



Biomedical Imaging and Electrophysiology of the Developing and Mature Cardiovascular System

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Deadline for manuscript submissions:

closed (20 January 2019)

Message from the Guest Editors

The field of cardiovascular development has rapidly expanded understanding of the molecular mechanisms guiding heart development thanks to technical leaps in biochemistry and molecular biology technology. The field is now replete with databases of genetic, epigenetic, proteomic and signaling changes that occur during normal and abnormal development of several species. The creation and implementation of new technologies will likely overcome the hurdles of interrogating this tiny, dynamic system and aid in the integration of the physiological parameters with the molecular mechanisms. There is no doubt that with a beating heart controlling the cardiovascular system, parameters such as flow, pressure, shear forces, action potential duration, voltage, impulse conduction velocity, and other mechanical and electrophysiological parameters, are all integrated with, respond to and impact the molecular changes that are occurring in the cardiovascular system and the embryo as a whole. Filling this gap in understanding is challenging and requires the field to learn several languages including those of the molecular biologists, physiologists, physicists, and biomedical engineers.

