

Preface

Unfortunately lung disease remains a devastating cause of morbidity and mortality around the world. With an ever-increasing prevalence, the situation is not improving; indeed by 2020 COPD is expected to become the third leading cause of death worldwide. Most of the current therapeutic approaches for lung disease serve only to manage the symptoms. Lung transplantation remains one of few curative options and itself is associated with a host of other complications, particularly those due to lifelong immunosuppression.

Like for many other diseases, there is a significant appeal for using stem cells in the treatment of lung disease. Before such approaches will come to fruition, it is necessary to establish in-depth knowledge of the role of stem cells in the human lung. The identity and function of stem cells in the developing and, in particular, the adult lung has been increasingly studied over the past decade. We are thus starting to get a clearer insight into the endogenous stem cell populations of the lung, their roles in the maintenance of the lung epithelium and vasculature, and their dysregulation in the pathogenesis of lung disease. As the fields of pluripotent and adult stem cells evolve, we will develop a greater understanding of the therapeutic potential of stem cells with the hope of eventual clinical intervention in lung disease.

This book aims to provide an up-to-date review of endogenous stem cells in both the airways and vasculature of the lung in addition to discussing the rapidly evolving field of pluripotent stem cells and regenerative medicine approaches to study and treat lung disease.

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