

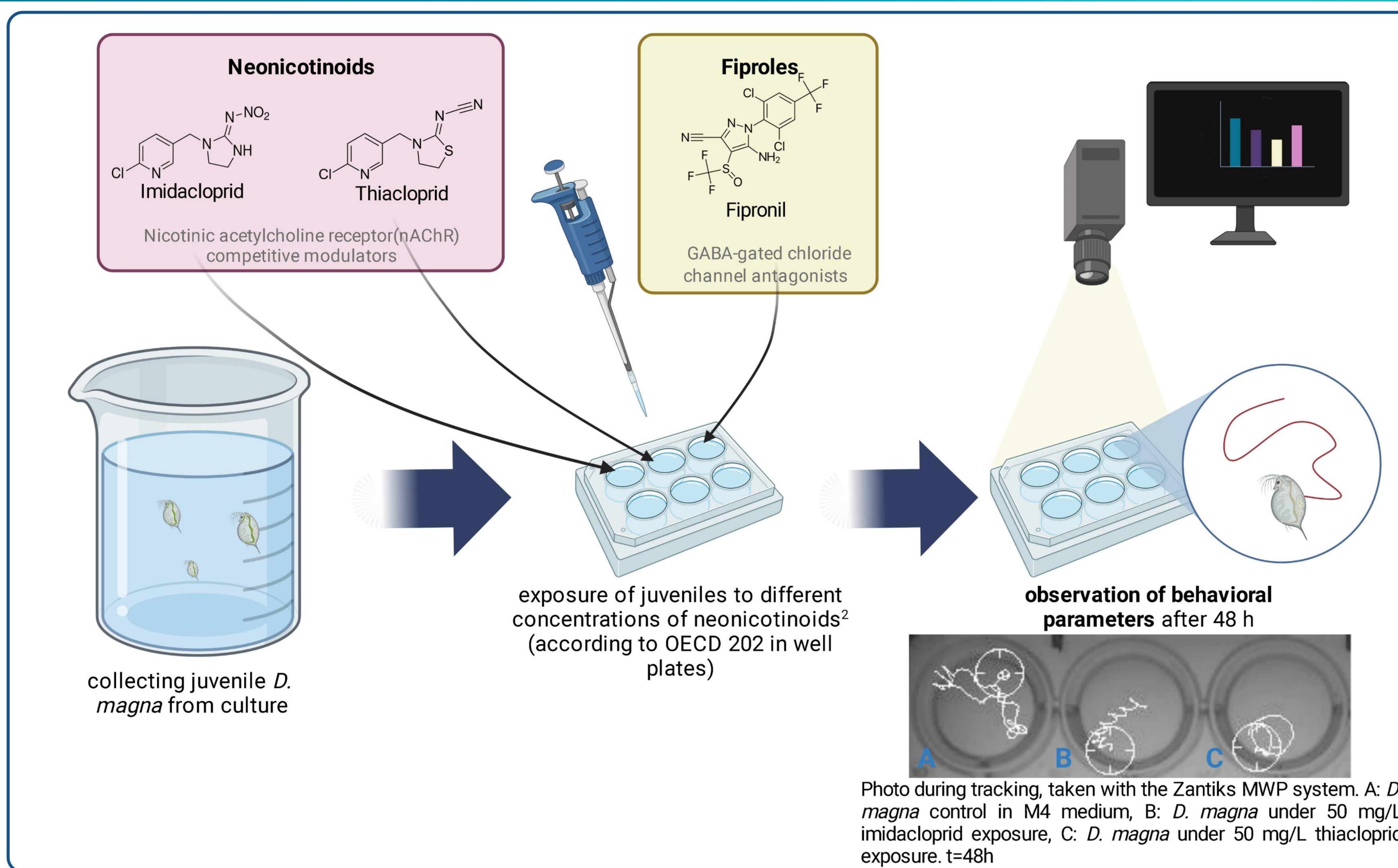
Behavioral studies with *Daphnia magna* – development of sublethal sensitive endpoints

Alterations of swimming behavior of *D. magna* upon acute and chronic insecticide exposure as a sensitive endpoint

