



Research Project Proforma (School of Medicine)

Submit this form electronically to l.j.cartlidge@keele.ac.uk by 31st July 2015

Research Title:	The Shelf-Life of Commercial Sunscreens
Keywords (up to 5)	Sunscreens, UV, Photoprotection, Photochemistry
Supervisor:	Dr David McGarvey
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Type of projects offered (delete as appropriate)	Studentship (4-8 weeks)

(1) Outline the broad aims of your research and its medical relevance (150 words)

The incidence of skin cancers caused by exposure to UV radiation has increased significantly in recent years. Commercial sunscreens are designed to help protect against sunburn, photo-ageing of the skin and skin cancer, although there is widespread confusion surrounding the interpretation of sunscreen metrics (e.g. the sun protection factor, SPF and UVA protection metrics) as well as other aspects of sunscreen technology and use. One aspect of sunscreens that is not well understood by the general public is shelf-life, with the result that large quantities of sunscreen may be discarded needlessly. Alternatively, consumers may be using old sunscreen that has degraded and no longer offers the protection claimed. The aim of this research is to use analytical chemistry techniques to investigate the shelf-life of a variety of sunscreen products.

(2) Indicate the skills/techniques the student will learn (100 words)

The student will learn about the scientific background behind the design of sunscreens, how sunscreens work and how the UV protection metrics are defined and measured. The techniques involved will include UV-VIS spectrophotometry, general chemistry laboratory skills, UV photo-irradiation as well as the simulation of sunscreens using the BASF sunscreen simulator. The work will involve data handling using spreadsheets

*Please ensure that appropriate project costs are in place before submitting this form.
You may need to discuss this with your HoS and the Faculty Research Director.*