

## Standardised and innovative ecotoxicology module

### Project Idea

Support the measurement of **environmental safety aspects** for industrial partners by linking the for- and non-profit sectors. We provide exceptional research infrastructure in the field of ecotoxicology to **validate environmental safety and sustainability** of newly developed products or processes.

### Organization name, town and country

Hungarian University of Agriculture and Life Sciences (MATE)  
Institute of Aquaculture and Environmental Safety  
Gödöllő  
HUNGARY

### Addressed topic(s)

HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-36  
HORIZON-CL4-2025-05-MATERIALS-51-two-stage  
HORIZON-CL6-2025-01-CIRCBIO-02  
HORIZON-CL6-2025-01-CIRCBIO-03

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- **Six Departments at five Campuses** : Aquaculture, Environmental Safety, Environmental Toxicology, Freshwater Fish Ecology, Molecular Ecology, Applied Fish Biology
- **Research Centre for Fisheries and Aquaculture (HAKI);**
- **Over 110 employees and PhD students;**
- **Extensive educational portfolio** (BSc, MSc, and PhD) and adult learning;
- **Main research results of the Institute** (in the last 5 years): 341 publications, 2175 citations; 5 closed and 8 running international projects;
- **Awarded as Centre of Excellence of the Hungarian Academy of Sciences;**
- **Measurements of environmental safety aspects** for industrial partners.
- **Exceptional research infrastructure** in the field of ecotoxicology to validate environmental safety of newly developed products or processes.

**REPURPOSE**

SCAN ME



TAPAS – 678396 (H2020 - MSCA)	EATFish – 956697 (H2020 - MSCA)	iFishIENCI – 818036 (H2020 - IA)	MEASURES – DTP2-038-2.3 Interreg
AQUAEXCEL3.0 – 871108 (H2020-TNA)	AQUASERVE – 101131121 (HE-TNA)	ActFast – 101181159 (HE – IA)	LIFE Boat 4 Sturgeon LIFE-2021-SAP-NAT
WaterGreenTreat (COFUND-WATER4ALL)	REPurpose – 101057971 (HE – RIA)	BioTreatED (COFUND-WATER4ALL)	PFAQuatic - 2024-1.2.3-HU-RIZONT-2024-00100
SaveGREEN – DTP3-314-2.3 Interreg	AGRIGEP – 101094158 (HE- CSA)		

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## Modular connection points

- Complex **ecotoxicological evaluation** from microbes to fish.
- Ecotoxicological methods to evaluate **complex effects** (process, products, mixes)
- Environmentally friendly solutions for **biodegradation and biodetoxification**
- **Ecotoxicological monitoring of** (waste) water quality.
- **Early warning and risk evaluation**
- Analysing the **toxicity of newly developed compounds and side streams** (hormonal effects, microplastics, pharmaceutical residues)
- **Molecular ecology, environmental microbiology, microbiome**
- Innovative, sustainable and circular **aquaculture technologies** (e.g., feeding, nutrition, fish health & welfare; reproductive biology; genetics & biotechnology)
- SSbD

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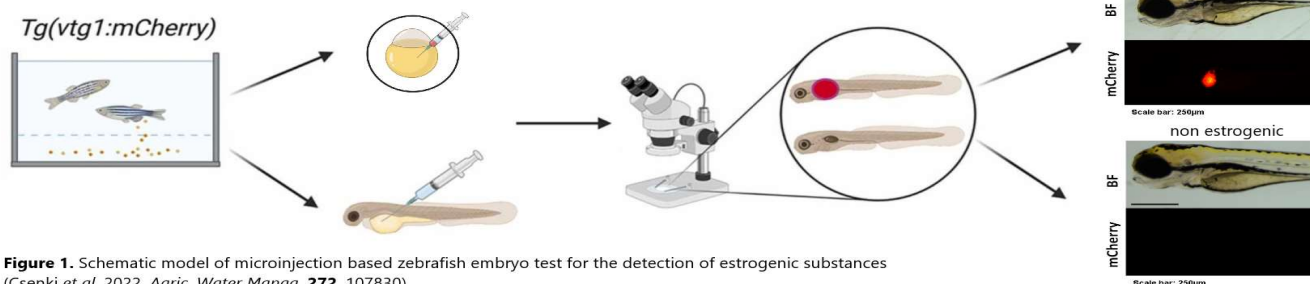
# Competences

Evaluate the **toxicological effect of environmental samples and newly developed materials**, in acute or chronic schemes, with *in vitro* and *in vivo* OECD or ISO freshwater toxicity tests (pre-REACH):

1. *Aliivibrio fischeri* acute (30min, ISO 11348-3:2007) and chronic toxicity
2. OECD 201 Algae, 72h - short-term algae
3. OECD 202, 211 *Daphnia* sp., short (48h) and long-term (21d) invertebrate
4. OECD 203 Zebrafish acute (96h) adult toxicity – short-term fish
5. OECD 210 Zebrafish Early-Life Stage (FELS)
6. OECD 236 Zebrafish acute embryo test

” From microbes to fish ”

- **Embryo injection** is used as a professionally applied practical method to measure direct toxicity.
- **Estrogenic effect of environmental samples** can be measured with our self-developed bioindicator zebrafish line (Tg(vtg1.mCherry)).



**Figure 1.** Schematic model of microinjection based zebrafish embryo test for the detection of estrogenic substances (Csenki et al. 2022, *Agric. Water Manag.* **272**, 107830)

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## Contact details

Contact person	István Szabó, PhD
Organisation:	Institute of Aquaculture and Environmental Safety (Hungarian University of Agriculture and Life Sciences)
Address:	Páter Károly utca 1., Gödöllő, HUNGARY
Phone:	+36 30 560-3017
E-mail	szabo.istvan.temi@uni-mate.hu, kobolak.julianna@uni-mate.hu
B2Match profile	[contact profile on the B2Math website]
LinkedIn/Twitter	<a href="https://www.linkedin.com/in/istv%C3%A1n-szab%C3%B3-043195106/">https://www.linkedin.com/in/istv%C3%A1n-szab%C3%B3-043195106/</a>



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