Dear colleagues, based on “Mobility Visit Award“ we would like to invite you to the lecture

June 1, 2026 (Monday) 01:00 PM

in J. Podoba’s Lecture Hall, BMC Institute of Experim. Endocrinology, PLV 5th floor

Guest:

Prof. Dr. Bernard Moussian

Department of Biology, Université Côte d’Azur, Nice, France

title:

ABC transporters in skin barrier formation

Abstract:

The skin is a major interface between the organism and its environment. Construction of a protective barrier that limits environmental influences on the organism relies on the skin epithelial cells, keratinocyte in vertebrates and epidermal cells in invertebrates such as insects. Lipids are the main class of molecules that are deposited at the skin surface for protection against penetration of pathogens and chemical agents at the same time against outward water loss. The molecular mechanisms of barrier formation in various systems have been studied genetically when genes coding for enzymes needed for skin barrier formation are mutated. Important players of epithelial lipid deposition are ATP-binding cassette (ABC) transporters. In humans, ABCA12 has been shown to be essential for skin barrier construction. Mutations in the *abca12* gene are quasi lethal causing skin lesions. To assist research on ABC transporters in skin differentiation at the molecular and histological levels, we have studied the function of two ABC transporters in the model organism *Drosophila melanogaster* that has repeatedly served to study human diseases. These two ABC transporters, called Snustorr (Snu) and Oskyddad (Osy), localised to intracellular vesicles and to the apical plasma membrane of epidermal cells. They organise the extracellular matrix (ECM) ensuring the delivery of the extracellular proteins Snustorr snarlik (Snsl), an insect-specific proteins that is needed for fortification of the apical ECM, the cuticle, to protect the organism against penetration of xenobiotics and desiccation. In a parallel works, we showed the that functions of Snu and Snsl are conserved in the migratory locust *Locusta migratoria*. This suggests that skin barrier formation implies an evolutionary conserved mechanism with ABC transporters in humans and beyond. Together, our genetic and histological data suggest that the construction of the apical barrier is not a simple deposition of barrier material to the extracellular space but requires intracellular sorting. This knowledge may serve to develop perspectives to understand skin barrier differentiation and functions in humans.

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Short CV:

PROFESSIONAL TRAINING and **APPOINTMENTS**

Since April 2023:	Research activities (PI) at the **Institut Sophia Agrobiotech**, Sophia Antipolis, Nice, France
2022-2023:	**Replacement Professor** at the Eberhard-Karls Universität Tübingen. (*Détachement* of the Université Côte d'Azur)
Since 2015:	**Guest professor** at the Shanxi University, Taiyuan, China.
2015-2017:	**Sabbatical** at the TU Dresden, Institut für Angewandte Zoologie.
Since 2014:	**Professor** at **Université Côte d'Azur,** Nice, France.
08/09.2012:	**Guest professor** at the Université Paul-Sabatier in Toulouse, France.
2009-2014:	**Independent group leader** (DFG-Heisenberg Stipend) at the Eberhard-Karls Universität Tübingen.
2009-2010:	**Guest scientist** at the Sahlgrenska Akademie at the University Göteborg in Göteborg, Sweden.
2006-2009:	**Independent group leader** at the Max-Planck-Institute for Developmental Biology, Tübingen.
2004-2006:	**Project leader** at the Max-Planck-Institute for Developmental Biology, Tübingen, Teaching at the Eberhard-Karls University Tübingen.
1999-2004:	**Postdoc** at the Max-Planck-Institute for Developmental Biology, Tübingen. Director Prof. Christiane Nüsslein-Volhard.

Author of over 220 papers > 7000 citations HI = 41 PI of > 20 grants

To arrange a meeting with prof. Moussian, please contact Dr. Robert Farkaš, email: ueenfark@savba.sk

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