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I *am drawn to exciting new challenges, which is why I am here at the EPA. NCCT integrates knowledge and skills from high caliber professionals (both in and out of the Agency) for the difficult challenge of predictive toxicology. I enjoy all aspects of this postdoctoral position, from the open collaborations, integration of biological and computational approaches, learning new techniques, and last but certainly not least the environmental focus of our work.*

Virtual Embryo Project

The v-Embryo™ Project is focused on improving the predictive capabilities of in vitro toxicity testing through developing predictive models of developmental defects. The project aims to integrate ToxCast™ high-throughput screening (HTS) data along with in vivo developmental data to develop computational predictive models that can prioritize potential developmental toxicants and give plausible mechanistic implications of routes of developmental toxicity. Initial species-specific computational predictive models of developmental toxicity have been developed using the Phase I compound set, consisting of 309 mainly food-use pesticides, in which ~90% have developmental rat and/or rabbit guideline in vivo data. The model will be tested and revised using the Phase II library, consisting of an additional 700 diverse chemical set including pharmaceuticals, pesticides, alternative plasticizers, consumer use chemicals, and food additives. These models are the first of their kind in correlating hundreds in vitro assays to in vivo developmental studies from hundreds of chemicals. This model and approach has the potential to generate predictive models of developmental toxicants useful as initial screens, prioritize chemicals for further targeted toxicity testing and risk assessment, generate hypotheses about mechanistic pathways leading to adverse effects of embryonic and postnatal development, and reduce cost and increase throughput of chemical testing.