

New Endocrine Testing Facility at Eurofins Agroscience Services Ecotox GmbH

Background

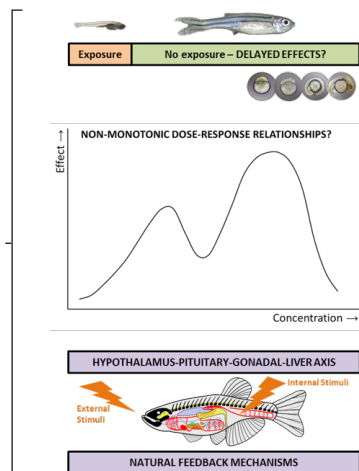
It is widely known that exogenous compounds that alter function(s) of the endocrine system and consequently cause adverse health effects in an intact organism, its progeny, or (sub)populations, labelled endocrine disrupting chemicals (EDC's) are difficult to assess*:

Endocrine disrupting compounds are often:

- Not highly soluble in water
- Potent at low concentrations
- Adsorptive

Long term testing in flow through requires:

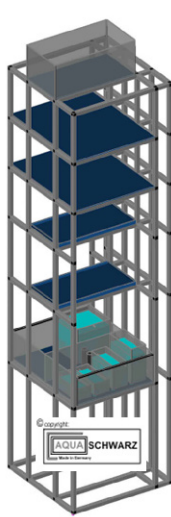
- High quality reliable equipment comprised of inert materials
- Expertise in statistical analysis of large data sets with multiple endpoints
- Large number of test organisms that are the same age



Testing Facility

The Eurofins Agrosience Services Ecotox GmbH site in Niefern, Germany, features a purpose built, large, high quality flow through facility:

- Two testing towers consisting of 3 modules each (6 modules in total)
One module has 7 levels:
 - Aquaria placed at optimal working height - ideal for accessibility



ISO water storage basin

Storage of aquaria

Basins to carry the dosing system:
- dosing pumps for ISO water
- dosing pumps for test item stock solution
- hydrostatic mixers

Aquaria at man height
in a temperature controlled water basin

Water basin for temperature control
or drawer for high volume stock solutions

- Flexible system for all types of flow through test
Aquaria of different sizes can be placed in the temperature controlled water basin:

20 L aquarium; Basin fits 4; Facility fits 24

Glass wall protection
to safely enter or remove aquaria

Height adjustable drainage
of the temperature
controlled basin

Inflow of the temperature
controlled basin

Glass tubes as overflow to control water level

Collector for tubes
connected to aquaria

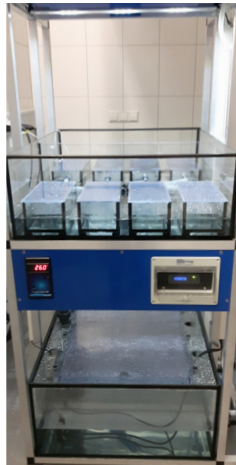
Going to waste drainage

**8 L aquarium
Basin fits 8;
Facility fits 48**

**5 L aquarium
Basin fits 8;
Facility fits 48**

**2 L aquaria;
Basin fits 8;
Facility fits 48**

- Precise control of light and temperature
- Basin to bring water to correct temperature



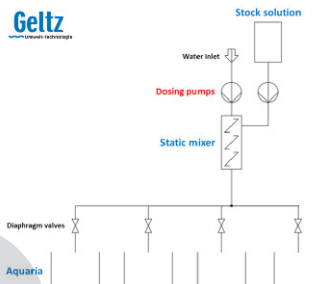
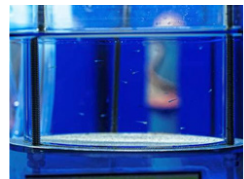
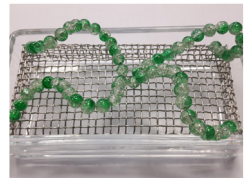
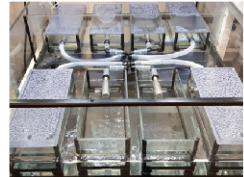
LED

Basin for aquaria at man height
Water circulated around aquaria and down to temperature basin below

Control of
- temperature
- light conditions (sunset/sunrise)

Basin to bring water on temperature
Water pumped up to aquaria basin and circulated back to heat up again

- No contact between the test solution and adsorbing equipment materials:
 - Glass aquaria made without plasticisers
 - Grid of stainless steel to prevent loss of test organisms
 - Grid connected to a bore hole with a glass tube outside the aquaria to connect tubing for waste drainage
 - Full glass spawning basins with stainless steel grid and glass pearls
 - Stainless steel inserts for second generation hatchlings
- High quality dosing system:
 - Dosing of ISO water and test item stock solution with accurate pumps to static mixers
 - All equipment comprised of inert materials
 - Dosing of 12 treatments with 4 replicates each (serving 48 aquaria)



Testing in the Facility

The endocrine testing facility meets all requirements for performing tests on EDC's. Moreover, its design is flexible which enables our experts to conduct a variety of other tests that require an accurate flow through set up (e.g. the fish early life stage toxicity test or chronic toxicity tests with water fleas, water plants or midge larvae).

High quality testing is combined with accurate analytical assessment by our experienced chemistry department, with test organism friendly culturing in-house and in-depth data analysis conducted by our statistical experts.

Endocrine Testing

OECD 229:	FSTRA	Fish Short Term Reproduction Assay - with Zebrafish (<i>Danio rerio</i>) - with Japanese medaka (<i>Oryzias latipes</i>) - with Fathead minnow (<i>Pimephales promelas</i>)
OECD 230:	21-day Fish Assay	A Short-Term Screening for Oestrogenic and Androgenic Activity, and Aromatase Inhibition - with Zebrafish (<i>Danio rerio</i>) - with Japanese medaka (<i>Oryzias latipes</i>) - with Fathead minnow (<i>Pimephales promelas</i>)
OECD 231:	AMA	Amphibian Metamorphosis Assay - with African clawed frog (<i>Xenopus laevis</i>)
OECD 234:	FSDT	Fish Sexual Development Test - with Zebrafish (<i>Danio rerio</i>) - with Japanese medaka (<i>Oryzias latipes</i>)
OECD 240:	MEOGRT	Extended One Generation Reproduction Test - with Japanese medaka (<i>Oryzias latipes</i>)
OECD 241:	LAGDA	Larval Amphibian Growth and Development Assay - with African clawed frog (<i>Xenopus laevis</i>)
OCSPP 850.1500:	FFLCT	Fish Full Life Cycle Test - with Zebrafish (<i>Danio rerio</i>)



EAS; Your partner for test systems requiring a flow through design

Contact

**Niefern Research Facility
Eurofins Agrosience Services
GmbH**

**Eutinger Str. 24
75223 Niefern-Öschelbronn
Germany
Phone: +49 7233 9627 0**

**Dr. Viktoria Schiller
Team Leader Fish & Endocrine Testing**

**Phone: +49 7233 9627 484
ViktoriaSchiller@eurofins.com**

**Dr. Christoph Hafner
Head of Department Aquatic Ecotoxicology**

**Phone: +49 7233 9627 481
ChristophHafner@eurofins.com**

***Source: World Health Organisation**