

New light-activated suncream will cut skin cancer

August 22 2013



A new suncream ingredient developed by researchers at Bath could soon play an important role in reducing skin cancer rates from sun damage.

With a Bank Holiday weekend around the corner and the expected return of sunny weather, families around Britain are hoping not to put the suncream away just yet.

However, while many suncreams provide good protection against the <u>sun</u> 's UVB rays, the chief cause of skin reddening and <u>sunburn</u>, they provide less protection against more prevalent UVA rays. Scientists believe this may be one of the reasons why <u>skin cancer</u> incidence rates are increasing worldwide.

Now researchers in our Department of Pharmacy & Pharmacology have created an innovative ingredient which when applied in a suncream can act as a UVA filter and provide fuller protection against <u>skin damage</u>.



In the UK, over 100,000 new cases of skin cancer are diagnosed each year, of which 10,000 are malignant melanoma – the deadliest form of the disease and also the fifth most common cancer in the UK.

Scientists here at Bath have previously shown that when exposed to the UVA component of sunlight, the skin releases iron and produces free radicals. Free radicals are harmful species that damage the skin cells by interacting with fat, protein and DNA of the cells. The release of free iron promotes the formation of additional, harmful free radicals that increase the damage caused and has been shown to play a key role in skin ageing and the onset of skin cancer.

The new compounds are light activated when exposed to relevant doses of UVA, and unique in how they release anti-oxidants to neutralise free radicals whilst at the same time capturing excess iron in the skin.

Dr Charareh Pourzand, Researcher in Pharmacy & Pharmacology said: "Antioxidants have already been used as a means to counteract the skin damage caused by UVA. However these agents are not effective, since the simultaneous release of iron in the cells continues to generate more harmful <u>free radicals</u>. The use of 'naked' iron chelators for skin protection is also not adequate, since such agents would starve the cells from the iron that is necessary.

"The molecules we have developed respond to sunlight and provide a safe solution to this problem. The potential medical impact of this project is significant as the caged-iron chelators could provide a highly effective means of protection against UVA- and UVB-induced skin damage and associated skin cancer."

Medicinal chemist Dr Ian Eggleston added: "The new compounds that we are synthesising provide a highly effective means of protection against both UVA- and UVB-induced skin damage and associated skin



cancer, without inducing toxicity in cells. These compounds will be applied as a 'pro-drug' to the skin as part of a suncream, and then activated at the right time and in the right place by UVA."

At the beginning of the year this work benefited from a grant provided by Garnier and the British Skin Foundation.

Hermione Lawson, from the British Skin Foundation, commented: "We are very excited to play a part in this pioneering research that could lead to a new generation of sunscreens. It is essential this kind of scientific research continues to be funded so that we can further our understanding of the complex relationship between UV rays and the development of skin cancer. We look forward to the continued findings of Drs Pourzand and Eggleston and their team."

Provided by University of Bath

Citation: New light-activated suncream will cut skin cancer (2013, August 22) retrieved 4 May 2024 from <u>https://medicalxpress.com/news/2013-08-light-activated-suncream-skin-cancer.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.