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Founded in 1990, INERIS is an EPCIP (French public research body of an industrial and commercial character), under the aegis of the French Ministry of Ecology. INERIS has developed expertise in the areas of chronic and hazardous risks.

Postdoctoral position

Systemic modelling of endocrine disruption in fish and rodents (Postdoctoral position)

Deadline for applications: March 31, 2015.

Reference number : 144594 (<http://www.ineris.fr/emplois/emploi-emploi-details.php?id=144594>)

Context and objectives

Endocrine disruption is a key scientific and regulatory question. Predictive approaches to assess the potential of a substance to induce endocrine disruption are required. The METO unit (Models for Ecotoxicology and Toxicology) is involved in two main actions related to that issue. First, it coordinates a national program (MOZAIC) aimed at integrating different modelling approaches, including QSAR, PBPK and population models to quantitatively predict the effects of endocrine disruptors at different scales of biological organization for the zebrafish (*Danio rerio*). Second, METO develops a systems biology model of the female mammalian steroidogenesis for in vitro to in vivo extrapolation and omics data integration.

Steps

There are two related lines of works planned for the post-doctoral position:

- **Modelling effects on hypothalamus-pituitary-gonad (HPG) axis for zebrafish** (6 months). A PBPK model has already been developed and published (Péry et al., 2014) to predict the kinetics of endocrine disruptors. A HPG model is currently under development to analyse and predict the kinetics of natural hormones and receptors. The works will consist in analysing effects data for zebrafish exposed to endocrine disruptors to assess if the model is able to account for the observed modifications in the hormones concentrations. Improvements of the model may then be proposed and implemented. Another aspect would be to relate levels of hormones and effects observed on zebrafish reproduction, based on available literature for zebrafish exposed to a variety of endocrine disruptors targeting HPG axis.
- **Modelling female mammalian steroidogenesis** (6 months). We already published a systems biology model of the last steps of female rat steroidogenesis (Quignot & Bois, 2013). The model parameters need to be adapted to humans. The model structure also needs to be extended to include the central nervous system control elements of the ovarian hormonal cycle. This will be done on the basis of models published in the literature on that topic. The model will be checked by simulation and comparison to data

Expected profile

PhD student or engineer with experience in either toxicokinetic modelling or endocrine disruption modelling.

Organisation

The post-doctoral position is located in the unit METO (Models for ecotoxicology and toxicology) at INERIS, 30 min from Paris by train. Further details about INERIS can be found at <http://www.ineris.fr/en>.

Informal enquiries about the position can be directed to Frederic BOIS, INERIS, Unité METO, Parc Alata, BP2, 60550 Verneuil en Halatte, Frederic.BOIS@ineris.fr or recruteur-339403@cvmail.com