Application of computational toxicology to prospective and diagnostic ecological risk assessment.

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When the National Research Council published their Vision and Strategy for Toxicity Testing in the 21st Century, the sole focus was human health-related toxicity testing. However, ecotoxicity testing faces many of the same challenges and limitations relative to its traditional reliance on a whole animal testing paradigm. This presentation will provide perspectives on how the tools and approaches of computational toxicology can be applied to ecological risk assessment questions. Specifically, it will describe how adverse outcome pathway knowledge can be applied to facilitate use of high throughput molecular screening data (e.g., Toxcast data) for ecological hazard assessment and prioritization of ecological toxicity testing. Additionally, it will discuss an envisioned role for high throughput screening and other computational toxicology approaches in environmental monitoring and surveillance.

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