

## Study liver physiology and pathophysiology with our isolated perfused rodent liver foundation system.

The isolated perfused rodent liver model is well established as a reliable and popular reperfusion model for investigating the physiology and pathophysiology of the liver.

The ADInstruments Isolated Perfused Rodent Liver Foundation System combines the corresponding high-quality glass apparatus with a versatile PowerLab and LabChart data acquisition and analysis system for perfused rodent (mouse or rat) liver experiments.

### Benefits of the system include:

- Modular glass apparatus providing easy and straightforward fine adjustments including:
  - Option to perfuse at constant pressure or constant flow
  - Option to recirculate the perfusate
  - Ports permitting the introduction of cannulae for organ perfusion and the removal of bile samples
  - Measuring from multiple locations in the perfusion circuit
- A research grade PowerLab acquisition unit that is engineered for precise, consistent, reliable recording
- LabChart Pro software providing powerful real-time and offline analysis features including the Peak Analysis, Dose-Response, and Video Capture Add-Ons
- Freedom to tailor required measurements by selecting from a range of associated kits and accessories

### Typical studies:

- The role of the liver
- Liver relationship to insulin and hormonal regulation
- Liver damage assessment
- Liver preservation and transplantation studies
- Liver diseases:
  - Hepatitis
  - Cirrhosis
  - Liver cancer
  - Liver failure

### Applications include:

Autonomic • Dissolved Gases • Isolated Tissue and Organs  
Pharmacology • Pressure • Tissue and Circulation



# Isolated Perfused Rodent Liver Foundation System

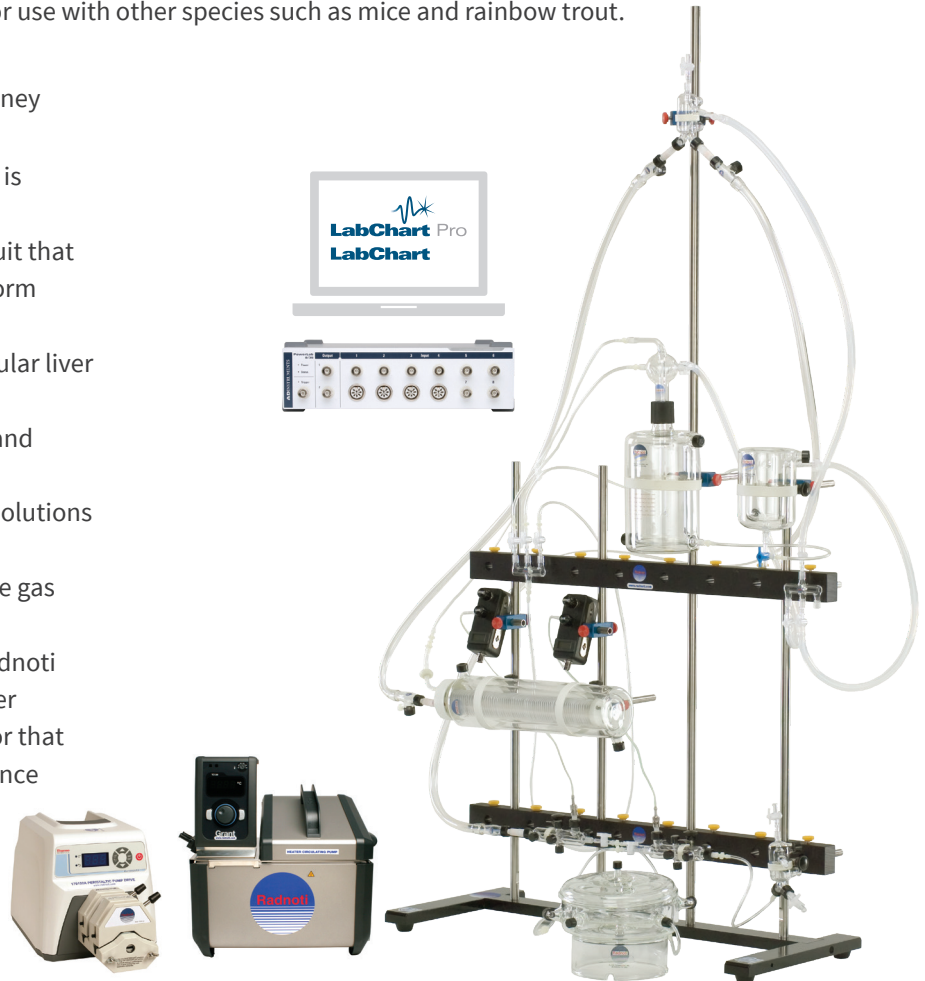
## Radnoti Glassware

With over 40 years of experience in producing fine glass instruments and turn-key systems for myriad applications both inside and outside the life science research community, Radnoti is the gold standard solution for integration with ADInstruments PowerLab and LabChart solutions.

