

SPECIAL RESEARCH SEMINAR

Presented by the Center for Vascular and Heart Research at the Fralin Biomedical Research Institute at VTC



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Understanding the Regulation of Cardiac Contractility by Transient Outward Potassium Channels: How to Make an Efficient Pump

Dr. Backx will discuss how the timing of the outward currents produced by Transient Outward Potassium (Ito) channels controls the timing of calcium release from the Sarcoplasmic Reticulum. This phenomenon leads to the synchronization of contraction across the wall of the ventricle, which is otherwise inherently heterogeneous due to conduction delays from the Purkinje Fibers to the working myocardium. The impact of the Ito Channels on calcium release is mediated by its effects on early repolarization of the action potential (i.e., called Phase 1 or the Cardiac Notch). Changes in early repolarization, in turn, directly control the reverse-mode activity of the Sodium-Calcium Exchanger, thereby driving inward movement of calcium with (energetically efficient) outward sodium movement. Dr. Backx will also discuss work in his lab on cellular mechanisms of atrial fibrillation and the use of cardiomyocytes obtained from patient-derived induced-Pluripotent Stem Cells to understand cardiomyopathies associated with mutations in selected cardiac sodium channels.

WEDNESDAY, MAY 19, 2021 at 12:00 p.m.

This seminar will be presented via Zoom at <https://virginiatech.zoom.us/j/86160106431>.



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