## Therapeutic benefits of methylxanthine on primary human bronchial epithelial cells exposed to pro-inflammatory stimuli and steroid drugs.

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Methylxanthines are used by almost everybody in every area of the world. Theophylline and theobromine are the most well-known members of this family of compounds; for their ability to relax smooth muscle they are used in pharmacology for the treatment of airway diseases (i.e. chronic obstructive pulmonary disease; asthma). However, this effect on smooth muscle is dose dependent and it is related with the development of side effects. Recently, increasing body of evidence suggests that theophylline, at low concentrations, has also anti-inflammatory effects related to the activation of histone deacetylases. In this study we evaluated the effects of theophylline alone and in combination with corticosteroids on human bronchial epithelial cells under inflammatory stimuli. Theophylline administrated alone was not able to reduce growth-stimulating signaling via ERKs activation and MMPs release, whereas it strongly counteract this biochemical behavior, when administered in presence of corticosteroids. These data provide a scientific evidence for a rationale pharmacological use of theophylline and corticosteroid combined drug.

Key words: human bronchial epithelial cells; theophylline; corticosteroids; signal transduction.