

Studies for the mechanism of multiplicity in substrate specificity of transporters

メタデータ	言語: jpn 出版者: 公開日: 2021-10-21 キーワード (Ja): キーワード (En): 作成者: Tamai, Ikumi メールアドレス: 所属:
URL	https://doi.org/10.24517/00063502

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2002 Fiscal Year Final Research Report Summary

STUDIES FOR THE MECHANISM OF MULTIPLICITY IN SUBSTRATE SPECIFICITY OF TRANSPORTERS.

Research Project

Project/Area Number

13470513

Research Category

Grant-in-Aid for Scientific Research (B)

Allocation Type

Single-year Grants

Section

一般

Research Field

応用薬理学・医療系薬学

Research Institution

TOKYO UNIVERSITY OF SCIENCE (2002)

Kanazawa University (2001)

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Project Period (FY)

2001 - 2002

Keywords

transporter / substrate specificity / organic anion / organic cation / carnitine / OATP / OCTN / liver

Research Abstract

Pharmacokinetic characteristics are important for the adequate drug therapy and they are affected by many factors, including binding proteins, drug metabolizing enzymes and membrane transporters. Among them, drug transporter are important for the intestinal absorption, tissue distribution, and hepatic and renal excretion of drugs. Accordingly, it will be important what kinds of drugs are accepted as substrates for each transporter. However, some drug transporters accept various compounds as

substrates and it has not been clarified the mechanism for such multispecificity of drug transporter

Organic cation/carnitine transporter OCTN and organic anion transporting polypeptide OATP-C also accept various physiological and drug compounds as substrates. In the present study, we studied the mechanism for the multispecificity in the substrate recognition of those transporters by focusing on the multifunctionality of them
OCTN transports carnitine as physiological substrates and cationic compounds ... More

Research Products (10 results)

All Other

All Publications

[Publications] Ohashi R., Tamai I., Inano A., Katsura M., Nezu J., Sai Y., Tsuji A.: "Studies on functional sites of organic cation/carnitine transporter OCTN2(SLC22A5) using a Ser467Cys mutant protein" *Journal of Pharmacology and Experimental Therapeutics*. 302. 1286-1294 (2002) ▼

[Publications] Nozawa T., Nakajima M., Tamai I., Noda K., Nezu J., Sai Y., Tuji A.: "Genetic polymorphism of human organic anion transporter OATP-C(SLC21A6) and OATP-B(SLC21A9) : Allele frequencies in the Japanese population and functional" *Journal of Pharmacology and Experimental Therapeutics*. 302. 804-813 (2002) ▼

[Publications] Tamai I., Nozawa T., Koshida M., Nezu J., Sai Y., Tsuji A.: "Functional Characterization of human organic anion transporting polypeptide OATP-B in comparison with liver-specific OATP-C" *Pharmaceutical Research*. 18. 1262-1269 (2001) ▼

[Publications] Tamai I., China K., Sai Y., Kobayashi D., Nezu J., Kawahara E., Tsuji A.Y.: "Na⁺-coupled transport of L-carnitine via high-affinity carnitine transporter OCTN2 and its subcellular localization in kidney" *Biochimica Biophysica Acta*. 1512. 273-284 (2001) ▼

[Publications] Nozawa T., Tamai I., Sai Y., Nezu J., Tsuji A.: "Contribution of organic anion transporting polypeptide OATP-C to hepatic elimination of the opioid pentapeptide [D-Ala², D-Leu⁵]enkephalin" *Journal of Pharmacy and Pharmacology*. (in press). (2003) ▼

[Publications] Tamai I., Nozawa T., Koshida M., Nezu J., Sai Y., Tsuji A.: "Functional clarification of human organic anion transporting polypeptide (OATP-B) in comparison with liver-specific OATP-C." *Pharm. Res.* 18. 1262-1269 (2001) ▼

[Publications] Tamai I., China K., Sai Y., Kobayashi D., Nezu J., Kawahara E., Tsuji A. 0277032GB02 Na⁺-coupled transport of L-carnitine via high-affinity carnitine transporter OCTN2 and its subcellular localization.: "Na⁺-coupled transport of L-carnitine via high-affinity carnitine transporter OCTN2 and its subcellular localization" *Biochim. Biophys. Acta*. 1512. 273-284 (2001) ▼

[Publications] Nozawa T., nakajima M., Tamai I., Noda K., Nezu J., Sai Y., Tsuji A., Yokoi T.: "Genetic polymorphism of human organic anion transporter OATP-C (SLC21A6) and OATP-B (SLC21A9): Allele frequencies in the Japanese population and functional analysis." *J. Pharmacol. Exp. Ther.* 302. 804-813 (2002) ▼

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URL:

Published: 2004-04-13