

Prof. George Diallinas
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invites to an
ERASMUS+
specialized student course
also creditable to VO 941109
Molekulargenetik



Universität für Bodenkultur Wien
University of Natural Resources
and Life Sciences, Vienna

Department für Angewandte Genetik
und Zellbiologie
Department of Applied Genetics
and Cell Biology

Membrane transporter - structure and functions

Two student lecture blocks of 90 min. each on

June 9th, 2017

Block #1 : 09:00h – 10:30h

Block #2 : 14:00h – 15:30h

DAGZ Seminar Room Muthgasse 18, 4th floor



Course Content

1. Why Transporters? Why *Aspergillus nidulans*?

An introduction to the concept and biological importance of transporters. Distinction from channels and receptors. Tools for studying transporter in different systems and the uniqueness of *A. nidulans*.

2. Structure-function relationships in transporters: Lessons from the UapA purine transporter.

3. Cellular regulation of transporter function: folding, traffic and turnover by endocytosis or autophagy.

4. Transporter genome mining and evolution of novel specificities:

The case of the NCS1 and NAT families. The concepts of cryptic transporters and pseudo-transporters. The Minos transposable element and its use in the discovery of novel transporters.

5. Transporters as gateways of targets of novel highly specific pharmacological approaches.

RECENT SELECTED PUBLICATIONS

Diallinas, (2014). Understanding transporter specificity and the discrete appearance of channel-like gating domains in transporters. *Front. Pharmacol.* 5:207.

Alguel et al., (2016). Structure of eukaryotic purine/H⁺ symporter UapA suggests a role for homodimerization in transport activity. *Nat Commun.* 2016 Apr 18;7:11336

Martoukou et al., (2017). The AP-2 complex has a specialized clathrin-independent role in apical endocytosis and polar growth in fungi. *eLIFE.* 2017 Feb 21;6. pii: e20083. doi: 10.7554/eLife.20083