EPA Chemical Prioritization Community of Practice

NCCT BOSC Review
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*This work does not necessarily reflect official Agency policy.*
EPA Chemical Prioritization Community of Practice

TOPICS
• Computational chemistry
• High-throughput screening (HTS)
• Toxicogenomics

PURPOSE
• Advance pursuit of prioritization of environmental chemicals
ToxCast

- Primary purpose of CPCP is to foster scientific discussions and interactions helpful to ToxCast
- The CPCP has been a useful forum for ideas and joint projects
- Once ToxCast contracts are in place, contractors can join the CPCP forum
Present CPCP Membership

Currently there are 58 people on the emailing list.

- EPA
  - ORD: NCCT, NCEA, NERL, NHEERL, NHSRC, NRMRL
  - OPPTS, OW, OAR, OEI
- NIEHS/NTP
- NIH/MLI, NCGC
- ACC, CAAT, CropLife, Environmental Defense, Dow
- ECVAM, NIHS Japan
- Pfizer
Activities to Date: Dec05 – Jun06

- 4 semi-monthly EPA CPCP meetings
- 3 semi-monthly joint EPA CPCP-NTP HTS meetings, including ChemGenomics 101
- Fostering “chemical prioritization” collaborations both within/without EPA
Toxicoinformatics Collaboration with EPA/OPP

- Capturing toxicology data from pesticide registrations into relational database
  (see Martin et al. poster on RefToxDB)
- Working closely with OPP scientists
- Striving for normalized data dictionary consistent with public ToxML
- NCCT purpose is for applications to ToxCast and toxicogenomics
Collaborative OECD Proposal: Molecular Screening for Characterizing Individual Chemicals and Chemical Categories

• Prepared with EPA/OPPTS in dec2006, and approved by OECD/IPCS Advisory Group on Toxicogenomics

• CPCP has been a useful portal to OPPTS and OECD participants on relevant scientific topics

• As this project develops, expect that CPCP will play important and efficient communications role between OECD and ToxCast projects
In Vitro DNT Collaboration

• Led by NHEERL/NTD investigators, with CAAT, Dow, P&G

• CPCP affords discussion of common interests with ToxCast in toxicoinformatics, assay development, data generation and interpretation
Collaboration with the NTP HTS Initiative

http://ntp.niehs.nih.gov/ntpweb/index.cfm?objectid=05F80E15-F1F6-975E-77DDEDBDF3B941CD

• Participation in the NTP High Throughput Screening Assay Workshop, Dec 14-15, 2005
• Joint collaboration with NCGC, 1408 chemicals into qHTS system (data coming out on PubChem-search NTPHTS)
• Joint workgroups: Toxicity Targets and Bioactivity Assays; Chemical Selection; Informatics
• Proposed joint NTP-EPA SOT2007 symposium on HTS and Chemical Genomics in Toxicity Screening
Collaboration with NIEHS/NTP WormTox

• Jon Freedman’s research program at NIEHS/NTP

• EPA’s ToxCast chemicals going into the worm plates
Collaboration with the NIH Chemical Genomics Center

Discovering the Pathway Between Chemistry and Biology

- NCGC lab operational Feb 2005
- CPCP serves as communication hub between NCCT, NCGC and NTP
- Joint effort introducing environmental chemicals into the MLI pipeline, assay development, informatics...
- Joint EPA-NCGC-NTP session at SBS2007: "Toxicity Profiling using High-Throughput and High-Content Technologies"

http://www.ncgc.nih.gov/
**CPCP Future Priorities**

- Toxicoinformatics, initially DevTox, ReproTox, Chronic, Sub-Chronic, DNT and IMT for pesticides
- Assay development with contractors, NCGC, NTP
- Chemical selections for ToxCast proof-of-concept