

Special MDG Educational Opportunity! (May 10, 24, 31 and June 7)

Designing Cardiovascular Devices: *BEGIN WITH THE BODY IN MIND*ä

Seminar Overview and Objectives

This seminar provides attendees with an overview of cardiovascular anatomy, physiology and pathophysiology from a medical device perspective. Unique *Begin with the Body in Mind*[™] approach first tries to understand how the body is “designed” to work – then how to design a medical device to work with the body – not against it! Multiple examples of cardiovascular devices and procedural videos are presented in an interactive format with a discussion of what they do well and where improvements can be made.

Upon completing the seminar, each attendee will be able to:

- ✓ Apply principles of cardiovascular anatomy & physiology to the design of cardiovascular devices
- ✓ Be aware of devices and procedures currently being used in the cardiovascular system
- ✓ Understand how diseases and injuries affect the cardiovascular system
- ✓ Develop safe & effective devices for diagnosis and treatment of cardiovascular diseases and injuries
- ✓ Predict how and why the body responds to cardiovascular interventions and devices
- ✓ Be aware of new products and procedures under development
- ✓ Understand the regulatory requirements that apply to cardiovascular products
- ✓ Identify opportunities for future growth

Who Should Attend?

This seminar is designed for medical device professionals involved in the design, development, and manufacture of cardiovascular medical devices. Scientists, engineers and technicians working on device design and development, product and product development managers, business development managers, marketing managers, quality personnel, regulatory affairs professionals, investment and acquisition specialists and field service engineers will all benefit from this seminar.

About the Instructor

Michael Drues, Ph.D., is President of Vascular Sciences in Grafton, Massachusetts. Vascular Sciences offers a full range of consulting services to medical device, pharmaceutical and biotechnology companies including: prototype design, product development, testing and evaluation, animal and clinical trials, business development, strategic planning, technology assessment and regulatory affairs. Dr. Drues received his B.S., M.S., and Ph.D. degrees in Biomedical Engineering from Iowa State University in Ames, Iowa. He has worked for and consulted with leading medical device, pharmaceutical and biotechnology companies ranging in size from start-ups to Fortune 100 companies. He also works on a regular basis for the U.S. Food and Drug Administration (FDA).

Dr. Drues is an Adjunct Professor of Medicine & Biotechnology at Northeastern University (Boston), Steven's Institute of Technology (Hoboken), Boston College (Boston), University of Wisconsin (Madison), Drexel Medical School (Philadelphia) and University of California (Irvine). He regularly teaches both undergraduate and graduate courses in pathophysiology, biotechnology, regulatory affairs and clinical trials. Dr. Drues conducts seminars and short-courses for medical device, pharmaceutical and biotechnology companies, the European Patent Office and the FDA. Current offerings include: Designing Cardiovascular, Peripheral and Neurovascular Devices, Designing Gastrointestinal and Urinary Devices, Minimally Invasive Technologies, Combination Products: Medical Devices Meet Drugs, Biologics & Beyond[™], Overview of Biotechnology, Emerging Trends in the Medical Device Industry[™], Big Picture Issues in Clinical Trials[™] and Regulatory Affairs for Non-Regulatory Professionals.

For additional information, *please contact Dr. Michael Drues at mdrues@vascularsci.com or call (508) 887-9486.*

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President, Vascular Sciences and Adjunct Professor of Medicine, Northeastern University

Session	Time	Topic	Sub-Topic
I (May 10)	5 – 9 PM	Overview and Introduction Anatomy and Physiology	Synopsis of Cardiovascular Device Market Relationship between Homeostasis and Devices Anatomy of Heart and Coronary Arteries Components and Functions of Whole Blood Peripheral Vascular Anatomy Mechanical Properties of Arteries, Veins and Tissues Circulatory Pathway thru Heart & Body Electrical Activity of Heart Blood Flow and Hemodynamics Laminar vs. Turbulent Flow Shear Stress and Platelet Activation Brain vs. Heart vs. Periphery: Similarities & Differences
II (May 24)	5 – 9 PM	Pathology, Pathophysiology and Devices	Cellular Injury and Adaptation: Hypertrophy vs. Hyperplasia Ischemia, Infarction, Necrosis & Apoptosis Mechanism of Arteriosclerosis vs. Atherosclerosis Thrombus Formation & Thromboembolic Events Dealing with Thrombus: Drugs vs. Devices Pathology of Vascular Disease
III (May 31)	5 – 9 PM	Pathology, Pathophysiology and Devices (continued)	Myocardial Infarction & Coronary Artery Disease Coronary Artery Bypass Graft (CABG) Procedure Off-Pump Coronary Artery Bypass (OPCAB) Deep Vein Thrombosis, Pulmonary Emboli and VC Filters Cardiomyopathy & Heart Failure: Cardiac Assist Devices, IABP & LVAD Aneurysms: Mechanics & Treatments Objectives Heart Attack vs. Stroke: Similarities & Differences
IV (June 7)	5 – 9 PM	Devices and Procedures	Delivery System Issues Guidewires, Catheters and Balloons Angioplasty and Atherectomy: <i>Mechanism and Body Response</i> Stents and Grafts: Mechanism & Body Response Bail-Out Scenarios: What to do if something goes wrong? Local Drug Delivery and Drug-Eluting Stents Transmyocardial Revascularization and PTMR Role of Distal Protection Devices Minimally Invasive Cardiac Surgery
		Imaging Techniques	Structural vs. Functional Imaging: <i>Measuring Device Efficacy</i> Angiography / CT and MRI / MR Angiography Ultrasound, PET and SPECT
		"Future" Applications	Robotically Assisted Surgery, Combination Products, Nanomedical Devices, Angiogenesis, Gene Therapy, Tissue Engineering, Other cool stuff... What does the future hold?

Please note: This is a SAMPLE agenda only. Topics may be added or omitted upon request.

Times are approximate and may be adjusted depending on audience feedback.

Also includes dinner break (dinner included!)

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