High Throughput Discovery at the Nano/Bio interface for Risk Assessment and Nano EHS Decision Making

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In the safety assessment of commercial nanoparticles such as metals, metal oxides and carbon nanotubes, it is required that we understand how the physicochemical characteristics of the engineered nanomaterials relate to biological responses such as bioavailability and the catalysis of hazardous biological responses at the nano/bio interface. The number of potential perturbations *in vitro* and *in vivo* is potentially overwhelming and require the use of high content and high throughput screening approaches and *in silico* tools for environmental decision making . My talk will delineate the implementation of high throughput methodology in cells and zebrafish and describe how the systems can be used for the safety assessment of nanomaterials. I will describe how the use of compositional and combinatorial nanomaterial libraries are being used to elucidate the material properties that drive biological injury response pathways. I will also show how *in silico* data transformation and decision-making tools can help to speed up the rate of assessment.