

Study suggests common drug could be used to prevent certain skin cancers

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New data published by researchers at The Ohio State University Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC—James) suggests that an oral drug currently used in the clinical setting to treat neuromuscular diseases could also help prevent a common form of skin cancer caused by damage from ultraviolet-B (UVB) radiation from the sun.

While this data was gathered from [preclinical studies](#), senior author Sujit Basu, MD, Ph.D., says preliminary results in animal models are very promising and worthy of immediate further investigation through phase I [human studies](#).

Basu and his colleagues reported their initial findings online ahead of print April 12 in *Cancer Prevention Research*, a journal of the American Association for Cancer Research.

According to the American Cancer Society, more than 5.4 million basal and squamous cell skin

cancers are diagnosed annually in the United States. The disease typically recurs throughout a person's lifetime, and advanced disease can lead to physical disfigurement. These cancers are linked to the sun's damaging rays, and despite increased public awareness on sun safety precautions, rates of the disease have been increasing for many years.

Previous peer-reviewed, published studies have shown that [dopamine receptors](#) play a role in the development of cancerous tumors; however, their role in precancerous lesions is unknown.

In this new study, OSUCCC—James researchers report data showing that the neurotransmitter/neurohormone dopamine, by activating its D2 receptors, can stop the development and progression of certain UVB-induced precancerous squamous skin cancers. Researchers also describe the molecular sequence of events that leads to cancer suppression.

"Cancer control experts have been stressing the importance of reducing exposure to the sun and practicing sun-safe habits for many years, but [scientific data](#) shows us that cumulative damage of UV rays ultimately leads to skin cancer for many people. Finding better ways to prevent these cancers from developing is critical to reduce the global burden of this disease," says Basu, a researcher with the OSUCCC—James Translational Therapeutics Research Program and a professor of pathology at The Ohio State University College of Medicine.

"Our study suggests that a commonly used drug that activates specific dopamine receptors could help reduce squamous cell skin cancer recurrence and possibly even prevent the disease entirely. This is especially exciting because this is a drug that is already readily used in clinical settings and is relatively inexpensive. We are excited to continue momentum in this area of research," adds Basu.

The OSUCCC—James is working on plans to begin further testing in a phase I experimental clinical trial in the coming months.

More information: Kai Lu et al, Dopamine prevents ultraviolet B-induced development and progression of premalignant cutaneous lesions through its D2 receptors, *Cancer Prevention Research* (2021). DOI: [10.1158/1940-6207.CAPR-21-0052](https://doi.org/10.1158/1940-6207.CAPR-21-0052)

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