

ZBEScreen™

Zebrafish Developmental and Acute Toxicity Screen

Helping chemists design safer compounds

Various *in vitro* toxicology assays have been developed as alternatives to traditional animal testing to identify toxicity risks earlier and with greater efficiency. However, these assays cannot always replicate the biological complexity and relevance ultimately obtained from whole organism systems. To address this need, the **developmental zebrafish screen** has emerged as the preferred alternative to mammalian models for chemical toxicity assessment.

AsedaSciences® has partnered with the **Tanguay Lab**, a recognized global leader in the advancement and mainstream acceptance of zebrafish as a biosensor of toxicity risk. Through this partnership, their **ZBEScreen™** will be provided as a service to **assess developmental and acute toxicity risk** for compounds earlier in the R&D process. Their internationally recognized "*in vivo*" zebrafish platform rigorously standardizes the collection and assessment of high content, phenotypic and behavioral screening data, providing a high throughput alternative for assessing the potential human and environmental impact of chemicals. By using zebrafish as a biosensor of chemical effect, researchers can improve their understanding of the complex relationship between chemical structure and biological mechanism of action. This enhances the ability of the chemical producing industries to develop and advance compounds that are safer for humans and the environment.

AsedaSciences has integrated results from the ZBEScreen for hundreds of compounds into the cloud-based (AWS) **3RnD® platform**. Scientists can now easily store, organize and visualize their own zebrafish screening results in direct comparison to a large library of standardized zebrafish screening data generated from a broad range of pharmaceutical, industrial and agricultural chemicals.

Benefits



Green Chemistry



Improved Productivity

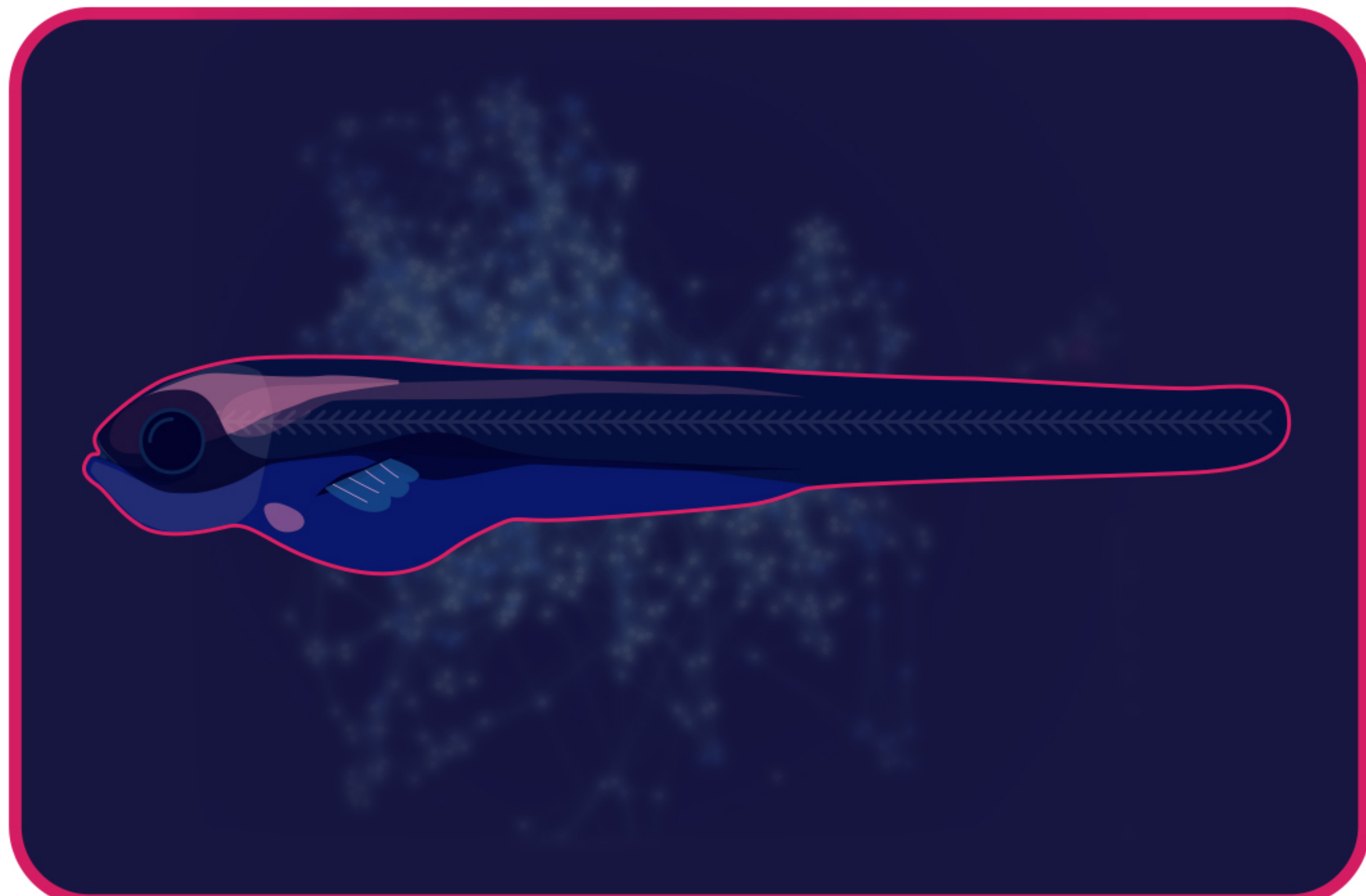


Environmental Safety



Supports 3Rs

Parameters measured



- 1 Mortality 24 hpf
- 2 Delayed Development 24 hpf
- 3 Abnormal Spontaneous Movement 24 hpf
- 4 Mortality at 120 hpf
- 5 Craniofacial
- 6 Axis
- 7 Edema
- 8 Muscle
- 9 Lower Trunk
- 10 Brain
- 11 Skin
- 12 Notochord
- 13 Touch Response
- 14 Embryonic and Larval Photomotor Response

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Industries served



Pharmaceutical



Agricultural



Industrial



Cosmetics



Nutraceutical

The 3RnD database provides a large and diverse compound library for comparison

ZBEScreen Features

Features	Developmental Toxicity	Acute Toxicity
Test ID:	DevTox	AcuteTox
Test species:	Zebrafish strain: Tropical 5D	Zebrafish strain: Tropical 5D
Life stage:	Embryo: 6 – 120 hpf	Embryo: 6 – 96 hpf
Test Variables:	13 apical observations; 2 behavioral assessments	Every 24 hrs, 4 apical observations
Test duration:	5 days	4 days
Readout measurement	BMD10	BMD10
Chorion status:	Dechorionated	Chorionated
Test exposure type:	Chemical; static	Chemical; daily
Renewal frequency:	N/A	Daily at 24, 48, and 72 hpf
Endpoints:	See above	coagulation of fertilized eggs; lack of somite formation; lack of detached tailbud from yolk sac; lack of heartbeat
Vehicle:	DMSO, 100%	DMSO, 100%
Aqueous bulk medium:	E2 embryo medium	E2 embryo medium
Concentrations:	12	5
Test chamber:	Individual well of 96 well plate	Individual well of 24 well plate
Compound requirements:	100 µL of 10 mM stock in DMSO	2.5 mL of 10 mM stock in DMSO
Shipping/Logistics Process:	Instructions provided on request	
Ordering Information:	AS-ZBEScreen-DT	AS-ZBEScreen-AT