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Zebrafish Platform

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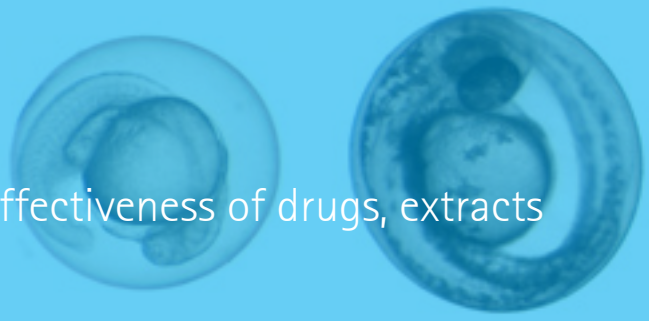

An evaluation model for biosafety and effectiveness of drugs, extracts and ingredients.

01 Toxicology

Fish Embryotoxicity (FET) Test

Analysis of the biosafety by measuring toxicological effects in embryo zebrafish model based on OCDE TG 236. Endpoints: (a) Lethal: coagulated embryos, lack of somite formation, non-detachment of the tail, heart rate alteration; (b) Sub-lethal: non-spontaneous movements, depigmentation, formation of edemas, blood coagulation; (c) Teratogenic: malformation of organs, scoliosis, general growth retardation; (d) Tox Parameters: half lethal concentration (LC50); no observed effect concentration (NOEC) and lowest observed effect concentration (LOEC). (See more information)

Ototoxicity

Ototoxicity studies on neuromasts of the lateral line of larvae zebrafish (detected by fluorescence microscopy) caused by any kind of compound. (See more information)

Ocular Toxicity

Use of zebrafish embryo/larvae/adult to predict adverse visual effects in early drug safety assessment (by histology&thistopathology and immunohistochemistry). (See more information)

Limit Test

Using the procedures described in the OECD TG 203, a limit test may be performed at 100 mg/l in order to demonstrate that the LC50 is greater than this concentration. If any mortality occurs, a full study should be conducted. If sublethal effects are observed, these should be recorded.

Single Dose Toxicity

Analysis of the biosafety by measuring toxicological effects of a single dose of a compound in adult zebrafish based on OECD guideline 203. Endpoints: Mortality; Sublethal effects: loss of equilibrium, erratic swimming behaviour, abnormal respiratory function, alteration of pigmentation.

Fish Acute Toxicity Test

Analysis of the biosafety by measuring toxicological effects in adult zebrafish based on OECD guideline 203. Endpoints: Mortality: Kaplan-Meier analysis; Sublethal effects: loss of equilibrium, erratic swimming behaviour, abnormal respiratory function, alteration of pigmentation; Tox Parameters: half lethal concentration (LC50); no observed effect concentration (NOEC) and lowest observed effect concentration (LOEC) values.

02 Efficacy

Neuroprotection in Zebrafish Embryo/Larva

Analysis of protective eeffect against neuronal damage caused by neurotoxin.

Central Nervous System Development

Effect of compounds in CNS development. Endpoints: Axonal growth, motoneurons detection and specific neuronal biomarkers.

Neuroprotection in Zebrafish Adult

Study of α-, β- and γ-secretase activities in zebrafish brain measured by fluorescent specific substrates.

Epilepsy Model

Study of compounds in an epilepsy model measuring behavior seizure-stage score in adult zebrafish after kainate injection. Endpoint: Mortality: Kaplan-Meier analysis; Latency: time of seizure onset; Racine's scale: seizure score; Status epilepticus (SE): % of animals with SE; Seizures: % of animals with seizures.

Locomotor Activity and Anxiety

Open Field. Endpoints: Latency; Swimming velocity; Resting time; Swimming distance; Thigmotaxis.

Cognitive Status and Spatial Memory

T-Maze. Endpoints: Latency; Swimming activity; Total time in enriched chamber.

Screening of Antipsychotics in Adult Zebrafish

Investigation of potential antipsychotic effects. The blockade of the hyperactivity induce by a NMDA receptor antagonist is predictive of antipsychotic-like efficacy.

Protection Against Ototoxicity Phenomena

Protective effect of a compound against ototoxicity caused by aminoglycoside antibiotics on neuromasts of the lateral line of larvae zebrafish (detected by fluorescence microscopy).

03 Tools

Histology/Histopathology

Cytoarchitecture (H&E).

Inmunohistochemistry/Inmunofluorrescence

Neuronal markers (acetylated a-tubulin, TH, Isl 1/2), astrogliosis (GFAP)...on whole mount (embryo/larva) and histological samples (adult).

Western Blot

Brain neuronal markers.

Behaviour

- Cognitive status: Spatial memory (T-maze).
- Global motor activity: Global activity (Open-Field).

Contact us!

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