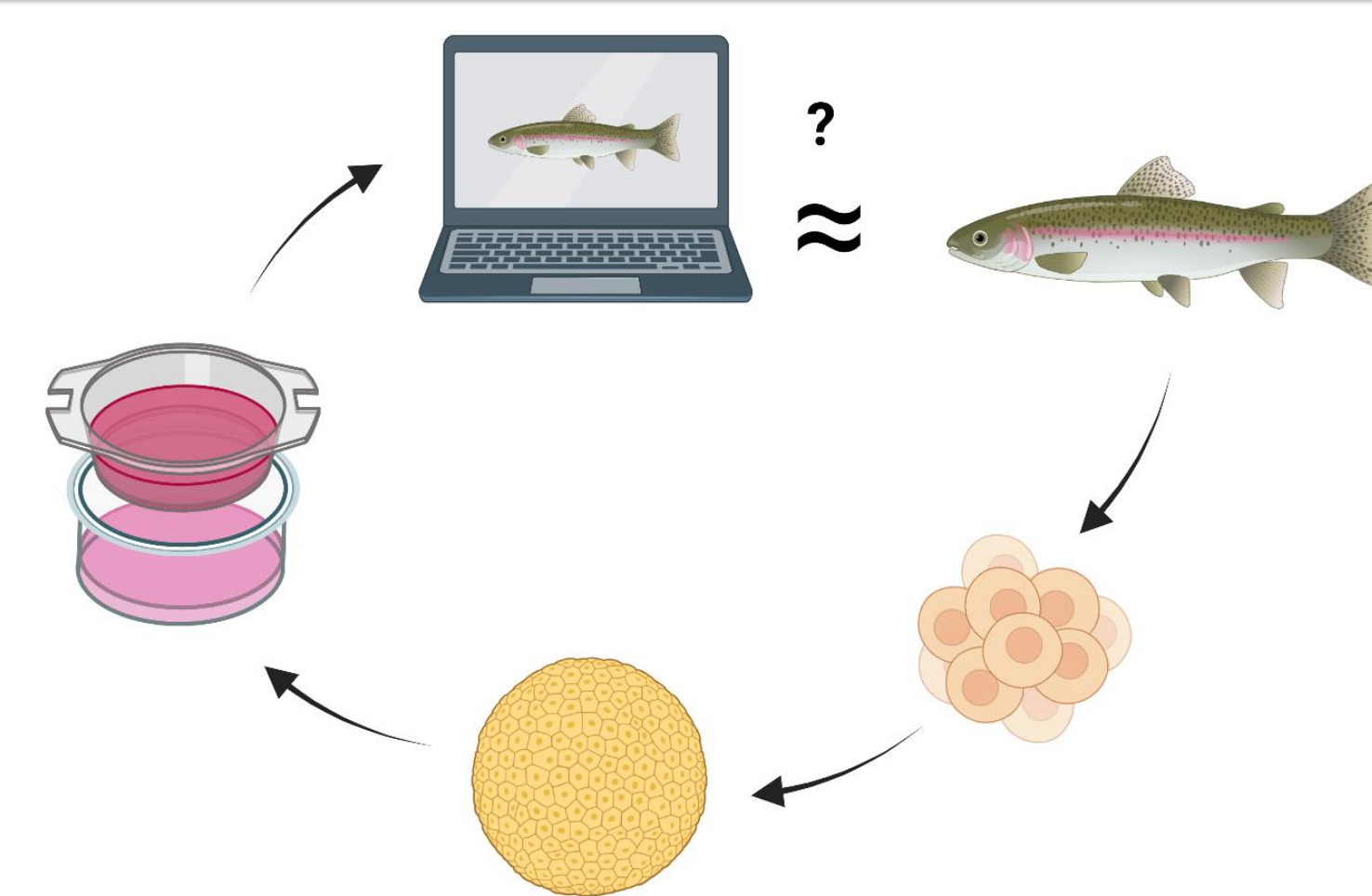


Hepatic 3D Spheroids: The Next Generation of Testing in Toxicology (SPHERTOX)

