MARTÍ i FRANQUÈS COFUND FELLOWSHIPS PROGRAMME
Universitat Rovira i Virgili

The Universitat Rovira i Virgili is offering a PhD Fellowship position in

PhD programme: Nanoscience, Materials and Chemical Engineering

Integration of techniques to evaluate the human risk to long term at low-level exposure to mixtures (Long-Low-Mixtures)

Overview

We are pleased to inform you that as part of the Martí i Franquès COFUND Fellowship Programme (MFP-COFUND), the Universitat Rovira i Virgili has opened the call for applications for 28 new predoctoral research fellowships in different research areas. One of them, in the area of Nanoscience, Materials and Chemical Engineering.
The call for applications is open from 20 March to 20 May 2018.
The candidates will start their three-year contracts in October 2018.

The MFP-COFUND Programme offers

- 3-year working contract
- An intense multi-disciplinary and intersectoral training, the fruit of collaborations with over 30 partners that actively support this programme
- One of the best salaries at PhD level in Europe (2200 €/month gross salary)
- An international environment, supported by the adherence to the European Charter & Code
- Enrolment in excellent PhD programmes
- Opportunity to do research in a top 500 universities in the world (76 in THE Young universities ranking)
- Access to high-quality infrastructures for research & innovation

Description of the research project

Although the knowledge that link environmental contamination to disease is quite extended, there is a lack of established causality for developing the respective Adverse Outcome Pathways (AOPs), taking into account cumulative exposure. The AOP framework provides a template that facilitates understanding of complex biological systems and the pathways of toxicity that result in adverse outcomes. To improve the knowledge is necessary to integrate different disciplines as including environmental and exposure modelling, recent advances in toxicology (including in vitro, in vivo and in silico aspects) with a special focus on omics technologies and bioinformatics, as well as environmental epidemiology.

The objective of the project is to improve chemical risk assessment related to co-exposure to mixtures of chemicals. To do that the project will assess the long-term health risk of this co-exposure to these

This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 713679

chemicals by understanding how these compounds induce molecular and biochemical pathways that may interact to lead to the final adverse outcome.

Chosen chemicals will be those with widespread uses in industrial and consumer goods the EU population is co-exposed to several of them often, albeit at relatively low doses (i.e. bisphenols, (chlorinated) flame-retardants, per fluorinated compounds, and phthalate exposure).
Biological data will be obtained from a cohort of pregnant women that is composed of more than 150 pair's mother-child. The evidences indicate that some chemicals can affect the different levels of epigenetic control if the exposure occurs during "two critical windows of exposure", the prenatal and the early life period.
Environmental exposure will be measured by means of diverse technologies like sensors and questionnaires. Besides the internal exposure will be measured by analysing the concentration of toxins in human blood, urine and breast milk.
In vitro assays and, possibly, multi-omics data will be used to link key events quantitatively to other key events or an adverse outcome based on realistic conditions of co-exposure to multiple chemicals.
Physiologically based pharmacokinetic modelling will be used to predict the pharmacokinetic behaviour of these chemicals and their mixtures in human body. This model will be integrated with a physiologically dynamic model that describes the kinetics of both, the chemicals and biomolecules help us to understand the dynamic and steady state behaviours of molecular pathways under perturbed condition.

Expected results. Stronger scientific confidence in key event relationships will result in the development of quantitative models for associating low, environmentally relevant exposure of mixtures to adverse outcomes. This will lead to improved chemical risk assessment of frequently occurring chemical co-exposures following and even advancing the AOP guidelines of the OECD.

Results will be communicated, disseminated and exploited to the different stakeholders to reduce public health risks.

Required profile

The successful candidate should have completed a university graduate degree (master or equivalent) in the area of environmental sciences or in related field.

Application

Candidates should apply to Martí-Franquès COFUND Fellowship Programme (**2018MFP-COFUND-35**)
The application process is electronic.
The call for applications is open from 20 March to 20 May 2018.

Contact details

For further information, consult the MFP-COFUND website.
If you have any questions, please do not hesitate to contact us: mfp.cofund@urv.cat
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