Jury still out on sunscreen nanoparticles: study

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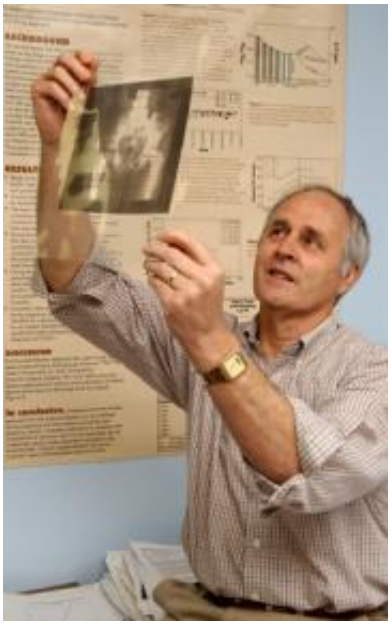

(PhysOrg.com) -- A technique developed by Macquarie University has proven for the first time that a tiny amount of zinc from sunscreens is absorbed through the skin into the human body, but is not yet able to discern whether the zinc is in nanoparticle form.

Professor Brian Gulson of Macquarie University conducted the research - published online in the current edition of the journal *Toxicological Sciences* - with collaborators in CSIRO and the Australian National

University and the Australian Photobiology Testing Facility. The research was widely reported on in February 2010 following a presentation by Gulson at a scientific conference.

The team traced the skin absorption of a highly purified and stable isotope which allowed them to distinguish the zinc from the sunscreen from that which is naturally present in the body or environment. Zinc is absolutely essential to bodily functions.

To simulate real life conditions, the team carried out the study outdoors over five days in March 2009. Two groups of males and females had sunscreen applied twice daily and blood and urine samples were collected and analysed for their zinc isotopic signature.

For the first time, the team found zinc from the sunscreens in the blood and urine of all volunteers, but one of the most interesting findings was that there was an increase in the tracer in the blood six days after the trial finished. The other important findings were that there was a linear increase in the zinc tracer with the amount of sunscreen applied to the backs of volunteers over the five days of the trial and there was slightly more tracer zinc in females who had a sunscreen with nanoparticles applied to those who had a bulk sunscreen applied.

In spite of these findings of definite penetration, Gulson said that: "the amounts of tracer zinc found in the blood were quite small (