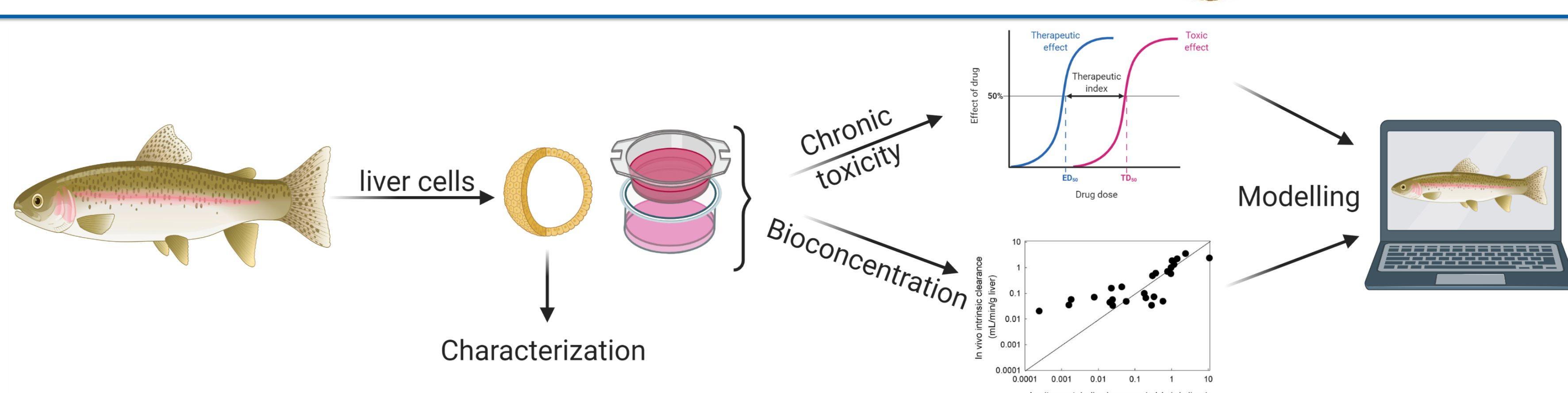
Background

- ❖ Traditional animal testing methods for risk assessment of chemicals have many ethical and economical concerns
- ❖ Alternative: non-animal methods implementing the 3Rs (refinement, reduction, and replacement)
- ❖ BUT currently no non-animal bioassays suitable for investigating long-term toxicity in fish are available
- ❖ The 3-dimensional (D) hepatic spheroid model appears to be a promising model as they preserve morphological, physiological and biochemical properties for weeks after their formation^{[1][2]}



Objectives

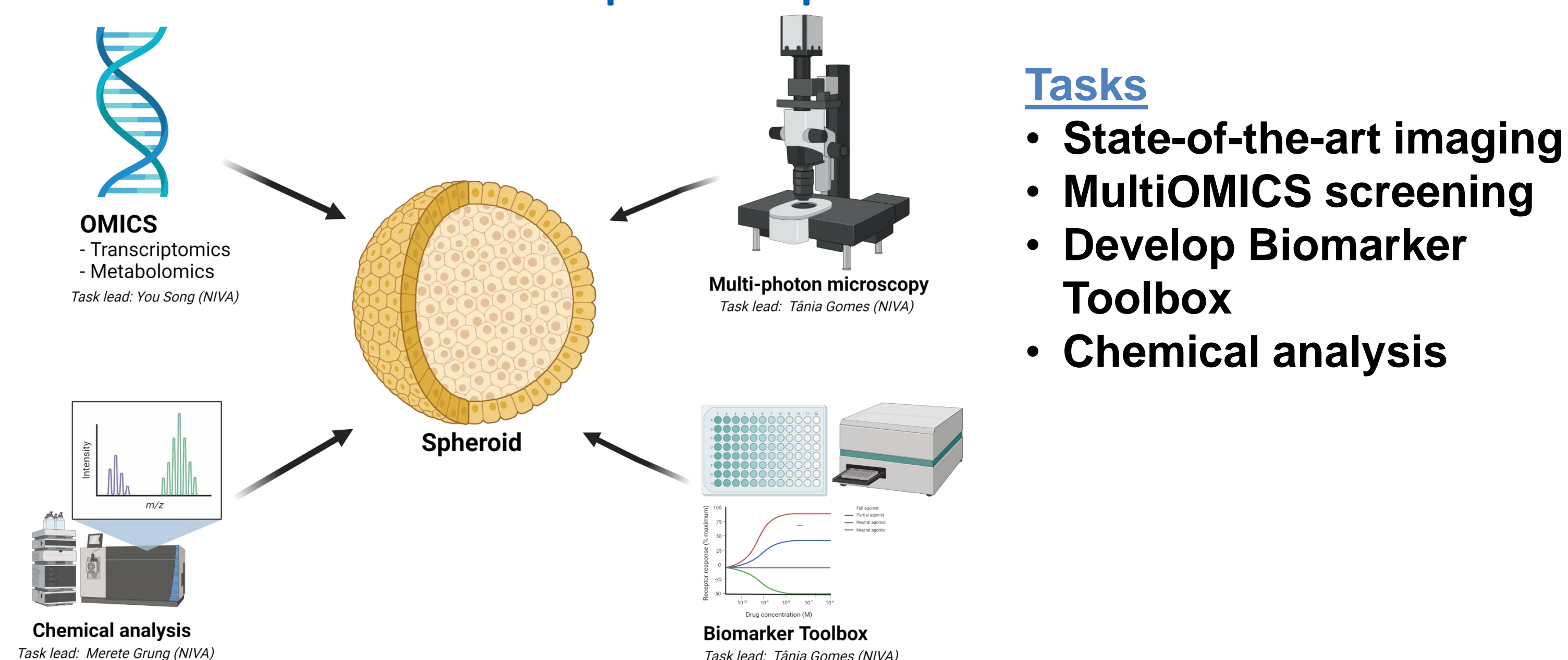
Assess the performance of hepatic 3D spheroids of rainbow trout as an alternative chronic toxicity and bioconcentration (BC) model, alone and in co-culture with other cell types, as an alternative and advanced *in vitro* model with increased comparability toward *in vivo* test systems.



