

## EFFECTS OF TRPV4 CHANNEL BLOCKER ON AIRWAY INFLAMMATION AND AIRWAY RESISTANCE IN EXPERIMENTALLY-INDUCED MODEL OF ALLERGIC ASTHMA

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**Introduction:** Expression of TRPV4 has been confirmed on airway structural cells such as smooth muscle cells and fibroblasts and immune cells. TRPV4-mediated Ca<sup>2+</sup> influx can regulate the function of immune cells and airway structural cells, influencing TRPV4 channels function seems to be beneficial in affecting asthmatic symptoms.

**Methods:** TRPV4 antagonist HC-067047 was administered by inhalation in ovalbumin-induced allergic asthma. The analysis consisted of airway reactivity analyzed by specific airway resistance (sRaw), contraction strength of isolated airway smooth muscles, and mucociliary clearance expressed by ciliary beating frequency (CBF). The immuno-biochemical markers of chronic inflammation were evaluated by BioPlex and ELISA assays.

**Results:** Effects of inhaled HC-067047 were associated with decreased levels of Th2 cytokines (IL-4, IL-5, IL-13), decrease in sRaw values, and suppression of acetylcholine-induced contraction of isolated airway smooth muscle. However, HC-067047 had no significant effect on ciliary beating frequency.

**Conclusions:** Data obtained suggest that TRPV4 blocker have the potential to suppress chronic inflammation and bronchial hyperreactivity and could have a promising application in the treatment of asthma.

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**Keywords:** TRPV4 channels, asthma, airway reactivity, inflammation