity the length of the exposure and the nature of the effect end point should be specified. Chronic exposure typically induces a biological response of relatively slow progress and long continuance. The chronic aquatic toxicity test is used to study the effects of continuous, long-term exposure to a chemical or other potentially toxic material on organisms. (ECOTOX) |

| Code | Name | Definition |
|---|---|---|
| ELS | Early Life Stage | These tests include continuous exposure of the early life stages (e.g., egg, embryo, larva, fry) of aquatic organisms to various concentrations of chemical for 1-2 months, depending on the species. (Rand and Petrocelli, 1985) |
| FLC | Full Life Cycle | A chronic (or full chronic) study in which all the significant life stages of an organism are exposed to a test material. Generally, a life cycle is from birth until the organism reproduces (Rand and Petrocelli, 1985) |
| PLC | Partial Life Cycle | The test organism is exposed to toxicant through part of the life cycle which includes life stages observed to be especially sensitive to chemical exposure (Rand and Petrocelli, 1985) |
| GEN | Generational | A study that encompasses multiple generations of the test organism (e.g. P, F1,F2) either exposed to a toxicant during different generations or exposure to one generation and results measured in subsequent generations.(ECOTOX) |
| SBACUTE | Subacute | Intermediate between acute and chronic, not quite being one or the other (http://www.amershamhealth.com/public/glossary/s.shtml). Adverse effects occurring as a result of repeated daily dosing of a chemical, or exposure to the chemical, for part of an organism's lifespan (usually not exceeding 10%). With experimental animals, the period of exposure may range from a few days to 6 months.(http://www.bio.hw.ac.uk/edintox/glossall.htm) |
| SBCHRON | Subchronic | Intermediate between acute and chronic toxicities; subchronic toxicity studies involve repeated daily exposures of animals to a chemical for part (not exceeding 10%) of a lifespan. In rodents, this period extends up to 90 days of exposure. (www.uoguelph.ca/GTI/urbanpst/glossn_z.htm ) Of intermediate duration, usually used to describe studies or periods of exposure lasting between 5 and 90 days (www.afrpa.hq.af.mil/kelly/Terms/sterms.html ) |

# Appendix II. ECOTOX Test Method Codes

| Code | Name | Citation |
|---|---|---|
| AFNOR | French Association for Standardization | Various Information available on line at: www.afnor.fr |
| ASTM | American Society for Testing and Materials | Specific names of test methods include: FETAX American Society for Testing and Materials (ASTM). (Various years) . American Society for Testing and Materials. Annual Book of ASTM Standards. American Society for Testing and Materials, Philadelphia, PA. Information available on line at: http://www.astm.org |
| ECAN | Environment Canada | Various publications. Includes Environment Canada (1990). Biological Test Methods: Acute Lethality Test Using Daphnia spp. EPS 1/RM/11. Ottawa, ON. Information available on line at: http://www.mb.ec.gc.ca/ |
| EEC | European Economic Community (EEC) | EEC.(1984) In 84/449/EEC: Commission Directive of 25 April 1984 adapting to technical progress for the sixth time council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification packing and labeling of dangerous substances. Official Journal of the European Communities L251, 27, p:155-159 |
| EPAASTM | U.S.EPA and American Society for Testing and Materials | Used both U.S.EPA and ASTM methods when testing |
| EPAECCE | United States Environmental Protection Agency, Environment Canada and CETESB | Used U.S.EPA, Environment Canada and Technology Centre for Environment Conservation (CETESB - government agency in Brazil - http://www.cetesb.sp.gov.br) methods when testing |
| EPASTD | United States Environmental Protection Agency and Standard Methods for the Examination of Water and Wastewater | Used both Standard Methods and U.S.EPA methods when testing |

| Code | Name | Citation |
|---|---|---|
| FAO | Food and Agriculture Organization of the United Nations | Various publications. Includes FAO (1977) Manual Methods in Aquatic Environment Research, Part-4 Bases for Selective Biological Tests to Evaluate Marine Pollution. PAO Fisheries Technical Paper 164. Information available on line at: http://www.fao.org/ |
| GLP | Good Laboratory Practices | published by the U.S. Department of Health, education and Welfare, Food and Drug Administration (1978) and the U.S.EPA (1980) Information available on line at: http://www.accessdata.fda.gov/scripts/cdrh/cfdocs |
| GLPUK | Department of Health's United Kingdom Compliance Programme good laboratory practice | Various Information available on line at: http://www.mhra.gov.uk |
| ISEPOE | International Standard Organization (ISO), U.S.Environmental Protection Agency and OECD | Used International Standard Organization (ISO) (www.iso.org) , United States Environmental Protection Agency and Organization for Economic Cooperation methods when testing |
| ISO | International Standard Organisation (ISO) | Used International Standard Organisation (ISO). Also known as International Organization for Standardization. Various Information available on line at: http://www.iso.org/iso/home.htm |
| OECD | Organization for Economic Cooperation and Development | Most Recent: OECD (2002). OECD Chemical Testing Guidelines - Health Effects. Organization for Economic Co-operation and Development. Information available on line at http://www.oecd.org/ |
| OPPTS | Office of Prevention,Pesticides and Toxic Substances Harmonized Test Guidelines | Most Recent: United States Environmental Protection Agency (USEPA). 2002. Office of Prevention , Pesticides, and Toxic Substances Harmonized Test Guidelines. Series 870 Health Effects Test. Information available on line at: http://www.epa.gov/oppts/pubs/frs/home/guidelin.htm |
| STDMETH | Standard Methods for the Examination of Water and Wastewater | Published jointly by: American Public Health Association, American Water Works Association and Water Pollution Control Federation (APHA,AWWA,WPCF). Various years Information available on line at: http://www.standardmethods.org/ |

| Code | Name | Citation |
|---|---|---|
| STDASTM | Standard Methods for the Examination of Water and Wastewater and American Society for Testing and Materials | Used both Standard Methods and ASTM methods when testing |
| STDOECD | Standard Methods and OECD | Used both Standard Methods and OECD methods when testing |
| STOEGL | Standard Methods, Organization for Economic Cooperation and Development and Good Laboratory Practice | Used Standard Methods, Organization for Economic Cooperation and Good Laboratory Practice methods when testing |
| TEPA | Taiwan Environmental Protection Agency | Various Information available on line at: http://www.epa.gov.tw/en/ |
| UNEP | United Nations Environment Programme | Various publications. Includes: UNEP/FAO/IAEA (1989). Estimation of the Acute Lethal Toxicity of Pollutants to Marine Fish and Invertebrates. Reference Methods for Marine Pollution Studies, No.43. United Nations Environment Programme, Nairobi. Information available on line at: http://www.unep.ch/regionalseas/pubs/rsrm.htm |
| USEPA | United States Environmental Protection Agency | Various Information available on line at: http://www.epa.gov/ |
| WHO | World Health Organization | Various publications. Includes: WHO. 1963. Criteria and meaning of tests for determining susceptibility or resistance of insects to insecticides. Technical Rep. Ser. N 265: 135-138. Information available on line at: http://www.who.int/en/ |