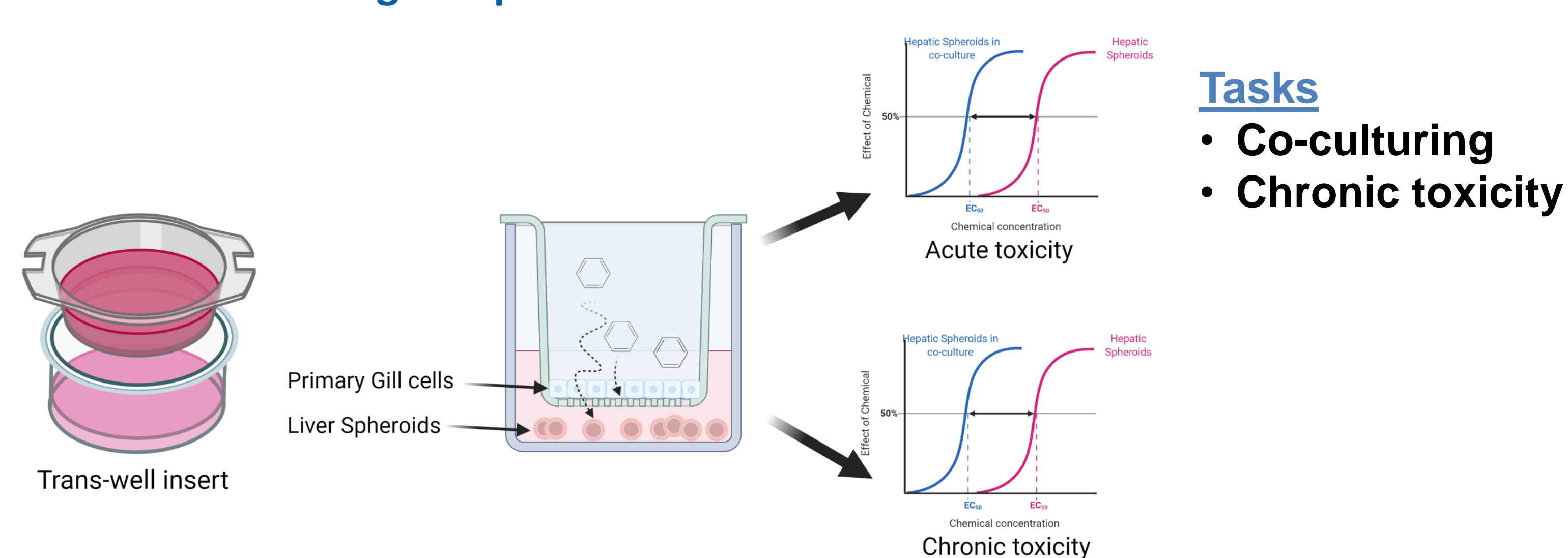
Workplan

SPHERTOX project is organized into 6 work packages (WPs) that are highly interlinked and interdisciplinary. (WP1→WP2→WP3→WP4→WP5→WP6)

