Tackling HIV Transmission Through Interdisciplinary and International Collaborations

Tuesday, September 14, 2010
McCrary Theatre
7:30 p.m.

Julie Overbaugh, Ph.D.

Associate Program Head, Fred Hutchinson Cancer Research Center
Seattle, Wash.

Despite the billions of dollars spent annually on global HIV/AIDS research, the gains in knowledge about viral pathogenesis and the success in extending the life-expectancy of millions of people who are infected with the disease, the prospects of achieving a successful vaccine in the near future are not promising. In an effort to find viable solutions for this modern pandemic that has already killed more than 25 million people worldwide, Dr. Julie Overbaugh advocates for greater collaboration among scientists from diverse fields.

In her lab at the Fred Hutchinson Cancer Research Center, Dr. Overbaugh generally focuses on the mechanisms of HIV transmission and pathogenesis. She is particularly interested in patterns in genetic variation of HIV during the disease process to see how HIV variants may differ in their effectiveness at stages such as initial infection, replication and transmission. The high genetic variability of the virus coupled with its nature to attack the very immune system needed for successful vaccination are two key factors contributing to the difficulty in developing a successful vaccine.

Focusing on Africa, the region of the world that continues to be most heavily impacted by HIV/AIDS, Dr. Overbaugh's research analyzes the virus from infected populations in that region and also studies the effectiveness of intervention strategies appropriate for the developing world.

Dr. Overbaugh's lab is part of The Nairobi HIV/STD Project, a research team that is studying the molecular epidemiology of HIV transmission. She has served as chair of the National Institutes of Health grant review panel, reviewing proposals to study the biology of HIV-1. She has also served as editor for the *Journal of Virology* and has been the recipient of an Elizabeth Glaser Scientist Award and an NIH Merit Award.

A Novel, Cost-effective Method for Producing Ethanol from Carbon Dioxide in Hybrid Algae

Monday, November 8, 2010
McCrary Theatre
7:30 p.m.

Craig R. Smith, M.D.

Executive Vice President and Chief Operating Officer, Algenol Biofuels Inc.
Bonita Springs, Fla.

Anxiously watching our nation's worst ecological disaster unfolding in the Gulf of Mexico has focused concern about our energy future. A 2010 Department of Energy report projected an increase of 49 percent in world marketed energy consumption between 2007 and 2035. At the same time, interest to develop alternative energy sources through renewable fuels is also on the rise.

Dr. Craig Smith, M.D., is the co-founder, current executive vice president and chief operating officer of Algenol Biofuels, Inc., an industrial biotechnology company that uses microscopic algae, seawater, carbon dioxide and sunlight to produce ethanol. Most biofuel production comes from harvesting organic matter and then converting it to fuel. Algenol's alternative approach, however, relies on the fact that some algae naturally produce ethanol and this can be collected without killing the algae. The ethanol evaporates and can be condensed and collected. A significant benefit of using algae to produce biofuels is that it spares farmland and food crops needed to supply food for an increasingly hungry world.

Algenol recently received a $25 million Department of Energy stimulus grant to partner with Dow Chemical Company to build a biorefinery in Florida. The company also partners with other companies and universities in continued research and development relative to algal biofuels.

Dr. Smith received his M.D. degree in 1972 and has served on the faculty at Johns Hopkins School of Medicine for 13 years. He has held senior leadership positions with Centocor Inc., a biotechnology company, and Guilford Pharmaceuticals Inc. He assumed his current position at Algenol in 2006. Dr. Smith has received numerous honors including the 1997 Maryland Entrepreneur of the Year Award and election to the Johns Hopkins Society of Scholars in 2002.

Telemedicine: Where We Are and Where We Need to Be

Wednesday, March 16, 2011
McCrary Theatre
7:30 p.m.

Jay H. Sanders, M.D., F.A.C.P.

President and CEO of The Global Telemedicine Group
Adjunct Professor of Medicine, Johns Hopkins University School of Medicine
Visiting Professor, Yale University School of Medicine

Considered a pioneer in the telemedicine movement, Dr. Jay Sanders has spent more than 30 years in health care research focused on using telecommunications and other technologies to improve the delivery of quality health care.

While modern health care has most typically been a localized process requiring patient and physician to be in close proximity to achieve diagnosis, treatment and monitoring, it is increasingly becoming a dislocated process. For instance, patients in rural areas may have access to rapid, specialized diagnosis through remote referral either by transfer of digital information to a distant expert, by teleconferencing or by live interactive video. Similarly, patients in hospitals or at home can be monitored remotely by distant health care providers.

The benefits and challenges of this new way of delivering health care are currently a topic of hot debate. Dr. Sanders, who has written numerous articles on telemedicine and serves as senior editor for the *Telemedicine Journal*, believes that challenges such as the initial cost of systems design and setup, quality assurance and patient privacy can be adequately addressed. A strong advocate for the benefits of telemedicine, he designed a highly integrated telemedicine system health care system for Georgia and developed a program of "electronic house calls" for home-bound or nursing home patients.

Dr. Sanders is the president and chief executive officer of The Global Telemedicine Group, a private, health care management company. He is also the immediate past president of the American Telemedicine Association, senior advisor to NASA on telemedicine, a consultant to the World Health Organization on telemedicine and also serves on the Department of Defense Telemedicine Board of Directors.

For more information about the departments of biology, physics, chemistry, mathematics, engineering, environmental studies and computing sciences, or the Voices of Discovery speaker series, call the Office of the Dean of Elon College, the College of Arts and Sciences, at 336-278-6263.

Voices of Discovery

2010-2011

The **College of Arts and Sciences at Elon University** is committed to engaging students and the community in the excitement and wonder of discovery. During the past two decades, scores of discoveries in molecular biology, atomic physics and computer technology have changed the face of science and brought dramatic changes to our world.

The **Voices of Discovery** speaker series brings to campus preeminent scientists and mathematicians who have left an indelible mark on the way we view the world. They share their remarkable experiences and perspectives with Elon students and the community. This series plays a fundamental role in the university's commitment to create a science-conscious community and to help students be informed citizens.

Voices of Discovery is just one element of Elon's program to provide outstanding science education. At the Dalton L. McMichael Sr. Science Center, students work in modern laboratories with cutting-edge research tools. They focus on discovery-based learning, undergraduate research and collaboration among the sciences, developing an appreciation for the scientific enterprise and how we acquire new knowledge.

Voices *of* Discovery

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