26th Annual Roland D. Pinkham, M.D. Basic Science Lectureship:
Bioengineering in 2012 – Toward the Bionic Man

Friday, November 16, 2012
Glaser Auditorium
Swedish Medical Center
747 Broadway
Seattle, Washington
Course Description
The 1970s TV series The Six Million Dollar Man depicted a futuristic hero given supernatural abilities by new mechanical organs implanted after a plane crash. This theme arises repeatedly in other works of science fiction. In the meantime, actual work by bioengineering teams has made astounding advances in moving us toward just such a future.

At the 26th Annual Roland D. Pinkham, M.D. Basic Science Lectureship, we will discover how bioengineers view the world and analyze problems. We will explore how advances in computerization, materials science, miniaturization and robotics have been put to work to create replacement organs, accelerate healing, diagnose more confidently and deliver therapy more effectively.

We will celebrate the artificial heart, pancreas and retina as examples of new ways to treat heart failure, diabetes, and blindness. We will consider the lessons learned from bioengineering failures that shed light on the nature of the body and its functions. By exploring the interactions between devices and their recipients, conference participants will explore the relationships between technology and medicine—and the nature of what it means to be human.

We will examine the fundamental nature of bioengineering and the collaborative relationship between the bioengineer and the clinician. We will inform physicians about exciting engineering advances, attempting to solve clinical problems and to mimic, and in some cases extend, normal human function. We will explore the basis for evaluating new techniques and devices which will advance physicians' knowledge of disease mechanisms, diagnostic approaches and therapeutics.

Intended Audience
The target audience for this program includes all physician specialties and anyone interested in the interface between technology and biomedical science.

Needs Statement
Physicians are obliged to stay current with advances in basic science in order to understand and apply new developments in medicine. Over the last 50 years, there have been phenomenal advances in bioengineering with applications to medicine.

The collaborative enterprise between bioengineering and medicine has resulted in advances that physicians will be able to apply in both diagnostic and therapeutic endeavors.

Agenda
7:30 a.m. Registration and Continental Breakfast
8 a.m. Welcome and Introductions
8:15 a.m. Overview of Bioengineering, Tissue Engineering and Regenerative Medicine—Where Do We Go From Here? Stephen F. Badylak, DVM, Ph.D., M.D.
9:15 a.m. The Total Artificial Heart: Pumping Our Way into the Future Marvin J. Slepian, M.D.
10 a.m. Break
10:15 a.m. Changing the Paradigm of Implant Healing from Scar to Regeneration Buddy D. Ratner, Ph.D.
11 a.m. Intracortically Based Neural Interface Systems for the Restoration of Communication and Mobility Leigh R. Hochberg, M.D., Ph.D.
11:45 a.m. Lunch (Provided)
12:45 p.m. Photovoltaic Retinal Prosthesis for Restoring Sight to the Blind Daniel Palanker, Ph.D.
1:30 p.m. The JDRF Artificial Pancreas Project: Automating Glycemic Control Sanjoy Dutta, Ph.D.
2:15 p.m. Break
2:30 p.m. Delivery of Biologic Drugs Suzie H. Pun, Ph.D.
3:15 p.m. Bioengineering Our Future: From Star Trek to the Hunger Games Marc L. Rigas, Ph.D.
4:30 p.m. Adjourn

Location
Swedish Medical Center is located at 747 Broadway in Seattle, Washington. The conference will be held in the Glaser Auditorium on the first floor of the medical center. Parking is available in the Broadway Garage at 747 Broadway at a maximum fee of $15. From I-5 (northbound and southbound), take the James Street exit. Travel east on James Street. Turn left (north) onto Broadway. Turn left into the main hospital entrance and follow the signs to the Broadway underground parking garage.

For Further Information
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Fax: 206-320-7462
E-mail: cme@swedish.org
Web: www.swedish.org/cme
www.facebook.com/SwedishCME
Course Objectives
At the conclusion of this symposium, the participant will have an increased ability to:

