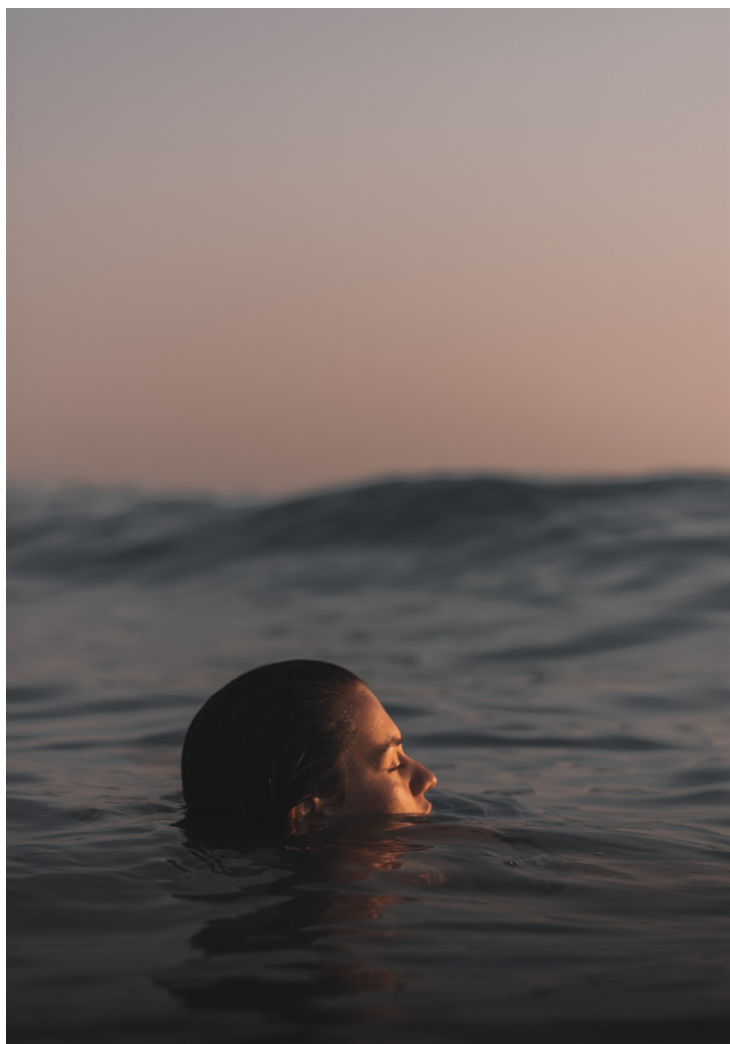


Leverage the most advanced imaging and cell culture tools for accelerating your research.

Visikol is a contract research services company that is focused on helping researchers accelerate their drug discovery and development efforts by providing best-in-class advanced tissue imaging and cell culture assay services. The team is comprised of experts in imaging, image analysis and cell culture and works as an extension of its client's drug discovery and development programs.



Multiplex Slide Imaging

4+ plex slide labeling and imaging
Custom panels and quantitative analysis

3D Tissue Imaging

Confocal microscopy
Light sheet microscopy

Traditional Histopathology

Slide scanning and archival
Embedding, sectioning and staining

Liver Cell Culture Assays

2D, 3D and ex vivo models
ELISA, qPCR, HCS, LCMS endpoints

Precision Cut Tissue Assays

Human, rodent, feline and canine models
Liver, kidney and tumor models

Custom Cell Culture Assays

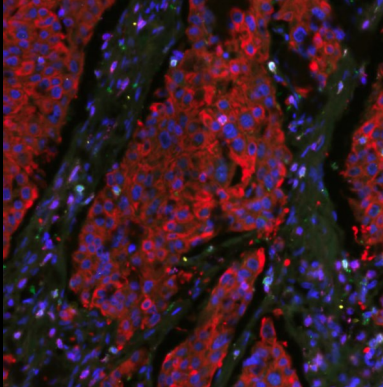
Custom model development
High content screening

Advanced Tissue Imaging

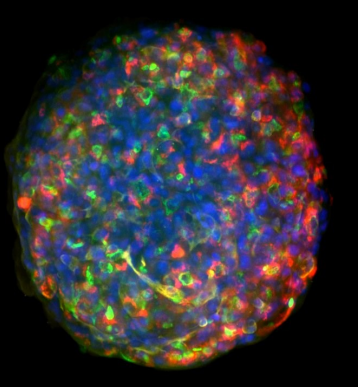
Visikol is focused on providing its clients with best-in-class imaging solutions for transforming their tissues, cell culture models and cells into quantitative insights. The company has developed several advanced imaging modalities which are supported by a suite of digital pathology software as well as file sharing and collaboration tools so that Visikol can seamlessly interact with clients during a project.

