Topic

Blockage of high-mobility group box 1 inhibited airway inflammation and remodeling in a murine model of chronic asthma.

Authors and Affiliation

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Abstract

Damage-associated molecular patterns (DAMPs) comprise intracellular molecules characterized by the ability to reach the extracellular environment, and they involvein inflammation and cell repair. The high-mobility group box 1 (HMGB1) is a prototypic DAMP. It has two roles in microenvironment, one is DNA-binding protein and the other is cytokine. HMGB1 release during cell necrosis or apoptosis, and it's also release by activated immune cell. Increasing HMGB1 level has been found in acute and chronic lung inflammatory conditions characterized by tissue damage and remodeling. In our study, we focus on the role of HMGB1 in chronic asthma. In a animal model of chronic asthma, mice were intraperitoneal injected with ovalbumin on day 0, 10, 20 and exposured with 5% ovalbumin five times a week for 4 weeks. After treated HMGB1 neutralization antibody 30μg/mouse by intratracheal injection three times a week for four weeks in OVA-immunized mice, HMGB1 treated mice showed decreased OVA-induced lung neutrophilia, mucus formation and collegen deposition in lung tissues by histology study and decreased lung HMGB1, HMGB1 receptors-RAGE, TLR-2 and TLR-4, collagen, MMP-9, MMP-2, pro-inflammatory cytokines- IL-17A, IL-17F, and INF-γ mRNA expression by quantitative PCR. In the future, we will investigate the further molecular mechanisms which affected by HMGB1 in lungin a chronic asthma animal model.

Key words: HMGB1, RAGE, IL-17