Abnormal Keratin Gene Expression in COPD Airways

Claudia Garza Olivencia

Abnormal Keratin Gene Expression in COPD Airways

Follow this and additional works at: http://openscholarship.wustl.edu/vol8_iss1

Recommended Citation
http://openscholarship.wustl.edu/vol8_iss1/44

This publication is brought to you for free and open access by the Office of Undergraduate Research through Washington University Open Scholarship. For more information, please contact digital@wumail.wustl.edu
COPD (Chronic Obstructive Pulmonary Disease) results from chronic cigarette smoking or biomass exposure and is the fourth leading cause of death in the United States, but its disease mechanisms are still under investigation. In the Pierce lab we study highly characterized donor lungs and surgically removed lungs from patients getting a transplant for severe COPD. With the goal of identifying signatures or biomarkers in these lungs, gene expression profiling of COPD was done and, to further classify these genes, several subsets were distinguished. Since a subset of keratin genes indicated something interesting, this summer we focused on specific keratins commonly expressed at low levels in normal airways, but induced in the COPD specimens. Accordingly, we tested whether the gene expression profiling studies could be validated or further supported by doing Immunohistochemistry (IHC) and Real Time RT-PCR. Specifically, for assessing the expression of Krt6b and Krt17, we used Taqman assays (Invitrogen). From the IHC, we learned that keratin-17 amid other keratins is up-regulated in COPD airway epithelial cells in regions that look abnormal and with stacked up epithelial layers. Additionally, for a subset of Krt16 and Krt17, although their expression was increased in COPD specimens at the RNA level, localization by immunohistochemistry indicated a small subset of airway epithelial cells express these keratins which are often associated with a wound healing response. The importance of these genes is that they provide information for further analyses on the disease mechanisms.