Special Issue

Signaling Mechanisms Controlling Cell Fate in Cancer

Message from the Guest Editors

Cancer progression fundamentally depends on dysregulated signaling pathways that control critical cellular fate decisions between survival, proliferation, differentiation, senescence, and death. Understanding these complex molecular mechanisms is essential for developing effective therapeutic strategies. The intricate interplay between classical signaling networks, epigenetic regulation, microRNA-mediated control, environmental factors, and exposure to environmental pollutants creates a sophisticated regulatory system that determines cancer cell destiny. This research area represents a cornerstone of modern cancer biology, with direct implications for personalized medicine and targeted therapy development. This Special Issue aims to advance our understanding of how signaling networks and regulatory circuits coordinate in order to determine cancer cell fate, ultimately contributing to the development of more effective, personalized cancer treatments. We seek to compile cutting-edge research that provides mechanistic insights into cell fate control mechanisms and demonstrates clinical relevance or therapeutic potential.

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