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Kangaroos give a lesson in skin cancer prevention

Understanding how kangaroos repair their DNA could be the key to preventing skin cancer in the future, according to new research by Dr Linda Feketeová and Dr Uta Wille from the ARC Centre of Excellence for Free Radical Chemistry and Biotechnology at The University of Melbourne.

Together with scientists from The University of Innsbruck, Austria, Dr Feketeová and Dr Wille are working toward reducing the number of skin cancer-related cases by investigating the chemistry behind potential skin cancer therapies.

The teams are investigating a DNA repair enzyme found in kangaroos and many other organisms, but not humans. This enzyme is very effective in repairing a particular type of DNA damage linked to many skin cancers.

“As summer approaches, excessive exposure to the sun’s harmful UV light will see more than 400,000 Australians diagnosed with skin cancer,” says Dr Feketeová.

“Other research teams have proposed a ‘dream cream’ containing the DNA repair enzyme which you could slap on your skin after a day in the sun. We are now examining whether this would be feasible by looking at the chemistry behind the DNA repair system.”

Using highly sophisticated technology, the groups are simulating the skin’s UV exposure in the laboratory, and then analysing the DNA repair process in a specialised mass spectrometer instrument.

“We were quite surprised that the DNA’s repair process also resulted in a number of chemical by-products, which have never been seen before,” says Dr Wille

“Our plan is to study these products to understand if the DNA repair enzyme could be incorporated into a safe and effective method for skin cancer prevention.”.

“But there is still much to investigate before this ‘dream cream’ will be available at the pharmacy, so don’t throw out your sunscreen just yet!” adds Dr Feketeová.

This work will be published as a “hot paper” in the upcoming edition of Chemical Communications.

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