**The fathead minnow embryo (*Pimephales promelas*) as a model for the development of alternative testing methods in ecotoxicology**

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The fathead minnow (*Pimephales promelas*) is one of the three most common OECD test species together with the zebrafish (*Danio rerio*) and the Japanese medaka (*Oryzias latipes*). However, relatively little is known about the development, even though the fathead minnow has extensively been used for toxicological testing. After the adoption of the fish embryo toxicity test (FET) with the zebrafish as the official OECD test guideline 236, it seems essential to adapt the zebrafish FET protocol to other OECD species to broaden the applicability of the test. Prior to standardisation, it is important to clearly identify the developmental stages of toxicological relevance from fertilization to hatching and even beyond both macroscopically and histologically. In order to elucidate pathological variability in fathead minnow development, the adapted fathead minnow FET was carried out for the known teratogens all-*trans* retinoic acid, sodium valproate, hydroxyurea and warfarin; furthermore, the proteratogen coumarin was tested, In addition to acute effects in embryos, data for teratogenicity were recorded. Since part of the tested teratogens are known to provoke skeletal abnormalities, the development of cartilaginous and bony elements in the head region of the fathead minnow embryo was studied by means of specific histological analyses and compared to the normal development of the fathead minnow skeleton. For this end, fish exposed to the test chemicals were stained to identify malformations of cartilage and bone in the head region of the fathead minnow embryo after termination of the FET. Malformations were recorded and compared to existing zebrafish data.

Keywords: fathead minnow embryo, FET, teratogenicity, craniofacial development