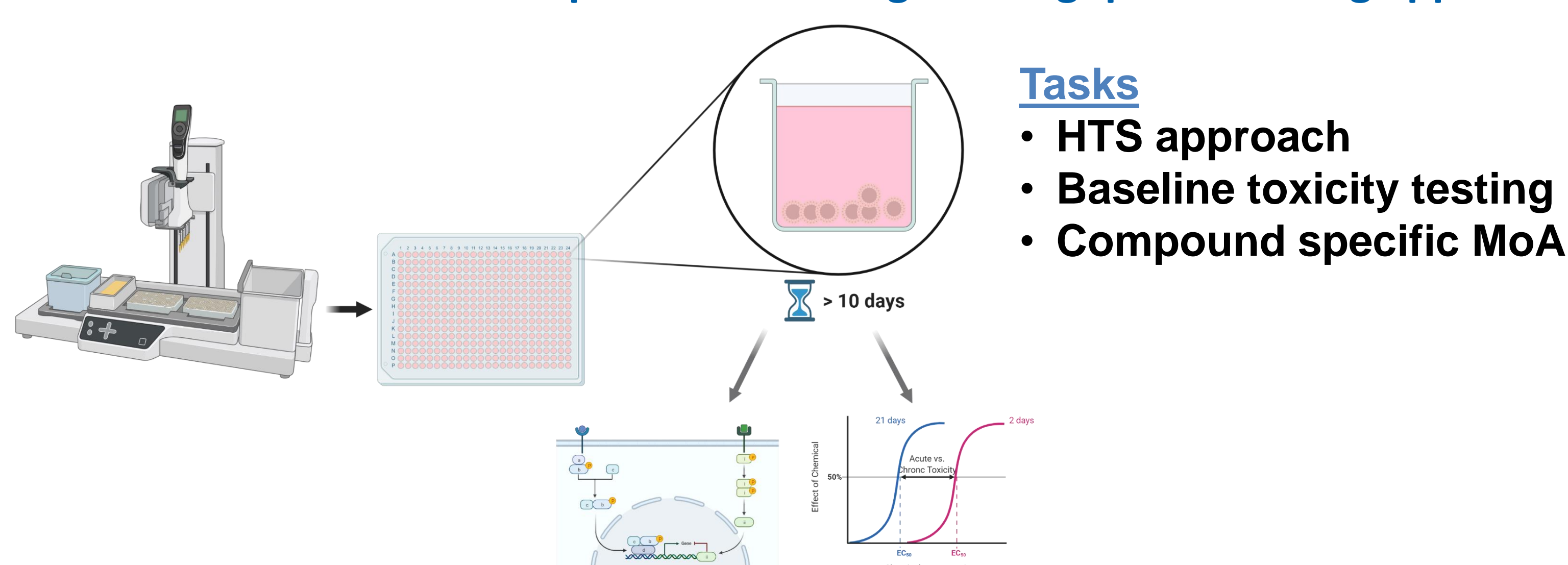
WP1: Characterization of hepatic 3D spheroids



