**Modeling Human Liver Disease**

The **3D InSight™ Human Liver Disease Platform** enables the study of NAFLD induction and inhibition of disease progression from steatosis to NASH and fibrosis. The screening-compatible Akura™ 3D microtissue format provides maximal endpoint compatibility while optimizing efficiency of microtissues handling processes.

**Physiologically Relevant Disease Model**

- **3D microtissue co-culture of PHHs, KCs, and LECs, and HSCs.**

**Drug Efficacy and Safety Testing**

- **Elafibranor Study with 3D InSight™ NASH Model**
  - Elafibranor treatment does not affect cell viability of 3D model
  - Elafibranor treatment reduces inflammation

**Fibrotic phenotype observed at day 10 of treatment**

- The fibrotic phenotype is observed upon treatment with FFA alone and FFA+LPS. Addition of AkiI inhibitor blocked blocked development of fibrosis upon treatment with FFA+LPS. Overview (left column) and close-ups of immunohistochemistry staining for Col I, Col III, Col IV, and α-SMA. Right column shows visualizations of collagen fibers (arrowsheads) by Sirius Red staining and polarized light. Black pixel count (brackets) was determined as the parameter for fibrosis.

**Certified Applications and Options**

- **3D InSight™ Diabetes Discovery Platform**
- **3D InSight™ Diabetes Type II Model**
- **3D InSight™ Diabetes Type I Model**
- **3D InSight™ Liver Toxicology Platform**
- **3D InSight™ Human Liver Models**
- **3D InSight™ Animal Liver Models**

**Technical protocol**

- Biochemical assays
- Gene expression
- Histology/IHC
- Gene expression
- Histology/IHC
- Biochemical assays

**Key**

- Controls: (control)
- Normal conditions (control)
- LDH (day 2, 5, and 7)
- ATP (day 7)
- FFA+LPS
- FFA+LPS
- FFA+LPS

**Drug efficacy screening**

- Treatment with free fatty acids (FFA), LPS, and sugars 

**Delivery Format**

- Akura™ 96 assay plate 
  - 1 tissue per well

**Model contains relevant cell types to replicate disease states**

- Healthy
- Steatosis
- NASH
- Fibrosis

- The model is composed of healthy human primary liver cell types needed for the study of steatosis, NASH, and fibrosis. Treatment with free fatty acids (FFA) and LPS stimuli does not affect cell composition. Immunohistochemistry at day 10 shows expression of characteristic markers for PHHs (Albu), LECs (CD105), KCs (CD68) and HSCs (Vimentin).