



#01

Integrated multi-organ toxicity assay in Zebrafish



EXPECTED DELIVERABLE

Indicative duration: 6 – 9 months

The objective is to establish a robust, scalable, and mechanistically informative system capable of detecting multi-organ toxicities during embryonic and larval development of Zebrafish (*Danio rerio*).

The assay must be structured in sequential phases, beginning with a Dose Range Finding (DRF) stage combined with bioanalytical quantification. This initial phase should determine tolerated concentration ranges, compound exposure levels and uptake, and preliminary phenotypic effects. This step could also be part of a go/nogo decision for the whole evaluation or some specific tox assays.

Following DRF, the platform should incorporate a comprehensive battery of organ-specific toxicity readouts. Particular emphasis must be placed on cardiac, neurological, hepatic, and developmental/reproductive endpoints. Expected capabilities include automated quantification of heart rate and rhythm, assessment of neurobehavioral activity, detection of liver morphology and function impairments, and evaluation of developmental progression, fertility-related structures, and teratogenic effects. A deeper evaluation on teratotox should be done and not only limited to Teratogenic Index LC50/EC50. Evaluation of other organ-specific toxicity (e.g. gastrointestinal) could be considered with lower priority.

The system should integrate high-content imaging, behavioural tracking, morphological evaluation and molecular markers where appropriate.



LONG-TERM COLLABORATION POTENTIAL

Subject to scientific and strategic alignment

If the assay proves robust and informative, we could consider integrating it into our internal safety-derisking strategy as a routine early-screening tool to identify and/or de-risk early the potential safety liabilities of small molecules.



CANDIDATE SELECTION

Initial eligibility check by MPR. Final selection by the challenge provider.



Completion of EDUCATE

Core Module



Company status

SME under EU criteria



Maximum number of supported companies

1 – 3



Minimum required TRL

Proof-of-Concept validation



Confidentiality
NDA/ CDA required

Yes

Selection by the challenge provider based on fit, relevance, readiness and innovation potential.

Additional selection criteria



Geographic
area

SME from across EU are welcome.
SMEs from Interreg NWE are prioritized,
particularly partner regions



APPLICATION

Application directly via the STEP4NAMs Moodle platform



<https://step4nams.moodlecloud.com/>



Scan the QR code to learn more about the
STEP4NAMs training programme



SUPPORT



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