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The Science CRO

Integrated Drug Discovery and Early Development Services in Age-related diseases

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The trend towards higher life expectancy observed over the past decades is accompanied by an increasing number of patients with various diseases that often affect the cardiovascular, nervous, and metabolic systems. Since this has become a challenge for any modern health system, a continuous demand to develop new treatments is emerging. As aging is affecting the whole body, research and development of new therapies require flexible approaches looking at various organs and tissues and thereby integrating conventional and modern state-of-the-art techniques. Based on our extensive pharmaceutical research expertise, Nuvisan ICB GmbH provides comprehensive *in vivo* and *in vitro* platforms to support drug discovery programs for various therapeutic areas. Moreover, we build model systems to identify and validate novel drug targets in age-related diseases and beyond. These activities are supported by our in-house expertise in induced pluripotent stem cells (iPSCs) that allow the development of personalized therapies, as well.

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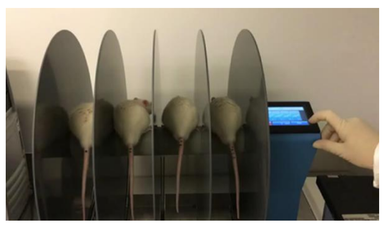
Basic Research | Target ID | Target Val | Screen/ Hit ID | Hit 2 Lead | Lead Optimization | **Lead Characterization** | Preclinical (IND enabling) | Non-Clinical Studies | Early Clinical Trials

