JAVELIN BIOTECH

LTC - LIVER TISSUE CHIP

Human-relevant data and mechanistic insights are essential for developing safe and efficacious therapies. Current in vitro tools and animal models have limitations, especially for new modalities that demand greater human specificity.

ADDRESSING THE GAP

LIVER TISSUE CHIP

MPS PLATFORM FOR PRECLINICAL DISCOVERY

Javelin created the Liver Tissue Chip (LTC) to be an easy-to-use research platform that generates robust human-relevant data and predicts how drugs will behave in humans, years before they get to the clinic.

The LTC platform combines microphysiological systems (MPS), or organs-on-chip, with software that streamlines study design and data analysis, to help our clients generate human pharmacokinetic (PK) profiles, metabolite identification, PK/PD relationships, and complex drug-drug-interaction (DDI) insights. With these predictions, Javelin users can optimize candidate therapies better and faster than traditional animal-based approaches, cutting lead optimization time and improving R&D productivity.

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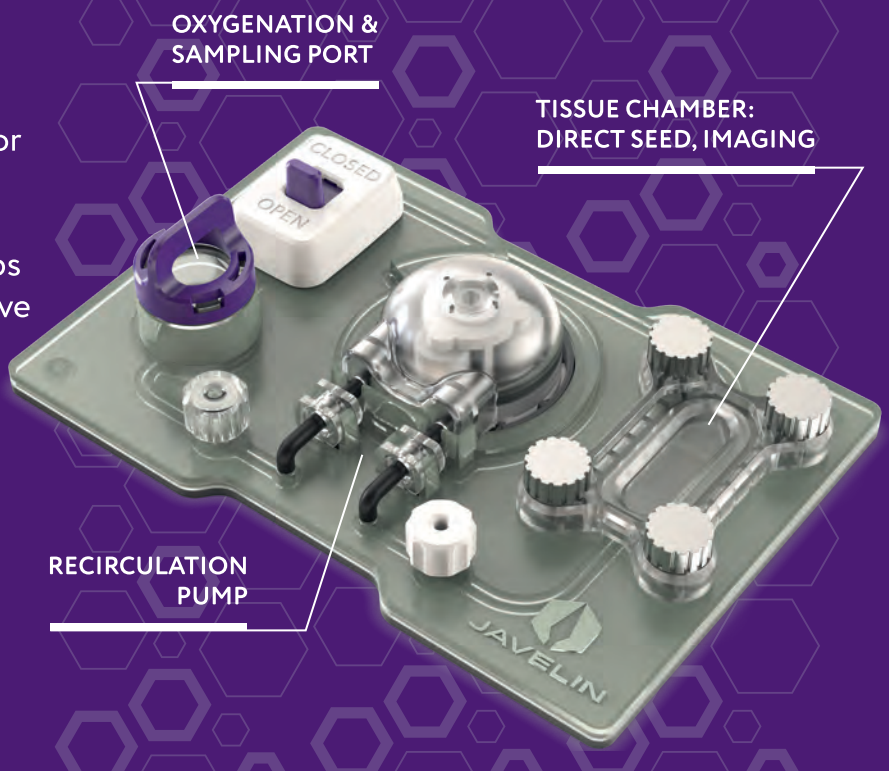
DESIGNED FOR YOUR SUCCESS

Javelin Liver Tissue Chips are designed for pharmaceutical research and ease of use. From cell seeding to media changes and imaging to sample collection, Javelin chips make it easy to sustain metabolically active tissue and to collect multiple streams of human-relevant data that correlate to clinical data better and faster than other research tools.



EASE OF USE AND LONG-TERM HEPATIC CULTURES

LTC sustains functional tissues over weeks, generating data from multiple media samples, imaging, and tissue-based assays such as intracellular concentrations, proteomics, metabolomics and transcriptomics.

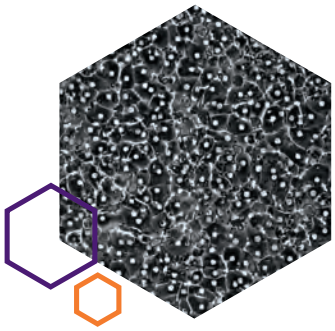
- Extended cultures - 15+ days
- Metabolically active hepatic tissue
- Kinetic data from repeated sample collection

BUILD CONFIDENCE FOR ROUTINE AND CHALLENGING QUESTIONS

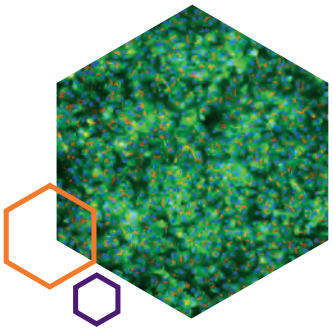
LTC generates highly reproducible results across multiple users and labs. It can be used in a routine workflow, or as a robust research platform, enabling scientists to ask and answer complex questions that will deliver new mechanistic insights.

