The book offers an insight into repair mechanisms of the diseased lung, the role of specific lung niches and provides information on initial clinical trials as well as the use of stem cells as vehicles for gene therapy.

The use of stem cells to help with lung regeneration and repair is a novel therapy which could help phase out the need for conventional surgical or pharmacological approaches currently employed to treat diseases of the lung or other organs. The present book explores all avenues of this new form of medical care, moving swiftly, but in depth, from the basic science of lung development, to the analyses of different stem cell types available for regeneration and on to the application of this knowledge base in initial clinical trials.

In this volume a stellar group of researchers converge, from different angles, to help towards clarifying the basic mechanisms of lung repair. These range from basic concepts of regeneration and lung development, the analyses of a variety of cell types that may be involved in lung repair, to ways of creating complex lung structures, including artificial and bioartificial lungs. Ingenious technological aspects of assessing stem cell engraftment of stem cell bioprocessing are also included in this volume.