These technologies include a patented tissue clearing approach called Visikol(R) HISTO™ for clearing whole tissues, the 3Screen™ image analysis software for analyzing 2D/3D data, the BitSlide™ cloud-based software for sharing images and the EasyPlex™ stripping reagent which powers the Visikol Multiplex Immunofluorescence services.

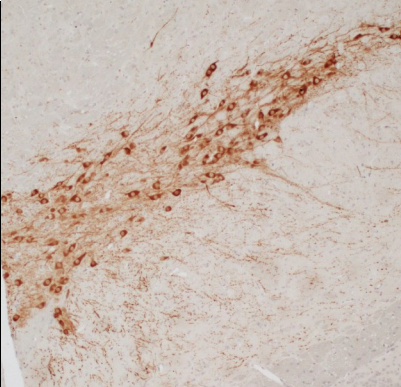
Multiplex Slide Imaging & Analysis

40X Whole Slide Imaging	
4-20 Markers Per Slide	
Quantitative Image Analysis	

3D Tissue Imaging

Whole Tissue Imaging at 4-20x	
Tissue Clearing and 3D Imaging	
3D Data Analysis	

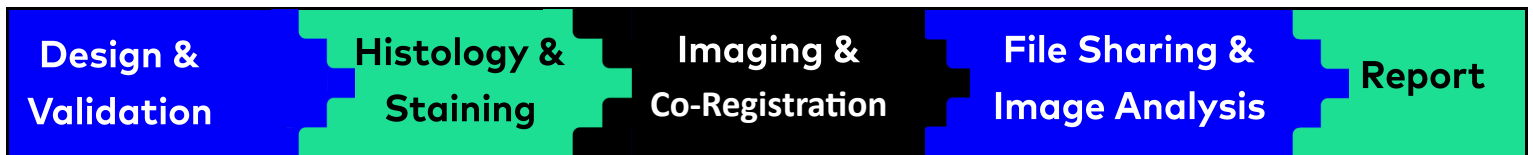
Traditional Histopathology

Embedding and Sectioning	
Labeling and Slide Scanning	
Archival of Slides and Data Storage	

Advanced Tissue Imaging - Multiplex Slide Imaging

At **Visikol**, we provide our clients with the ability to move beyond traditional slide labeling and imaging such that they can achieve 4+ labeling from a single slide. We accomplish this using our proprietary EasyPlex™ antibody stripping reagent and co-registration software that allows for antibodies to be removed from tissues so that multiple rounds of sequential labeling can be conducted from the same slide. These images can then be reconstructed into one single image of a slide which is easily shared with our clients using the BitSlide™ cloud-based file sharing and viewing platform.

Multiplex Slide Imaging & Analysis

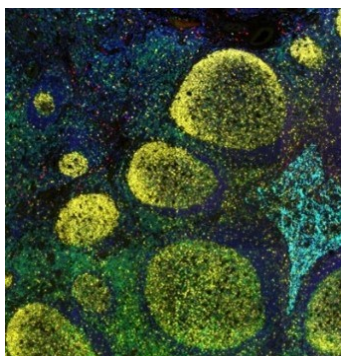


Analysis

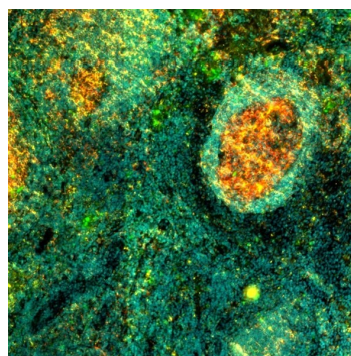
Following co-registration, the multiplex data from the slides can be used to address a wide range of research questions from simple cell counting to evaluating spatial profiling (e.g., what types of T-cells have entered the tumoral area) and evaluating the coincidence of various markers. This data can be further mined to identify unique biomarkers and relationships.

