

Immune enhancing effects of Echinacea purpurea root extract by reducing regulatory T cell number and function

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- PMID: **24868871**

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Hyung-Ran Kim et al. Nat Prod Commun. 2014 Apr.

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Nat Prod Commun

. 2014 Apr;9(4):511-4.

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Abstract

Echinacea purpurea preparations (EPs) have been traditionally used for the treatment of various infections and also for wound healing. Accumulating evidence suggests their immunostimulatory effects. Regulatory T cells (Tregs) are known to play a key role in immune regulation in vivo. However, there have been no reports so far on the effects of EP on the frequency or function of Tregs in vivo. Therefore, in the present study, we investigated the quantitative and functional changes in Tregs by in vivo administration with EP. The frequencies of CD4+FoxP3+ and CD4+CD25+ Tregs in the spleens of BALB/c mice administered with EP for 3 weeks were investigated by flow cytometry. The suppressive function of CD4CD25+ Tregs in association with the proliferative activity of CD4+CD25 effector T cells (Teffs) and the feeder function of CD4 antigen-presenting cells (APCs) were analyzed by carboxyfluorescein succinimidyl ester-dilution assay. The results showed a lowered frequency of CD4+FoxP3+ and CD4+CD25+ Tregs and attenuated suppressive function of CD4+CD25+ Tregs, while the feeder function of APCs was enhanced in the EP-administered mice. On the other hand, the proliferative activity of Teffs was not significantly different in the EP-administered mice. The results suggest that decreased number and function of Tregs, in association with the enhanced feeder function of APCs, may contribute to the enhancement of immune function by EP.

Cited by 1 article

- [Studies on phytochemical, antioxidant, anti-inflammatory, hypoglycaemic and antiproliferative activities of Echinacea purpurea and Echinacea angustifolia extracts.](#)

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Publication types

- Research Support, Non-U.S. Gov't

MeSH terms

- Animals
- Echinacea / chemistry*
- Immunity, Cellular / drug effects*
- Male
- Mice
- Mice, Inbred BALB C
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