

FULL TEXT LINKS



*J Ethnopharmacol.* 2011 Oct 11;137(3):1077-82. doi: 10.1016/j.jep.2011.07.024. Epub 2011 Jul 28.

# Inonotus obliquus extracts suppress antigen-specific IgE production through the modulation of Th1/Th2 cytokines in ovalbumin-sensitized mice

Suk-kyung Ko <sup>1</sup>, Mirim Jin, Myoung-yun Pyo

Affiliations

PMID: 21820502 DOI: [10.1016/j.jep.2011.07.024](https://doi.org/10.1016/j.jep.2011.07.024)

## Abstract

**Ethnopharmacological relevance:** Chaga mushroom (*Inonotus obliquus*, IO) has been used as a folk remedy for cancer, digestive system diseases, and other illnesses in Russia and Eastern Europe.

**Aim of the study:** In the present study, we investigated the immunomodulating effects of IO through *in vivo* and *ex vivo* studies.

**Materials and methods:** Serum immunoglobulins (IgE, IgG(1), and IgG(2a)) and cytokines (interleukin (IL)-4, interferon (IFN)- $\gamma$ , and IL-2) were measured in concanavalin A (ConA)-stimulated splenocytes and CD4(+) T cells. The nitric oxide (NO) secretion of lipopolysaccharide (LPS)-stimulated peritoneal macrophages was also measured after oral administration of 50, 100, or 200 mg kg<sup>-1</sup> d<sup>-1</sup> IO hot water extract (IOE) to ovalbumin (OVA)-sensitized BALB/c mice.

**Results:** We found that the OVA-induced increase in serum IgE and IgG(2a) was significantly suppressed when IOE was orally administered after the second immunization with OVA. ConA stimulation in spleen cells isolated from OVA-sensitized mice treated with 100 mg kg<sup>-1</sup> IOE resulted in a 25.2% decrease in IL-4 production and a 102.4% increase in IFN- $\gamma$ , compared to the controls. Moreover, IL-4, IFN- $\gamma$ , and IL-2 were significantly reduced after ConA stimulation in isolated CD4(+)T cells. We also determined that IOE inhibits the secretion of NO from LPS-stimulated peritoneal macrophages *ex vivo*.

**Conclusions:** We suggest that IO modulates immune responses through secretion of Th1/Th2 cytokines in immune cells and regulates antigen-specific antibody production.

Copyright © 2011 Elsevier Ireland Ltd. All rights reserved.

[PubMed Disclaimer](#)

## Related information

[Gene](#)

[Gene \(GeneRIF\)](#)

[HomoloGene](#)

[MedGen](#)

[Nucleotide \(RefSeq\)](#)

[Protein \(RefSeq\)](#)

[PubChem Compound \(MeSH Keyword\)](#)

## **LinkOut - more resources**

### **Full Text Sources**

[Elsevier Science](#)

### **Other Literature Sources**

[The Lens - Patent Citations](#)

### **Research Materials**

[NCI CPTC Antibody Characterization Program](#)