



BMC-GPMLS Distinguished lecture series:



Dr. Ardem Patapoutian

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Piezo channels in mechanotransduction: Sensory biology to disease

ABSTRACT: Mechanotransduction is perhaps the last sensory modality not understood at the molecular level. Proteins that sense mechanical force play critical roles in sensing touch/pain (somatosensation), sound (hearing), shear stress (cardiovascular tone), etc.; however, the identity of ion channels involved in sensing mechanical force had remained elusive. The Patapoutian lab identified Piezo1 and Piezo2, mechanically-activated cation channels that are expressed in many mechanosensitive cell types. Genetic studies established that Piezo2 is the principal mechanical transducer for touch, proprioception, and lung stretch, and that Piezo1 mediates blood-flow sensing, which impacts blood pressure regulation and vascular development. Clinical investigations have confirmed the importance of these channels in human physiology. The lab continues to analyze the physiological relevance of these ion channels in mechanosensation, and to search for novel mechanosensors.

BIOSKETCH: Ardem Patapoutian is a molecular biologist specializing in sensory transduction. His notable contributions to science include identifying novel ion channels activated by temperature, mechanical force, and increased cell volume. His laboratory has shown that these ion channels play crucial roles in sensing temperature, touch, proprioception, and pain. Patapoutian was born in Lebanon in 1967 and attended the American University of Beirut for one year before he immigrated to The United States in 1986. He graduated from UCLA in 1990 and received his Ph.D. at Caltech in the lab of Dr. Barbara Wold in 1996. After postdoctoral work with Dr. Lou Reichardt at UCSF, he joined the faculty of The Scripps Research Institute in 2000, where he is currently a Professor in the Department of Neuroscience. He also held a position at the Genomics Institute of The Novartis Research Foundation from 2000-2014. Patapoutian was awarded the Young Investigator Award from the Society for Neuroscience in 2006 and was named an Investigator of the Howard Hughes Medical Institute in 2014. He is a fellow of the American Association for the Advancement of Science (2016), and a member of the National Academy of Sciences (2017).

Time: Monday, March 19th, 11.00-12.00

Location: Fróði auditorium, Sturlugata 8