

**CALL FOR PAPERS:**

**SPECIAL ISSUE OF NEUROTOXICOLOGY AND TERATOLOGY**

**LEVERAGING NON-MAMMALIAN MODELS FOR**

**DEVELOPMENTAL NEUROTOXICITY TESTING**

The developing nervous system is a sensitive target for chemical exposure in both humans and animal models, and early life-stage exposures can lead to long-term effects on motor activity, sensory function, and cognition. Developed and issued by the Organization for Economic Co-operation and Development (OECD), the developmental neurotoxicity (DNT) test guideline (OECD TG 426) is used to assess the potential effects of pre- and postnatal chemical (mainly pesticide) exposure on the morphology and function of the developing nervous system within pre-weaning, adolescent, and young adult rodents. Commonly used strains of rats are preferred for this guideline, and each DNT study requires approximately 640-1200 rats (excluding dams) per chemical. While DNT data are lacking for tens of thousands of chemicals used in commerce, it is impractical to screen these chemicals using the existing DNT test guideline, as this test relies on a large number of animals and is expensive, low-throughput, and labor-intensive. Therefore, there is a recognized need to rely on cell-based assays and alternative non-mammalian models to support rapid and cost-effective screening and prioritization of chemicals for DNT testing in rodents. Currently, the vast majority of high-throughput screening (HTS) and high-content screening (HCS) assays used for DNT testing utilize cell-free and cell-based methods that model key biological events across a wide range of toxicologically-relevant pathways. However, these assays do not adequately reflect the complex physiology of an intact organism. Therefore, the use of smaller, alternative non-mammalian animal models (such as nematodes, flies, and fish embryos) have been proposed as complementary models to cell-free and cell-based methods, as these models are also suitable for microplate-based HTS/HCS assays and mechanism-based neurotoxicological research.

In order to highlight the use of non-mammalian models for developmental neurotoxicity testing, *Neurotoxicology and Teratology* is organizing a Special Issue focused on the theme of “*Leveraging Non-Mammalian Models for Developmental Neurotoxicity Testing*”. We invite all researchers within the field of developmental neurotoxicology to contribute primary data-driven papers or critical review articles. We welcome submissions that highlight the utility of non-mammalian models for 1) testing a wide variety of developmental neurotoxicants – including emerging, understudied contaminants such as flame retardants (brominated and phosphorous) and per- and polyfluoroalkyl substances (PFASs) and 2) uncovering mechanisms underlying environmental chemical-induced neurotoxicity. Non-mammalian models include, but are not limited to, fish (e.g., zebrafish), nematodes (e.g., Caenorhabditis elegans), fruit flies (e.g., Drosophila melanogaster), echinoderms (e.g., sea urchins), and planarians. Ecotoxicology studies in sampled wild animals or targeted exposures directly in the environment will be considered if a clear case can be made for predictive power and human health relevance (e.g., sentinel sampling of amphibian toxicant levels and associated adverse neurological outcomes).

All submissions to this Special Issue will be fully peer-reviewed, and because *Neurotoxicology and Teratology* is abstracted and indexed in BIOSIS, Current Contents/Life Sciences, EMBASE, EMBiology, ETOH, Elsevier BIOBASE, MEDLINE®, Science Citation Index, and Scopus, its contents will be available through typical search engines of the medical literature (e.g., PubMed). The Special Issue will also be circulated to all subscribers of the journal and be accessible via ScienceDirect.

This Special Issue will be in the form of a Virtual Special Issue (VSI), which is an approach to publishing Special Issues that allows us to address one of the most common complaints by authors – slow publication speed. With a VSI, accepted manuscripts are published in the first available regular issue, and corresponding authors will receive 50 days free access to the final published version of their manuscript. Thus, authors do not need to wait until all the Special Issue manuscripts are accepted to have their manuscript published. Simultaneously, articles will appear in a VSI section on the *Neurotoxicology and Teratology* website and on ScienceDirect.

To be considered for inclusion in this Special Issue, please submit your manuscript to *Neurotoxicology and Teratology* by June 1, 2020 via the electronic submission system (https://www.evise.com/profile/#/NTT/login). Manuscripts should be assigned to the category “VSI: Non-Mammalian Models” at the beginning of the submission process, and a cover letter to the Editor should also specify that the submission is targeted for this issue.

We hope that you will consider this invitation seriously and submit your best work to this issue. Recent trends in scientific publication indicate that articles that appear in special issues receive a great deal of attention and we hope that you will take advantage of this opportunity. If you have any questions, please feel free to contact one of the Co-Editors. We look forward to your contributions to this Special Issue.

Thank you,

David C. Volz, Jason Cannon, and Tamara Tal

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