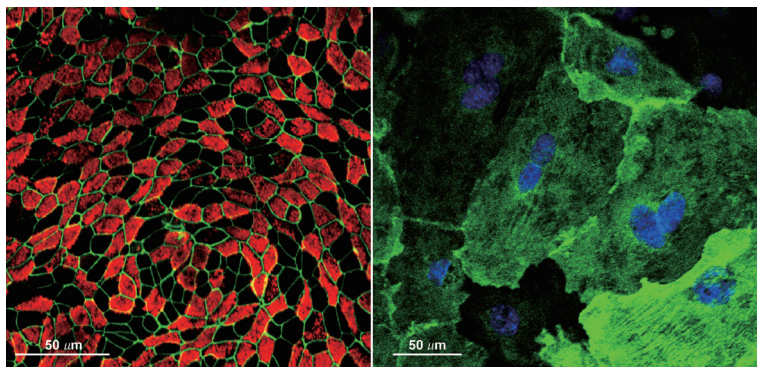
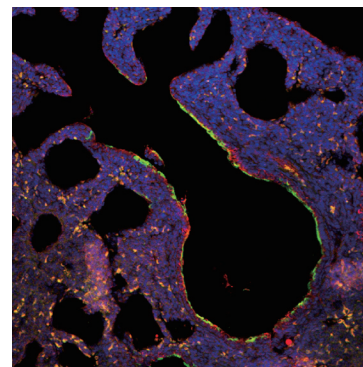


# Lung-derived SSEA-1(+) stem/progenitor cells inhibit allergic airway inflammation in mice



SSEA-1+ pulmonary stem/progenitor cells differentiate into tracheal epithelial cell (left) and type I pneumocyte (right).



SSEA-1+ pulmonary stem/progenitor cells are localized in the bronchioles, terminal bronchioles, and the broncho-alveolar duct junction in the lungs of neonatal mice.

The research team of Professor Bor-Luen Chiang (Graduate Institute of Clinical Medicine) at National Taiwan University (NTU) has identified SSEA-1+ pulmonary stem/progenitor cells (PSCs) and demonstrated that these cells can inhibit allergic airway inflammation and reduce airway hyperresponsiveness (AHR) and lung damage, representing another breakthrough in research concerning allergic airway inflammation.

Asthma is a heterogeneous inflammatory disorder characterized by chronic airway inflammation, AHR, and excessive airway mucous production. The intensity of the pulmonary recruitment of eosinophils is strongly correlated with the severity of AHR. In most patients, asthma can only be symptomatically controlled through available medications. However, patients with inadequately controlled asthma often

have limited therapeutic options and remain at a high risk of serious morbidity and mortality.

Chiang's team discovered that neonatal SSEA-1+ pulmonary cells are stem/progenitor cells capable of self-renewal and differentiation into pneumocytes and tracheal epithelial cells. These authors also found that neonatal SSEA-1+ PSCs could inhibit the production of two cytokines, thymic stromal lymphopoietin and eotaxin, in lung epithelial cells. Furthermore, adoptive transfer of SSEA-1+ PSCs into asthmatic mice suppressed eosinophil infiltration and airway inflammatory cytokine production, leading to significantly reduced AHR, inflammation and damage to the lungs.

This research has furthered the current understanding of the role of PSCs in the pathogenesis

of allergic asthma and may provide new approaches for therapeutic management of allergic asthma in the future.

This study, entitled "Lung-derived SSEA-1+ stem/progenitor cells inhibit allergic airway inflammation in mice," was published and selected as the cover story in the April issue of *Allergy* 2015.

## Reference

Chiao-rong Chiu, Thai-Yen Ling & Bor-Luen Chiang. Lung-derived SSEA-1(+) stem/progenitor cells inhibit allergic airway inflammation in mice. *Allergy* 4, 374 (2015). (Cover story of the issue) DOI: 10.1111/all.12567.

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