

Compounds show potential in fighting brain and breast cancers

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Dr. James Turkson is the Chief Academic Lead of the University of Hawai'i Cancer Center and Director of the Natural Products and Experimental Therapeutics Program. Credit: UH Cancer Center

Researchers have discovered two chemical compounds that effectively stop the growth of brain cancer cells and breast tumors, opening the way for potential new drugs to be developed.

"It is particularly encouraging for brain tumor patients, who do not currently have effective treatment options besides surgery," said Dr. James Turkson, PhD, Chief Academic Lead of the University of Hawai'i Cancer Center and Director of the Natural Products and Experimental Therapeutics Program. "The targeted treatments are less toxic and therefore will give cancer patients a better quality of life when both compounds are developed as drugs."

About 15,320 people die from [brain cancer](#) each year nationwide. Breast cancer is the most common cancer among American women; about 40,931 die from the disease each year.

In a study published in the journal *Cancer Research*, Turkson and collaborator Marcus Tius, PhD, MS, Director of Cancer Biochemistry at the

UH Cancer Center, examined compounds that inhibit Stat3, a protein implicated in a variety of cancers that include brain and breast cancers.

The two [chemical compounds](#), a hydroxamic acid-based inhibitor (SH5-07), and a benzoic acid-based inhibitor (SH4-54) designed at the UH Cancer Center stopped the growth of brain and breast [cancer cells](#) by blocking a certain function of the Stat3 protein.

When the Stat3 protein, which regulates genes, goes haywire and no longer functions normally, it drives cells to continue growing and makes tumor cells multiply and spread. The two compounds stop the protein from promoting cancer cells to grow, thus stopping the tumors from growing.

"Targeted therapies are based on understanding what is driving the cancer and how new drugs are designed to attack those cancer causing pathways," said Turkson. "We would like to advance these studies to turn the chemical compounds into new anti-cancer drugs to help patients potentially have better survival chances."

Provided by University of Hawaii Cancer Center

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