Special Issue

Emerging Topics in Smooth Muscle Cell Fate and Plasticity in Atherosclerosis

Message from the Guest Editors

Recent lineage tracing and single-cell studies in mice reveal that vascular smooth muscle cells (VSMCs) are more abundant (40-70% of plaque cells) and plastic than previously thought. VSMCs can adopt diverse phenotypes, such as macrophage-like, foam cell-like, osteochondrogenic-like, and myofibroblast-like states—a phenomenon termed VSMC phenotypic modulation. As some phenotypes may destabilize plaques, understanding the signals regulating VSMC plasticity is crucial for identifying new therapeutic targets. Emerging technologies, including transcriptomics, metabolomics, and high-resolution imaging, enable deeper exploration of VSMC plasticity's impact on plaque stability. Ultimately, leveraging vascular heterogeneity could improve patient risk stratification or advance anti-atherosclerotic therapies. We invite submissions of research and review articles on novel insights into VSMC plasticity and fate. Studies on how other vascular cells (e.g., endothelial cells) influence VSMC behavior in atherosclerosis are also welcome. This collection aims to unite basic and translational research on VSMC heterogeneity, plasticity, and its role in atherosclerosis.

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Cells has become a solid international scientific journal that is now indexed on SCIE and in other databases. We have successfully introduced a special issues format so that these issues serve as mini-forums in specific areas of cell science. *Cells* encourages researchers to suggest new special issues, serve as special issues editors, and volunteer to be reviewers. Our main focus will remain on cell anatomy and physiology, the structure and function of organelles, cell adhesion and motility, and the regulation of intracellular signaling, growth, differentiation, and aging. We are open to both original research papers and reviews.

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