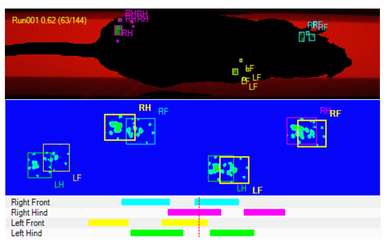
INNOVATION CAMPUS BERLIN

Neurodegenerative diseases

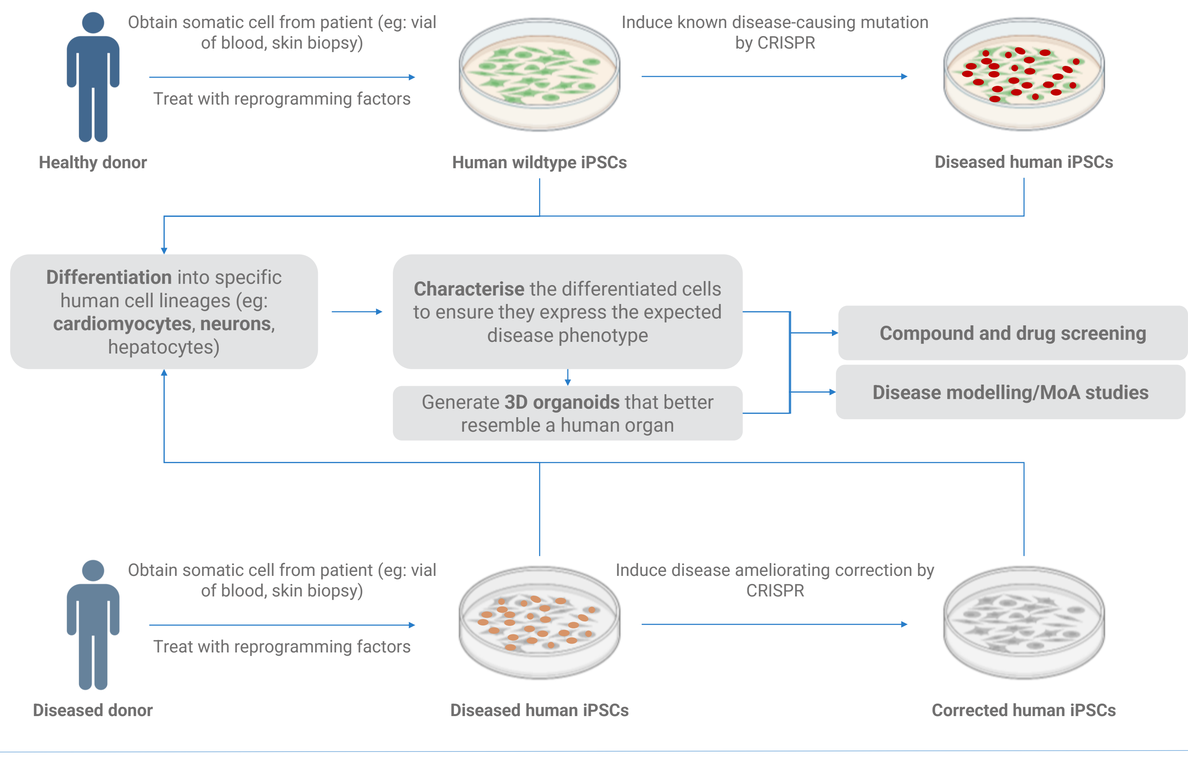
Rotarod



Catwalk

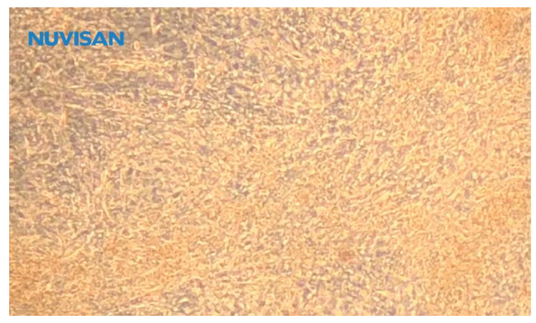


iPSCs for disease modelling and drug screening

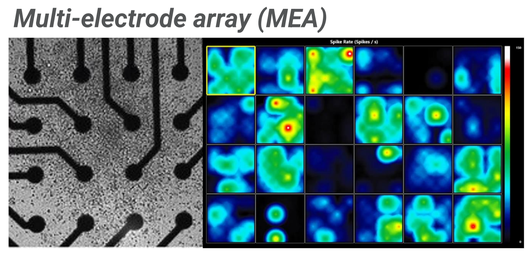


Cardiovascular diseases

iPSCs derived cardiomyocytes



Multi-electrode array (MEA)



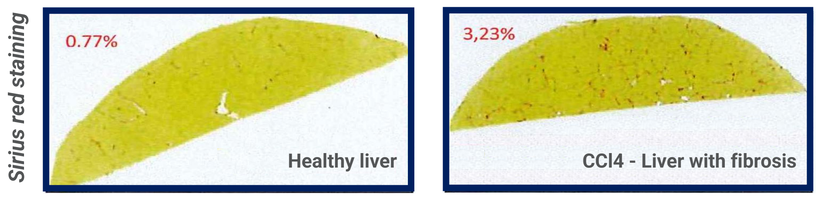
Integrated Services in Age-related diseases

Metabolic and liver diseases

Capabilities to address metabolic diseases

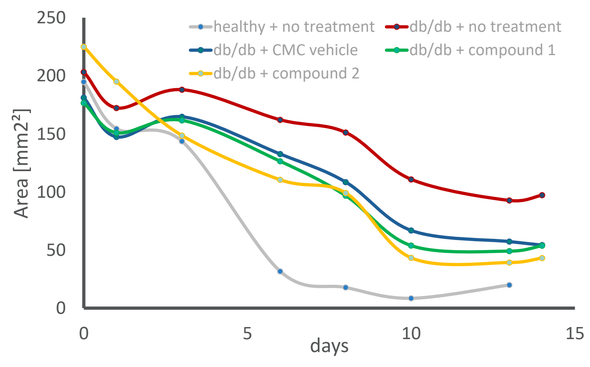
Asset Indication Mapping (AIM)	*In vitro / Ex vivo* Histology, 2D-3D, rodent tissue, human cells, iPSC		Rodent *in vivo* models & methods	Biomarkers
1. Scientific rationale & feasibility 2. In silico data crawling 3. Manual curation 4. Clinical assessment 5. Commercial assessment (partial coverage) ➔ Prioritziation of PoC indication ➔ Preclinical and clinical path forward definition	Histology: ICH & IF	**Hepatocytes** (for fibrotic disease modelling & toxicity screens) **Stellate cells, endothelial cells,** other primary human fibroblasts, immune cells, pre-adipocytes,...	Mouse CCl_4 & TAA liver fibrosis	AST, ALT, creatinine, albumin, glucose, etc ELISAs and colorimetric assays RT-PCR FACS Bulk and single cell Next Generation Sequencing of pre-clinical and clinical material
	Liver NASH & fibrosis scoring		Mouse & rat models for obesity, insulin resistance & diabetes	
	RNAi, CRISPR genome editing	Rodent PCTS for liver & lung fibrosis	Diet induced obesity rodent models	
	Mitochondria respiration assessment (Seahorse)	**Hepatocytes** (iPSC derived)	Diagnostic tests: GTT, ITT, PTT & oLTT	
			Metabolic cages for urine collection (non-surgical models)	
			NMR body composition analysis	

