

EPIGENETIC PLASTICITY IN CARDIOVASCULAR PROGENITOR CELLS DURING HEART DEVELOPMENT AND DISEASE

PROPOSAL SUMMARY

Heart formation involves specification, expansion and differentiation of cardiac progenitor cells, which is tightly controlled by regulatory networks integrating multiple transcription factors. The objective of the proposed research program is to understand how transcriptional master regulators of cell fate work together with epigenetic modifiers in the establishment of cell-type specific gene expression patterns during cardiovascular development and disease. We aim to determine the role of *Isl1*, a key regulator of the cardiogenic program, and *Isl1*-associated chromatin modifiers in epigenetic regulation during cardiogenesis. Additionally, we will analyse the epigenetic plasticity and inheritance during cardiovascular cell fate decisions and differentiation of cardiovascular progenitor cells and their progeny in order to identify other key epigenetic regulators and transcription factors involved in these processes. This work will advance the understanding of the mechanisms controlling cardiac progenitor cells, which could provide the basis for their improved application in regenerative therapies for heart disease.