Panels

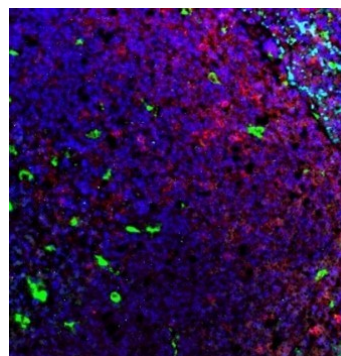
We can work with clients to validate new panels, or we can combine and mix antibodies from our pre-validated panels below which are continually expanding.



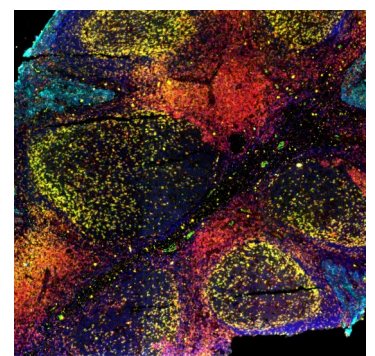
T Cell Activation
Panel



PD-L1 Checkpoint
Inhibition Panel



Memory T Cell Panel



Antigen Presenting
Cell Panel

Advanced Tissue Imaging - 3D Tissue Imaging

Visikol was the first company to commercialize tissue clearing and 3D imaging and has been at forefront of the field since its inception in 2012. Through the use of tissue clearing and advanced 3D microscopy, large 3D pieces of tissue such as a whole mouse brain can be imaged in their entirety.

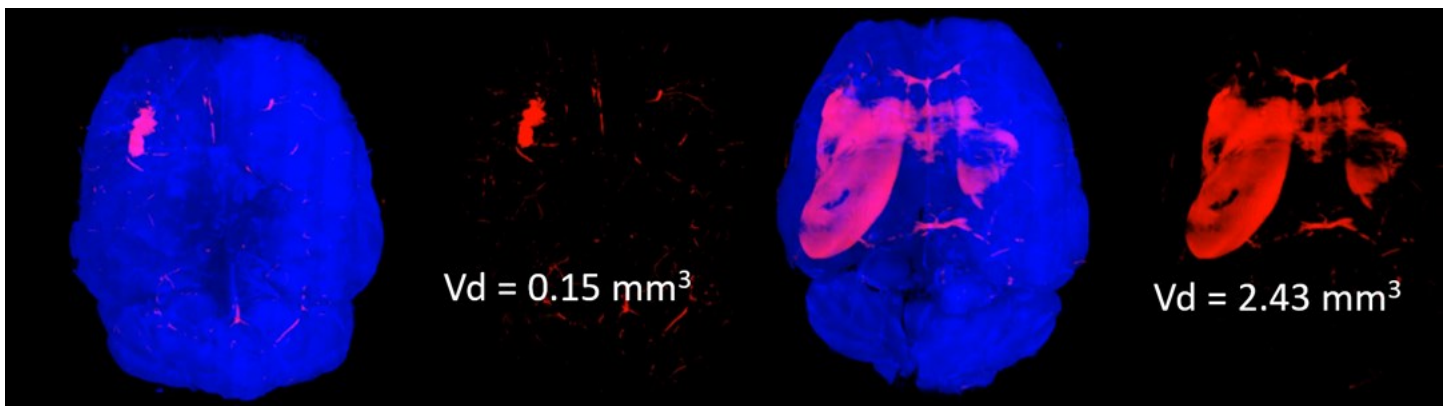
Imaging Modalities

Confocal Microscopy: Visikol routinely images a wide range of tissues for clients using high content and traditional confocal microscopy. This approach is ideal for tissues less than 1 mm in thickness and is compatible with IF and FP labeling.

Light Sheet Microscopy: At Visikol, the team leverages light sheet microscopy to image large intact tissues such as whole mouse brains in 3D using a Bruker MuVi SPIM light sheet microscope.

How It Works

Clients send to Visikol fixed tissues which Visikol can label and clear for 3D tissue imaging. The samples are then mounted for imaging and the Visikol team images the samples using confocal or light sheet microscopy. This data is then distilled down for the client into actionable insights using Visikol's 3Screen™ image analysis tools based upon their specific research question. Visikol is able to work with cleared and pre-labeled samples or develop novel labeling and clearing approaches for a client depending on their specific research question.

