



DERMATOCHEMISTRY

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A PhD position is available at the Laboratoire de Dermatochimie, Institut de Chimie de Strasbourg, CNRS UMR 7177 on the project entitled:

DERMATOX - Antioxidant versus prooxidant systems in dermatological events: a novel EPR approach to study xenobiotic-mediated radicals in the skin

DERMATOX aims at establishing the link between free radical production in the skin from xenobiotics involved in oxidative stress dermatological events, and their biological antioxidant, prooxidant and toxicological effects. It is built around three interlinked tasks combining organic chemistry, biology and physics, including Electron Paramagnetic Resonance (EPR) and tissue imaging.

We are interested in the **characterization of radical species derived from xenobiotics in contact with the skin** and in the **study of their contribution in dermatological diseases related to oxidative stress**. We have recently developed an **EPR spin-trapping methodology with the potential to investigate *in situ* the formation and behaviour of radicals in a reconstructed human epidermis (RHE) 3D model**. RHE are normal multi-layered keratinocytes cultures, major epidermis cell type playing a key role in skin inflammatory reactions, having a *stratum corneum* allowing to assess skin penetration concerns.

DERMATOX first aim is to use this new methodology for the study of *in situ* RHE radical production from xenobiotics involved in dermatological oxidative stress such as phenols (Ar-OHs). Ar-OHs having multi-biological activities, the main objective is to elucidate the general mechanisms leading to the antioxidant, antimicrobial, but also prooxidant and toxicology features, by establishing which radical intermediates are in reality formed in the skin in real-life scenarios and their mechanisms of action. To go further, **in a second phase we aim at using EPR imaging, a non-invasive method, in the RHE tissue first and in mice subsequently to obtain complete physiological information *in vivo***.

Required skills: The candidate must have a Master preferably in Organic Chemistry or Bioorganic Chemistry. Important skills in organic synthesis are required, together with familiarity with NMR techniques and use of classical analytical and spectroscopy methodologies. The use of Electron Paramagnetic Resonance will also be an important part of the project. The candidate will strongly participate in a research network. English fluent is appreciated, together with a mature and independent personality, and important team spirit participating actively to the laboratory ordinary life.

How to apply: Interested applicants should send the application including a motivation letter, curriculum vitae, transcripts of academic records and two references (preferably in one-single pdf document) to Dr. Elena Giménez-Arnau (egimenez@unistra.fr) and to Dr. Bertrand Vileno (vileno@unistra.fr).