

PIONEERS IN BIOMEDICAL RESEARCH SEMINAR

Presented by the Fralin Biomedical Research Institute at VTC and co-sponsored by the institute's Center for Vascular and Heart Research



LI QIAN, Ph.D.

Associate Professor, Pathology and Lab Medicine
Associate Director of the McAllister Heart Institute
UNC School of Medicine

In Person Seminar: Programming and Reprogramming: What Does It Take to Make a Cardiomyocyte?

The incidence of myocardial infarction is the leading cause of morbidity and mortality around the world. The underlying pathology is typically loss of cardiomyocytes that leads to heart failure. Over the years, Dr. Qian and her lab have worked on the direct reprogramming approach that converts endogenous cardiac fibroblasts into cardiomyocyte-like cells (called iCMs) to replenish the lost cardiomyocytes in damaged hearts. By leveraging the knowledge that faithful cell fate conversion requires a precise dosage of transcriptional factors, the lab identified the optimal ratio of reprogramming factors for more complete and efficient iCM generation. Hypothesizing that reprogramming involves significant chromatin reorganization, Dr. Qian and her team profiled the epigenetic repatterning events during early iCM induction and identified epigenetic barriers to iCM conversion. More recently, they applied single-cell omics to overcome the difficulties of studying reprogramming due to the inherent nature of its heterogeneity and asynchrony. Through these efforts, Dr. Qian's lab has obtained novel insights into the transcriptional, posttranscriptional and epigenetic regulation of iCM reprogramming, and concomitantly improved the quality and yield of iCMs for future clinical application. They also anticipate that the experimental and analytical methods presented here, when applied in additional contexts, will yield crucial insights about cell fate determination and the nature of cell type identity.

FRIDAY, FEB. 25 at 11:00 a.m.

Watch live via Zoom at <https://virginiatech.zoom.us/j/82722436593> or at <https://fbri.vtc.vt.edu/events/live-webcast.html>.



FRALIN BIOMEDICAL
RESEARCH INSTITUTE AT VTC
VIRGINIA TECH.