

On-Site Expert Instruction: Isolated Perfused Heart



Overview

Isolated heart preparations provide a powerful platform for studying direct cardiac physiology, pharmacology, efficacy, and safety under carefully controlled experimental conditions. But there is no single isolated heart model or protocol appropriate for every research question.

This customizable program brings cardiovascular research specialist Richard Schroeder directly to your facility. Training can focus on Langendorff or working-heart preparations, cardiomyocyte isolation, or specialized applications, with the system configuration and experimental conditions selected around what your team needs to measure.

Training Highlights

- **Hands-On Heart Preparation:** Donor-animal preparation, heart extraction, cannulation, mounting, stabilization, instrumentation, and preparation assessment.
- **System Setup & Optimization:** Perfusion configuration, instrumentation, calibration, data acquisition, perfusate conditions, oxygenation, pacing, and physiological optimization.
- **Langendorff & Working-Heart Models:** Model configuration based on the scientific question, including pressure, flow, preload, afterload, and perfusion strategy.
- **Functional Cardiac Assessment:** Heart rate, ventricular pressures, contractility and relaxation, coronary flow and resistance, ECG, oxygen consumption, and other application-specific endpoints.
- **Cardiac Safety, Efficacy & Disease Models:** Apply isolated-heart approaches to therapeutic screening, mechanism-of-action studies, direct cardiac safety, cardiotoxicity, and disease-model research.
- **Specialized Applications:** Pacing, electrophysiology, ischemia and hypoxia, metabolism, advanced imaging, coronary physiology, diastolic function, and cardiomyocyte isolation.

Build Your Custom Training Program

Training is tailored to your laboratory's existing capability, equipment, species, scientific objectives, and intended applications. Scope, duration, and pricing are customized to the engagement.

A Training Experience Built Around Your Lab

Preparation & Planning

Training begins with a review of your laboratory's scientific objectives, existing experience, equipment, species, and intended applications. Richard works with your team to determine the preparation, system configuration, physiological conditions, and endpoints best suited to the research question.

Hands-On Training & Application

Training progresses from system preparation and heart isolation through stabilization, functional assessment, data interpretation, troubleshooting, and application-specific measurements. The goal is not simply to perform the technique, but to recognize a reliable preparation, understand the data it produces, and work independently after training.

Building a new capability? Consultation can begin before equipment is purchased, helping your team define system requirements, instrumentation, components, and supplies around the science you intend to perform.

Build the Model Around the Question

There is no single isolated heart preparation appropriate for every experiment. Richard helps your team configure the model around the biological question, intended application, and measurements required.

Your Instructor

Richard Schroeder, BS, RVT, LAT

Richard Schroeder is a cardiovascular research specialist with more than 40 years of experience in preclinical drug discovery and experimental physiology. He has established and applied isolated heart models across pharmaceutical, biotechnology, CRO, and research environments, with extensive experience in model development, system optimization, functional assessment, and scientific interpretation.



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