ORIGINAL

Abstract: Interleukin (IL)-12 is known as a cytokine that augments the Th1 type response. Especially in allergic diseases such as a bronchial asthma, IL-12 induced restoration of the balance of the Th1/Th2 type immune response is an attractive strategy. In this study, the functional properties of the human bronchial epithelial cell line (BEAS-2B) transduced by an adenoviral vector encoding the human IL-12 gene were examined.

Adenovirus vectors, AxCAegfp and Ax1CIhp40ip35 were transduced into BEAS-2B cells. Wild and gene-transduced BEAS-2B cells were incubated and the concentrations of IL-12 and IFN-γ produced by co-cultured lymphocytes in the supernatant were measured using ELISA. The expressions of surface adhesion molecules, such as CD54 and CD106 were analyzed using flow cytometry.

The efficiency of transgene expression of BEAS-2B cells was in a multiplicity of infection (MOI)-dependent manner and at an MOI of 30, the efficiency was approximately 80%. The gene-modified BEAS-2B cells produced biologically active IL-12 in dose- and time-dependent manners. IL-12 gene transduction did not significantly affect the expression of adhesion molecules (CD 54, CD106 and HLA-A,B,C) by BEAS-2B cells.

These results suggest that the IL-12 gene may be successfully transduced into human bronchial epithelial cells by adenoviral vector to express IL-12 activity in vivo.


Keywords: IL-12, BEAS-2B, adenoviral vector
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Determination of IL-12 p40 and p35 mRNA expression by BEAS-2B cells transduced IL-12 gene (BEAS/IL12)

Determination of IL-12 expression by BEAS/IL12
**Biological activity of IL-12 produced by BEAS/IL12**

- Adenoviral transduction of IL-12 gene

**Analysis of surface adhesion molecule expression by BEAS/IL12**

- IL-12 p35
- IL-12 p40
- β-actin

Infection Multiplicity

- A: Multiplicity of infection
- B: Incubation time (hr)
Fluorescence intensity

A  Control  B  CD54

C  CD106  D  HLA-A,B,C

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