APPLICATIONS ACROSS PRECLINICAL DISCOVERY

- Pharmacokinetics
- Safety & Tox
- Disease Modeling
- Multiple Modalities
- Target Validation
- Mono and Co-cultures



LONG-TERM STABILITY

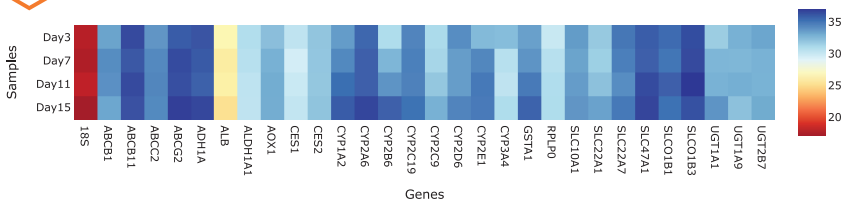


POLARIZED HEPATIC CULTURE

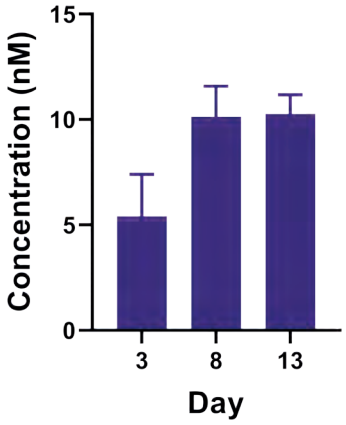
LTC CHARACTERIZATION

Tissue cultures exhibit stable metabolic activity and gene expression over time. Build mechanistic understanding of pharmacological processes. Understand mechanisms of action by inducing or inhibiting enzyme production.

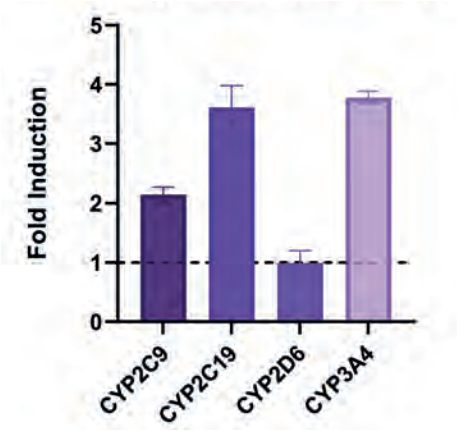
GENE EXPRESSION



CYP3A4 ACTIVITY

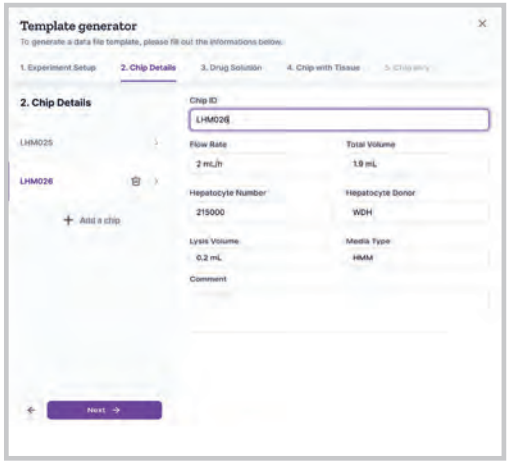


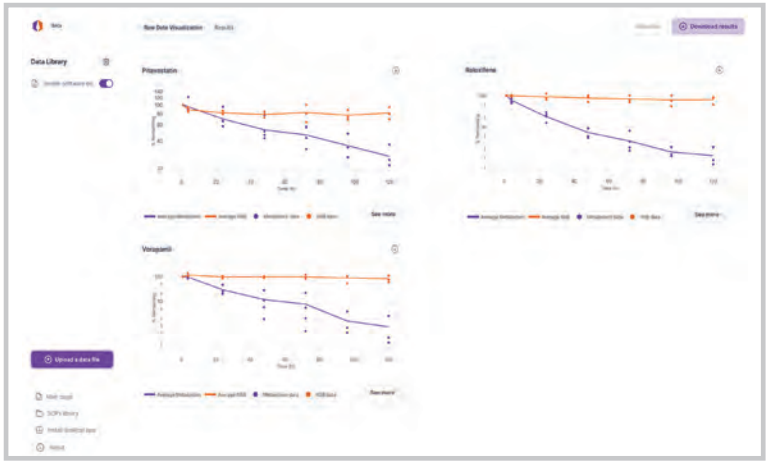
RIFAMPICIN INDUCTION IN LTC



JAVELIN SOFTWARE

DESIGN YOUR EXPERIMENT AND ANALYZE YOUR LTC DATA





- Design your experiments and generate sample lists with ease
- Analyze LTC data with built-in computational tools
- Generate insights on pharmacokinetic endpoints, potential drug-drug interactions, and drug toxicity

LTC - LIVER TISSUE CHIP

PLATFORM COMPONENTS

CHIP FEATURES

Cell Type	Primary human cells
Culture Type	SCH and 3D mono-/ co- culture
Cell Density	>200,000 cells/chip
Culture Area	1 cm^2
Media Volume	1.7 – 2.5mL
Samples	Media and Tissue accessible throughout an experiment. Collect up to 500 uL without media change
Seeding	Top load direct seeding
Perfusion Type	Continuous recirculation
Chip Material	Thermoplastic
Chip Dimensions	3”x 5”, SBS footprint

CONTROLLER FEATURES

Capacity	4 LTC chips
Requirements	Incubator; power supply – 110 -120V
Controller Dimensions	15.7" x 6.1" x 3.6", 4 to 6 controllers per incubator

SOFTWARE

Installation	Desktop application
Operating System	Windows and Mac compatible

CONTACT INFORMATION

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QR CODE TO LTC PLATFORM PUBLICATIONS