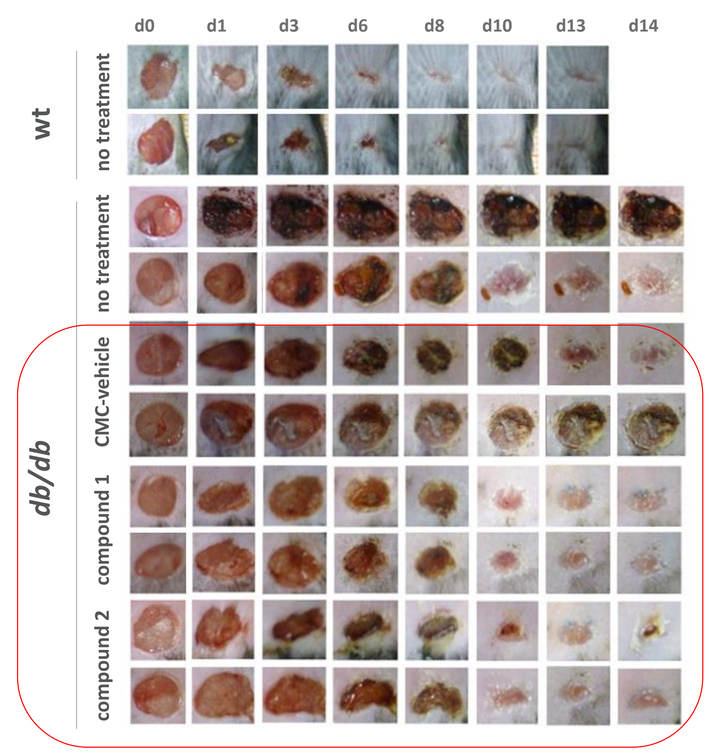
In vivo: Hepatotoxin-induced liver fibrosis in mice



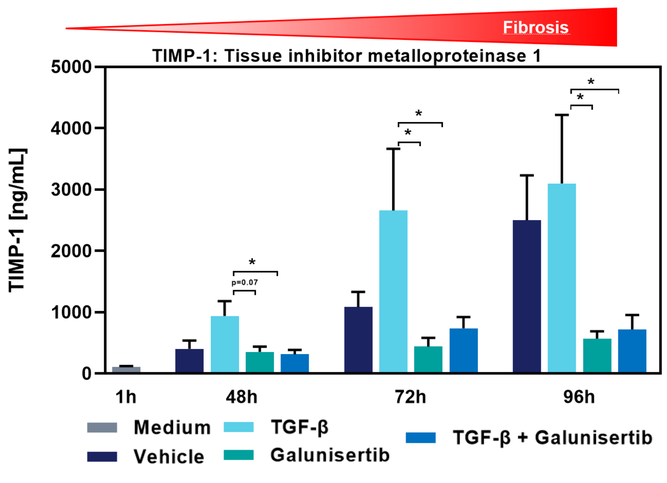
Skin diseases

Wound healing





ex vivo: Fibrosis in Precision Cut Liver Slices



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