



HUB ORGANOIDS

A patient in the lab

HUB Toxicology Organoid Models Predict the Unpredictable

The Challenge

Safety-related problems continue to be one of the major causes of drug attrition in preclinical and clinical development. Preclinical safety assessment is hampered due to a lack of *in vitro* models of normal healthy human cells. In order to predict human toxicity, animal testing is used – even though many studies demonstrated that animal models are poor predictors of drug safety in humans – but no alternatives existed. Additionally, it remains unclear which animal species resembles a human response, as it differs depending on the compound.

HUB Organoid Solution

- adult stem cell-derived HUB Organoids are rapidly and directly generated from healthy human liver, intestine, kidney and other organs relevant for safety.
- specific assays to study drug-induced liver injury and drug metabolism.
- HUB Organoid models generated from many different species such as rat, dog, mini pig and monkey.

Why HUB Organoids for Toxicity Testing?

Advantages of HUB Organoids over other models in toxicology

	Genetic Stability	Representative for Patient	Expansion	Cost	Ethical Concerns	Drug Metabolism
Cell lines(e.g. HepG2)	✓	✓	✓✓✓	\$	✓	✓
IPSC Derived Hepatocytes	✓✓	✓✓	✓✓✓	\$ \$	✓	✓✓
Primary Human Hepatocytes	✓✓✓	✓✓✓	✓	\$ \$ \$	✓	✓✓✓
Animal Models	✓✓✓	✓	✓	\$ \$ \$	✓✓✓	✓✓✓
HUB Organoids	✓✓✓	✓✓✓	✓✓✓	\$ \$	✓	✓✓✓

In vitro comparison of human and animal HUB Organoid models

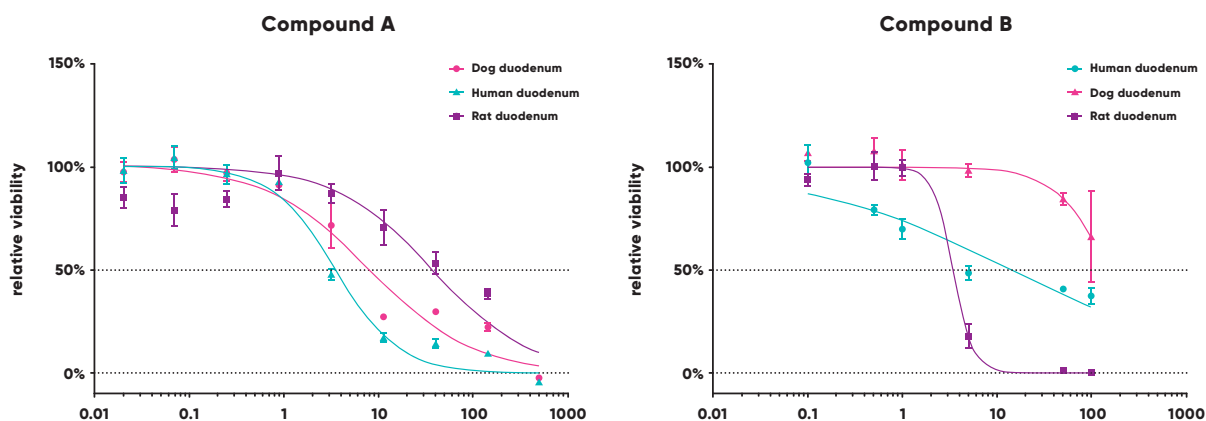


Fig 1: Toxicity (relative viability) of compound A and B was measured after 120 hours using HUB Organoids generated from the duodenum of human, dog and rat.

Services for Toxicology Offered by HUB

- organoids from different animal species such as rat, dog, mini pig and monkey
- organoids from healthy human cells of liver, intestine, kidney, and other organs relevant for safety
- gene expression analysis (DNA and RNAseq)
- metabolite studies
- transporter function
- cytochrome activity
- epithelial barrier function
- mechanism of action studies
- on request:
 - assay development – custom assays

Hubrecht Organoid Technology

Yalelaan 62
3584 CM Utrecht

The Netherlands
+31 (0)88 1236300

marketing@huborganoids.nl
huborganoids.nl