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ABSTRACT
End-stage lung diseases, such as chronic obstructive pulmonary disease (COPD) and idiopathic pulmonary fibrosis (IPF) are devastating human conditions for which there are no effective treatments. There is increasing evidence that the inability to maintain epithelial integrity or recovery from sustained injury likely reflects a failure of the stem cell compartment to mount an effective regenerative response. In spite of recent progress, there are still major gaps of knowledge on what collectively the airway endogenous progenitors represent, their origin, diversity and contribution to plasticity in development, regeneration and disease states. Here we propose to address these gaps of knowledge in our research program to: a) study the molecular and cellular events that control the organization and behavior of the stem cell compartment in the airways, and b) to investigate the impact of the disruption of these mechanisms in pulmonary disease pathogenesis**.** Results from these studies will provide crucial insights currently lacking in the field about how tissue-specific stem cells contribute to homeostasis and disease processes in the lung.