The Neurotox Laboratory

Wlodkowic Lab

Interdisciplinary R&D: Leveraging latest fluidic, bioimaging and computing technologies for development of innovative high-throughput biotests in neurotoxicology, water pollution monitoring and drug discovery.

Advanced *In situ* Bioassays | Integrated Biolaboratory Automation | Biomicrofluidics

The Neurotox Laboratory at RMIT School of Science is an interdisciplinary facility with portfolio of innovative R&D in eco- & neurotoxicity testing and behavioural biotests using small aquatic model organisms.

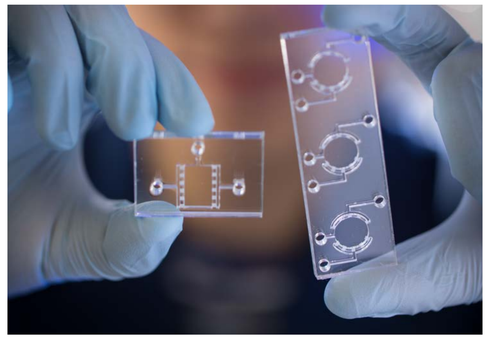
We have unique expertise in designing and development of bespoke bioanalytical solutions including:

- ultra high definition infrared camera systems for analysis of aquatic animal behaviour,
- programable stimuli actuation in sensory-motor behavioural biotests,
- real-time video-based animal tracking software,
- microperfusion systems for advanced biotests with aquatic model organisms.
- *in situ* biotests with transgenic fish embryos

Capabilities

The laboratory has state-of-the-art facilities dedicated to:

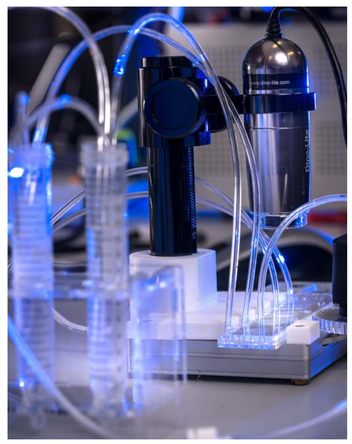
- Small aquatic animal husbandry
- Infrared digital video imaging
- Behavioural bioinformatic analysis
- Computer-assisted design (CAD)
- *In silico* simulations of real-world devices and processes
- High-speed laser prototyping & 3D printing
- Electronic hardware integration and programming



Research & Development

We are involved in a range of biosensing projects utilizing small aquatic model organisms in collaboration with diverse industry sectors such as:

- Water
- Environmental risk assessment
- Agrochemicals
- Biotechnology
- Pharmaceutical & Drug discovery
- Defense & Space



Recent R&D Projects

- Real-time animal tracking with external stimuli control for automated conditioning studies
- Imaging micro-echocardiography for monitoring of zebrafish cardiovascular activity
- Automation of fish embryo toxicity biotests
- A miniaturized electrothermal array for rapid analysis of temperature preference behaviors in ecology and ecotoxicology research

Head of the Laboratory

Professor Donald Wlodkowic

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Expertise

Donald has world-class know-how in development of innovative biotests and next-generation bioanalytical systems such as: biomicrofluidic devices, high-throughput phenotypic screening as well as video-based animal tracking technologies.

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