



Rodent Pressure-Volume Loop Masterclass

A comprehensive, multi-day training program on rodent cardiac PV Loops for preclinical researchers.

Master the Application of Cardiac PV Loops

Hosted by Dr. Chris West in his Translational Integrative Physiology Laboratory at the University of British Columbia Okanagan, the Endpoint Preclinical Rodent Pressure-Volume Loop Masterclass combines lectures and on-demand resources with immersive classroom and hands-on laboratory training. This program aims to empower preclinical researchers with the knowledge, tools and techniques required to maximize PV Loop data accuracy and reproducibility in small-animal models.

Topics include:

- Fundamental cardiovascular and hemodynamic principles
- History and current landscape of PV Loop and supporting technologies
- Conductance and Admittance volume calibration procedures
- Correct curve fitting of occlusion data and selection of load-independent indices
- How to optimize grouped occlusion data analysis
- Best-practices for data visualization and statistical presentation
- How to set up, prepare, and execute successful rodent PV Loop surgeries
- Monitoring and controlling anesthesia, respiration, and body-temperature
- Hands-on training for open and closed-chest surgeries in a rat model
- Correct catheter insertion, navigation, and placement in the ventricle
- Modern data collection best practices, ensuring accuracy and reproducibility
- How to adjust preload and afterload in both closed- and open-chest models

This program is recognized by the American Physiological Society and supported through technology sponsorship from Millar, ADInstruments, and Kent Scientific.

[Apply Today!](#)

Instructors

Chris West, PhD

Associate Professor,
Department of Cellular and Physiological Sciences,
Centre for Chronic Disease Prevention and Management,
Faculty of Medicine, UBC Okanagan



Chris West is a leading expert in Pressure-Volume Loop applications, specializing in integrative and translational physiology. With over 15 years of experience, Chris's research has significantly advanced the field of cardiovascular physiology through his exploration of the sympathetic nervous system's role in heart function and cardiorespiratory interactions, using both human and animal models. A significant focus of his work has been on spinal cord injury, where he has pioneered interventions to restore sympathetic support to the cardiovascular system, including intermittent hypoxia/hypercapnia, spinal cord stimulation, and exercise. Chris has also developed innovative animal models that enable the simultaneous and precise assessment of heart and vascular function alongside neural outflow from the sympathetic nervous system.

Recently, Chris has spearheaded a collaboration with leading experts across North America to establish field-standard guidelines for conducting Pressure-Volume Loop studies. This work not only ensures a modern understanding of the field but also sets new standards for its advancement.

Oliver Wearing, PhD

Research Associate,
Translational Integrative Physiology Laboratory,
Department of Cellular and Physiological Sciences,
Faculty of Medicine, UBC Okanagan



Oliver has been employing invasive surgical techniques for over a decade. He specializes in ventricular pressure-volume data collection and analysis, demonstrating strong capabilities in both acute and chronic measurements of blood pressure, sympathetic nerve activity, blood flow, and overall hemodynamics. His work is informed by advanced microsurgical techniques, having been trained by leading experts worldwide, and includes applying these techniques to model physiological and pathological conditions across various species.

With a passion for PV Loop science, Oliver is dedicated to mentoring new researchers and supporting the broader scientific community. He collaborates closely with Dr. Chris West, contributing significantly to the collection and interpretation of Pressure-Volume Loop data. Oliver is enthusiastic about guiding others in the field and advancing cardiovascular research through shared expertise.

Location

UBC Okanagan

Translational Integrative
Physiology Laboratory

Reichwald Health Sciences Centre,
1088 Discovery Ave, Kelowna, BC,
V1V 1V7, Canada



THE UNIVERSITY OF BRITISH COLUMBIA
Centre for Chronic Disease Prevention and Management



Agenda

Day 1

Morning Session:

- Classroom: PV Fundamentals with Q&A
- Lab: Demonstration of Closed-Chest Procedure

Afternoon Session:

- Lab: Hands-on Practice, Closed-Chest

Day 3

Morning Session:

- Classroom: Immersive Data Analytics Seminar
- Lab: Hands-on Practice, Data Analysis

