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Anti-fungal Drug May Help Treat Cancer, Say Scientists at UC Santa Barbara

A drug that has been used for 40 years for the treatment of skin fungus has been found to be a possible cancer treatment, according to an international team of scientists.

Leslie Wilson, professor of biochemistry and pharmacology at the University of California, Santa Barbara, said that the anti-fungal drug, griseofulvin, has been shown to inhibit the growth of cancer cells in his laboratory. The results are published in today's online edition of the Proceedings of the National Academy of Sciences.

The work is the result of a collaboration between Wilson's lab, in UCSB's Department of Biochemistry, Molecular, Cellular and Developmental Biology, and the lab of Dulal Panda, associate professor of biochemistry in the Biotechnology Center, Indian Institute of Technology Bombay.

"The drug has remarkably few side effects and has been used for a long time," said Wilson. Griseofulvin is administered orally, and has been used for decades to treat ringworm and other fungal infections of the skin.

"We discovered that it has the ability to inhibit the growth of cancer cells, in a manner that is similar to much more powerful anticancer drugs such as Taxol and vinblastine," said Wilson. "Although the anti-cancer activity is weak, it is already approved for human use and could be used along with more powerful anticancer agents as an adjuvant in cancer chemotherapy."

The authors found that the drug inhibits the proliferation of cancer cells by affecting mitosis, or cell division, and mitotic spindle microtubule function. They conclude: "A mild suppression of microtubule dynamics by griseofulvin in tumor cells, combined with the effects of more powerful drugs working through other mechanisms, might provide a therapeutic advantage for treatment of certain tumors."

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† About the Illustration

Mitotic HeLa cells treated with griseofulvin.

The anti-fungal drug griseofulvin inhibits human tumor cell proliferation at mitosis in a manner similar to more powerful microtubule-targeted antitumor drugs that suppress microtubule dynamics (red, spindle microtubules, blue, chromosomes). Shown are a normal spindle (top left) and blocked spindles. Courtesy of NAS.

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