Radnoti's crystal clear borosilicate glassware offers clear visualization of the perfusion circuit (vital to perfusion research for air bubbles removal and identifying any potential foreign material) and is fully autoclavable. The complete, water-jacketed perfusion design allows easier and steadier temperature maintenance and although designed primarily for use the perfusion of isolated rat liver, it can be easily adapted for use with other species such as mice and rainbow trout.

## System components

- Modular Radnoti Isolated Rodent Liver/Kidney Apparatus featuring:
  - Crystal clear borosilicate glassware that is autoclavable
  - Complete water-jacketed perfusion circuit that prevents heat loss and maintains a uniform temperature
  - A flat bottomed water-jacketed and circular liver chamber with multiple features
  - Versatile glass manifolds for water, gas and perfusate control
  - Membrane oxygenator for oxygenating solutions containing proteins or blood
  - Bubble traps to minimize the risk of large gas bubbles causing endothelial damage
  - Two pressure measurements via two Radnoti Micro Pressure Transducers and Amplifier
- A versatile Radnoti Thermal Bath/Circulator that allows temperature control and maintenance from ambient temperature to 120°C with a stability level of  $\pm 0.05^\circ$
- A double-headed peristaltic pump that allows the recirculation of solutions at a constant perfusion pressure or flow



## Isolated Liver Kits *(purchased separately)*

### Isolated Perfusion Temperature and pH Kit

This add-on kit is designed to measure pH and temperature in any appropriate and meaningful location of an isolated perfusion circuit.



### Rat Inline Volume Flow IL-Kit

Providing up to two simultaneous volume flow measurements, this flow kit incorporates ultrasound transit time technology flowmeters and in-line flowsensors for accurate and continuous measurements of low volume flow of an isolated perfused rat liver.



### Isolated Perfusion O<sub>2</sub> and CO<sub>2</sub> Kit

Measure dissolved O<sub>2</sub> and CO<sub>2</sub> in a Krebs buffer solution gassed with carbogen (95% O<sub>2</sub>/5% CO<sub>2</sub>) with an isolated perfused circuit.



Additional configurations excluding the pressure transducers, thermal circulator bath, and peristaltic pump are also available. Please consult your ADInstruments representative for more information.





## In-vitro Liver/Kidney Perfusion Chamber

This chamber is supplied standard with each Radnoti Isolated Rodent Liver/Kidney Apparatus or Foundation System purchase.

Its features include:

- Made from high-quality crystal clear borosilicate glassware that allows it to be fully autoclavable
- A flat bottomed, water-jacketed curved glass bed for easy sample placement
- Two pairs of easily interchangeable flexible inlet and outlet lines with paired stainless-steel cannulas
- Auxiliary access ports that permit the introduction of catheters for sample removal, such as bile or measurement sensors (e.g., temperature)
- A chamber lid with a central threaded mount that allows the option of attachment of a fiber optic cable for optical measurements of endogenous nucleotides or various fluorescent indicators

ADInstruments provides a range of Pharmacology Isolated Tissue and Organ systems and kits, including Langendorff (Constant Pressure or Flow) and Working Heart Systems.

Please consult your ADInstruments representative for more information.



## PowerLab

Built for precision, our PowerLab research range is engineered to give you high quality, reproducible data while meeting the strictest international safety standards.

PowerLab provides the full utility of a multi-channel, real-time chart recorder, polygraph, XY plotter, digital voltmeter and storage oscilloscope with the benefits of easy data handling, high resolution, and variable speeds. Each complete research system includes either an eight or sixteen channel PowerLab data acquisition unit and Bridge Amplifier for acquiring and recording incoming signals in real-time.

