MS05-1 **Novel aspects of SLC22 organic anion transporters**

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Organic anion transporters (OATs) of SLC22 family, located mainly in the kidneys, are important for the excretion of xenobiotics. In addition, OATs also mediate the transport of several endogenous substrates such as prostaglandins and estrone sulfate. Since Sekine *et al* identified the first isoform of OATs, several isoforms have been identified: their expression is also detected in extrarenal tissues such as liver, placenta, blood-brain barrier, etc. We found that renal apical isoform OAT4 mediates organic anion transport in exchange for the dicarboxylates (DCs) such as succinate and α-ketoglutarate that are known as TCA cycle intermediates (Ekaratanawong *et al*, 2004). This prompts us to further clarify the physiological roles of endogenous substrate transport via OATs. Interestingly, GPCRs for succinate and α-ketoglutarate have been identified in renal tubules and they are related to the systemic blood pressure regulation (*Nature*, 2004). These results suggest that the reabsorption of glomerular filtrated DCs determined by the balance between influx (NaDC1) and efflux (OAT4/Oat5) affects the concentration of DCs in the lumen and regulates the blood pressure via modulating the DCs signaling in tubules. Here, I would like to discuss about the novel role of OATs as a regulator of endogenous metabolite signaling in the body.