

Publication

Analysis on Protein Expression and Function of the Rat Organic Anion Transporting Polypeptide 2b1

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Author Pitasch, Hanna-Luzia

Author at UniBasel [Pitasch, Hanna-Luzia](#) ;

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Human Organic Anion Transporting Polypeptide (OATP) 2B1 is a multispecific uptake

transporter with an expression in a broad variety of tissues e.g. liver, kidney, and intestine.

Therefore, its role in the absorption, distribution, and elimination of drugs as well as drug-drug

interactions and food-drug interaction is highly likely; however, its function is not yet well

studied. There are only a limited number of *in vivo* studies in animals and clinical studies

determining the role of human OATP2B1 (hOATP2B1) on pharmacokinetics. Due to both, its

broad expression pattern and substrate spectrum, hOATP2B1 is assumed to play an important

role in pharmacology as well as in physiology. Interestingly, comparing the function of the

human and the rat orthologue unpublished data from our group found that the hOATP2B1 does

play a role in steroid transport, whereas rat Oatp2b1 (rOatp2b1) does not show any active

transport of estrone-3-sulfate or dehydroepiandrosterone sulfate. This difference led us to the

project of investigating the role of hOATP2B1 in an *in vivo* model using a humanized rat. In

preparation of this study, we aimed to analyze the endogenous expression of rOatp2b1 in

different tissues compared to the expression of hOATP2B1. Thus, different methods for

analyzing its expression were used including Western blot, immunohistochemistry, and

immunofluorescent staining. We tested different antibodies and identified the antibody

ab203215 from abcam detecting hOATP2B1 in Western blot and immunohistochemistry and

rOatp2b1 in the latter. To detect rOatp2b1 tissue in Western blot and in immunofluorescent

staining, another antibody ab83532 from abcam was identified to be suitable. In addition to

these expression studies we quantified the uptake of glibenclamide, a known substrate of

hOATP2B1, in Madin-Darby Canine Kidney cells overexpressing rOatp2b1, revealing that

glibenclamide is transported by the rat orthologue.

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