## Division of Pharmaco-Analytical Chemistry
## Department of Biophysical Sciences

### Research Projects

- Studies on the biosynthesis of bile acids
- Studies on the dynamic profile of bile acids in hepatobiliary diseases
- Development of analytical methods for bile acids in biological fluids
- Studies on convenient assay methods for bile acid transporters activities

### Faculty members

Dr. Tsuyoshi Murai: Professor
Dr. Kousuke Sato: Assistant Professor
Dr. Tahahiro Sasaki: Assistant Professor

### Current Publications


* Profile of bile acids in fetal gallbladder and meconium using liquid cheomatography-tandem mass spectrometry. Nakayuki Naritaka, Mitsuyoshi Suzuki, Hiroaki Sato, Hajime Takei, Tsuyoshi Murai, Takao Kurosawa, Takeshi Iida, Hiroshi Nittono, and Toshiaki Shimizu. *Clinica Chimica Actahem*, 446, 76–81 (2015).

* A simple and accurate HPLC method for fecal bile acid profile in healthy and cirrhotic subjects: Validation by GC-MS and LC-MS. Genta Kakiyama, Akina Muto, Hajime Takei, Hiroshi Nittono, Tsuyoshi Murai, Takao Kurosawa, Alan F. Hofmann, William M. Pandak, and Jasmohan S. Bajaj. *J. Repid. Res*., 55(5), 978–990 (2014).

* Determination of 3β-hydroxy-$\Delta^5$-bile acids and related compounds in biological fluids of patients with cholestasis by liquid chromatography-tandem mass spectrometry. Tsuyoshi Murai, Kana Oda, Terutake Toyo, Hiroshi Nittono, Hajime Takei, Akina Muto, Akihiko Kimura, and Takao Kurosawa, *J. Chromatogr. B*, **923**–**924**, 120-127 (2013).

* Measurement of Transport Activities of 3β-Hydroxy-$\Delta^5$-bile Acids in Bile Salt Export Pumps and Multidrug Resistance-Associated Proteins Using LC-MS/MS. Tsuyoshi Murai, Kana Oda, Terutake Toyo, Hiroshi Nittono, Hajime Takei, Akina Muto, Akihiko Kimura, and Takao Kurosawa, *Chem. Phram. Bull*., **61**(5), 559–566 (2013).

* Detection of Δ(4)-3-oxo-steroid 5β-reductase deficiency by LC-ESI-MS/MS measurement of urinary bile acids. Muto A, Takei H, Unno A, Murai T, Kurosawa T, Ogawa S, Iida T, Ikegawa S, Mori J, Ohtake A, Hoshina T, Mizuochi T, Kimura A, Hofmann AF, Hagey LR, and Nittono H. *J Chromatogr B.* **900**, 24–31 (2012 ).

* Measurement of Transport Activities of Bile Acids in Human Multidrug Resistance-Associated Protein 3 Using Liquid Chromatography-Tandem Mass Spectrometry. Kana Yamaguchi, Tsuyoshi Murai, Hikaru Yabuuchi, and Takao Kurosawa, *Anal*. *Sci*., **26** (3), 317–323 (2010).

* Measurement of the Transport Activities of Bile Salt Export Pump Using Chemiluminescence Detection Method. Kana Yamaguchi, Tsuyoshi Murai, Hikaru Yabuuchi, Shu-Ping Hui, and Takao Kurosawa, *Yakugaku Zasshi*, **130** (5), 755–761 (2010).
* Measurement of Bile Salt Export Pump Transport Activities using a Fluorescent Bile Acid Derivative. Kana Yamaguchi, Tsuyoshi Murai, Hikaru Yabuuchi, and Takao Kurosawa, *Drug. Metab. Pharmacokinet*., **25**(2), 214–219 (2010).
* 3β-hydroxy-$\Delta^5$-$C_{27}$-steroid dehydrogenase/isomerase deficiency in a patient who underwent oral bile acid therapy for 10 years and delivered two healthy infants. Hiroshi Nittono, Hajime Takei, Atushi Unno, Toshiaki Shimizu, Masakazu Kobayashi, Michiko Koike, Tsuyoshi Murai, Takao Kurosawa, and Masahiko Tohma. *Pediatrics International*, **52**, e192–e195 (2010).
* Molecular genetic and bile acid profiles in two Japanese patients with 3β-hydroxy-$\Delta^5$-C27-steroid dehydrogenase/isomerase deficiency. Mizuochi T, Kimura A, Ueki I, Takahashi T, Hashimoto T, Takao A, Seki Y, Takei H, Nittono H, Kurosawa T, and Matsuishi T. *Pediatr Res*., **68**(3): 258–263 (2010).
* Measurement of the Transport Activities of Bile Salt Export Pump Using LC-MS. Kana Yamaguchi, Tsuyoshi Murai, Hikaru Yabuuchi, and Takao Kurosawa, *Anal. Sci.*, **25**(9), 1155–1158 (2009).