Afternoon Session:

- Lab: Demonstration of IVC and Ao Occlusions
- Lab: Hands-on Practice, Participant Choice

Day 2

Morning Session:

- Classroom: Day 1 Review with Q&A
- Lab: Demonstration of Open-Chest Procedure

Afternoon Session:

- Lab: Hands-on Practice, Open-Chest

Day 4

Morning Session:

- Classroom: Procedure Recap and Q&A
- Lab: Hands-on Practice, Participant Choice

Afternoon Session:

- Lab: Hands-on Practice, Participant Choice
- Classroom: Course Review, Q&A, Feedback

Technology

Through generous sponsorship from our program partners, attendees benefit from learning Pressure-Volume Loops using industry leading technologies.

Millar: Since 1969, Millar has been a pioneer in the development of advanced pressure sensor technology to fuel groundbreaking research. The gold standard solid state pressure and PV catheters from Millar are the world's most accurate and reliable, providing superior measurement sensitivity.

ADInstruments: ADInstruments data acquisition solutions are used in 10,000+ universities and organizations globally. We pride ourselves on supporting the scientific community with industry leading analysis software, specialized training resources, and solution-focused systems of the highest quality.

Kent Scientific: Kent Scientific is a leading global provider of digital anesthesia systems, non-invasive blood pressure, and physiological monitoring for small animal research. Our products are designed to produce results that are fast, consistent, and accurate while offering the most value at the best prices.



The following equipment is available at each surgical station:

- Millar MPVS Pressure-Volume System, PV Catheters, Pressure Control Unit, and Pressure Catheters
- ADInstruments PowerLab Data Acquisition System
- Kent Scientific SomnoFlo® Low-Flow Anesthesia System, RoVent® Advanced Small Animal Ventilator, PhysioSuite® Vitals Signs Monitor with MouseSTAT® and RightTemp® Modules, and the SurgiSuite Small Animal Surgical Platform

Cost

Academic Rate: Single – \$4,800, or Pair – \$9,000

Industry Rate: Single – \$5,800, or Pair – \$10,200

Pricing is USD. Pair rate is for two colleagues that wish to share a single surgical station.

[Apply Today!](#)

About APS

Founded in 1887, the American Physiological Society is a global leader in expanding knowledge related to biological function. They connect a multidisciplinary community of nearly 10,000 scientists and educators from around the world, driving collaboration and spotlighting scientific discoveries in physiology and related disciplines. Their members are advancing treatments and cures for everything from cancer and heart disease, to obesity and addiction.

Together with Endpoint Preclinical, the APS helps create and support training programs, enabling professionals to expand their skills, advance their careers, and foster the future of basic and translational research.



american
physiological
society

[Learn more about APS](#)

About Endpoint Preclinical

Endpoint Preclinical is a leading consulting network serving CROs, pharmaceutical companies, biotech firms, medical device manufacturers, and academic research labs. Our team of experienced professionals transforms the management of life science studies by eliminating typical overhead, onboarding time, and challenges associated with finding skilled candidates for specialized research.

We cover every aspect of preclinical science, including experimental design, surgical model development, device-related services, data collection and analysis, study interpretation, report generation, risk assessment, regulatory and compliance support, and more. Additionally, we provide custom training services tailored to our clients' needs and formalized training programs for the scientific community. These programs are created in partnership with top lab technology manufacturers and scientific associations, ensuring the highest quality, relevance, and professional impact.

[Visit Endpoint Preclinical](#)





Your partners in research excellence. With a combined 85+ years combined experience, ADInstruments and Millar are committed to enabling researchers, clinicians, and medical device developers to carry out cutting edge research.

By combining world class equipment, technology, and support, our goal is to help you unlock new insights and push the boundaries of discovery.

Together, Millar and ADInstruments create a seamless pressure and pressure-volume system. Our products are designed to work together. With Millar's gold-standard Mikro-Tip® catheter technology, and ADInstruments end-to-end DAQ system, we offer unparalleled accuracy, reliability, and data quality.

