



The Airway Epithelium is Central to the Pathogenesis of Asthma

<http://www.firstlight.cn> 2008-04-03

Asthma is an inflammatory disorder principally involving the conducting airways and characterised by infiltration of the airway wall with a range of inflammatory cells driven in large part by activation of Th2-type lymphocytes, mast cells and eosinophils. However a key component of asthma is the structural change that involves all of the elements of the airway wall. Here evidence is presented to suggest that the airway epithelium in asthma is fundamentally abnormal with increased susceptibility to environmental injury and impaired repair associated with activation of the epithelial-mesenchymal trophic unit (EMTU). In addition to adopting an activated phenotype, the barrier function of the epithelium is impaired through defective tight junction formation thereby facilitating penetration of potentially toxic or damaging environmental insults. Activated and repairing epithelial cells generate a range of growth factors that are involved in the early life origins of this disease as well as its progression in the form of mucous metaplasia and airway wall remodeling. By placing the epithelium at the forefront of asthma pathogenesis, different approaches to treatment can be devised focused more on protecting vulnerable airways against environmental injury rather than focusing on suppressing airway inflammation or manipulating the immune response.

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