How skin cancer cells evade immune system: study

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Scientists have pinpointed a molecular mechanism in mice which helps skin cancer cells confound the animal's immune system, according to a study released Wednesday.

The discovery -- if duplicated in humans -- could one day lead to drug treatments that block this mechanism, and thus the cancer's growth, the study reported.

In experiments on mice, researchers showed for the first time that a protein called interferon-gamma (IFN-gamma) plays a key role in the spread of melanoma, a notoriously aggressive form of cancer resistant to standard chemotherapy.

The same kind of ultraviolet radiation that leads to sunburn caused white blood cells to infiltrate the skin of the mice, explained Glenn Merlino, a scientist at the US National Cancer Institute and the main architect of the study.

The white blood cells, in turn, "can produce IFN-gamma. We believe that IFN-gamma can promote melanoma in our model system, and perhaps in people," he said in an email.

Injecting the mice with antibodies that block IFN-gamma interrupted this signalling process, effectively reducing the risk of UV-induced skin cancer, the researchers found.

"We are trying to develop inhibitors that are more practical than antibodies, a small molecule, for example," Merlino said.

Ideally, such a treatment would mean that someone exposed to large doses of UV radiation -- long summers at the beach without protective cream, for example -- could escape the potentially lethal threat of skin cancer.

"But we would never encourage intense sunbathing, even if such a treatment were available," Merlino cautioned.

Cases of cutaneous malignant melanoma are increasing faster than any other type of cancer.

In 2000, over 200,000 cases of melanoma were diagnosed and there were 65,000 melanoma-associated deaths, according to the World Health Organisation (WHO).

The findings, reported in the British-based science journal Nature, could upend assumptions about the relationship between interferon proteins and cancer, the study suggested.

Up to now, interferons were thought to impede the formation of cancer tumours. One in particular, interferon-alpha, has been widely used to treat melanoma, both as a first-line drug and an adjutant.

Earlier research has raised doubts as to effectiveness of the treatment, which also has serious side effects.

The highest recorded incidence was in Australia, where the annual rates are 10 and over 20 times the rates in Europe for women and men respectively.

The main risk factors are high exposure to the sun and other UV sources such as sunbeds, along with genetic factors.

The disease is far more common among people with a pale complexion, blue eyes, and red or fair hair.

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