Division of Clinical Pharmacy
Department of Pharmaceutics

Outline

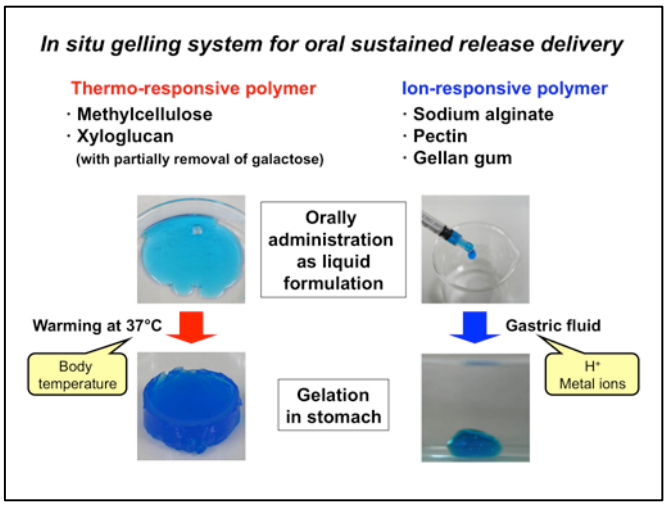
With functional decline of swallowing, especially elderly patients have frequently difficulty swallowing tablets and capsules. In our laboratory, a variety of materials have been investigated to prepare gel formulations with suitable characteristics for use by geriatric patients. In Japanese medical institutions, the Simple Suspension Method (SSM) is used to administer drugs via enteral feeding tubes for patients who cannot swallow. However, information on drug solubility and stability with SSM is insufficient. So we are also aiming to construct a database of solubility of many drugs with SSM.

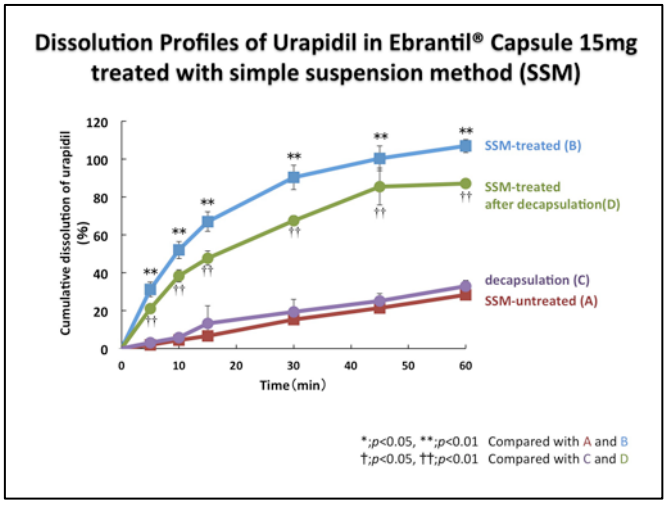
Faculty members

Professor:	Michiya Kobayashi, Ph.D.
Associate professor:	Kunihiko Itoh, Ph.D.
Assistant professor/Research associate:	Tetsuya Shimoyama, Ph.D.

Main research in progress

1) Analysis of dissolution behavior for various solid formulations treated with SSM
2) Monitoring of blood concentrations of drugs for Therapeutic Drug Monitoring
3) Design of suitable formulation for geriatrics and dysphagic patients using natural polysaccharide gels
4) Analysis of rheological properties of natural polysaccharides





Current publications

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* Noda, K., Narayama, Y., Gotoh, Y., Kobayashi, M., Iwai, S., Katoh, N., & Tadano K., The clinical efficacy of bepridil depends on its concentration in human plasma., *Jpn. J. Ther. Drug Monit.*, 29(4), 109–114 (2012).
* Itoh K., Hatakeyama T., Shimoyama T., Miyazaki S., D'Emanuele A., Attwood D., In situ gelling formulation based on methylcellulose/pectin system for oral-sustained drug delivery to dysphagic patients, *Drug Dev. Ind. Pharm.*, 37(7), 790-7 (2011).
* Miyazaki, S., Ishitani, M., Takahashi, A., Shimoyama, T., Itoh, K., & Attwood, D., Carrageenan gels for oral sustained delivery of acetaminophen to dysphagic patients, *Biol. Pharm. Bull.*, 34(1), 164–6 (2011).
* Itoh, K., Hatakeyama, T., Kimura, T., Shimoyama, T., Miyazaki, S., D'Emanuele, A., & Attwood, D., Effect of D-sorbitol on the thermal gelation of methylcellulose formulations for drug delivery, *Chem. Pharm. Bull.*, 58(2), 247–9 (2010).
* Itoh, K., Tsuruya, R., Shimoyama, T., Watanabe, H., Miyazaki, S., D'Emanuele, A., & Attwood, D., *In situ* gelling xyloglucan/alginate liquid formulation for oral sustained drug delivery to dysphagic patients, *Drug Dev. Ind. Pharm.*, 36(4), 449–55 (2010).
* Miyazaki, S., Takahashi, A., Itoh, K., Ishitani, M., Dairaku, M., Togashi, M., Mikami, R., & Attwood, D., Preparation and evaluation of gel formulations for oral sustained delivery to dysphagic patients, *Drug Dev. Ind. Pharm.*, 35(7), 780–7 (2009).
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