TWINNING TOWARDS EXCELLENCE IN ALTERNATIVE METHODS FOR TOXICITY ASSESSMENT

We are pleased to invite you to take part in the online S&T Course Event 8th

"New tools in the assessment of neurotoxicity and developmental neurotoxicity"

January 24-26, 2023

Organized by Università degli Studi di Milano (UMIL)

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For registrations:

https://forms.monday.com/forms/e0bd9e641c52e2f69161a1f22e780351?r=euc1

ONLINE EVENT (Teams Platform), NO REGISTRATION FEES - submission due date: January 13th, 2023

Neurotoxicity (NT) is defined as any adverse effect on the nervous system that results from exposure to potentially toxic substances. In addition to adult neurotoxicity, it is particularly relevant the developmental neurotoxicity (DNT) which is characterized by critical period, during which the system is more susceptible to the exposure to toxicants or stressful events. In general, DNT and NT can lead to dysfunctions, possibly causing alterations in brain and behavior. It is very important not only to understand the mechanisms involved in the toxic effects on the nervous system, but also to find new tools to model the brain circuits to study how synaptic connections could adapt and react to toxic external stimuli. With the contribution of experts in the field, the **purpose of this course event** is to provide knowledge on **new approach methodologies (NAMs)** useful to assess **neurotoxicity** and **developmental neurotoxicity**.

Tuesday 24th

Morning session - Using New Approach Methodologies (NAM) for the regulatory assessment of developmental neurotoxicity (DNT) and beyond

Chair: Barbara Viviani (University of Milan)

9:45 Barbara Viviani - Welcome
10:00 Martin Paparella, *Medical University Innsbruck* - Uncertainties of DNT models *in vivo* versus *in vitro*
10:30 Ellen Fritsche, *Leibniz Research Institute for Environmental Medicine* - The DNT *in vitro* battery for DNT evaluation

11:00-11:30 Coffee Break

11:30 Iris Mangas, *European Food Safety Authority* - IATA case studies and OECD draft
12:00 David Pamies, *University of Lausanne* - Current research filling the gaps of the DNT-IVB
12:30 Andrea Terron, *European Food Safety Authority* - Use of NAMs for the identification of hazards linked to chronic neurotoxicity and EFSA next steps for implementation

13:00-14:30 Lunch break

Afternoon session - *Building confidence in Adverse Outcome Pathways (AOPs)*
Chair: Barbara Viviani (University of Milan)

14:30 Tamara Tal, *University Leipzig* - Building confidence in AOPs using gene editing
15:15 Alessandra Roncaglioni, *Mario Negri Institute* - Computational models for neurodevelopmental effects based on the AOP concept

16:00 Closing remarks

Wednesday 25th

New Approach Methodologies in Neurotoxicity (NAMs)
Chair: Miriam Midali (University of Milan)

9:45 Miriam Midali - Welcome
10:00 Luca Palazzolo, *University of Milan* - Prediction on neurotocixity via *in silico* approaches: a practical example on the human voltage-gated sodium channels
10:30 Melania Maria Serafini, *University of Milan - In vitro* 2D/3D systems as NAMs in neurotoxicity

11:00-11:30 Coffee Break

11:30 David Leuthold, *Helmholtz-Centre for Environmental Research Leipzig* - NAMs for learning and memory
12:15 Tanima Sengupta, *Norwegian Institute for Air Research - C. elegans* as a model system for assessing neurotoxicity

13:00 Closing remarks

Thursday 26th

First morning session - *Investigating Endocrine Disruptors and neurotoxicity in vitro*
Chair: Melania Maria Serafini (University of Milan)

9:45 Melania Maria Serafini - Welcome
10:00 Katharina Koch, *Leibniz Research Institute for Environmental Medicine* - Species- and sex-specificities of endocrine disrupter exposure during brain development
10:45 Marco Tullio Rigoli, *Human Technopole* - Unravelling the molecular mechanisms of Endocrine Disruption in the developing human brain

11:45-12:15 Coffee Break

Second morning session - *Microbioma, a rising issue in neurotoxicity*
Chair: Melania Maria Serafini (University of Milan)

12:15 Silvia Diviccaro, *University of Milan* - Gut-Microbes-Brain communication in physiological and pathological conditions
12:45 Tamara Tal, *University Leipzig* - Chemical-microbiome interactions

13:30 Closing remarks

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