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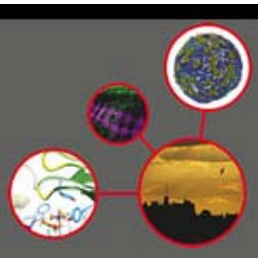

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# An emerging technique for the characterization of transport proteins: SSM-based electrophysiology

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(Selected as oral presentation in session 5, S21 on Wednesday, 19th of July, 9:55 AM: "Membrane permeation: transporters")

In the past 10 years, Solid Supported Membrane (SSM)-based electrophysiology has been proven as an efficient tool for the characterization of electrogenic membrane proteins, e.g. transporters, ion pumps and ion channels. It's a label-free, high-sensitivity method which allows the use of membrane preparations, e.g. reconstituted protein samples and membranes from native tissues or cell culture. The high sensor stability allows for different solution exchange experiments using the same sensor. Both transport and binding can be resolved and kinetic parameters like rate constants, KD, KM or IC50 can be determined in a fast and easy workflow.

Until now more than 100 different proteins have been tested; almost 100 peer reviewed papers have been published. Here we show data for several targets revealing different aspects of their transport mechanism. The organic cation transporter OCT2 transports multiple substrates with different EC50 and Vmax. The proton-coupled peptide transporter PEPT1 was used to show an inhibition assay. We analyzed different transport modes of the $Na^+/Ca^{2+}$ exchanger NCX and assayed binding and transport reactions of different sugar transporters individually. Moreover results for the $Na^+/K^+$-ATPase and the nicotinc acetylcholine receptor (nAChR) are shown.