AMCRC Project 1.3.1a: Nanoparticle additives for personal care products

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Background

• UV light is the main cause of skin cancer, sunburn and wrinkle formation

• ~400,000 cases of skin cancer reported a year in Australia; treatment costs ~$A350M/yr

• Nano-sized particles of zinc oxide (ZnO) make highly-effective broad spectrum UV blockers in sunscreens
  - Organic blockers are highly absorbed through skin, are not broad spectrum UVA/B blockers - some are unstable under UVA

• Need a tool to optimise personal care products containing ZnO nanoparticles to ensure they are UV & immune protective, hypoallergenic and safe to use
AMCRC Project outline

- AMCRC Project 1.3.1a: “Nanoparticle additives for personal care products”
- R&D Participants: RMIT and Monash Universities
- Industry Participants: Micronisers P/L, Baxter Laboratories P/L, VCAMM
- Project Support April 2009 - 2012: $1.5M cash ($814K RMIT)
  Total value (including in-kind) $3.6M
AMCRC Project Aims

- Examine the interactions of a range of ZnO nanoparticles with the *in vitro* cell culture system.

- Examine the toxicity & inflammatory profiles induced by these nanoparticles in human skin and immune cells *in vitro*, and determine the mechanisms involved.

- Determine the physical and structural characteristics of nanoparticles that are important for bioactivity.

- Develop a screening system for technology-transfer to industry partners to help optimise their formulation of personal care products (including sunscreens).