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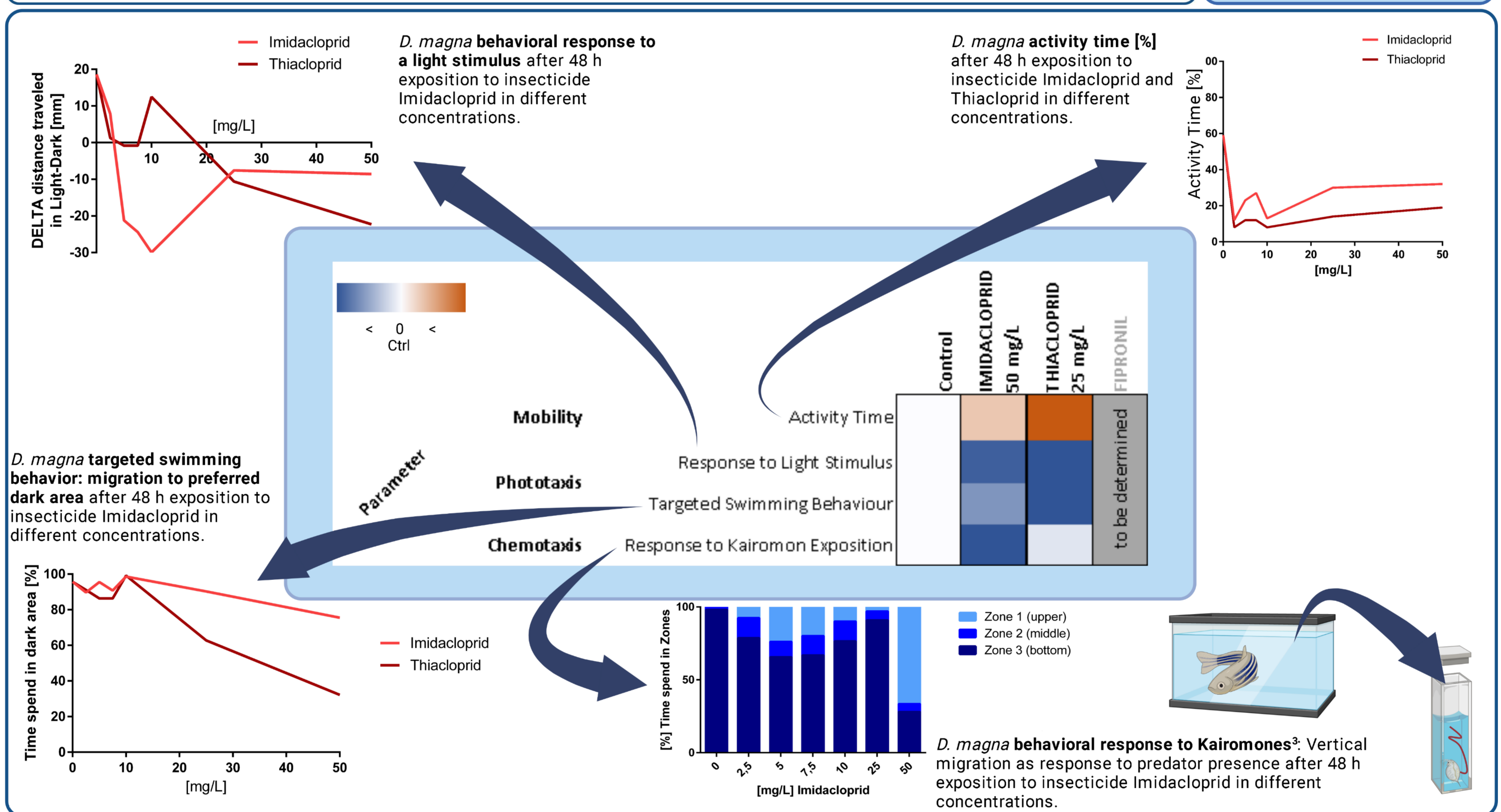
Test design



Daphnia magna

- model organism for ecotoxicological studies (OECD TG 202, 211)
- Swimming behaviour is affected by several environmental parameters and predator presence (kairomone perception)
- Changes in the swimming behavior can be early indicators of stress¹
- Sublethal effects can be induced by chemicals at lower levels

Results



Outlook

- The results of the different tests will be evaluated with respect to the **sensitivity of the different endpoints** and time points considered (classical ECx values vs. behavior).
- The effects of each test substance will be compared with respect to the sensitivity of the different behavioral endpoints and they will be evaluated according to their applicability, in order to use the behavioral endpoints as a more sensitive endpoint allowing a **predictability of substance effects**.
- In the reproduction tests with chronic exposure for 21 days beside the parental daphnia (F0 generation) also the behavioral parameters of the juvenile daphnia (F1) are investigated, in order to evaluate **generational effects** and differences in sensitivity.

¹ Bownik, A. (2017). *Daphnia* swimming behaviour as a biomarker in toxicity assessment: A review. *Science of the Total Environment*, 601–602, 194–205. <https://doi.org/10.1016/j.scitotenv.2017.05.199>

² IRAC. (2022, Dezember). *Mode of Action Classification Edition 10.4*. <https://irac-online.org/documents/moa-brochure/?ext=pdf>

³ Pohnert, G. (2019). Kairomones: Finding the fish factor. *ELife*, e48459. <https://doi.org/10.7554/eLife.48459>

⁴ Illustrations created with BioRender.com

