Bioelectronic Medicine: Technology Targeting Molecular Mechanisms

Program Layout and Speakers

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Tuesday, June 12th:

12:15 – Welcome Remarks

   **Peder Olofsson**, MD, PhD, Karolinska Institutet
   **Chad Bouton**, MS, The Feinstein Institute for Medical Research

12:30 – Defining Circuits

12:30-13:00:  *Afferent and Efferent Mechanisms of the Inflammatory Reflex*

   **Kevin J. Tracey**, MD, The Feinstein Institute for Medical Research

13:00-13:30:  *Neural regulation of bacterial infection and host defense*

   **Isaac Chiu**, PhD, Harvard Medical School

13:30-14:00:  *Molecular and genetic analysis of the vagus nerve*

   **Stephen Liberles**, PhD, Harvard Medical School

14:00-14:30:  *Neuroimmune Mechanisms in Cardiovascular Diseases*

   **Giuseppe Lembo**, PhD, Sapienza, University di Roma

14:30-15:00 – *Coffee Break*

15:00 – Clinical Updates

15:00-15:30:  *TBA*

   **Paul-Peter Tak**, MD, PhD, GlaxoSmithKline

15:30-16:00:  *TBA*

   **Michael Eberhardson**, MD, PhD, Karolinska Institutet

16:00-16:30:  *Targeted Neurotechnologies enabling walking after paralysis*

   **Gregoire Courtine**, PhD, Ecole Polytechnique Federale De Lausanne

16:30-17:00:  *TBA*

   **Molly Stevens**, PhD, Imperial College London

17:15-18:00 – *Poster Session & Refreshments*

19:00 – *BBQ Dinner*
Wednesday, June 13th:

07:30-08:00 – Breakfast and Coffee

08:00 – Molecular Targets

08:00-08:30: Novel Mediators & Mechanisms in the Resolution of Inflammation: the role of Vagus Stimulation in Resolution of Infectious Inflammation
   Charles N. Serhan, PhD, DSc, Harvard University

08:30-09:00: Neural Stimulation Modulate the Formation of Immune Cell Gateways into the CNS
   Masaaki Murakami, VMD, PhD, Institute for Genetic Medicine, Hokkaido University

09:00-09:30: Mechanisms of pain in arthritis - novel roles of autoantibodies
   Camilla Svensson, PhD, Karolinska Institutet

9:30-10:00 – Coffee Break

10:00 – Molecular Targets (continued)

10:00-10:30: Polycystic ovary syndrome (PCOS) - a role for the autonomic nervous system in an established endocrine disorder
   Colin Duncan, MD, University of Edinburgh
   Jason Witherington, PhD, Galvani Bioelectronics

10:30-11:00: Context-Dependent Neuro-Immune Interplay
   Sebastien Talbot, PhD, University of Montreal

11:00-11:30: Inflammation in atherosclerosis - from mechanisms to therapy
   Goran Hansson, MD, PhD, Karolinska Institutet

11:30-13:00 – Lunch

13:00 – Neural Interfaces

13:00-13:30: Electronic, Optical, and Magnetic Tools to Study the Nervous System
   Polina Anikeeva, PhD, Massachusetts Institute of Technology

13:30-14:00: Soft microelectrode implants
   Stephanie P. Lacour, PhD, Ecole Polytechnique Federale de Lausanne

14:00-14:30: Sequencing the Connectome
   Anthony Zador, MD, PhD, Cold Spring Harbor Laboratory

14:30-15:00 – Coffee Break

15:00 – Signal Processing

15:00-15:30: Neural Decoding and Restoring Hand Function in Tetraplegia
   Chad Bouton, MS, The Feinstein Institute for Medical Research

15:30-16:00: Novel Materials and Devices for Neural Interfacing
   George G. Malliaras, PhD, University of Cambridge

16:00-16:30: Bioelectronics in vitro: 3D, biomimetic devices and cell models
   Roisin Owens, PhD, University of Cambridge

18:00 – Three-Course Dinner
Thursday, June 14th:

08:00-09:00 – Breakfast and Coffee

09:00 – Disruptive Tools and Technology

09:00-09:30: Tools for Optically Mapping and Repairing Biological Functions
Ed Boyden, PhD, Massachusetts Institute of Technology

09:30-10:00: Next generation neuromodulation devices will be smarter, sharper, and more aware
Douglas Weber, PhD, University of Pittsburgh

10:00-10:30: Optogenetic control of inflammation in acute kidney injury
Mark Okusa, MD, University of Virginia School of Medicine

10:30-11:00 – Coffee Break

11:00 – Disruptive Tools and Technology (continued)

11:00-11:30: Bioelectronics with electronic polymers in biomembranes
Olle Inganas, PhD, Linkoping University

11:30-12:00: Silicon nanotechnology for biomolecule sensing
Jan Linnros, PhD, Royal Institute of Technology

12:00-12:30: TBA
Bjorn Hogberg, PhD, Karolinska Institutet

12:30-14:00 – Lunch

14:00 – Accelerating Clinical Translation

14:00-14:30: Precision Noninvasive Peripheral Neuromodulation
Christopher Puleo, PhD, General Electric

14:30-15:00: The Journey to "Digital" Therapy Discovery
Tim Denison, PhD, Medtronic

15:00-15:30: Disrupting the Paradigm for Treating Autoimmune Disease: Bioelectronic Therapy for Rheumatoid Arthritis
David Chernoff, MD, SetPoint Medical

15:30-16:00 – Coffee Break

16:00 – Patient Experience with Bioelectronic Medicine
Kevin J. Tracey, MD, The Feinstein Institute for Medical Research
Kelly Owens, Bioelectronic Medicine Patient

16:30 – Concluding Remarks
Peder Olofsson, MD, PhD, Karolinska Institutet
Chad Bouton, MS, The Feinstein Institute for Medical Research

18:00 – Evening Boat Tour