

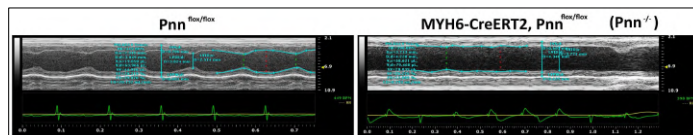
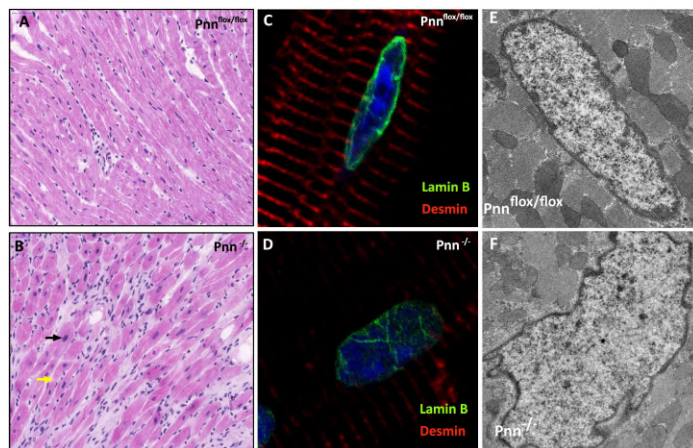
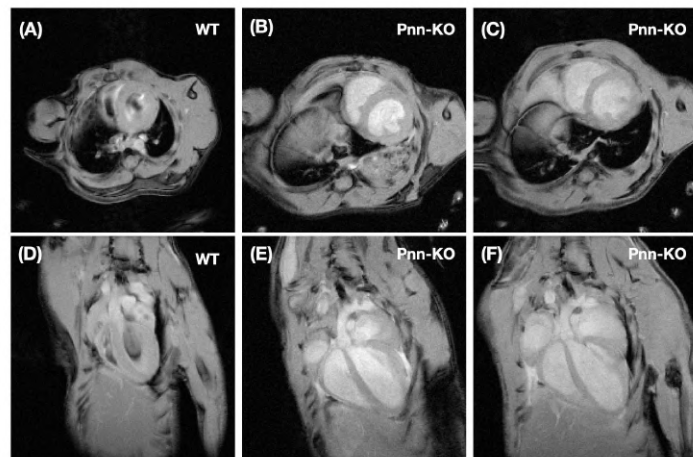


主持人：呂史提 (Steve Leu)

研究助理：邱好均、陳俐璇

The PI participates in the cardiovascular translational research to investigate the myocardial stress responses, including intercellular communication and intracellular signaling, in cardiac cells post cardiac stresses caused by ischemia, pressure-overload, genetic defects, nutrition insults, or developmental programming. To determine the relationship between stress response and prognosis of heart diseases, the PI applies cardiovascular disease animal models with examination on molecular, cellular, histopathological, and functional levels. Animal models with cardiovascular diseases and gene manipulation are utilized to reveal the underlying mechanism of architecture and signaling regulation in myocardium.

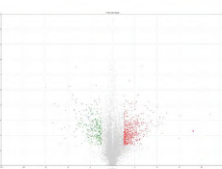
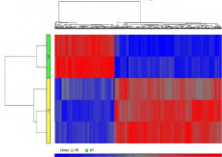
## Cardiomyocyte-specific Pnn deficiency results in arrhythmic dilated cardiomyopathy (ADCM) in mice



3 Pnn KO mice : 2 Flox mice

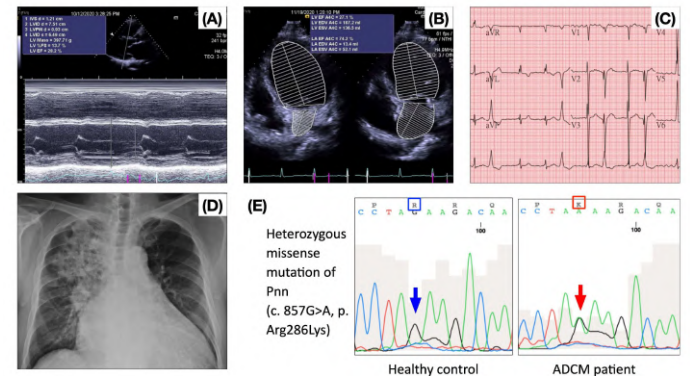
Up-regulated: 659

Down-regulated: 333

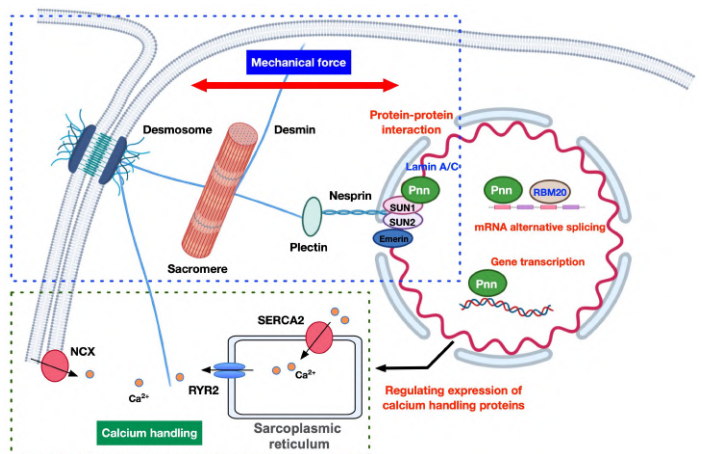
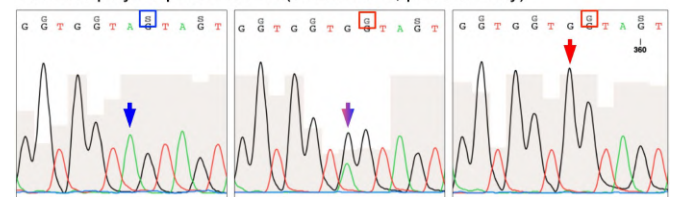


- Focal Adhesion-PI3K-Akt-mTOR-signaling pathway
- Focal Adhesion
- TCA Cycle
- Fatty Acid Beta Oxidation
- Amino Acid metabolism
- Osteoclast
- Fatty Acid Beta Oxidation (streamlined)
- Electron Transport Chain
- Glycolysis and Gluconeogenesis
- Regulation of Actin Cytoskeleton
- TCA Cycle (streamlined)
- Complement and Coagulation Cascades
- Adipogenesis genes
- Glycolysis
- Spinal Cord Injury
- Stated Muscle Contraction
- Inflammatory Response Pathway
- Mitochondrial C-Fatty Acid Beta-Oxidation
- Fatty Acid Biosynthesis
- Chemokine signaling pathway
- PlumBartWork
- Cytoplasmic Ribosomal Proteins
- Insulin Signaling
- Integrin-mediated Cell Adhesion
- Calcium Regulation in the Cardiac Cell
- Dysregulated mRNA Targeting in Insulin/PI3K-AKT Signaling
- Muscular Relaxation and Contraction Pathways
- mRNA processing

## Characterization of pathogenic Pnn mutants in patients with arrhythmic dilated cardiomyopathy



### Genetic polymorphism of Pnn (c. 2011A>G, p. Ser671Gly)



Genetic defects in Pnn lead to ADCM in human through affecting the response of cardiomyocytes against mechanical force as well as regulating the expression and mRNA alternative splicing of genes involved in intracellular calcium handling

