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### **Protease activated receptor 2 (PAR2) reduces pro-inflammatory cytokine production in bronchial epithelial cells**

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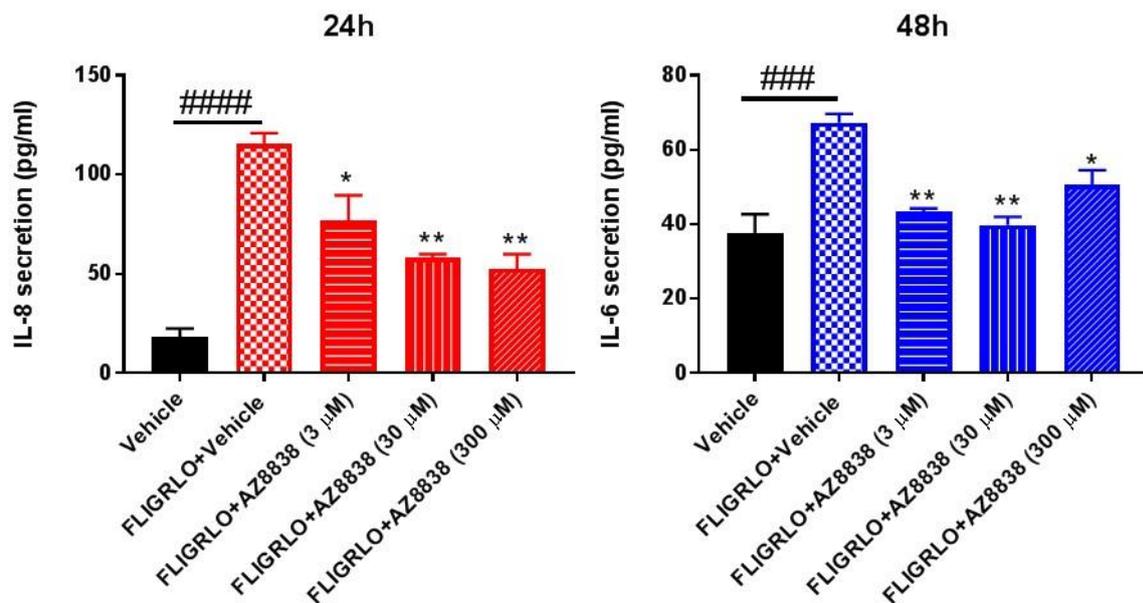
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## Protease activated receptor 2 (PAR2) antagonism reduce pro-inflammatory cytokine production in bronchial epithelial cells

PAR2 is a G-protein coupled receptor which modulate inflammation via pro-inflammatory cytokine release. Chronic obstructive pulmonary disease (COPD) is associated with an abnormal inflammatory response of the lungs. The aim of this study was to investigate a putative role for PAR2 in COPD.

Expression of PAR2 and was evaluated in in primary human bronchial epithelial cells derived from healthy controls and COPD patients (HBECs & DHBECs respectively) and bronchial epithelial cell lines (BEAS-2B) by immunofluorescence. Levels of secreted IL-6 and IL-8 were evaluated by ELISA. The role of PAR2 in BEAS-2B was investigated using the PAR2 agonist 2-Furoyl-LIGRLO-amide and the antagonist AZ8838.

Immunofluorescent microscopy showed HBECs, DHBECs and BEAS-2B express PAR2. Evaluation of spontaneous cytokine secretion revealed that both IL-6 and IL-8 were significantly increased ( $P<0.01$ ) in DHBECs compared to HBECs and BEAS-2B. Initial studies demonstrate inhibition of PAR2 activation in BEAS-2B by AZ8838 significantly reduced IL-8 (24 h) and IL-6 (48 h) secretion.



This study used a recently developed antagonist to demonstrate a role for PAR2 in regulation of pro-inflammatory cytokine release in bronchial epithelial cells. Since increased PAR2 activation is a feature of several inflammatory disease, it may contribute to the abnormal response in COPD.