High Content Screening as a tool to predict adverse effects on growth and reproduction in *Daphnia*

Amira Perez Linan[1], Cedric Abele[1], Oskar Karlsson[1], Magnus Breitholtz[2]

[1]Science for Life Laboratory, Department of Environmental Science, Stockholm University, Stockholm, 114 18, Sweden

[2]Department of Environmental Science, Stockholm University, SE-114 18 Stockholm, Sweden

1 INTRODUCTION

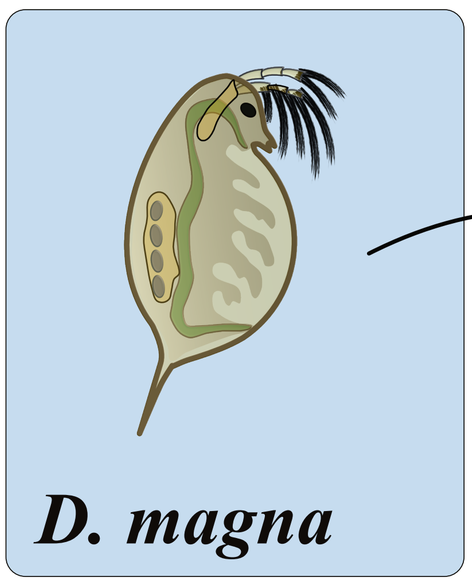
It is central to identify better biomarkers and state-of-the-art tools, capable of revealing adverse effects that a compound can provoke at relevant ecotoxicological endpoints. The model organism *Daphnia magna* is considered a "key stone" specie and is frequently used in standard tests for chemicals in OECD guidelines.

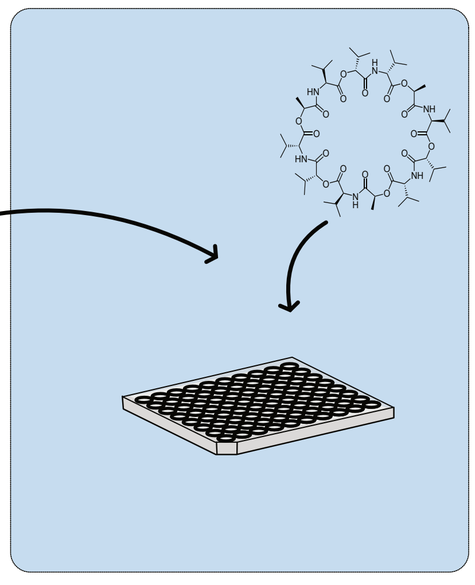
2 AIM OF STUDY

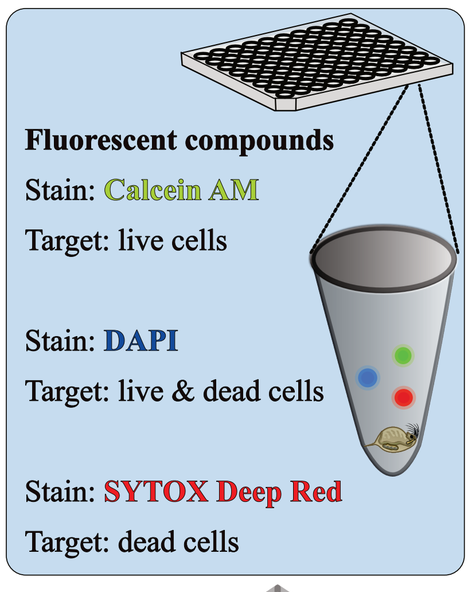
This project intends to develop high content screening (HCS) protocols for adverse effects on growth and reproduction in *Daphnia*. HCS combined with automated analysis software developed in this project may offer a new, faster and accurate tool to assess for sublethal toxicological effects of industrial chemicals.

