

## عنوان مقاله:

Inhibition of Rho-kinase improves response to deep inspiration in ovalbumin-sensitized guinea pigs

## محل انتشار:

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## خلاصه مقاله:

**Objective(s):** The modulatory effect of deep inspiration (DI) on airway constriction is impaired in asthma. However, mechanisms underlying this impairment are not clear. Since there is evidence indicating that Rho-kinase activation mediates force maintenance under oscillatory strain, we investigated the impact of Rho-kinase inhibition on the bronchodilatory effect of DI in ovalbumin (OVA) sensitized guinea pigs. **Materials and Methods:** forty-eight male Dunkin Hartley guinea pigs were divided into 8 groups including saline/ constant, saline/DI, OVA/constant, OVA/DI, Rho-I/OVA/constant, Rho-I/OVA/DI, OVA-Rho-I/MCh/constant, and OVA-Rho-I/MCh/DI. Animals were subjected to 12 inhalations of OVA or saline aerosol. Guinea pigs in Rho-I/OVA/constant or DI groups were treated with the Rho-kinase inhibitor (Rho-I) (Y-27632, 1 mM aerosols) prior to the last 8 allergen inhalations and OVA-Rho-I/MCh/constant or DI groups received Y-27632 at the end of allergen sensitization protocol before methacholine challenge. The bronchodilatory effect of DI in guinea pigs that were exposed to methacholine was assessed by using an animal ventilator. The bronchodilatory effect was assessed using several parameters: the airway pressure maintenance, airway pressure recovery, and decline of airway pressure. **Results:** Results indicated that application of Y-27632 prior to methacholine challenge reduces the airway smooth muscle ability to maintain pressure and also causes further decline in airway pressure in OVA-sensitized animals undergone DI. However, the inhibition of Rho-kinase before OVA inhalations had minimal effect. **Conclusion:** We propose that alteration of Rho-kinase signaling pathway may be one of the mechanisms underlying the impairment of DI-induced bronchodilation in OVA-sensitized guinea pigs.

## کلمات کلیدی:

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