- Describe how cross-disciplinary approaches to medical problems provide unique insight into strategic advancements in the medical field, explain the rationale for the transition from "artificial organs" to "regenerated organs" and recognize the importance of developmental biology in the development of new strategies for regenerative medicine
- Recognize the need, rationale, history, design and function of the total artificial heart (TAH); identify key clinical trial milestones achieved with the TAH and discuss bioengineering and clinical approaches to next generation TAH systems and possibilities for the future
- Define biocompatibility, describe the influence of macrophages on healing and regeneration and identify the use of stem cells in new therapies
- Recognize brain/computer interfaces, identify ongoing trials of intracortically based brain/computer interfaces for people with paralysis and describe the potential role of neuronal ensemble analysis in the diagnosis and management of epilepsy
- Outline degenerative retinal diseases, discuss the restoration of sight using electrical stimulation of retinal neurons and explain the photovoltaic approach to retinal prosthesis
- Describe device-based automation in the management of insulin-dependent diabetes, reduce the patient burden to improve quality of life and discuss responder stratification — one size does not fit all
- Discuss challenges in biologic (peptide, protein, nucleic acid) drug delivery and review nanotechnology advances in biologic drug delivery
- Recognize the possibilities generated by the interface of technology and medicine, explore how the media have depicted medical technology over the past 40 years and predict the future of bioengineering based on current advances

About Roland D. Pinkham, M.D.
Thanks to a bequest by the late Roland D. Pinkham M.D., Swedish Medical Center has provided the Annual Roland D. Pinkham, M.D. Basic Science Lectureship for 26 years. This unique day-long CME activity is designed around a core topic in the basic sciences, which brings together outstanding regional and national experts to share exciting insights and ideas.

The Annual Roland D. Pinkham, M.D. Basic Science Lectureship provides an opportunity for physicians to stretch their intellectual horizons and reconnect with fundamentals in basic science. Dr. Pinkham's interest in medical education sprang from his commitment to teaching surgical house-staff. Having been raised in Seattle and following his training at the University of Washington and Stanford University, he practiced on the staff at Swedish from 1948-1979. In addition to being Chief of Surgery from 1971-1979, he was a leader in improving the standard of care and teaching in the Seattle medical community and served as a president of the Washington State Medical Association. Through the ongoing efforts of his family, continuing now with his son James Pinkham, M.D., his tremendous legacy has been perpetuated through this highly anticipated annual event.

Accreditation with Commendation
Swedish Medical Center is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA PRA Category 1 Credits™
Swedish Medical Center designates this live activity for a maximum of 6.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Faculty
Stephen F. Badylak, DVM, Ph.D., M.D.
Professor
University of Pittsburgh
Pittsburgh, Pennsylvania

Sanjoy Dutta, Ph.D.
Senior Director, Treat Therapies
JDRF
New York, New York

Leigh R. Hochberg, M.D., Ph.D.
Acute Stroke and Neurocritical Care Services Provider, Department of Neurology
Massachusetts General Hospital, Brigham & Women's Hospital, and Spaulding Rehabilitation Hospital
Visiting Associate Professor of Neurology
Harvard Medical School
Assistant Director, Center for Neurorestoration and Neurotechnology
Providence VA Medical Center
Associate Professor of Engineering
Brown University
Providence, Rhode Island

Daniel Palanker, Ph.D.
Associate Professor
Stanford University
Stanford, California

Suzie H. Pun, Ph.D.
Associate Professor of Bioengineering
University of Washington
Seattle, Washington

Buddy D. Ratner, Ph.D.
Professor, Bioengineering and Chemical Engineering
University of Washington
Seattle, Washington

Marc L. Rigas, Ph.D.
Program Manager
National Science Foundation
Arlington, Virginia

Marvin J. Slepian, M.D.
Professor of Medicine and BioMedical Engineering
Director, Interventional Cardiology
Director, Tissue Engineering Lab
Sarver Heart Center
McGuire Scholar, Eller College of Management
University of Arizona
Tucson, Arizona

Planning Committee
John V. Olsen, M.D., Course Co-Chair
Edward Weber, M.D., Course Co-Chair
John D. Wynn, M.D., Course Co-Chair
Jessica Martinson, MS, CME Manager
Tim Mate, M.D.
James R. Pinkham, M.D.
Danielle Westley, CME Specialist
Save Money and Time
Register Online!
www.swedish.org/cme
Register online and save $10

Registration Information:
Preregistration is required as space is limited. Participants who register by the “Advance Registration” deadline will receive a confirmation postcard after Monday, Nov. 5, 2012. Registrations will only be processed when accompanied by full payment.

Cancellation:
To receive a refund, notice of cancellation must be received no later than Friday, Nov. 9, 2012. If using the registration form, please mail or fax it to: Continuing Medical Education Swedish Medical Center 747 Broadway Seattle, WA 98122 Fax: 206-320-7462

Please note: No registrations are accepted by phone or e-mail. If you have special needs, please contact the CME office at 206-386-2755.

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Please print or type information

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SPECIALTY

Registration Fees: Please check one of the following:

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