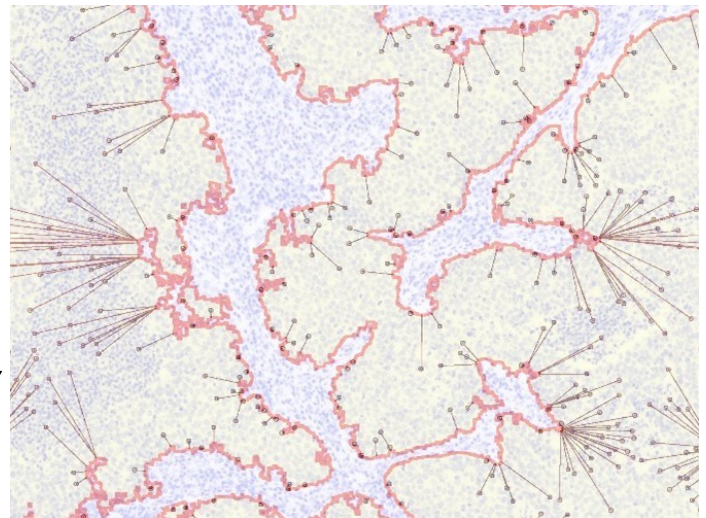


Advanced Tissue Imaging - Traditional Histopathology

While **Visikol** offers advanced tissue imaging and digital pathology services, the company also provides its clients with a suite of traditional histology services to supplement these capabilities. The Visikol lab houses a state-of-the-art Leica histology core, and the team has access to a collective of pathologists for traditional evaluation when required.

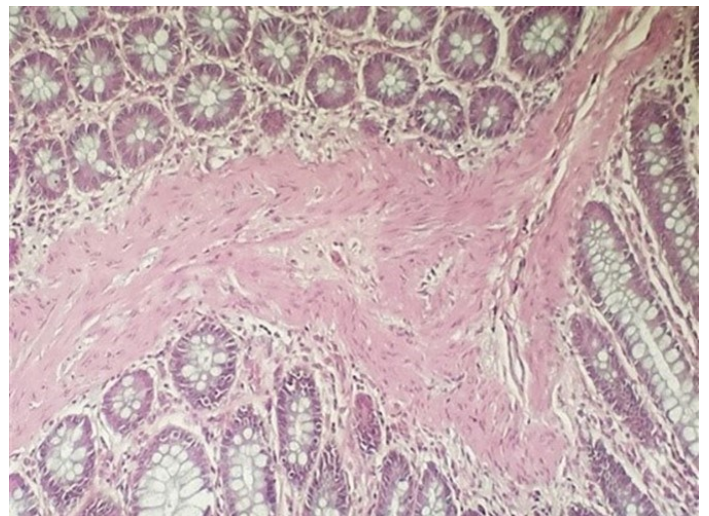
Visikol's Approach to Digital Pathology

- Visikol offers its clients a full suite of digital pathology services from slide scanning and quantitative slide analysis to the custom development of image analysis algorithms.
- Visikol developed a suite of image analysis and digital pathology tools that allow its team to quantitatively analyze image data obtained from histological sections to assess tumor area, quantify nuclear morphology, and utilize machine learning techniques for slide classification.



How Clients Work With Visikol

- Send Visikol fixed tissues for embedding, sectioning, and staining, or send glass microscope slides for scanning and analysis.
- Send Visikol imaging data supplied by flash drive or via the cloud for image processing and analysis.
- Visikol has an expertise in conducting IHC and can utilize special stains as well.

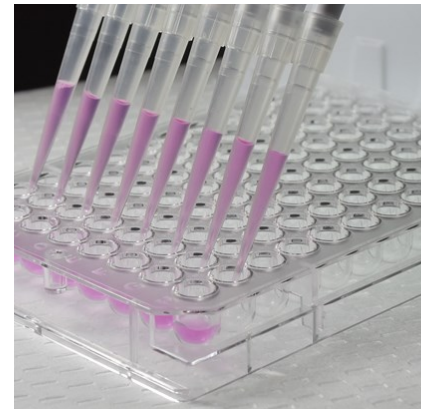


Advanced Cell Culture

Visikol is focused on improving the predictive capability of *in vitro* assays so that clients can more effectively and efficiently evaluate their compounds for efficacy, PK/PD and their toxic liabilities. Visikol is model agnostic, and the Visikol team works closely with its clients to balance cost, throughput and *in vivo* relevancy to best address their research questions.

