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As a toxicologist and budding risk assessor, I am excited to join NCCT because the project on high-throughput screening and bioactivity profiling of nanomaterial effects is an ambitious and long-awaited project to which the scientific community pays great attention. I am impressed by the goal-oriented and truly collaborative approach, as well as the highly motivated and intelligent people with diverse fields of expertise at NCCT.

High Throughput Screening and Bioactivity Profiling of Nanomaterials

The EPA's National Center for Computational Toxicology (NCCT) has identified the need to include nanomaterials in its ToxCast™ chemical prioritization program, evaluating the applicability of ToxCast™assays and predictive toxicity models. This approach will utilize extensive in vitro characterization of biological activity of tested materials and apply computational models to characterize biological pathway activity. This project will develop novel tools for characterizing bioactivity of a variety of nanomaterial classes. A critical need is establishing appropriate material handling methods for testing nanomaterials in the ToxCast™ in vitro screening assays. In addition, the coordination of physico-chemical characterization of nanomaterials with key partners is required to provide appropriate understanding of the materials being tested and provide data for structure-activity relationships. This work will be coordinated with related national and international efforts to classify and prioritize nanomaterials for hazard. ToxCast™ high throughput screening (HTS) data, physico-chemical properties, and all other accessible in vitro and in vivo toxicity data will be entered into NCCT databases and used to develop statistical and biological models.