



**Maitake** (*Grifola frondosa* Dicks.) mushroom contains grifolan, an important beta-glucan polysaccharide that has been shown to: 1) activate macrophages<sup>1</sup> (a type of cell considered among the "heavy artillery" of the immune system), dendritic cells (another type of immune cells), and T cells;<sup>2</sup> 2) enhance NK cell activity;<sup>3,4</sup> 3) enhance thymus gland weight;<sup>5</sup> and 4) strengthen immune recognition and response to potentially harmful microbes.<sup>6</sup>

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<sup>1</sup> **Oral administration of submerged cultivated *Grifola frondosa* enhances phagocytic activity in normal mice.** Wang L, Ha CL, Cheng TL, et al. *J Pharm Pharmacol.* 2008 Feb;60(2):237-43. <http://www.ncbi.nlm.nih.gov/pubmed/18237472>

<sup>2</sup> **Enhancement of cytotoxicity of NK cells by D-Fraction, a polysaccharide from *Grifola frondosa*.** Kodama N, Asakawa A, Inui A, et al. *Oncol Rep.* 2005 Mar;13(3):497-502. <http://www.ncbi.nlm.nih.gov/pubmed/15706424>

<sup>3</sup> **Enhancement of cytotoxicity of NK cells by D-Fraction, a polysaccharide from *Grifola frondosa*.** Kodama N, Asakawa A, Inui A, et al. *Oncol Rep.* 2005 Mar;13(3):497-502. <http://www.ncbi.nlm.nih.gov/pubmed/15706424>

<sup>4</sup> **Inhibitory effect of MD-Fraction on tumor metastasis: involvement of NK cell activation and suppression of intercellular adhesion molecule (ICAM)-1 expression in lung vascular endothelial cells.** Masuda Y, Murata Y, Hayashi M, et al. *Biol Pharm Bull.* 2008 Jun;31(6):1104-8. <http://www.ncbi.nlm.nih.gov/pubmed/18520039> ; Free full text access: [http://www.jstage.ist.go.jp/article/bpb/31/6/31\\_1104/article](http://www.jstage.ist.go.jp/article/bpb/31/6/31_1104/article)

<sup>5</sup> **The immune effects of edible fungus polysaccharides compounds in mice.** Yin Y, Fu W, Fu M, et al. *Asia Pac J Clin Nutr.* 2007;16 Suppl 1:258-60. <http://www.ncbi.nlm.nih.gov/pubmed/17392115>

<sup>6</sup> **Inhibition of hepatitis B virus by D-fraction from *Grifola frondosa*: synergistic effect of combination with interferon-alpha in HepG2 2.2.15.** Gu CQ, Li J, Chao FH. *Antiviral Res.* 2006 Nov;72(2):162-5. <http://www.ncbi.nlm.nih.gov/pubmed/16846649>