RMB CVRC Seminar

The Robert M. Berne Cardiovascular Research Center Presents

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RNA binding proteins: Wizards of gene regulation in the heart

Mutations in RNA binding proteins are associated with adult and congenital heart diseases. It is unclear how these RNA binding proteins alter gene expression in the heart and cause heart disease. We are directly testing how mutations in RNA binding proteins causes adult and congenital heart diseases using mouse models, human induced pluripotent stem cells and in primary endothelial cells and cardiomyocytes combined with state-of-the-art RNA-sequencing methods. Our results indicate that deletion of RNA binding protein RBFOX2, mutated in patients with hypoplastic left heart syndrome, in embryonic mouse hearts causes defects in cardiac chamber formation and other defects seen in patients with hypoplastic left heart syndrome. Global identification of RBFOX2 targets in embryonic hearts indicate that RBFOX2 binds to pre-mRNAs of essential genes and impact their alternative splicing and polyadenylation in the heart. We find that RBFOX2 is a master regulator of gene regulatory networks in embryonic hearts. Our goal is to correct aberrant expression of disease driving genes at the RNA level using antisense oligonucleotides for the treatment of human heart diseases.

Thursday September 14th, 2023
11:00 AM-12:00 PM
MR5 Room 3005
Refreshments served

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