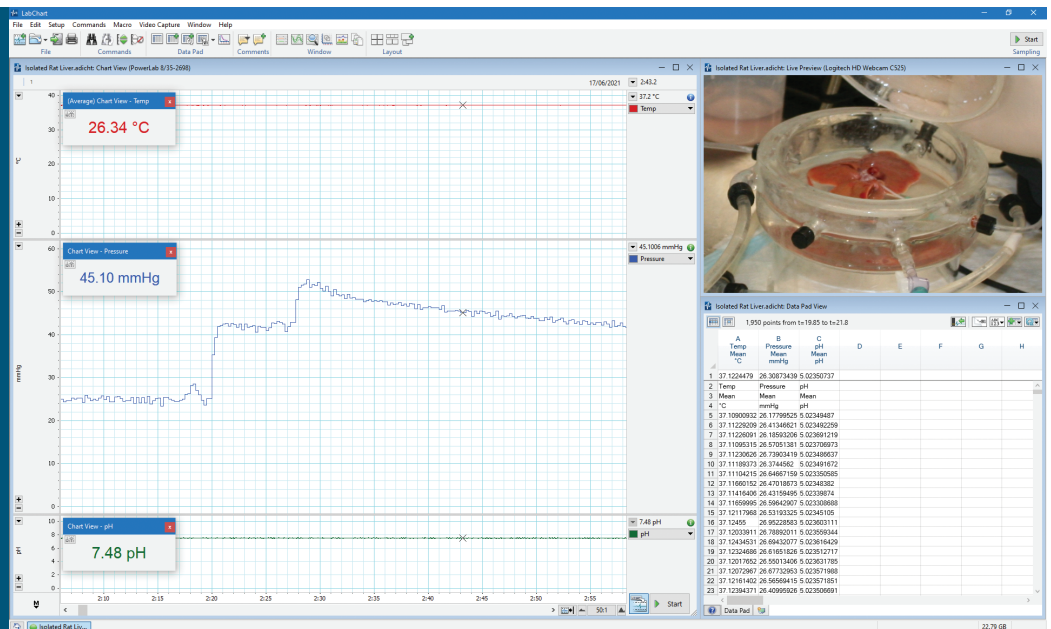
The supplied force transducers connect seamlessly to the quad (4 channel) or octal (8 channel) Bridge Amps, and the signals are recorded and analyzed in LabChart Pro software, which includes a number of analysis modules including Dose Response. The systems provide eight or sixteen input channels with software controlled signal conditioning and easy data display, extraction and analysis features.



# LabChart

## Data Acquisition and Analysis Software

With LabChart analysis software, you can record and display up to 32 channels of data in real time, performing online calculations at high sampling rates, giving you full control of your research.

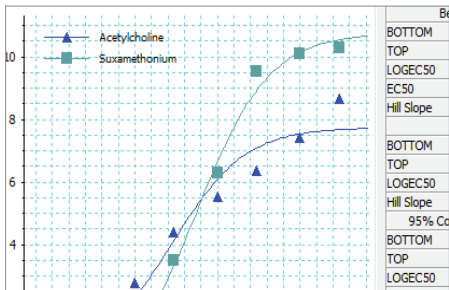


LabChart creates a platform for all your recording devices to work together, allowing you to acquire biological signals from multiple sources simultaneously and apply advanced calculations and plots as your experiments unfold.

### Use LabChart to:

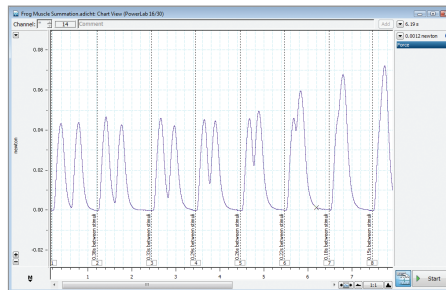
- Record data via PowerLabs and other compatible data acquisition devices
- Preview and optimize recordings
- Import and export data easily
- Annotate data with comments
- Automate recording and analysis tasks
- Convert raw data into useful units
- Change recording settings in seconds
- Recall data and experimental settings
- Generate customized stimulus outputs

## Take advantage of our specialized LabChart analysis modules



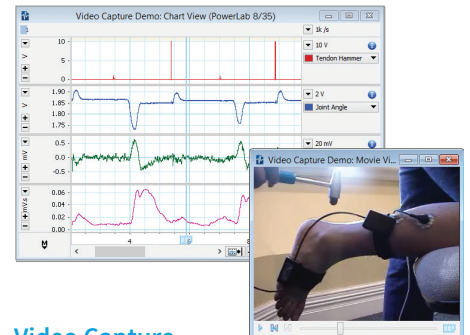
### Dose Response Module

LabChart's Dose Response Module speeds up analysis of isolated tissue recordings. It automatically generates dose response curves and calculates dose response data including EC50 values and Hill Slopes from LabChart recordings online and offline.



### Peak Analysis Module

Providing automatic detection and analysis of multiple, non-overlapping, signal peaks in acquired waveforms, this module can be used offline to analyze peaks in existing recordings, or online to analyze peaks as they are being recorded.



### Video Capture

This module allows the synchronized recording and playback of a Windows Media Video and LabChart data file. Record a movie directly to your computer and link it with the associated LabChart data file for synchronized video and biological data analysis.

Visit our website or contact your local ADInstruments representative for more information

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