Top Stories in Research

By Dr. Jan Dutz

What's new on the research front? The articles from which these summaries of the latest in skin research are taken are so hot off the press the ink has barely dried.

Anticancer cream activates tumour killers

Imiquimod cream has been marketed for more than 10 years as a product that activates the skin's immune system to treat warts and common skin cancers such as basal cell carcinoma (the most common kind of cancer in people) and cancer precursors such as actinic keratoses (rough spots on sun-exposed skin that may turn into skin cancer).

In a recent study, investigators from Vienna, Austria, examined the mechanisms of action of imiquimod (*J Clin Invest* 2012;122:575–85). It was already known that the cream has many modes of action: it prevents blood vessel growth, directly kills tumour cells and activates immune T cells to control tumours. However, the investigators found that a crucial mechanism of action of this cream is to stimulate allergy cells, termed mast cells, to produce a chemical that attracts dendritic cells. Dendritic cells are the coordinators of the immune response. In this case, the dendritic cells are also stimulated to develop into killer cells that can directly dispatch tumours. This response enabled the killing of deadly melanoma skin cancers in mice.

This cream has on occasion been used to treat forms of melanoma in humans. These new observations may explain why the cream has to be applied to each tumour deposit in melanoma and basal cell carcinoma to be effective; the cream induces cancer-killing cells to congregate at the applied site. Who knew that a single cream can have so many effects!

Stay informed

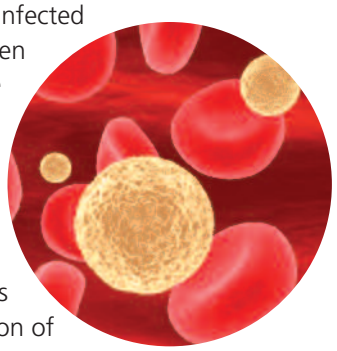
The Internet holds a wealth of information, but it is not meant to replace a visit to your dermatologist. Be wary of miracle cures you may read about online. For successful surfing, look who is running the site, who the author is and how the site is funded. Remember that medical research standards and treatments are not the same in all countries. Stay informed, but be wise when selecting your source.

The CSPA provides the latest dermatology research information thanks to Dr. Jan Dutz. Do you have a question for us regarding this article or any other research information you have read?

Email your questions to: **magazine@canadianskin.ca**.

The skin develops an immune memory to ward off attack

Investigators at Harvard Medical School have studied how the skin, once infected by a virus, is then less susceptible to repeat infection by that virus. They have shown that infection results in the generation of immune T cells that take up long-term residence in the skin and are poised to protect the body from further attack (*Nature* 2012;483:227–31).



It was previously thought that most T cells lived in either the lymph nodes or the bone marrow and travelled to sites of infection. This work shows that after infection, the protective cells actually take up residence within the whole skin. Thus, even previously uninfected skin sites are protected.

The demonstration that most of these cells actually reside within the skin may explain why some diseases, such as eczema, often recur at the same site: the memory immune cells actually continue to stay in the skin. CS

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