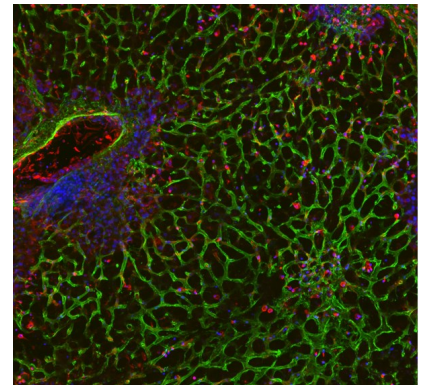
Liver 2D and 3D Cell Culture

2D, 3D, and Ex Vivo Models	10 Animal Species Models	Imaging, qPCR, ELISA, and Readouts
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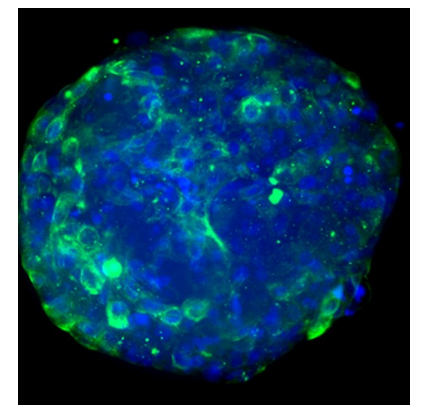
Precision Cut Tissue Slices

Rodent and Ex Vivo Models	Diseased and Healthy Tissues	Imaging, qPCR, ELISA, and Readouts
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Custom Cell Culture Models & Assays

Custom Model Development	High Content Screening	Custom Assay Development
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Advanced Cell Culture- Liver Cell Culture: NASH & DILI

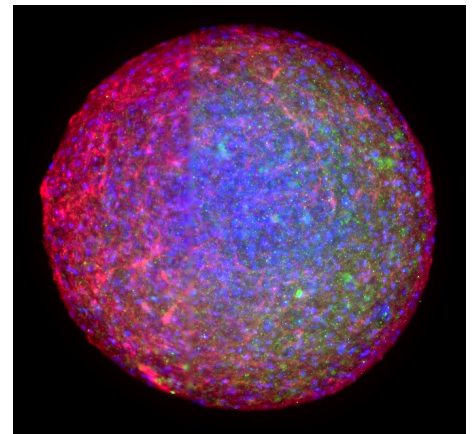
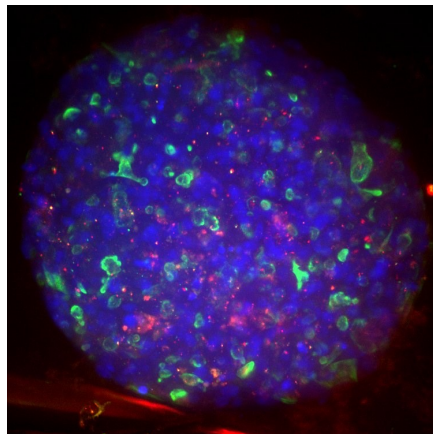
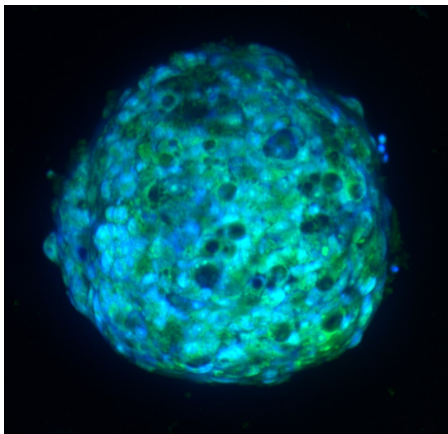
The **Visikol** liver cell culture services can be categorized into three research areas: hepatotoxicity, metabolism and fibrosis. The identification of potential drugs for toxic effects at an early stage in drug discovery can save time and developmental costs, and most importantly reduce the likelihood of late-stage failure. Additionally, it is crucial to understand how drugs are metabolized and to be able to have an effective *in vitro* model for simulation *in vivo* metabolism. Many of these models can also be leveraged for modeling the complex disease cascade associated with NASH and NAFLD.

