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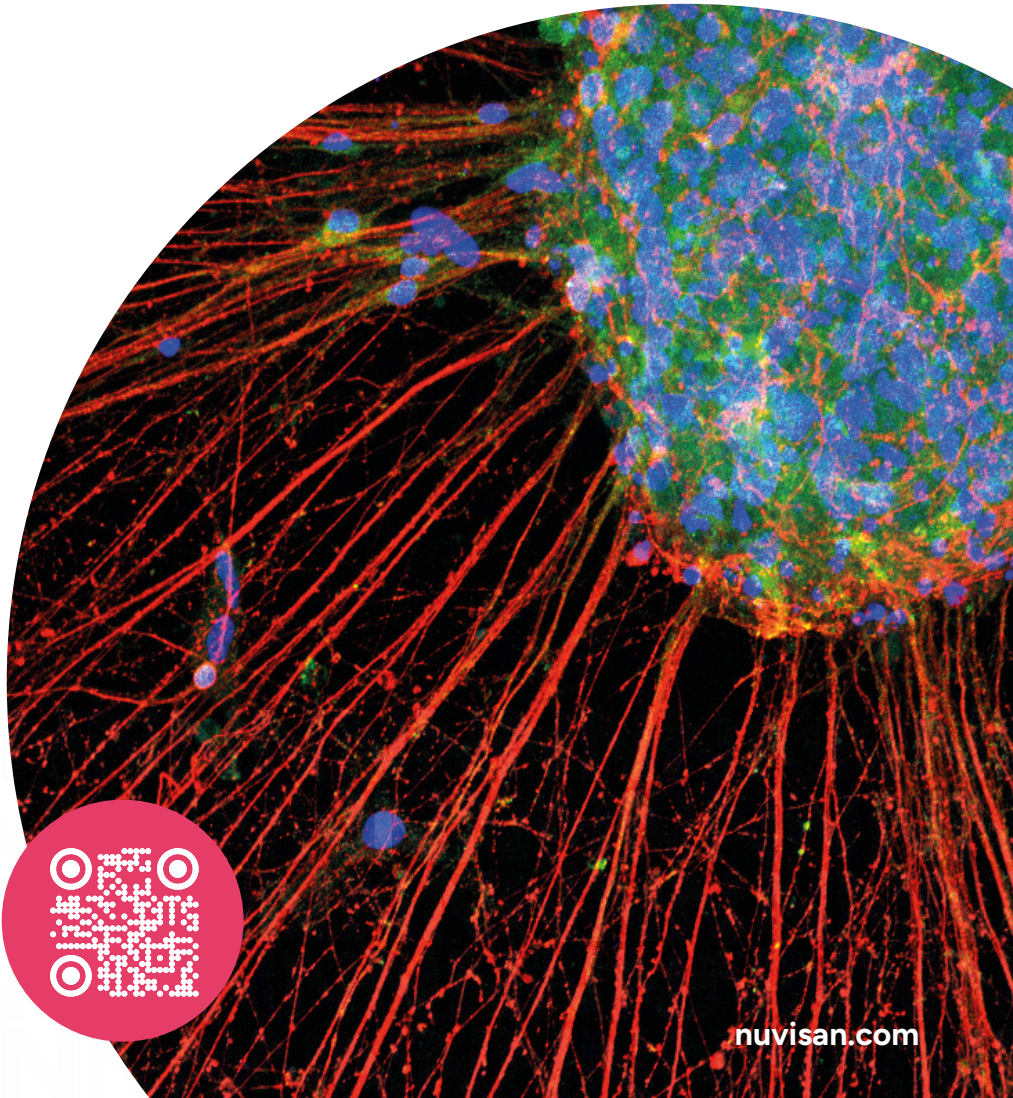
The Science CRO

DRUG DISCOVERY

Human induced pluripotent stem cell platform



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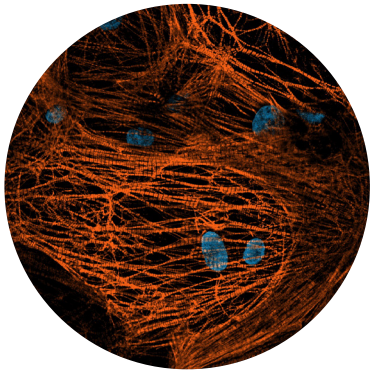
Revolutionising drug discovery

Using human iPSCs to recapitulate complex human biology

The use of patient-derived human induced pluripotent stem cells (iPSCs) provides unparalleled opportunities to examine human disease pathogenesis and progression. Human iPSCs retain the genetic signature of the donor patient and are as close to the "real thing" as we can currently attain with contemporary scientific tools. We consider iPSCs indispensable in contemporary drug development pipelines.



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We collaborate with you to develop your projects leveraging our flexible and customised solutions. Whether we use your own iPSC lines or one of our curated in-house lines, we always implement **stringent quality control** measures to help ensure optimal and **reproducible results**.

With our CRISPR/Cas9 toolbox, we can generate genome-edited iPSCs from healthy lines resulting in disease-causing mutations, isogenic controls, or reporter lines. The transcriptome of iPSCs and their derivates can be assessed with our in-house next-generation sequencing (NGS) platform.

