

Active compounds found in *Ganoderma lucidum* fungus with potential to treat prostate cancer

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A new development in the fight against cancer: Recent research at the University of Haifa found that molecules found in common fungus *Ganoderma lucidum* aid in suppressing some of the mechanisms involved in the progression of prostate cancer. The main action of the fungus: disrupting androgen receptor activity and impeding the proliferation of cancerous cells.

Over the past 3-4 decades much scientific research has dealt with the medicinal properties of different fungi. One of the important characteristics of fungi is the ability to fight cancer in a number of ways; however most of the research has been concentrated on how fungi affect the immune system.

In this research, conducted by Dr. Ben-Zion Zaidman, under the direction of Prof. Eviatar Nevo and Prof. Solomon Wasser from the Institute of Evolution at the University of Haifa, and Dr. Jamal Mahajna from the Migal Galilee Technology Center, the researchers examined how fungi fight cancer from within cells.

"Up to now, research has been based on enhancing the immune system with high-molecular-weight polysaccharides that act through specific receptors in cell membranes. We concentrated our research on low-molecular-weight secondary metabolites that can penetrate the cells and act at the molecular level from within the cell itself," explained Dr.

Zaidman.

According to Dr. Zaidman, prostate cancer, one of the most common cancers found among men in the Western World, is controlled by the androgen receptor, especially at the initial stages of development of the disease. Therefore, all of the current medications used to treat prostate cancer work to reduce the production of androgens or to interfere with their function via the androgen receptor.

At the first stage of the research, 201 organic extracts from 68 types of fungi were produced with solvents such as ether, ethyl acetate and ethanol. These solvents are used to select molecules that are small enough to act from within the cells. Of the 201 extracts, 11 were found to deter androgen receptor activity by more than 40%. In further testing, 169 extracts were tested for cancer cell growth inhibition. In this study, 14 extracts were found to be active in inhibiting prostate cancer cells.

From among the active extracts, those from *Ganoderma lucidum* were found to be the most effective in inhibiting the function of the androgen receptor and controlling vital development of cancerous cells. "The results of this research are particularly interesting from a commercial aspect. Potential possibilities exist to establish research and development of bioactive metabolites from *Ganoderma lucidum* that could yield an anti-prostate cancer drug," remarked Dr. Zaidman.

Source: University of Haifa

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