

Garlic Kills Brain Cancer Cells

...Without Side Effects

by Dave Mihalovic

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Dave Mihalovic is a Naturopathic Doctor who specializes in vaccine research, cancer prevention and a natural approach to treatment.

Cancer cells have a high metabolism and require much energy for rapid growth.

Researchers reported in the *Journal Cancer* that that garlic compounds produced reactive oxygen species in brain cancer cells, essentially gorging them to death with activation of multiple death cascades and blocking pathways the proliferation of brain tumors.



Garlic is probably nature's most potent food. It is one of the reasons people who eat the Mediterranean diet live such long healthy lives. Garlic is also a powerful performer in the research lab.

Washington State University previously showed that garlic is [100 times more effective than two popular antibiotics](#) at fighting disease causing bacteria commonly responsible for food-borne illness.

[Glioblastoma](#) is the most common and most aggressive malignant primary brain tumor in humans, involving glial cells and accounting for 52% of all functional tissue brain tumor cases and 20% of all intracranial tumors.

Treatment typically involves [chemotherapy and radiation](#) which unfortunately kills brain cells indiscriminately and offers a median survival rate of 15 months.

More than 90% of chemotherapy patients also die within 10-15 years after treatment. For the first time, organo-sulfur compounds found in garlic have been identified as effective against glioblastoma, and may soon offer effective non-invasive forms of cancer therapy without the deadly side effects associated with chemotherapy.

Swapan Ray, Ph.D. (MUSC Neurosciences/Neurology associate professor), **Naren Banik**, Ph.D. (MUSC Neurosciences/Neurology professor), and **Arabinda Das**, Ph.D. (MUSC Neurosciences/Neurology post-doctoral fellow) studied three pure organo-sulfur compounds,

- DAS
- DADS
- DATS,

...from garlic and the interaction with human glioblastoma cells.

The sulphone hydroxyl ions in garlic can actually penetrate the blood-brain barrier.

All three compounds demonstrated efficacy in eradicating brain cancer cells, but [DATS](#) proved to be the most effective.

The study was published in American Cancer Society's journal, '[Garlic compounds generate reactive oxygen species leading to activation of stress kinases and cysteine proteases for apoptosis in human glioblastoma T98G and U87MG cells](#)'.

"This research highlights the great promise of plant-originated compounds as natural medicine for controlling the malignant growth of human brain tumor cells," Ray said.

Ray and Banik are optimistic about the possible applications of their discovery to patient care.

"Our basic studies will eventually be translated to clinics for patient care. We may have to wait several years before its application to humans, but the significance of this discovery is enormous," Banik said.

"The benefits from this research to brain cancer patients will bring great satisfaction to researchers and clinicians who are trying to find a successful treatment for this devastating cancer."

A breakdown of allicin appears to be necessary for achieving maximum tumor inhibition. Allyl sulfur compounds preferentially suppress neoplastic over non-neoplastic cells ([Sakamoto, Lawson, and Milner 1997](#)).

It is becoming increasingly clear that the response to allyl sulfurs relates to their ability to form free radicals rather than to serve as an antioxidant ([Antosiewicz et al. 2008](#)). Allyl sulfurs may bring about changes by influencing the genomic expression by affecting histone homeostasis.

Garlic-derived organo-sulfur compounds are small molecules that would not necessarily require complicated methods of delivery for treating brain tumor patients, the scientists said, and their natural origin would be significantly better for the human body than synthetic treatment options.

To take advantage of any potential anti-cancer benefits from garlic now, certain rules apply. Ray said to cut and peel a piece of fresh garlic and let it sit for fifteen minutes before eating it.

This time allows for the release of an enzyme (allinase) that produces the anti-cancer compounds.