

## **Development of a screening assay to identify teratogenic and embryotoxic chemicals using the zebrafish embryo.**

Ingrid W.T. Selderslaghs<sup>a,b</sup>, An R. Van Rompay<sup>a</sup>, Wim De Coen<sup>b</sup>, Hilda E. Witters<sup>a</sup>

<sup>a</sup> VITO NV, Flemish Institute for Technological Research, Unit of Environmental Risk and Health, Toxicology, Boeretang 200, 2400 Mol, Belgium

<sup>b</sup> UA, University of Antwerp, Department of Biology, Laboratory for Ecophysiology, Biochemistry and Toxicology, Groenenborgerlaan 171, 2020 Antwerp, Belgium

### **ABSTRACT:**

We developed and optimized a screening procedure, in which zebrafish embryos were explored as a model for the evaluation of the specific embryotoxic and teratogenic potential of chemicals. A selection of known positive (retinoic acid, valproic acid, caffeine, lithium chloride) and negative (glucose, saccharin) compounds for developmental toxicity were used to evaluate this method. We exposed embryos and evaluated embryotoxicity and morphological characteristics of the embryos at 24, 48, 72 and 144 h post fertilization. After evaluation of the induced effects, concentration–response curves were created for both embryotoxicity and teratogenic effects. Values for teratogenic indices (TI) were calculated as the ratio LC50/EC50. The results obtained were compared to existing data from studies with laboratory animals and humans. We demonstrated that our classification of the compounds, based on TI values, allows to distinguish teratogens from non-teratogens and supports the application of zebrafish embryos as an alternative method for developmental toxicity studies to predict effects in mammals.

**Keywords:** Zebrafish embryo, Screening, Chemicals, Teratogenicity, Embryotoxicity

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Corresponding author: H. Witters, VITO, Flemish Institute for Technological Research, Unit, Environmental Risk and Health, Division of Toxicology, Boeretang 200, 2400 Mol, Belgium.  
Tel.: +32 14 335213; fax: +32 14 582657.  
E-mail address: hilda.witters@vito.be (H.E. Witters).