Issue 3, 2017

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From the journal:
Food & Function

Immunomodulatory effects of *Hericium erinaceus* derived polysaccharides are mediated by intestinal immunology

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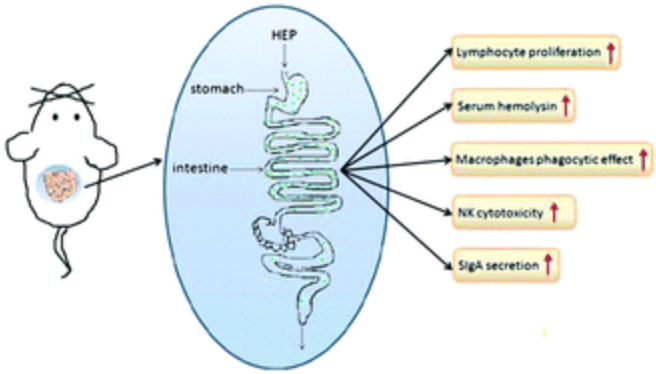
Abstract

This study was aimed at investigating the immunomodulating activity of *Hericium erinaceus* polysaccharide (HEP) in mice, by assessing splenic lymphocyte proliferation (cell-mediated immunity),

serum hemolysin levels (humoral immunity), phagocytic capacity of peritoneal cavity phagocytes (macrophage phagocytosis), and NK cell activity. ELISA of immunoglobulin A (SIgA) in the lamina propria, and western blotting of small intestinal proteins were also performed to gain insight into the mechanism by which HEP affects the intestinal immune system. Here, we report that HEP improves immune function by functionally enhancing cell-mediated and humoral immunity, macrophage phagocytosis, and NK cell activity. In addition, HEP was found to upregulate the secretion of SIgA and activate the MAPK and AKT cellular signaling pathways in the intestine. In conclusion, all these results allow us to postulate that the immunomodulatory effects of HEP are most likely attributed to the effective regulation of intestinal mucosal immune activity.



Article information

https://doi.org/10.1039/C7FO00071E

Article type
Paper

Submitted
13 Jan 2017

Accepted
21 Feb 2017

First published
24 Feb 2017

Citation
Food Funct., 2017, **8**, 1020-1027