Teruo Murakami

Hiroshima International University, Japan

Modulation of absorption sites and bio-availabilities of orally administered drugs depending on the solubility *in vivo*

In pharmacotherapy, most drugs are taken orally to be absorbed systemically from the small intestine, and some drugs are known to have preferential absorption sites in the small intestine. For example, many substrate drugs for P-glycoprotein (P-gp) are absorbed mostly in the proximal intestine, because of the lower P-gp expression and higher luminal drug concentrations. High luminal concentration of dissolved P-gp substrate drugs can saturate P-gp-mediated efflux transports. In contrast, the fraction of unabsorbed P-gp substrate drugs in the proximal intestine can cause P-gp-mediated drug interactions in the middle and distal small intestine, where P-gp is abundantly expressed. Most of P-gp substrate drugs are categorized as BCS Class 1 and 2 compounds, and BCS Class 2 compounds are low solubility and high permeability. By increasing the solubility of such BCS Class 2 drugs, especially the solubility in the stomach, the absorption rate and bioavailability of P-gp substrate drugs are improved. In the presentation, I introduce the absorption sites of orally administered drugs, as well as, influencing factors and experimental techniques, according to the reported data collected by PubMed. Also, I will show some examples regarding the effect of solubilization on absorption site and bioavailability of orally administered P-gp substrate drugs. Securing the solubility and stability of drugs prior to reaching to the main absorption sites and appropriate delivery rates of drugs at absorption sites are important goals for the development of effective pharmacological products for pharmacotherapy

Speaker Biography

Teruo Murakami has completed his graduation from Osaka University of Pharmaceutical Sciences and his PhD from Graduated School of Pharmaceutical Sciences, Osaka University, Japan. He has worked for Institute of Pharmaceutical Sciences and Graduate School of Biomedical Sciences, Hiroshima University for 25 years, and he is now the Professor of Hiroshima International University, Japan. His research interests are tissue distribution of weakly basic drugs, and intestinal absorption including intestinal ABC and SLC transporters. He has over 160 publications that have been cited over 3200 times, and his publication H-index is 30 and has been serving as an Editorial Board Member of four international journals

e: t-muraka@ps.hirokoku-u.ac.jp

Notes: