Cardiovascular disease (CVD) is a major public health burden in the United States and the world. Endothelial progenitor cells (EPC) are actively involved in vascular homeostasis and arterial repair and can predict cardiovascular events. Senescent EPC have impaired repair capacity, which is associated with atherosclerosis—a pathological process underlying the development of CVD. MicroRNAs (miRNA) regulate the senescence of somatic stem cells. We have identified miR-10A*, and miR-21, as well as, their target gene, Hmga2, to be differentially expressed in young and old EPC/lineage negative bone marrow cells (lin⁻ BMC) using genomic screening. We have demonstrated that the miR-10A*/miR-21—Hmga2—p16[^ink4a]/p19[arf] signaling pathway controls EPC self-renewal. Furthermore, we have shown that modifying components of this pathway can dramatically impact the senescence and the angiogenic and vascular repair capacity of EPC, impacting the development of CVD.

Date: Friday, November 7, 2014
Time: 11:00 am to 12:00 pm
Location: Academic Health Center 3, AHC3-205 – MMC (Live)
Marine Sciences Building Room 150 (MSB-150) – BBC (via Polycom)