**TURNING TRASH TO TREASURE: TARGETING NON-CODING RNAS TO CONTROL ATHEROSCLEROSIS**

**M.W. Feinberg**

Brigham and Women's Hospital/Harvard Medical School, Boston, MA, USA

Vascular inflammation has emerged as an important pathophysiological event in atherosclerotic lesion formation, although the key mediators underlying this process remain poorly understood. My laboratory has focused on the roles of non-coding RNAs (ncRNAs), including microRNAs and lncRNAs (which constitute ~50% of the entire genome) in atherosclerosis progression and regression. Herein, I will discuss key microRNAs and lncRNAs that we have identified as regulators of gene expression networks, interactors, and signaling pathways relevant to the initiation, progression, and regression of atherosclerosis. Discussion will include their discovery, function, interactomes, and opportunities for therapeutic targeting using atherosclerotic tissues across mice, pigs, and human subjects. These studies have uncovered emerging roles for novel miRNA and lncRNA targets in a cell-specific manner. An understanding of the role of ncRNAs in vascular inflammation may provide novel therapeutic opportunities for controlling atherosclerosis and a range inflammatory disease states.