

عنوان مقاله:

C-Kit⁺ cells can modulate asthmatic condition via differentiation into pneumocyte-like cells and alteration of inflammatory responses via ERK/NF- κ B pathway

محل انتشار:

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خلاصه مقاله:

Objective(s): The exact role of the progenitor cell types in the dynamic healing of asthmatic lungs is lacking. This investigation was proposed to evaluate the effect of intratracheally administered rat bone marrow-derived c-kit⁺ cells on ovalbumin-induced sensitized male rats. **Materials and Methods:** Forty rats were randomly divided into 4 groups; healthy rats received phosphate-buffered saline (PBS) (C); sensitized rats received PBS (S); PBS containing C-kit⁻ cells (S+C-kit⁻); and PBS containing C-kit⁺ cells (S+C-kit⁺). After two weeks, circulatory CD4⁺/CD4⁺ T-cell counts and pulmonary ERK/NF- κ B signaling pathway as well as the probability of cellular differentiation were assessed. **Results:** The results showed that transplanted C-Kit⁺ cells were engrafted into pulmonary tissue and differentiated into epithelial cells. C-Kit⁺ cells could increase the number of CD4⁺ cells in comparison with the S group ($P < 0.001$); however, they diminished the level of CD4⁺ cells ($P < 0.01$). Moreover, data demonstrated increased p-ERK/ERK ratio ($P < 0.001$) and NF- κ B level ($P < 0.05$) in sensitized rats compared with the C group. The administration of C-kit⁺, but not C-Kit⁻, decreased p-ERK/ERK ratio and NF- κ B level compared with those of the S group ($P < 0.05$). **Conclusion:** The study revealed that C-Kit⁺ cells engrafted into pulmonary tissue reduced the NF- κ B protein level and diminished p-ERK/ERK ratio, leading to suppression of inflammatory response in asthmatic lungs.

کلمات کلیدی:

Asthma, C-kit cells, CD4⁺/CD4⁺, Differentiation, NF- κ B, p-ERK/ERK

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