

中文題目：小決明之蒽醌刺激人類 CD4<sup>+</sup> T 淋巴球之增生以及Interferon-gamma 或 Interleukin 10 之分泌

英文題目：Anthraquinones of *Cassia tora* stimulate Proliferation of Human CD4<sup>+</sup> T Lymphocytes and Secretion of Interferon-gamma or Interleukin 10

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**Background and Purpose:** The anthraquinones-containing wild vegetable *Cassia tora* L. and many traditional Chinese medicines have long been used to treat various diseases. This study evaluated the immunostimulatory activities of four anthraquinones (aloe-emodin, emodin, chrysophanol, and rhein) on human peripheral blood mononuclear cells (PBMC).

**Methods:** Studies were conducted on lymphocyte proliferation by BrdU immunoassay, secretion of interferon-gamma (IFN- $\gamma$ ) and interleukin 10 (IL-10) by an ELISA assay and elucidation of responding immune cells by flow cytometry.

**Results and Conclusions:** The results showed that at non-cytotoxic concentrations, the tested anthraquinones were effective in stimulating the proliferation of resting human PBMC and/or secretion of IFN- $\gamma$ . However, at the concentration of 10  $\mu$ g/ml (35 $\mu$ M), rhein significantly stimulated proliferation of resting human PBMC (stimulation index (SI) = 1.53), but inhibited IFN- $\gamma$  secretion (74.5% of control). The augmentation of lymphocyte proliferation was correlated to the increase in number of CD4<sup>+</sup> T cells, while the elevated secretion of IFN- $\gamma$  and IL-10 might have been due to the activated CD4<sup>+</sup> T cells.