Call for Papers to Theme Issue on Membrane Transporters: an Opportunity to Boost Transporter Studies

Full text of this paper is available at http://www.jstage.jst.go.jp/browse/dmpk

The editorial team for Drug Metabolism and Pharmacokinetics (DMPK) is pleased to announce that a theme issue on membrane transporters, which specifically features “Membrane Transporters beyond the Transport: Pharmacological and Toxicological Aspects” as the theme, is planned to be published in the middle of the year 2008 (vol. 23, no. 4). This will be the second one of them, following the first one on “Gene Regulation of Drug Metabolizing Enzymes and Transporters,” which is coming soon (vol. 23, no. 1). Inclusion of such theme issues in DMPK has been initiated based on the proposal from the DMPK Globalization Committee as a measure to strengthen DMPK in terms of international recognition as well as scientific contents. As analyzed by the committee and noted in an earlier editorial,1) “Metabolism and Membrane Transport” is at the top of the list of research fields that could uniquely characterize DMPK, taking into account the activities of the members of the Japanese Society for the Study of Xenobiotics (JSSX) in the field in the past and at current and its importance in drug development and clinical use, and, thus, naturally topics relevant to the field have been picked up for the kick-off of theme issues. A theme issue will be designed to feature a few invited review articles and also include original research articles on the thematic and relevant topics so that they can coordinately provide up-to-date information and help advancing researches in the provisionally or perspective important field. Those who are pursuing studies on membrane transporters, particularly those focused on pharmacological and/or toxicological aspects, are encouraged to submit manuscripts by the end of April to be considered for publication in the theme issue. The manuscripts for the theme issue are to be indicated as such in the cover letter on submission, which is to be made according to the regular submission procedures, preferably through the Manuscript Central (MC) online system.

Membrane transporters have been increasingly recognized in the past few decades for their roles in transporting drugs across biological membranes. They have been generally perceived to be involved in the processes of absorption, distribution and excretion and, thereby, in therapeutic effect indirectly through the achieved level of the drug in the systemic circulation, which is expected to be parallel to that at the site of action. The roles of many of them, such as transporters for organic anions and cations in the kidney, the peptide transporters in the intestine and kidney, P-glycoprotein in diverse organs, have been widely recognized in this conventional context of drug disposition. An aspect getting recognized more recently is that transporters may be in some situations more closely involved in pharmacologic or toxic actions of drugs by regulating their disposition locally at the site of action. Examples of this kind include a suggestion that the mitochondrial uptake of nucleoside drugs by equilibrative nucleoside transporter 1 (ENT1) may be a possible cause of their mitochondrial toxicity.2) Such examples may be understood more suitably in the context of pharmacologic or toxic actions of drugs rather than the conventional context of drug disposition. It is notable in both contexts that some transporters may be expected to be taken advantage of for drug delivery globally to the systemic circulation or locally to the site of action. Another aspect increasingly recognized is that functional modulation of some transporters by drugs may bring about pharmacologic or toxic effects, that is, some transporters could be the sites of drug action. When therapeutic benefits can be expected, the transporter could be a target of drug development. A successful example of this kind and recently attracting attention is reduced cholesterol absorption by the inhibition of Niemann-Pick C1 Like 1 (NPC1L1), the intestinal cholesterol transporter, by ezetimibe.3) Examples of toxicological aspects can be represented by a recent suggestion that reduced choline uptake by the inhibition of choline transporter-like protein 1 (CTL1) by gefitinib may be a possible cause of its pulmonary toxicity.4) Thus, diverse aspects regarding the roles of membrane transporters in drug-related events have been emerging with an advance in transporter studies. Transporter studies are now expanding “beyond the transport,” that is, from a stage to handle transport phenomena within the discipline of drug disposition to possibly a stage to handle more wide varieties of biological events arising from transporters in the more comprehensive discipline of drug discovery and development. The coming theme issue is to set an opportunity to focus on the pharmacological and toxicological aspects among emerging ones.

We anticipate that DMPK can contribute in further development of studies on membrane transporters, one of research fields of our major interest, by publishing
quality articles of reviews and original researches. We also anticipate that the coming theme issue can help boosting transporter studies.

References

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