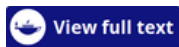


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[Nutr Cancer](#). 2010;62(5):648-58. doi: 10.1080/01635581003605516.

The effects of two different ganoderma species (Lingzhi) on gene expression in human monocytic THP-1 cells

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Abstract

Lingzhi (ganoderma) is an important woody mushroom that is known for its medicinal benefits in China since ancient times. The mode of action in humans is still not clear. Using microarray technology, we have compared the ethanol extracts of two different lingzhi (red lingzhi, *G. lucidum*; and purple lingzhi, *G. sinense*) for their effects on gene expression profile in human monocytic cells. Our results suggest that at best approximately 25% of target genes are common to the two lingzhi: functionally ranging from cell development, negative regulation of cellular process, and cellular protein metabolic process to signal transduction and transcription. The pathways mediated by purple lingzhi focus on inflammation and immune response, whereas red lingzhi modestly increases levels of expression for genes involved in macromolecule metabolism. Furthermore, our ethanolic extracts of both red and purple lingzhi do not inhibit monocytic cell growth. The extract of red lingzhi does not have significant effect on the genes in the nuclear factor kappa B (NFkappaB) pathway (an important inflammation pathway), whereas the extract of purple lingzhi can increase multiple key genes in the NFkappaB pathway. Altogether, our results suggest that the common mode of action for lingzhi is complex; and different species of Ganoderma can modulate different pathways in human cells.

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