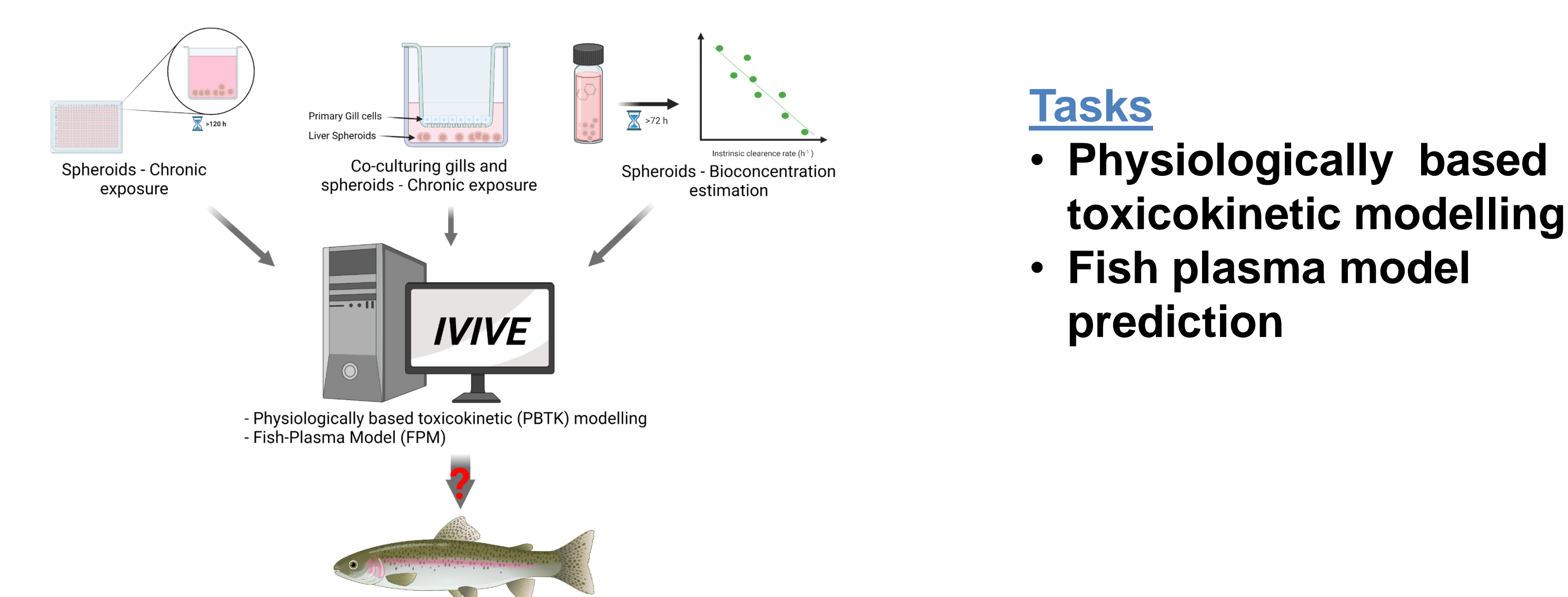
WP4: Co-culturing 3D spheroids and other cell lines



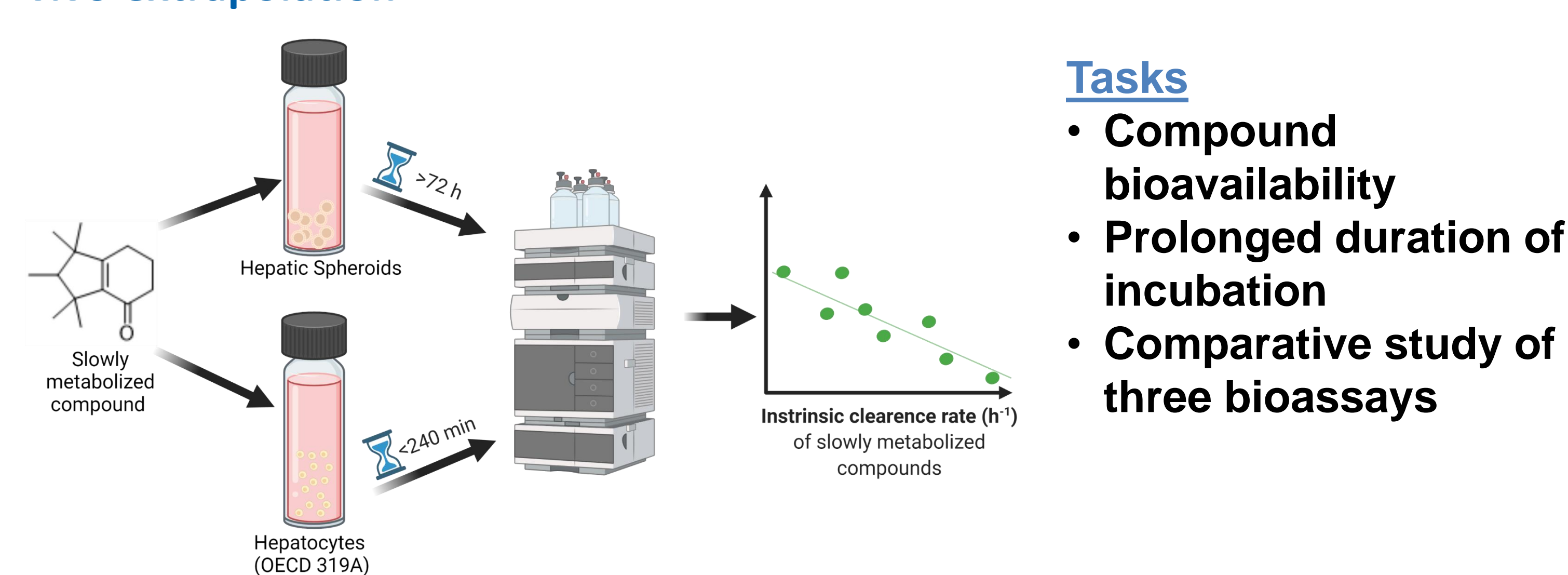
WP2: Chronic low-dose exposure with a high throughput screening approach



