

NUS team claims advance in skin cancer treatment

Medical school researchers develop molecule that can 'kill' melanoma skin cancer cells

Cheryl Teh

Researchers at the National University of Singapore's Yong Loo Lin School of Medicine say they have developed a molecule that can "kill" melanoma skin cancer cells.

The man-made molecule is said to control the growth of cancer cells by activating a "death switch", starting a process which causes the cells to die.

The molecule's potential for treating melanoma skin cancer was discovered by a team headed by Professor Carlos Ibanez, a scientist in the Department of Physiology at NUS Medicine.

Skin cancers are divided into two kinds: melanoma and non-melanoma. The incidences of both types have risen over the past decades, with about 132,000 cases occurring globally every year.

Melanoma skin cancers are extremely deadly. The cancer first manifests in the form of a large, unevenly-covered mole, and may affect moles that are benign.

There is no definitive cure for skin cancer.

Prof Ibanez told the media in an interview that treatment prospects for melanoma skin cancer are slim, with just a 55 per cent survival rate.

The use of the molecule to activate the "death receptor" of melanoma skin cancer cells, he said, presents an option for a new treatment method for the remaining 45 per cent of melanoma skin cancer patients for whom current treatment fails.

"Patients and their cancers are heterogeneous. There is no one cure," said Prof Ibanez. "It justifies to have different types of treatment for the rest of the patients."

The research team has worked on this project since 2013, scanning a prototype library of 1,580 compounds of molecules from the US National Cancer Institute. The most responsive molecule was then chosen for further tests.

When tested in mice, the molecule, named NSC49652, bound to a specific "death receptor" molecule (p75NTR) within a cancer cell, resulting in the death of that cell, controlling the cancerous growth.

Prof Ibanez's team is expanding its research, working to improve the molecule to prolong the survival of melanoma patients.

The team will work to find other molecules like NSC49652, in the hope of discovering a more potent molecule to target cancer cells in melanoma skin cancer patients.

Adjunct Assistant Professor Mohamad Farid, consultant medical oncologist at the National Cancer Centre Singapore, said: "Targeting this specific protein receptor that has previously been identified in melanoma cells may be a promising avenue of research into potential treatments for melanoma."

He added that previous attempts to target this receptor had focused on inhibiting a specific part of the receptor.

The drug identified in this study works, Prof Mohamad said, to inhibit a different part of the receptor, potentially achieving more effective targeting and killing of cells.

He added that the drug identified in this study will need to undergo rigorous clinical evaluation to confirm its safety and effectiveness before it can be used to treat patients.

"The result of this study... is a critical and promising first step in this process," he said.

The research paper was published in the April 2018 issue of *Cell Chemical Biology*.

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