Principal Investigator - **Graham Timmins, Ph.D.**

Dr. Timmins is an Associate Professor of Medicinal Chemistry University of New Mexico’s College of Pharmacy. He received his B.S. in biochemistry and Ph.D. in Photodynamic Therapy from the University of Leeds. He has received 5 issued patents for diagnostic and therapeutic technologies for tuberculosis, cystic fibrosis and melanoma, and 1 UNM-affiliated registered U.S. Trademark, with several pending. His research is based upon the study of the process of free radical formation and damage to biological systems. Dr. Timmins breath-test technology for early detection and treatment of lung infection spurred the formation of STC start-up company, Avisa Pharma, that has raised over $4 million. First in human trials were recently successfully completed at UNM.

**Background**

According to the Center for Disease Control and Prevention (CDC), skin cancer is the most common form of cancer in the United States, with melanomas being the most deadly form, especially among young people. In 2010, according to the National Cancer Institute, 68,130 people in the U.S., with 8,700 deaths. Although the kind of UV light causing melanoma has long been controversial, recent data clearly points to the role of melanin as a UVA photosensitizer in melanoma. The role of sunscreen in prevention of melanomas has similarly been controversial, and Dr Timmins work has focused upon providing practical solutions to resolve these controversies and allow progress to be made.

**Technical Overview**

**In Vivo Determination of Melanocyte Protection Ability of Sunscreens Using Reactive Melanin Radical Formation as a Relevant Endpoint (Issued Patent 7,888,001)**

UVA is likely a major causative factor in melanoma; however, it has been difficult to assess UVA protection abilities of sunscreens to a level equivalent to the measurement of UVB protection that is determined by the Sun Protection Factor (SPF). This uncertainty is compounded by difficulties in assaying the UVA protection abilities of sunscreens when compared to measures of UVB by the SPF. This technology utilizes an electron paramagnetic resonance (EPR) technique that allows for an SPF that is weighted to the melanocyte to be determined, and also for the study of the wavelength dependent activity of sunscreens. This factor can be used to classify cosmetic and dermatological sunscreens, as well as clothing and fabrics, resulting in improved product efficacy by assigning a Melanoma Protection Factor (MPF™) which is a measure of both UVA and UVB protection as opposed to a Sun Protection Factor (SPF) which measures only UVB. Alternatively, monochromatic protection factors can be determined to allow critical-wavelength-like measurements to be made in skin.

2. UV Causation of melanoma in Xiphophorus Is Dominated by Melanin Photosensitized Oxidant Production. Proceedings of the National Academy of Sciences, USA. 2006; 103; 4111–4115.
Trademark No. 4,392,561
MPF™ has been granted to STC.UNM as registered trademark in the following applications: Cosmetic sun-protecting preparations; Cosmetic sun-tanning preparations; Indoor sun-tanning preparations; Non-medicated suncare preparations; Sun block; Sun block preparations; Sun care lotions; Sun creams; Sun screen; Sun screen preparations; Sun tan gel; Sun tan lotion; Sun tan oil; Sun-block lotions; Sun-tanning oils; Sun-tanning oils and lotions; Sun-tanning preparations.

Business Opportunity

According to Mintel, the U.S. sun protection market has been steadily increasing since 2005 reaching $701 million in 2010. Additionally, the sunscreen industry is experiencing changes that are being prompted both by recent FDA regulation and the desire to support premium product differentiation. The science behind MPF™ is backed up and protected by peer reviewed and patent publications, allows unique measurements of sunscreen capabilities to be made, and can support unique product claims. With recent changes in sunscreen-related regulations, MPF™ can provide unique differentiation in areas of sun and UVA protection. STC is seeking to license the patent and trademark to take products to market.

Contact

For more information or for licensing opportunities, please contact Jovan Heusser, Senior Innovation Manager, STC.UNM at (505) 272-7908 or at jheusser@stc.unm.edu.