Anticancer Properties Make Maitake an Excellent Candidate for Clinical Trials

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Maitake (*Grifola frondosa*) is a mushroom that grows in the northeastern regions of Japan and in North America. Also called "Hen of the Woods" and the "King of Mushrooms," maitake, the dancing mushroom, grows from underground tuber structures. In the United States and Canada, maitake is found at the base of oak and other deciduous trees, as well as some conifers. It occurs in clusters 10 to 20 inches wide weighing anywhere from 5 to 100 pounds. It is quality edible mushroom and is used in many dishes, especially in Asia. It is also used in traditional Asian medicine for a variety of purposes.

Extracts and supplements derived from the cap and stem of Maitake are used as immune stimulants, and to regulate blood pressure, blood glucose and lipids. Published evidence from the scientific literature has provided very promising preliminary evidence that maitake may have both anticancer and hypoglycemic properties. Evidence for these two potential properties is discussed below.

Several reports indicate that maitake may have anticancer effects that are worth further investigation. Maitake has been reported to have positive effects on breast cancer in a small phase I/II clinical trial (1). In that report, the authors believed the anticancer effect occurred through activation of the immune system. Using cell culture experiments in the laboratory, maitake has been shown to decrease the growth of cancer cells (2-4). This work is being extended to humans and is showing promising results (1,5,6).

Maitake has also been shown to induce apoptosis (programmed cell death) under experimental
conditions (7-9) and inhibit metastasis of tumors implanted in mice (10). These two observations provide further support for maitake's potential as an anticancer agent; however research in humans is required.

Initial experiments designed to understand the mechanism of action for maitake's anticancer properties has been performed. This early data indicates that certain cells of the immune system are activated by maitake. Such cells include natural killer cells, macrophages and T-cells (11-15). There is also evidence that maitake may increase the cytokine interleukin-1 and increase superoxide anions; both of these molecules are involved in immune response. It is hypothesized that maitake's anticancer properties function through a β-glucan polysaccharide (9,11).

Published evidence also indicates that maitake can decrease glucose levels in both mice and humans (16,17) indicating that maitake may be able to play a role in patients with diabetes. This property may function by increasing insulin sensitivity, possibly through an α-glucan polysaccharide (16). However, as with anticancer properties, the hypoglycemic properties of maitake have not been completely established; maitake is not ready to be used as a hypoglycemic agent for diabetic patients.

To date, maitake has not displayed any adverse reactions. However since maitake has been shown to have hypoglycemic properties, patients using hypoglycemic drugs need to consult a physician before using maitake.

Maitake shows promise for treating both cancer and diabetes. In order to determine the precise efficacy, dosage, mechanism of action and to completely address all safety concerns, additional research, both laboratory based and clinical, is needed. Indeed, once this research is done, maitake or its components may be of significant use in the treatment of both cancer and diabetes.
References


