Abstract

Ischemic heart diseases are the leading causes of the morbidity and mortality in the United States and worldwide. The intrinsic proliferative capacity of cardiomyocytes in the adult mammalian heart is too low to promote structural and functional recovery after injury. Loss of cardiomyocytes is typically replaced by fibrotic tissue which results in disorders of ventricular function and structure. Cellular transplantation has emerged as promising therapeutic approach for treating ischemic heart diseases. A major objective of stem cell-based therapy for myocardial repair is to generate new muscle or mimics that can functionally replace damaged myocardium. However, poor donor cell engraftment has been a major roadblock limiting its clinical application. Dr. Zhu will discuss how induction of proliferation in transplanted cardiomyocytes enhances graft size and regenerative potency of human induced pluripotent stem cells-derived cardiomyocytes.