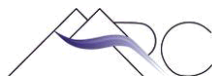


6th Central Europe Conference



Trieste (Italy), September 10-13th 2013



Alps – Adriatic Rectors'
Conference

This series of conferences was born in Trieste in 1998 as the result of an agreement between Croatian, Italian and Slovenian scientists aimed at strengthening collaboration between these Countries. After the kick-off meeting in Trieste, the following “*Chemistry towards Biology*” symposium was held in Brijuni (Croatia) in 2000, where a significant change was the decision to extend the participation to scientists from the whole Central Europe Area. For this reason, the conference held in Portoroz (Slovenia, 2002) is considered as the first event of the series, and it was followed by Seggau (Austria, 2004), Krakow (Poland, 2006), Dobogoko (Hungary, 2008) and Primošten (Croatia, 2010). It thus returns to Trieste on the 10th anniversary.

The main goal of these symposia is to bring together scientists whose research interests are at the interface between chemistry and biology, thus transcending the specific topics of these disciplines and pursuing an interdisciplinary route which is the main characteristic of modern science. The interdisciplinary character of the conferences will certainly promote the cross-fertilization process to accelerate the advancement of knowledge.

The 6th Chemistry towards Biology Conference is held under the auspices of the University of Trieste and the Alps Adriatic Rectors’ Conference.

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BILITRANSLOCASE MEMBRANE TRANSPORTER: A DRUG TARGET STUDIED IN BOTH ANIMAL AND PLANT SPECIES

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¹ *Research activity developed within the frame of the Trans2Care project (www.trans2care.eu)*

² *Research activity developed within the frame of the Agrotur project (www.agrotur.si/it)
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Bilitranslocase (TC 2.A.65.1.1) is a membrane protein localised in absorptive epithelia (intestine), excretory epithelia (liver and kidney), and vascular endothelium and probably ubiquitous. It transports water-soluble organic anions¹. These are bilirubin, dietary flavonoids (anthocyanins) and natural nucleotides². A QSAR model with strong predictive capacity has been built. A battery of functional assays in membrane vesicles, isolated cells and organ fragments, is available. One anti-sequence monoclonal antibody has been produced³. Two additional monoclonal antibodies are in production, with the property of inhibiting transport function and allowing for immune-detection of fixed samples. The QSAR model⁴, coupled with established biological assays, allows screening new bilitranslocase ligands and assessing them for transport and bioactivity. Thus, new drugs can be developed, based on their ability to be transported by bilitranslocase. Particularly promising is the perspective to develop nucleotide-like drugs to be used in anti-cancer, anti-viral therapy or flavonoid-based drugs, able to interact with enzymes involved in intracellular signalling pathways and interfering with bilirubin transport⁵.

In plants, bilitranslocase-like homologues are found in various species¹. In grape berries, it has been shown to transport flavonoids and to be up-regulated under water stress.

¹Passamonti S, et al. Bioavailability of flavonoids: a review of their membrane transport and the function of bilitranslocase in animal and plant organisms. *Curr Drug Metab.* 2009 May;10(4):369-94.

²Župerl Š, et al. Experimental determination and prediction of bilitranslocase transport activity. *Anal Chim Acta.* 2011 Oct 31;705(1-2):322-33.

³Montanic S, et al. Development and characterization of a novel mAb against bilitranslocase - a new biomarker of renal carcinoma. *Radiol Oncol.* 2013 May 21;47(2):128-37.

⁴Minovski N, Župerl Š, Drgan V, Novič M. Assessment of applicability domain for multivariate counter-propagation artificial neural network predictive models by minimum euclidean distance space analysis: a case study. *Anal Chim Acta.* 2013 Jan 8;759:28-42.

⁵Passamonti S, et al. Uptake of bilirubin into HepG2 cells assayed by thermal lens spectroscopy. Function of bilitranslocase. *FEBS J.* 2005 Nov;272(21):5522-35.