Author's response to reviews

Title: Genes Associated with MUC5AC Expression in the Human Small Airway Epithelium

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Author's response to reviews:

Dr. Tim Sands
Executive Editor
BMC Genomics

Dear Dr. Sands:

Enclosed please find our manuscript entitled, “Genes Associated with MUC5AC Expression in the Human Small Airway Epithelium” for publication consideration in BMC Genomics.

Mucus hypersecretion contributes to the morbidity and mortality of smoking-related lung diseases, especially chronic obstructive pulmonary disease (COPD), which starts in the small airways. Due to the lack of methods to isolate and culture pure populations of primary human airway mucin-producing cells, little is known about the gene networks associated with the synthesis and secretion of mucins in the human small airway epithelium. Taking advantage of the knowledge that MUC5AC is a major mucin secreted by the small airway epithelium is highly regulated at the transcriptional level, and our observation that healthy nonsmokers have variable numbers of MUC59AC+ secretory cells in the human small airway epithelium, we compared genome-wide gene expression of the small airway epithelium of high vs low MUC5AC expressors from 60 nonsmokers to identify the genes associated with MUC5AC expression. This novel strategy enabled identification of a 73 “MUC5AC-associated core gene” list with 9 categories which control a series of processes from mucin biosynthesis to mucus secretion. The coordinated gene expression pattern of MUC5AC-associated core genes were corroborated in an independent cohort of
72 healthy smokers and deep sequencing of small airway epithelium RNA confirmed these observations. These findings will be useful in identifying therapeutic targets to treat small airway mucus hypersecretion.

We are notifying the Editor that we have submitted our data set to the National Center for Biotechnology Information Gene Expression Omnibus. For your information and that of the reviewers, the following link has been created to allow review of GSE34450:

http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?token=tryxdugwuyqcnk&acc=GSE34450. Should you require any other information, please let us know and we will be glad to provide it.

We look forward to hearing from you.

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Sincerely yours,
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