



INTEGRATIVE MEDICINE GRAND ROUNDS (RESEARCH)

TUESDAY, JANUARY 7 @ 8AM

FOLLOWED BY COFFEE HOUR FROM 9-10AM

Bornstein Amphitheater, BWH, 45 Francis St., Boston, MA, 02115

Endogenous Bioelectric Networks & Regenerative Medicine



Michael Levin, PhD

Vannevar Bush Professor, Biology Dept.,
Director, Allen Discovery Center at Tufts,
and Tufts Center for Regenerative and
Development Biology, Tufts University;
Associate Faculty, Wyss Institute,
Harvard University

In this presentation, Dr. Levin will sketch a roadmap for regenerative medicine focused on manipulating the bioelectric pattern memories in tissue (as distinct to popular approaches of micromanaging molecular pathways), and describing advances in the areas of repair of birth defects, limb regeneration, and cancer reprogramming.

He will first discuss some fundamental problems of cell and developmental biology that must be solved to gain complete control over growth and form.

Dr. Levin will also describe developmental bioelectricity and the tools his group has created to modulate voltage-based signals that orchestrate cell behavior toward building and repairing complex anatomies.

HMS CME CREDITS AVAILABLE

oshercenter.org | hmsoshercenter@partners.org

**SEE BACK FOR SPEAKER BIO &
GRAND ROUNDS SCHEDULE**



**OSHER CENTER FOR
INTEGRATIVE MEDICINE**
HARVARD MEDICAL SCHOOL AND
BRIGHAM AND WOMEN'S HOSPITAL

Biography



Michael Levin, PhD, originally trained in computer science and artificial intelligence. Interested in novel ways to store and process information, he moved into biology to understand how living tissue performs computation during morphogenesis. He received his PhD from the genetics department at Harvard Medical School, identifying the first genes regulating the left-right asymmetry of the embryonic bodyplan. His laboratory is at Tufts University, where he is Vannevar Bush professor of biology, and director of the Allen Discovery Center.

Levin's group is focused on understanding the mechanisms and algorithms by which cells are harnessed toward the creation and repair of complex anatomies. His lab specializes in understanding the bioelectrical signals that all cells (not just neurons) enable coordination and decision-making at the organ level. Using a combination of molecular embryology, biophysics, and computational modeling, they develop biomedical applications and new advances in machine learning and robotics inspired by the software of life.

MONTHLY | FIRST TUESDAY'S 8:00–9:00AM



February 4 (Research) "Mindfulness and Behavior Change: Enhancing Self-Regulation and Chronic Illness Self-Management in Primary Care"
Presenter: Zev Schuman-Olivier, MD, Director, Center for Mindfulness Compassion, Cambridge Health Alliance



March 3rd (Clinical) "Orthobiologic injections: A New Approach to Treating the Painful Shoulder"
Presenter: Joanne Borg-Stein, MD, Chief, Division of Sports and Musculoskeletal Rehabilitation, Spaulding Rehabilitation Hospital



April 7th (Research) "Disentangling the Links between Emotional Stress and Cardiovascular Disease"
Presenter: Ahmed Tawakol, MD, Co-Director, Cardiovascular Imaging Research Center, Massachusetts General Hospital