European Respiratory Society
Annual Congress 2013

Abstract Number: 1583
Publication Number: P3890

Abstract Group: 3.2. Airway Cell Biology and Immunopathology
Keyword 1: Animal models **Keyword 2:** Cell biology **Keyword 3:** Interaction

Title: The potential interaction of MARCKS-related peptide and diltiazem on acrolin-induced airway mucus hypersecretion in rats

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Body: Airway mucus hypersecretion is a pathophysiological feature of airway inflammatory diseases. Ca2+ entry and myristoylated alanine-rich C kinase substrate(MARCKS) translocation are important factors involved. To investigate the interaction of MARCKS-related peptide and diltiazem on mucus hypersecretion,rat model was established by inhalation of acrolein fog.MARCKS-related peptide,diltiazem or combination was administered intratracheally respectively.Rats were given pilocarpine to stimulate mucus release before sacrifices. Mucin5AC expression in BALF was measured by ELISA. Intracellular Muc5ac was detected by immunohistochemical staining/western-blot.Muc5ac mRNA was analyzed by RT-PCR.Results:MARCKS-related peptide attenuated the release of Muc5ac in BALF induced by acrolein.Diltiazem alone had no effect.However,release of Muc5ac in BALF was further reduced when challenged with simultaneous instillation with MARCKS-related peptide and diltiazem.

Moreover, the intracellular level of Muc5ac was further increased when treated with MARCKS-related peptide plus diltiazem ($p<0.05$). Conclusions: In the rat model of airway hypersecretion,MARCKS-related peptide attenuated mucus secretion, whose effect was enhanced by diltiazem. The enhancement may be related to a further diminution of intracellular free calcium concentration, which would lead to retention of mucin within goblet cell rather than to release.