Human iPSC-derived cells can be utilised in every part of the drug discovery pipeline, and our services span assay development, automation, compound management, high-throughput and content screening, data acquisition and processing.

We specialise in adapting to the needs and requirements of our customers and offer a range of entry and exit points. We share your sense of urgency to deliver high-quality compounds/ candidates.

Human iPSC platform

OUR EXPERTISE

At Nuvisan, we specialise in advancing drug discovery and development through comprehensive and integrated research services. Our capabilities span from target identification and validation to preclinical development and clinical translation.

The Nuvisan human iPSC platform can assist you at varying entry points, whether using a general iPSC culture with your specialised lines or using our acquired lines (banking, expanding, thawing, QC or CRISPR/Cas9 gene editing), **differentiating iPSCs** into various terminal lineages, **disease modelling** to recapitulate and confirm expected phenotypes in 2D or 3D formats, or performing **compound screening/ profiling** in miniaturised, high-throughput formats.

With state-of-the-art technologies and multidisciplinary expertise, we currently address critical challenges with human iPSC technology in these drug discovery fields:

- cardiovascular,
- neurological, and
- rare disease.

Additionally, we are constantly exploring new indication spaces, so please don't hesitate to get in touch with us to discuss potential collaborative opportunities.

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Scalable complexity: from single cells to organotypic constructs

2D IPSC-DERIVED CELLS

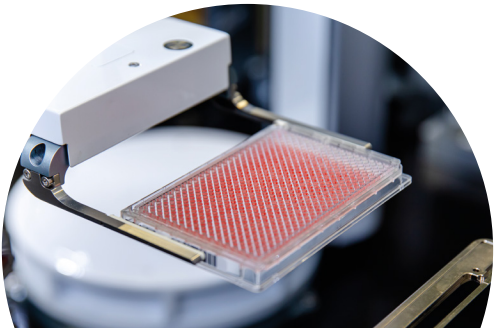
We employ state-of-the-art differentiation protocols to transform human iPSCs into a range of somatic cell lineages that are extensively tested to recapitulate disease phenotypes. We can functionally assess these iPSC-derived cells with (among other methods):

- Multi-well microelectrode array (MEA)
- Seahorse bioanalyser (to measure mitochondrial bioenergetics)
- High-content analysis; Ca^{2+} imaging (FLIPR).

3D IPSC-DERIVED ORGANOTYPIC MODELS

We are able to generate the following types of models to study disease mechanisms and perform screening campaigns that yield a hit or lead candidate:

- Organoids as spheroids or assembloids in low- and high-throughput formats
- Multi-cellular tissue engineered constructs
- Trans-well or co-culture systems.



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In-depth assessment of iPSC-derived cells and 3D constructs

FUNCTIONAL GENOMICS

Our CRISPR/Cas9 experts can generate disease causing mutations or correct known mutations in patient derived iPSC lines (isogenic controls).

Our NGS services include bulk and single cell RNA sequencing for which we are a 10x Genomics certified service provider. These technologies provide a powerful and in-depth look into the differentiation state and cellular functionality by gene expression, alongside organoid cellular composition. Supported by our experienced and dedicated team of Bioinformaticians, we strive to deliver biologically meaning data.

HIGH THROUGHPUT AND CONTENT SCREENING

We have developed our 2D and 3D differentiation protocols to be suitable for high throughput screening and high content analyses. This enables high resolution imaging and assessment of our cells and organoids. Our FLIPR-based assessments for Ca^{2+} imaging can also be performed to provide insight into ion channel function.

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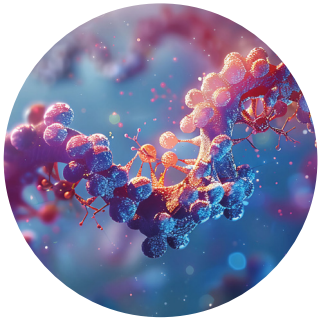

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YOUR PARTNER OF CHOICE IN BRINGING THERAPEUTICS TO LIFE

Nuvisan is a full-service contract research organisation (CRO) and development and manufacturing organisation (CDMO) with state-of-the-art laboratories in Germany and France.

Our pharmaceutical, biotechnology, venture capital and non-profit clients partner with us because our high-quality end-to-end solutions and scientific expertise enable us to streamline and accelerate drug discovery and development – from ensuring target understanding to helping bring therapeutics to life.

Founded over 40 years ago by a team of pharma industry innovators, Nuvisan has established a reputation for expertise and professionalism.

Our team leaders have extensive experience in the biopharma industry, and our unique centres of excellence – for drug discovery in Berlin, formulation and GMP manufacturing in Sophia Antipolis, and our bioanalysis hub in Neu-Ulm – enable our experienced scientists to help guide and advance projects.

We know how to discover, develop and bring the next generation of medicines to market. At the same time, we are committed to flexibility, transparency and collaboration in our approach, working closely with you to adapt to your individual needs, minimise risks and help deliver your project.

Contact us

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