

Special Issue

Preclinical Models in Cardiovascular Disease Research

Message from the Guest Editor

Cardiovascular diseases (CVDs) are the leading cause of death worldwide, driving the need for advanced research models to uncover disease mechanisms and develop effective therapies. In this context, preclinical models are essential for investigating disease pathways, testing hypotheses, and evaluating the safety and efficacy of therapies before clinical trials. Two primary types of preclinical models are used in cardiovascular research:

- **In vitro models**, including cardiovascular cell systems such as cardiomyocytes, endothelial cells, and smooth muscle cells. The development of iPSC-derived cardiovascular cells for personalized medicine.
- **In vivo models**, from rodents (mice/rats) to large animals (pigs, dogs, sheep) for translational research.

This Special Issue aims to showcase recent advances in preclinical models for cardiovascular research, thereby enhancing our understanding of disease mechanisms and supporting the development of effective therapies for patient care. Topics include but are not limited to the following:

- Cell-based models for drug screening
- Rodent models of CVD
- Large animal models for surgery & devices
- Organ-on-chip & tissue engineering
- AI & computational modeling

Guest Editor

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