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# Poria cocos modulates Th1/Th2 response and attenuates airway inflammation in an ovalbumin-sensitized mouse allergic asthma model

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**Abstract**

Poria cocos (Schwein) F.A. Wolf (syn. Wolfiporia cocos) dried sclerotium, called fuling(FL), is an edible, saprophytic fungus commonly used as a tonic and anti-aging traditional Chinese medicine that reportedly possesses various pharmacological properties, including anti- inflammation and immunomodulation. In the previous study(Life 2021, 11, 111.), we have shown that FL extract (Lipucan®) containing lanostane triterpenoids enhances non-specific (innate) immunity though activating natural killer cells and promotes interferon (IFN-) secretion by Type 1 T-helper (Th1) cells immune response. It is well known that NK cells and IFN- play important roles in immune defense against virus infections. The innate immune system is very important to defend against viruses that initially invaded the body and activate subsequent adaptive immunity. NK cells are classified as non-specific (innate) immunity responsible for killing virus-infected cells. However, few studies have investigated the effects of FL on allergic diseases, such as allergic asthma(AA). AA is caused primarily by Th2 immune response and characterized by airway inflammation. This study first demonstrated the anti-allergic and anti-asthmatic effects of FL extract. FL extract obviously exhibited reduced inflammatory cell infiltration in the peribronchial and peribronchiolar regions compared to the asthma group in the histological analysis of pulmonary tissue sections in mice. Prolonged FL extract administration significantly reduced eosinophil infiltration, PGE2 levels, total IgE, and OVA-specific IgE. Moreover, FL extract markedly suppressed Th2 cytokines, IL-4, IL-5, and IL-10. Our results suggest that FL extract remodels the intrinsic Th1/Th2 response to prevent or alleviate allergy-induced asthma or symptoms.

**Biography**

Muh-Hwan Su became the general manager of SynCore Biotechnology Co., Ltd.(SynCore) in June 2013. He has been led new drug research and development teams to accomplish many projects of small molecules approved or applying in different stages of Phase I, II, and III of investigational new drugs (INDs) by USFDA, EMA, TGA Australia, FAMHP Belgium, TFDA, and CFDA. Before he worked for SynCore, he was a CSO of Sinphar Group since September 2001. He successfully led R&D teams to accomplish two projects of botanical new drugs approved for phase II by USFDA and TFDA as well as one project got new drug application (NDA) approval to the market from CFDA. He was an associate professor before September 2001 in the School of Pharmacy, National Defense Medical Center. He had many experiences in the development of pharmaceutical dosage forms.

**Publications**

1.The Lanostane Triterpenoids in Poria cocos Play Beneficial Roles in Immunoregulatory Activity

2.EndoTAG-1 plus gemcitabine versus gemcitabine alone in patients with measurable locally advanced and/or metastatic adenocarcinoma of the pancreas failed on FOLFIRINOX treatment (NCT03126435).

3.Echinacoside ameliorates memory impairment and cholinergic deficit induced by amyloid beta peptide via inhibiting amyloid deposition and toxicology

4.Acteoside and Isoacteoside Protect Amyloid β Peptide Induced Cytotoxicity, Cognitive Deficit and Neurochemical Disturbances In Vitro and In Vivo

5.Reversal by aqueous extracts of Cistanche tubulosa from behavioral deficits in Alzheimer's disease-like rat model: Relevance for amyloid deposition and central neurotransmitter function

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