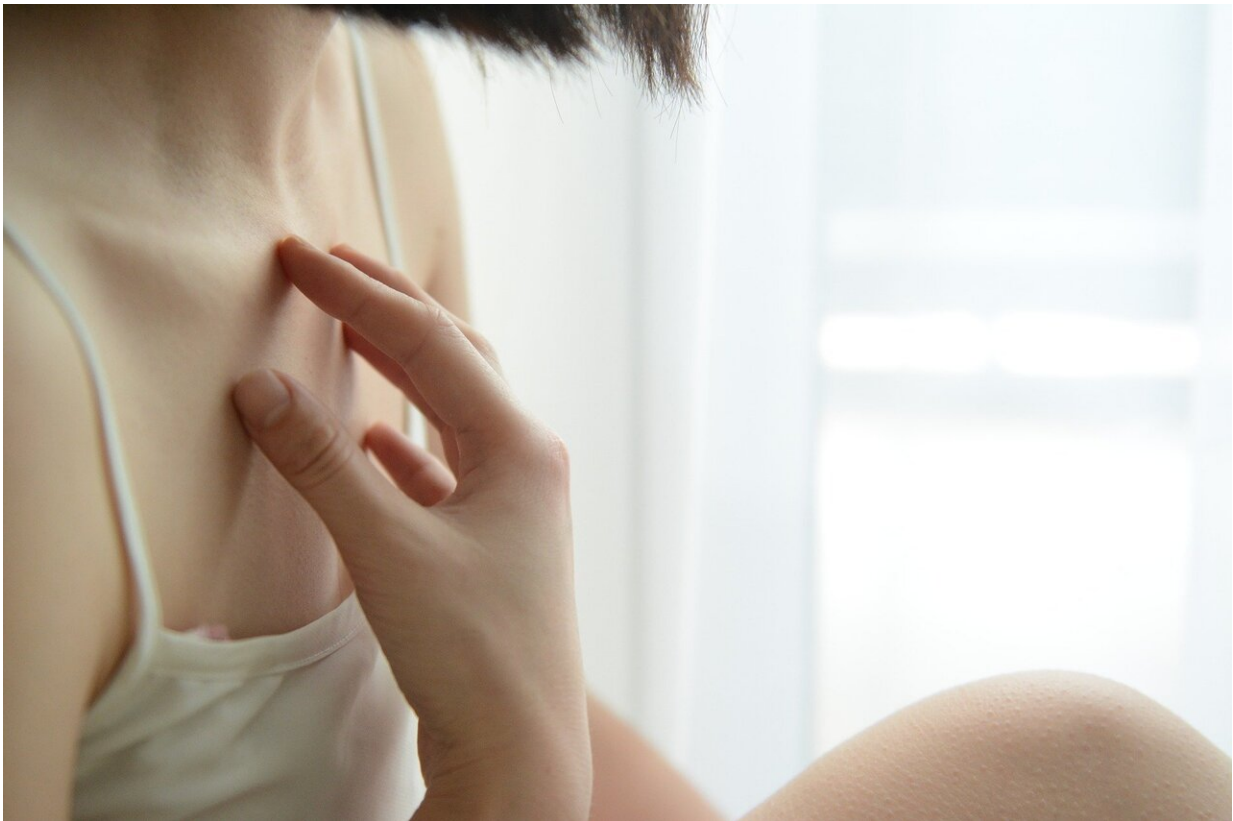


Stopping the clones may help win skin cancer battle

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Targeting large clones of skin cells caused by ultraviolet irradiation (UV) may help reduce skin cancers, according to University of Queensland research.

Professor Kiarash Khosrotehrani said the study found proliferation of these large clones was concentrated around hair pores and not evenly distributed.

"Using genetic engineering of skin epidermal stem cells, we were able to track the growth, regression and cancerisation of individual clones that resulted from UV exposure.

"We found large clones regressed in size as soon as skin irradiation stopped, highlighting the importance of sun protection," Professor Khosrotehrani said.

Keratinocyte cancers, or basal and [squamous cell carcinomas](#), are one of the main cancers in Australia, affecting one in three people, and are strongly linked to sun exposure.

Dr. Edwige Roy said skin cancers were more likely to be found in large clones.

"While surgery is extremely effective in treating individual keratinocyte cancers, it doesn't prevent a high proportion of patients from developing subsequent tumours in the same sun damaged area," Dr. Roy said.

"In Queensland, about four per cent of people experience 10 or more skin cancers every three years.

"For these patients, [skin cancer](#) is a chronic disease with multiple surgeries and regular skin checks required during their lifetime.

"While it's still unclear what processes drive the formation of skin [cancer](#), our study helps clarify the influence of UV irradiation in its development by evaluating clone size dynamics in skin exposed to chronic ultraviolet irradiation," she said.

"It also considers whether specific clones have more propensity to form skin cancer.

"Our findings have major implications for reducing skin cancer through sun protection and reducing the size of skin clones.

"Chemoprevention treatment could play a significant role in addition to sun protection by reducing the size of [skin](#) cancer clones, lowering keratinocyte cancers rates in Australia."

This study was published in the journal *Cell Reports*.

More information: Edwige Roy et al, Regional Variation in Epidermal Susceptibility to UV-Induced Carcinogenesis Reflects Proliferative Activity of Epidermal Progenitors, *Cell Reports* (2020).
[DOI: 10.1016/j.celrep.2020.107702](https://doi.org/10.1016/j.celrep.2020.107702)

Provided by University of Queensland

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