



## 2012 *Arthur Guyton* *Distinguished Lecturer*

**Irena Levitan, Ph.D.**

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**Irena Levitan, Ph.D.**, received her Ph.D. in Neurobiology from the Hebrew University of Jerusalem. She is an Associate Professor in the Departments of Medicine, Pharmacology and Bioengineering at the University of Illinois at Chicago.

Dr. Levitan's research interests focus on cholesterol regulation of ion channels and cellular biomechanics. Research in Dr. Levitan's lab focuses on the impact of dyslipidemia on endothelial dysfunction, a key early stage in the development of Atherosclerosis. Their primary objective is to determine how elevation in membrane cholesterol and oxidized lipids affect endothelial ion channels and the biomechanical properties of the membrane.

Dr. Levitan's group has discovered that cholesterol suppresses endothelial Kir channels, a major type of endothelial ion channels *in vitro* and *in vivo*. The studies also provided the first mechanistic structural insights into cholesterol regulation of K<sup>+</sup> channels. Currently, the lab is focusing on identifying cholesterol binding site of Kir channels and determining the impact of this effect on endothelial function. They also study the roles of bacterial toxins on K<sup>+</sup> channel function and the role of these channels in inflammation.

Dr. Levitan's group has also discovered that plasma dyslipidemia induces endothelial stiffening and increase in endothelial force generation, an effect that is associated with disregulated angiogenesis. The lab is investigating the mechanisms of oxLDL-induced endothelial stiffening and its implications for angiogenesis. They also investigate the cross-talk between oxidized lipids and matrix stiffness in the regulation of angiogenesis in lung fibrosis.

Dr. Levitan's memberships include American Biophysical Society, American Physiological Society and American Heart Association, Council on Arteriosclerosis, and Thrombosis and Vascular Biology.