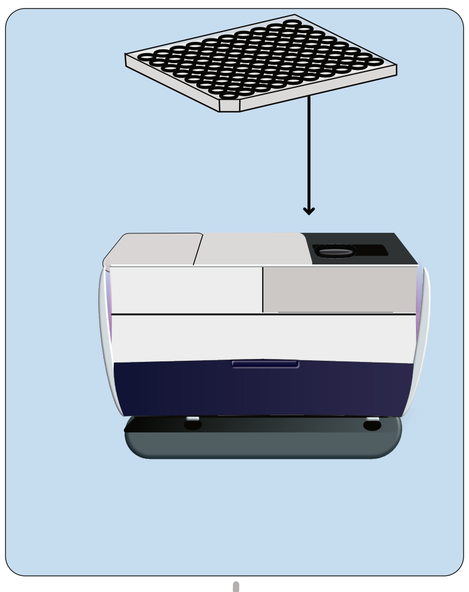
3 PROJECT DESCRIPTION AND METHODOLOGY

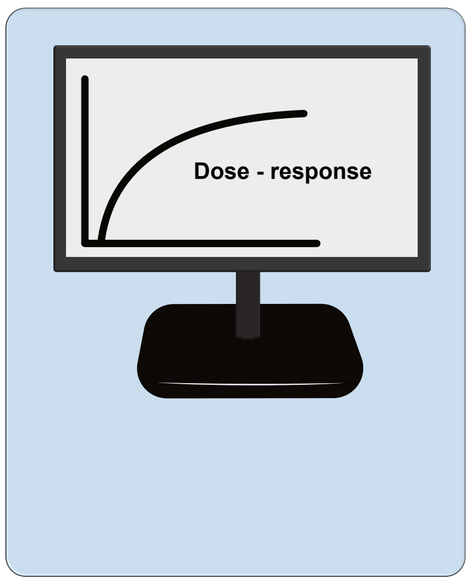
Model development → **Exposure** → **Systematic staining** → **Image acquisition** → **Data analysis**





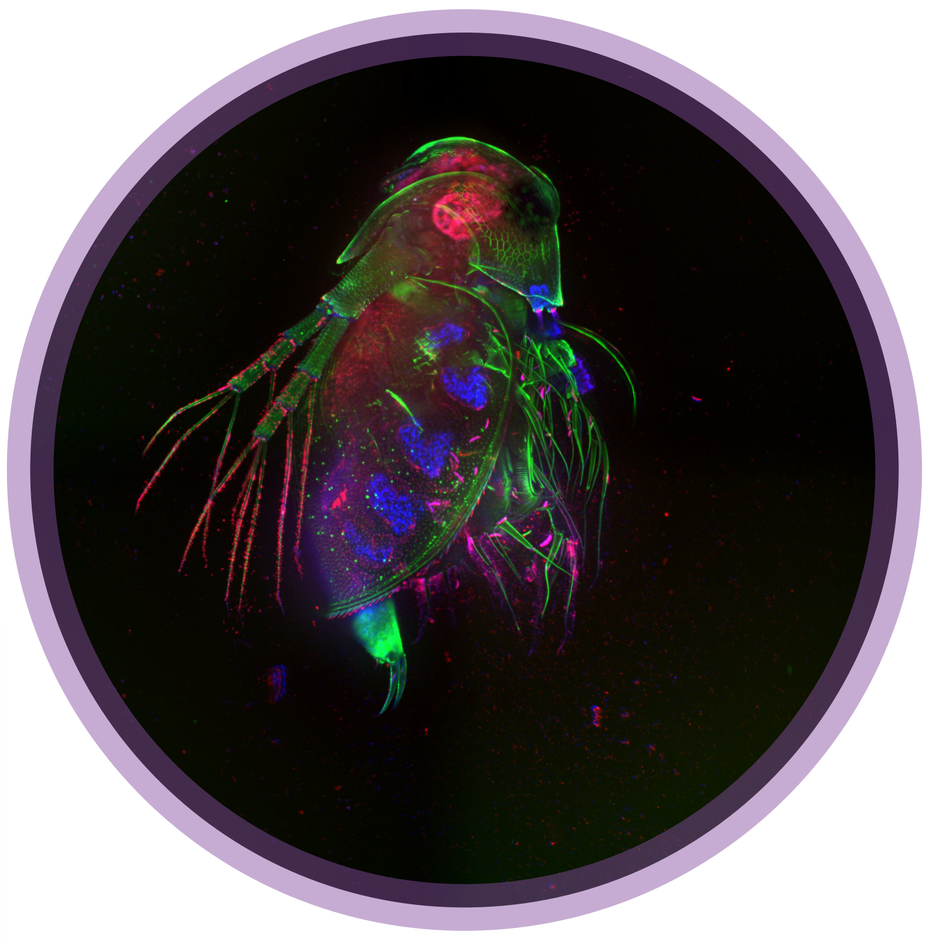






4 SPECIFIC PROJECT ACTIVITIES

1. **Live / dead assay**
2. **Lipid allocation**
3. **Neurotoxicity**
4. **Chemicals of industrial interest**



MISTRA SAFECHEM

The water flea- One of the tools in Mistra SafeChem

This project belongs work-package (WP3): **Hazard and risk screening- early warning and proactivity.** In this context, High Content Screening represents a promising tool that can be adapted to meet objectives of the program. Moreover, this technology might be able to replace and/or **support current standard protocols by providing useful and rapid information for endpoints of relevance for hazard screening of chemicals.**

amira.perez@aces.su.se