BIOLOGY AND ENGINEERING OF STEM CELL NICHES

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Advances in stem cell niche molecular biology and biomaterials engineering are central to achieving complete, functional repair of human tissue by disease and injury, either by recruiting endogenous repair mechanisms in vivo or by generating tissues and organs ex vivo. *Biology and Engineering of Stem Cell Niches* is the first comprehensive, single source to present stem cell niche biology in detail along with strategies for bioengineering an artificial niche from cell level to applications.

KEY FEATURES

- Covers a wide spectrum of research and current knowledge about pluripotent and multipotent (adult) stem cell niches, focusing on the understanding of stem cell niche molecules and signaling mechanisms involving cell-cell or cell-matrix interactions.
- Comprehensively includes factors regulating stem cell behavior and approaches for understanding the subsequent effect after providing the proper matrix molecules, mechanical cues and/or chemical cues.
- Encompasses a variety of tools and techniques available in engineering and materials science and discusses bioengineering strategies to model synthetic stem cell niches in vivo or to enhance and direct stem cell fate in vitro for each tissue type.

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