

H&E stained section of paraffin-embedded 3D InSight™ Human Pancreatic Microislets

3D InSight™

Human Pancreatic Microislets

Long-lived, standardized pancreatic islet microtissues for diabetes & metabolic research

- Viability and glucose-stimulated insulin secretion persist for >4 weeks, enabling long-term studies
- Homogeneous microislet size eliminates tedious hand-picking
- Uniform ratio of alpha, beta, and delta cells minimizes islet-to-islet variation
- Delivered in 96-well non-adherent GravityTRAP™ plates, with availability approximately every 2-4 weeks

Convenient format for more robust data acquisition

Primary human pancreatic islets are of great importance for *in vitro* research related to diabetes and metabolic disorders. The purity and viability of pancreatic islets can vary significantly between different isolations depending on donor characteristics, cause of death and other confounding factors. Exocrine tissue impurities, size heterogeneity and partial cell death are the main factors which negatively affect data robustness obtained from experiments using freshly isolated pancreatic islets.

InSphero's patented microtissue technology produces islets of increased purity, viability and size homogeneity, and delivers one microtissue per well in our 96-well GravityTRAP™ plate. The process increases throughput by eliminating tedious hand-picking of similarly sized islets and separation from exocrine tissue, while providing tissues in an assay-ready, automation-compatible format.

Applications

- Study of insulin secretagogues
- Metabolic studies
- Acute and chronic toxicity studies
- High content screening

Organotypic microislets offer consistency

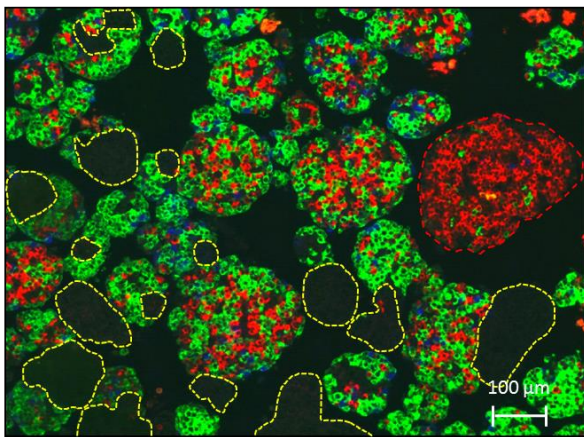
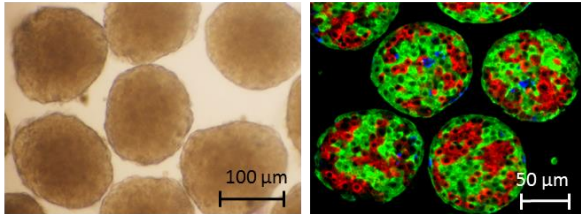
3D InSight™ Human Pancreatic Microislets begin only with donor tissue supplied by qualified providers. Our isolation & seeding process eliminates exocrine tissue contaminants, normalizes cellular composition, and produces microislets that are almost identical in size (diameter variation <10%) with comparable cell composition.

Human Pancreatic Microislets

Improve consistency and throughput with long-lived microislets



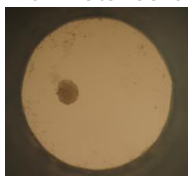
The target size of our microislets is ~1 islet equivalent (IEQ), avoiding hypoxia-related secondary effects that are size-dependent. This homogeneous islet population reduces the number of replicates needed to ensure robust experimental data.



3D InSight™ Pancreatic Microislets display a more uniform size (top left/right) and homogeneous cellular composition than crude islet fractions (bottom). Immunofluorescent staining of crude islet fraction and 3D InSight™ Human Pancreatic Microislets, reveals expression of insulin (green, beta cells), glucagon (red, alpha cells), and somatostatin (blue, delta cells) in various islet cell sub-types. Yellow lines indicate non-staining exocrine tissue contaminants present in crude fractions, while red lines highlight overrepresentation of a single cell type (alpha cells) frequently seen in crude fractions.

Ready-to-use microtissues for ultimate convenience

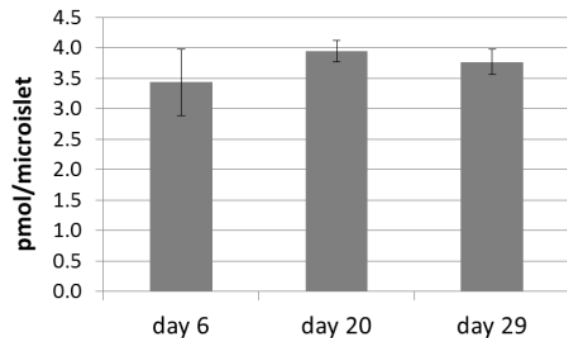
Assay-ready 3D InSight™ Human Pancreatic Microislets are delivered in our specially designed 96-well GravityTRAP™ plate. The plate's non-adherent coating allows long-term culture without attachment or islet cell outgrowth, and facilitates media changes and repeated compound dosing. Automated plate readers can easily locate and analyze a single microtissue in each well for simplified analysis of standard luminescent and fluorescent endpoint assays, such as Promega ATP, LDH, GSH and apoptosis assays.



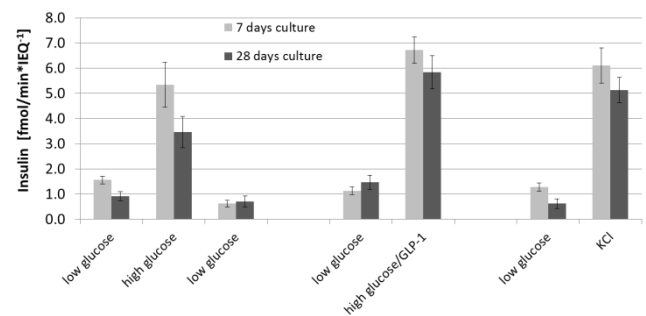
Single islet microtissue (culture day 28) visualized in a GravityTRAP™ well.

Long term viability and performance

3D InSight™ Human Pancreatic Microislets remain viable for at least 4 weeks with sustained intact morphology and metabolic activity, as demonstrated by measurement of intracellular ATP using Promega CellTiter-Glo® (graph below). During this time their secretory capacity remains



stable, as assessed on day 7 and 28 by static glucose stimulated insulin secretion assays with single Islet Microtissues (below, 5 replicates).



Ordering Information

Catalog #	Description
MT-04-002-01	3D InSight™ Human Pancreatic Microislets (96x)
CS-07-005-02	3D InSight™ Human Microislet Maintenance Medium (250 ml)
CS-07-005-01	3D InSight™ Human Microislet Maintenance Medium (500 ml)

For pricing and details, contact our local branch offices and authorized distributors.

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