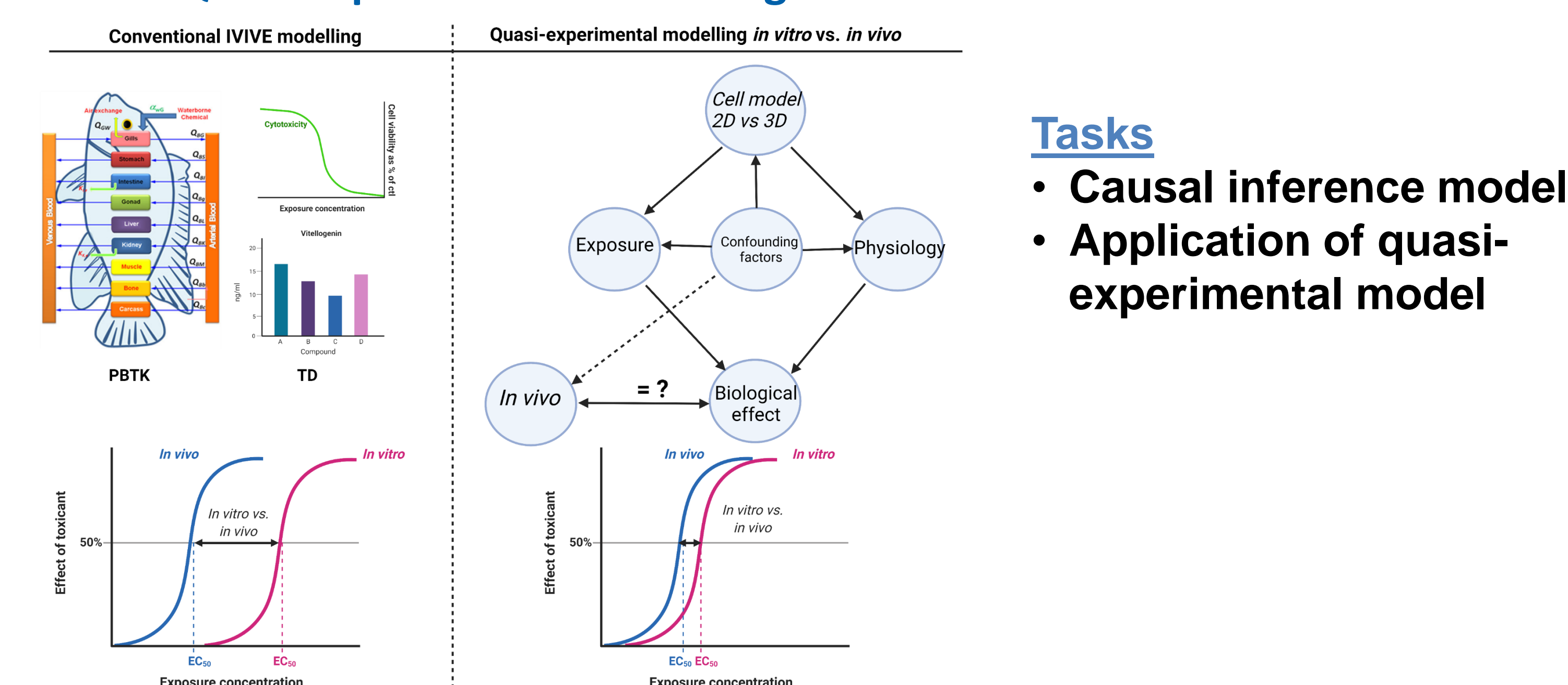
WP5: *In vitro* to *in vivo* extrapolation modelling



WP3: Biotransformation of chemicals using 3D spheroids for *in vitro* to *in vivo* extrapolation



WP6: Quasi-experimental modelling



References:

[1]. Baron, M.G., *Ecotox.* 21, 2419-2429 (2012); [2]. Hultman, M.T., *Environ. Toxicol. Chem.* 38,1738-1747 (2019)

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