Research Types

- **Hepatotoxicity:** At Visikol, we provide clients with a wide variety of liver cell culture assays using the most advanced 2D and 3D cell culture systems for better predicting DILI.
- **Fibrosis:** Nonalcoholic steatohepatitis (NASH) and other inflammatory liver diseases continue to grow in prevalence, yet still lack effective therapeutic treatments. Our unique assays in this disease context leverage advanced cell culture techniques and high content imaging to enable quantitative evaluation of promising compounds *in vitro*.

Model Types

- **Primary Human Hepatocytes:** Primary human hepatocytes are still regarded as the gold standard model for liver toxicology and fibrosis and can be cultured with or without nonparenchymal cells into spheroids.
- **HepaRG:** This model combines a well characterized HepaRG liver cell line with primary non-parenchymal liver cells and has been validated by Visikol as a robust fibrosis model.
- **HUREL[®] Micro Livers:** The HUREL[®] portfolio of primary hepatocyte liver models includes ten different species in a flexible 6-384-well format that are delivered directly to researchers for immediate use in their assays or can be leveraged by Visikol in its services.



Advanced Cell Culture- HUREL[®] Micro Livers

The HUREL[®] product portfolio of highly relevant and well-validated 2D co-culture primary hepatocyte models has been acquired by Visikol. Visikol will continue to sell the HUREL[®] product line as well as offer the HUREL[®] portfolio of services.

Multiple Species

HUREL[®] Human[™]
HUREL[®] Human Pool[™]
HUREL[®] Rat SD[™]
HUREL[®] Rat WH[™]
HUREL[®] Dog[™]
HUREL[®] Primate[™]
HUREL[®] Mouse[™]
HUREL[®] Minipig[™]
HUREL[®] Rabbit[™]
HUREL[®] Cat[™]

Phenotypic Stability and Metabolic Competency

Peer-reviewed studies have demonstrated the HUREL[®] model's gene expression for all practical purposes immutable for periods of 30 days and longer. Rock-solid, long-enduring phenotypic stability creates the foundation for the superior metabolic competency that distinguishes data generated on the HUREL[®] platform from that of primary hepatocytes cultured in suspension, in monoculture, in micropatterned arrays, and in 3D spheroids.

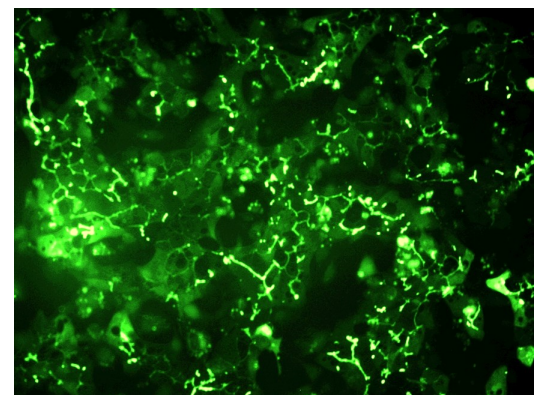
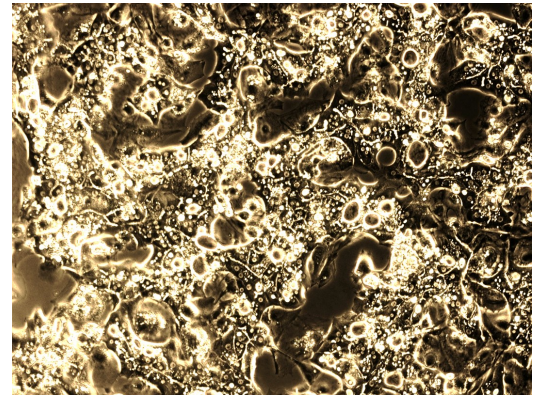
In cytotoxicity and hepatotoxicity testing, the HUREL[®] models have superior ability to generate reactive metabolites is the primary factor responsible for elevating the HUREL[®] model's predictive sensitivity and accuracy of those demonstrated by other platforms.

Peer Reviewed and Validated

The HUREL[®] micro liver models have been used in dozens of publications to date by the world's leading pharmaceutical companies and are integral to services at many contract research organizations.

