

Special Issue

Recent Developments in Molecular and Cellular Cardiology: Mathematical Models, Cell Model, and Organoids

Message from the Guest Editors

Many cardiovascular diseases, may be categorized in the same family even though their molecular mechanisms are very different or still poorly known, such as for example atrial fibrillation (AF) sinus node disease (SND), and dilated cardiomyopathies (DCM). Advances in the treatment of the disease have been achieved once the genetic or molecular causes have been elucidated (such as in LQT syndromes, etc.) or after the understanding that non-ion channels genes/proteins (as in ACM, cardiomyopathies) may play important roles in the onset of cardiac pathological symptoms. This growth of knowledge has been possible thanks to the evolution and use of methods and models applied: from the expression of mutated proteins in heterologous systems to the generation of hiPS-derived cardiomyocytes with the genetic background of the patient, to more complex systems including different types of cells. Important contributions derived also from mathematical model and artificial intelligence algorithm.

This special issue is to bring together the latest findings on the mechanism underlying heart diseases, using the various evolving cell/tissue systems and mathematical models.

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