Millar

Millar is the gold standard in solid-state pressure from mouse to man. In both animal research and clinical trials around the world, medical scientists rely on Millar's high-fidelity pressure catheters and pressure-volume loop systems to make measurements, and decisions, with unprecedented accuracy, precision, and confidence.

With over 55 years of manufacturing and research expertise, Millar catheters are the world's most accurate physiological pressure catheters, providing superior measurement sensitivity. It's no wonder then, that more than 70% of all animal PV research papers published have used Millar catheters.

Mikro-Tip® Catheters

Millar Mikro-Tip® solid state catheters are the gold standard for high-quality data collection. Each catheter tip contains a silicon chip, called a microelectromechanical systems (MEMS) sensor, that flexes with each pressure pulse. With a MEMS sensor, signal transduction occurs at the site of interest. Solid-state catheters provide superior data quality compared to fluid-filled catheter models, with reduced waveform attenuation, high frequency response, and no artifacts or phase shifts.

Available with straight or curved tips from 1Fr up to 6Fr; Millar Mikro-Tip® solid state catheters get to the heart of the signal no matter the size of your subject.

MPVS Duo™

The new MPVS Duo™ is an intuitive pressure-volume loop measurement system designed to work in conjunction with Millar's gold standard Mikro-Tip® PV Catheters. The system provides users with guided steps and a linear menu that encompass all aspects of data collection, bringing the benefits of both admittance and conductance measurement methods alongside the reliability of Millar catheters.

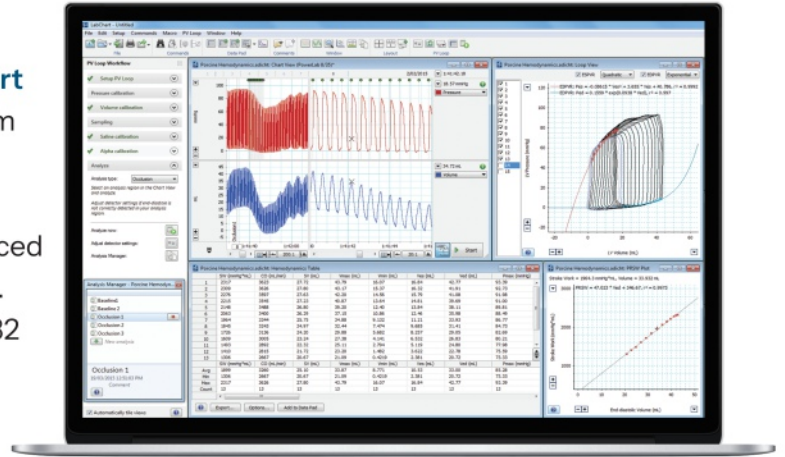


With more than 30 years of experience serving the research community, ADInstruments data acquisition hardware and software is a staple of life sciences research. Through PowerLab and LabChart we support over 10,000 universities and research organizations worldwide to collect and analyze physiological data.

LabChart

Go beyond the standard approach with LabChart

LabChart data analysis software 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. With LabChart, 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.



PV Loop

LabChart's PV Loop Module is purpose built for the acquisition, calibration, and analysis of left and right ventricular pressure-volume data in small and large mammals, including intelligent presets and workflows to guide you through each step of the calibration process.

PowerLab

High-performance data acquisition hardware

Developed in 1985, PowerLab has been a reliable data acquisition tool for an entire generation of scientists and educators. It has always offered a simple and flexible solution for almost all types of analog physiological data acquisition.

PowerLab C

PowerLab C is a digital data acquisition device that provides adaptive mains filtering, power management for peripheral devices (max 100W via USB-PD) and sub- μ s time synchronization for up to four C Series compatible USB-C devices.



Support and Education Resources

At ADInstruments, we provide researchers with a trusted global network of scientific sales and support specialists as well as an extensive library of resources including:

Setup and surgical videos • Best practice guides • Webinars • PV Masterclasses • Knowledge database

Visit adinstruments.com or contact your local ADInstruments representative for more information

Tel 719-576-3970 | Toll Free 888-965-6040 | info.na@adinstruments.com