

THE
Flexner
DISCOVERY
LECTURE SERIES

ELAZER R. EDELMAN, M.D., PH.D.

PUSHING INNOVATION AT THE CUSP
OF ENGINEERING, BIOLOGY AND MEDICINE

NOVEMBER 5, 2015

4:00 P.M.

208 LIGHT HALL

THE
Flexner
DISCOVERY
LECTURE SERIES

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MEDICAL SCIENTIST TRAINING PROGRAM

Upcoming Discovery Lecture:

SUSAN LINDQUIST, PH.D.

2014 Vanderbilt Prize Winner

Professor of Biology, MIT

Investigator, HHMI

Member, Institute of Medicine

Member, National Academy of Sciences

Nov. 19, 2015

208 Light Hall / 4:00 P.M.

VANDERBILT  UNIVERSITY
MEDICAL CENTER

PUSHING INNOVATION AT THE CUSP OF ENGINEERING, BIOLOGY AND MEDICINE

Nature conserves regulatory paradigms and the study of these processes not only directs specific therapeutic efforts but also provides a framework by which to appreciate and drive discovery. We will use the history and promise of past and active investigations into proliferative vascular disease (hyperplasia) and cancer (neoplasia) to explain basic control mechanisms on a cellular and molecular level and to discuss the current pace and future of innovation and scientific investigation.



ELAZER R. EDELMAN, M.D., PH.D.

THOMAS D. AND VIRGINIA W. CABOT PROFESSOR
OF HEALTH SCIENCES AND TECHNOLOGY, MIT
PROFESSOR OF MEDICINE, HARVARD MEDICAL SCHOOL
SENIOR ATTENDING PHYSICIAN,
BRIGHAM AND WOMEN'S HOSPITAL IN BOSTON
MEMBER, INSTITUTE OF MEDICINE
MEMBER, NATIONAL ACADEMY OF ENGINEERING

Elazer R. Edelman, MIT Cabot Professor of Health Sciences and Technology MIT, and Harvard Medical School Professor of Medicine, is a cardiac care unit cardiologist at Brigham and Women's Hospital and director of MIT's Biomedical Engineering Center. His research melds clinical and medical training, focusing on how tissue architecture and local biochemical regulation maintain homeostasis. Edelman and his students were amongst the first to validate that vascular diseases are the sum of effects from endogenous growth promoters like heparin and suppressors like heparin-binding growth factors, to define the nomenclature and kinetics of the FGF-2 receptor complex, and demonstrate that mode of growth factor or inhibitor delivery determines biologic effect.

Applied research flows from recapitulating natural regulation. The development and mathematical characterization of perivascular and stent-based drug delivery mimicked natural control of chemomediators, and design of endovascular stents from first principles leveraged understanding of vascular repair. Basic and applied aspects are intimately joined as exemplified by work with antisense oligonucleotides, HDL receptor biology and tissue engineered endothelial implants in vascular and cancer diseases. Almost 300 students and fellows have passed through Edelman's laboratory.

Edelman is fellow of the American College of Cardiology, American Heart Association, American Institute for Medical and Biological Engineering, American Society for Clinical Investigation, National Academy of Medicine, National Academy of Engineering and National Academy of Inventors. As Chief Scientific Advisor of Science: Translational Medicine and member of the FDA Scientific Board he has set the tone for the national debate on translational research and innovation.
