

European Respiratory Society Annual Congress 2012

Abstract Number: 2165

Publication Number: P3735

Abstract Group: 3.2. Airway Cell Biology and Immunopathology

Keyword 1: Asthma - mechanism **Keyword 2:** Experimental approaches **Keyword 3:** Epithelial cell

Title: A reliable and long shelf-life in vitro cell model for studying goblet cell metaplasia in the human airways

Dr. Song 16416 Huang song.huang@epithelix.com¹, Dr. Andreas 16417 Hohlbaum Hohlbaum@pieris-ag.com², Dr. Barbara 16418 Rattenstetter Rattenstetter@pieris-ag.com², Dr. Ludovic 16419 Wiszniewski ludovic.wiszniewski@epithelix.com¹ and Dr. Samuel 16420 Constant samuel.constant@epithelix.com¹. ¹ Epithelix Sàrl, Epithelix Sàrl, Plan-les-Ouates, Geneva, Switzerland, 1228 and ² Pieris AG, Pieris AG, Freising, Germany, 85354 .

Body: Goblet cell metaplasia, induced mainly by TH-2 cytokines like IL-13 and IL-4, is a common feature of several respiratory diseases such as asthma, COPD, and Cystic fibrosis. Recent clinic trials demonstrated that blocking IL-13 signaling seems to be an effective therapeutic strategy. In order to develop more efficient drugs, a reliable and reproducible in vitro cell model would be invaluable. Epithelix has developed a high quality in vitro cell model of the human airway epithelia (MucilAir) which can be maintained at a functional and homeostatic state for a year, allowing long term tests of drug candidates. In order to create an in vitro cell model of the airway goblet cell metaplasia, MucilAir was treated with IL-13 at different concentrations, ranging from 0.3 to 30 ng/ml. Using in situ Alcian Blue staining, as well as histological analysis, we demonstrated that MucilAir showed an increased goblet cell density after 14 days of IL-13 treatment, in a dose dependent manner. Furthermore, ELISA analysis revealed a concomitant increase of Eotaxin and Periostin released in the culture media as a function of IL-13 concentration. Despite some subtle morphological differences of the goblet cells between donors, the results from several different batches of MucilAir are very similar and therefore reproducible. Taken together, MucilAir is a relevant and reliable in vitro cell model for studying Goblet cell metaplasia, and for assessing the efficacy of drug candidates.