Product and Services

The HUREL[®] micro liver models can be leveraged by researchers as a ready-to-use live product or through Visikol's contract research services which include: Metabolite Clearance, Metabolite Generation, Cytotoxicity Testing and many other assays.



Advanced Cell Culture - Precision Cut Tissue Slices (PCTS)

At **Visikol**, we provide our clients with the highly relevant *in vitro* option of precision cut tissue slices where we can obtain human or animal tissue can be obtained for subsequent culture in a transwell format. One of the common applications for leveraging PCTS is in the context of NAFLD or NASH where there are currently no approved treatments, but the models are also applicable for cancer and kidney studies.

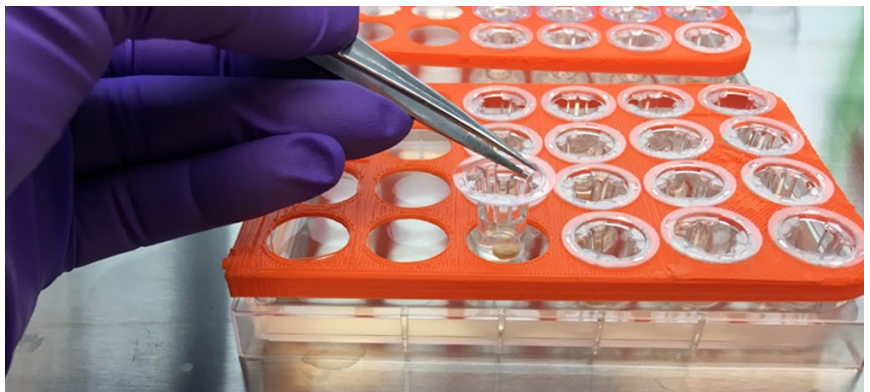
Assay Study Formats

- **Normal Tissue:** Normal human or animal tissue is obtained. Disease state is induced *ex vivo*, and therapeutic evaluation is conducted on precision tissue slices.
- **Diseased Human Tissue:** Donor tissues are screened to match appropriate pathology and therapeutic evaluation is conducted *ex vivo* on precision tissue slices.
- **Animal Disease Model:** Disease state is induced *in vivo* on mouse models. Therapeutic evaluation conducted *ex vivo* on precision tissue slices.

How It Works

Visikol has validated several PCTS models to date and can develop custom models based upon a clients specific research question.

1. Custom study design
2. Generation of precision-cut slices
3. Treatment and *ex-vivo* culture with client compounds
4. Assess PCTS models and effect of compounds:
 - Gene expression: qPCR, RNA-Seq
 - Traditional histology: H&E, Masson's Trichrome, PSR, PAS
 - Immunofluorescence of cleared tissue: Collagen, α -SMA, PDFGR- β , CD68, etc.
 - Protein quantification: ELISA
5. Reporting



Advanced Cell Culture - Custom Models & Assays

Visikol is a model agnostic contract research services company that operates in the spaces of advanced cell culture and advanced tissue imaging. The company offers a wide array of validated models pertaining to the fields of Oncology, Immuno-Oncology, Liver Disease, Toxicity Assessment, Metabolism, Ophthalmology, Inflammation and Fibrosis. Visikol can also leverage its expertise to develop custom models and assays for its clients.

Cell Culture Offerings

- Antibody Penetration and Pharmacokinetics
- Antiproliferative Assay
- Apoptosis Assay
- ATP Content
- Blood Brain Barrier Permeability
- Cell Viability
- Cell Proliferation
- Cholestasis Assay
- Cytotoxicity Assay
- Fibrosis and Collagen Deposition
- Hepatotoxicity
- Immune Cell Infiltration
- Liver Fibrosis Assay
- Mitochondrial Function Assay
- Neurotoxicity
- Scratch/Wound Healing Assay
- Steatosis and Phospholipidosis

How Visikol Works With Clients

The Visikol team spends significant upfront with clients discussing the specifics of a project and the required endpoints. The team is flexible in how it works with clients and can work through various frameworks.

- **Proof of Concept:** This approach allows Visikol to work with our clients more quickly and to de-risk the project prior to advancing to a more thorough study.
- **Milestone-Based Development Process:** Once a proof-of-concept study has been completed, the project will transition into larger scale activity. Milestones provide an opportunity to change or alter an approach prior to moving through an entire project so that the output clearly aligns with the client's expectations.

