

Vertebrate Studies

Fish Early-Life Stage Toxicity Test (OECD 210, OCSP 850.1400)

Exposure of fertilized fish eggs and early-life stages. Main endpoints are hatching and survival, body weight and length development. Duration 30 days post-hatch.

Fish Short Term Reproduction Assay (OECD 229)

Exposure of sexually mature male and female fish. Main endpoints are egg production, off-spring, vitellogenin expression and secondary sex characteristics, optionally histopathology of gonads.

21-Day Fish Assay (OECD 230)

Exposure of reproducing male and female fish. Main endpoints are vitellogenin expression and secondary sex characteristics.

Amphibian Metamorphosis Assay (OECD 231)

Xenopus tadpoles are exposed for 21 days. Main endpoints are hind limb length, snout to vent length, developmental stage, wet weight, thyroid histology and mortality.

Fish Sexual Development Test (OECD 234)

Newly fertilized fish eggs are exposed until completion of sexual differentiation. Main endpoints after 60 days post hatch are vitellogenin, histological evaluation, optionally histopathology and genetic sex.

Medaka Extended One Generation Test (OECD 240)

Exposure over multiple generations, starting with adults until hatching of the F2 generation. Main endpoints are survival, growth, reproduction, vitellogenin, histopathology and geno/phenotypic sex ratios.

Larval Amphibian Growth and Development Assay (OECD 241)

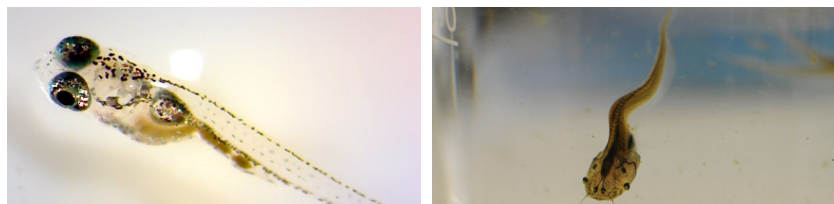
Xenopus embryos are exposed for about 16 weeks. Endpoints toxicity: mortality, abnormal behavior, growth. Endpoints endocrine modes of action targeting oestrogen-, androgen- or thyroid mediated processes: thyroid histopathology, gonad and gonad duct histopathology, vitellogenin (optional) and geno/phenotypic sex ratios.

Fish Full Life Cycle Test (OPPTS 850-1500)

The complete life cycle of one generation, e.g. egg to egg is monitored. Main endpoints are spawning, egg number, fertility, fecundity, mortality, locomotion, behavior and signs of intoxication.

Species

Fathead Minnow (*Pimephales promelas*)
 Zebrafish (*Danio rerio*)
 Medaka (*Oryzias latipes*)
 Rainbow Trout (*Oncorhynchus mykiss*)
 African Clawed Frog (*Xenopus laevis*)



Equipment

Biology:
 several flow-through systems,
 full glass aquaria,
 syringe pumps, membrane pumps,
 climate control including an alert system,
 in house breeding.

Analytical Instrumentation:

several LC-MS/MS:

API 5500 + 2 API 4000

HPLC / 2 UPLC equipped with UV

/ DAD

GC-FID/ECD

GC/MS and 1 GC-MS/MS

GF-AAS

IC

TOC

Our experience

We have been performing higher tier fish studies since 2006.

Test Item Categories

Industrial Chemicals:

- Long-chain glyceryl esters
- Organic acids

Agrochemicals and Biocides:

- Herbicides
- Insecticides
- Fungicides

Expert Statements:

- Test substance specific statements to describe why the conduction of a test is not feasible or appropriate, e.g. due to substance instability or chemical analytical issues.

Pharmaceuticals:

- Macrocyclic lactones from Avermectine group
- Retinoids
- Serotonin-norepinephrine reuptake inhibitors
- Central Nervous System stimulants
- Tyrosine-kinase inhibitor

Handling approaches for difficult substances

Low test concentration:

- Sample enrichment methods (liquid-liquid extraction, solid phase extraction)

Low solubility:

- Application via solvent
- Slow stirring flask approach

Instable substances:

- Stand-by analytics
- Daily renewal of stock solutions
- Adjustment of pH



Study Directors

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We will be happy to assist you with your request and any organisational matter.



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