NCI Conference on Bioelectricity and Cancer
Thursday, September 12, 2024

8:30 AM Welcome: Jeffrey White, NCI/Office of Cancer Complementary and Alternative Medicine, Director

8:35 AM Keynote: Michael Levin, *Tufts University*
The Bioelectric basis of morphogenetic intelligence: a roadmap for cancer

9:30 AM Session 1: Bioelectricity in Normal Physiology, Co-Chair: Eric Johnson Chavarria, NCI Cancer Biology
Chair: Michael Pycraft Hughes, *Khalifa University*
The cellular zeta potential: cell electrophysiology beyond the membrane
Emily Anne Bates, *University of Colorado*
Mechanisms underlying influence of bioelectricity in development
Robert Gatenby, *Moffitt Cancer Center*
Modeling non-genetic information dynamics in cells using reservoir computing

11:00 AM Session 2: Mechanisms of Bioelectricity, Co-Chair: Sean E Hanlon, NCI Center for Strategic Scientific Initiatives Chair: Marco Rolandi, *University of California at Santa Cruz,*
Directing homeostasis in cells to control cell cycle and fate
Joao Carvalho, *University of Coimbra*
A computational model of organism development and carcinogenesis resulting from cells' bioelectric properties
Xi Huang, *University of Toronto*
Targeting fluidic force-sensing mechanism to treat brain tumor metastasis

12:30 PM Session 3: Bioelectricity and cancer, Co-Chair: Miguel R Ossandon, NCI Cancer Treatment and Diagnosis
Chair: Mustafa Djamgoz, *Imperial College London*
Electrical signaling in cancer
Madeleine J Oudin, *Tufts University*
Potassium channel-driven bioelectric signaling regulates metastasis in triple-negative breast cancer,
Michael R. King, *Vanderbilt University*
Ion channels in cancer mechanotransduction

2:00 PM Session 4: Bioelectricity potential clinical and translational research, Co-Chair Linda Zane NCI SBIR
Chair: Norbert Perrimon, *Harvard Medical School*
Bioelectric-dependent intestinal regeneration
Donglu Shi, *University of Cincinnati*
Bio-Electrical Manifestation of the Warburg Effect: Glycolytically-Regulated Cancer Cell Surface Charge
Dany Spencer Adams, *Tufts University*
Cell membrane voltage imaging to identify cancer in biopsies and surgical specimens
Rosalia Moreddu, *Instituto Italiano di Tecnologia*
Nanotechnology and cancer bioelectricity: bridging the gap between biology and translational medicine

4:00 PM Panel Discussion: Moving cancer bioelectricity research forward
Linda Zane, NCI SBIR funding and commercialization resources for the development and commercialization of cancer technologies
Vish Subramaniam, EMBioSys Inc. Industry perspective, "Technologies for treatment of Metastatic Solid Tumors"
Eric M Johnson, NCI DCB technology funding opportunities
Kelly Crotty, NCI CSSI IMAT funding opportunities

5:30 PM Concluding remarks: Jeffrey White**,** NCI/Office of Cancer Complementary and Alternative Medicin