

Science and Engineering Council of Santa Barbara: April Luncheon

Elephant Bar Restaurant, Thursday April 8, 2010; 12:00-1:30

----- THIS MONTH'S TOPIC -----

"Nanomedicine: Discovering and Disabling the Cellular Origins of Disease"

Even with amazing advancements in DNA research, the origins of many grievous diseases remain a mystery. Diabetes, autoimmune diseases, neurodegenerative diseases, autism, Alzheimer's disease, Lou Gehrig's disease, multiple sclerosis, Parkinson's disease, and many others continue to evade understanding. It seems that factors beyond the genome are involved.

Recent research has discovered unexpected molecular and cellular origins of Type 2 diabetes, inflammatory and autoimmune diseases, and sepsis. Remarkably, these discoveries point to biological processes that cannot be detected by current technologies. Cells contain four types of macromolecular and structural components. Two of these, the nucleus and the mitochondria, include the DNA and RNA templates on which genomic research has focused. The other two, lipids and glycans, are not directly encoded by the genome; yet their unseen expression and modulation can be responsible for disease progression.

As a result of such findings, a renewed focus on the cell as the fundamental unit of life and disease is timely in this post-genomic century. New tools and technologies are needed to detect and modulate template-independent biological processes. Nanotechnology provides a means to achieve these advances; a revolution in biology and medicine, based on engineering matter on the molecular and atomic scale, is gaining momentum. In response, the field of nanomedicine has emerged to generate the next generation of disease diagnostics and therapeutics.

----- PRESENTER -----



Dr. Jamey Marth is the Director of the Center for Nanomedicine, and a Professor of the University of California Santa Barbara and of the Burnham Institute of Medical Research.

He is the inaugural recipient of the John Carbon Chair in Molecular Biology and Biochemistry and the Duncan and Suzanne Mellichamp Chair in Systems Biology at UC Santa Barbara. He is also a faculty member of the Department of Molecular, Cellular, and Developmental Biology, and the Biomolecular Science and Engineering program at UC Santa Barbara.

Dr. Marth received a Ph.D. degree in Pharmacology from the University of Washington in Seattle and studied in the laboratories of Dr. Roger M. Perlmutter, Executive Vice-President of Research and Development at Amgen; and Dr. Edwin G. Krebs, a 1992 Nobel laureate in Physiology or Medicine and Professor Emeritus at the University of Washington in Seattle.

In 1995, Dr. Marth was recruited to UC San Diego by Dr. George Palade, then Dean of Scientific Affairs for UCSD and the recipient of the 1974 Nobel Prize in Physiology or Medicine. Dr. Marth was an Investigator of the Howard Hughes Medical Institute and Professor in the Department of Cellular and Molecular Medicine at UC San Diego prior to his current position.

----- OTHER INFORMATION -----



50 years!

\$15 SEC members; \$20 non-members

Information: Barbara Keaney (E-mail scieng@silcom.com) or call (805) 684-4927.

Reservations not required. **Visit our web page at <http://www.scieng.org>**

Elephant Bar Restaurant: 521 Firestone Road, off Hollister

-- near airport administration, in Goleta.

From the Co-Presidents: Spring greetings! This month's topic on nanomedicine is sure to draw a good crowd, so please come early to get a good seat. The **Santa Barbara Science Fair** competition is scheduled for Friday, April 16, at UCSB's Corwin Pavilion, with public viewing in the evening (go to www.sbsciencefair.org for info) and please plan to join us in May when we will host the Science Fair winner presentations. **Tim Murphy and Gary Kravetz**

**Please Note: luncheon seating is limited and available on a first-come basis.
This meeting is sponsored in part by Reiker, Pfau, Pyle and McRoy, Attorneys.**