**microRNAs IN CARDIOVASCULAR REMODELING AND DISEASE**
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Our lab is mostly interested in non-coding RNAs, including microRNAs and long non-coding RNAs (lncRNAs) and RNA binding proteins (RBPs) in cardiovascular development, function and disease. In the past decade, our lab identified and studied candidate miRNAs and lncRNAs that are dysregulated in diseased hearts. Using combination of gain- and loss- of function approaches and molecular dissection, we show that loss-of-miRNAs in the cardiovascular system leads to severe cardiac defects and lethality in mice. The lab has generated and studied multiple lines of knockout and transgenic mice for miRNAs (miR-208a, miR-22, miR-17-92 and miR-155). These investigations demonstrate that miRNAs play a key role in controlling cardio homeostasis in response to pathological and mechanical stress. We also investigate the molecular mechanisms underlying miRNA function in the heart. The ultimate goal of our research is to delineate the molecular pathways for the development and function of cardiovascular system and to use this information to design pharmacologic and genetic therapies for human cardiovascular diseases, cardiac hypertrophy and heart failure.

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