Topical Collection

Applications of Stem Cells in Cardiovascular Functional Genomics 2022

Message from the Collection Editor

The regular development and maintenance of an intact cardiovascular system involve fine-tuned complex gene expression pathways which coordinate the development and function of the cardiovascular system. The field of cardiovascular functional genomics aims to identify regular genes and signal transduction pathways to obtain a better understanding of the development and progress of cardiovascular diseases (CVDs). Pluripotent stem cells (PSCs) including embryonic stem cells (ESCs) and induced pluripotent stem cells (iPSCs) have been shown to partly recapitulate embryonic development in vivo. Moreover, human cardiomyocytes from PSCs in combination with advanced genomics and live-cell imaging techniques are applied for discovering genomic networks of functional relevance, involved in the development of heart diseases. It is hoped that progress in this field will contribute to personalized medicine for developing better and novel therapeutic tools for the treatment of heart diseases. Emphasis will be placed on the question of how this emerging field will contribute to the discovery of novel mechanisms, pathways and drugs which are relevant to therapeutic applications of heart diseases.

Collection Editor

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