



## Description of Master Thesis:

Title: Preparation and application of conjugated metabolites of drugs, natural chemicals and dietary ingredients for analyzing of xenobiotic process.

We are an expert in the xenobiotic process of drugs, natural chemicals and dietary ingredients. We are especially interested in the study of enzymology and its application of xenobiotic metabolizing enzymes for xenobiotic process in the body. Our laboratory has conceptualized the “Conjugated polyphenol (glucuronides and sulfates) as prodrug-like metabolites” as a process of xenobiotic disposition and recycling, and proposed the deconjugation of polyphenol metabolites resulting in the reactive aglycon for health benefits. Our laboratory uses in vitro and in vivo techniques of analysis of functional foods: iPS derived cell culture model and perfused rat intestinal and liver model. Currently, our laboratory is interested in analysis of polyphenol metabolism in human and model animals. One of our ongoing research projects is to developing the preparation system of polyphenol conjugates including glucuronides and sulfates using xenobiotic metabolizing enzymes expressing yeast cells.

The project of master thesis is focused on the preparation and application of conjugated metabolites of drugs, natural chemicals and dietary ingredients for analyzing of xenobiotic process. The master students job will be to synthesize and purify the conjugated metabolites of drug or polyphenols using xenobiotic enzymes-expressing yeast cells.

By the end of the project, master candidate will have gained insight into the process of xenobiotic metabolism for drug or polyphenol as physiological bio-factor in addition to a detailed knowledge of xenobiotic enzymology, including yeast culture, enzyme reaction, data analysis and presentation skills.

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## Further Information of Toyama

Learn more about “Toyama Prefectural University”

- <https://www.pu-toyama.ac.jp/english/index.html>
- Department of Pharmaceutical Engineering, Faculty of Engineering  
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