**Abbreviations and Definitions**

AB/PAS, alcian blue, periodic acid-Schiff stain

AB/PAS+, cells stained positively by AB/PAS

ALI, air-liquid interface

BEGM, bronchial epithelial cell growth medium

‘Careful Wash’, the series of 4, rigorously controlled luminal washes that removed mucus from HBECCS prior to a mucin secretion experiment

EE, exocytic event

HBE cells, human bronchial epithelial cells

HBECC, human bronchial epithelial cell culture

OVA, ovalbumin

WT, wildtype

TGN, trans Golgi network;