TOPUBIO RESEARCH Co., Ltd.

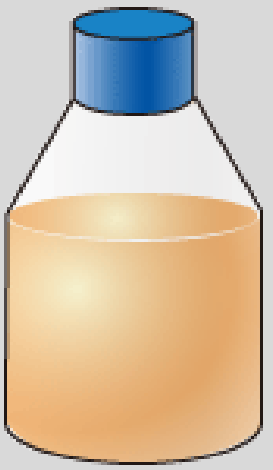
Biosynthesis of human drug metabolites

We provide P450s and phase II (e.g. UGTs, SULTs and COMT) metabolites of drugs, environmental compounds and several food factors such as polyphenols.
We developed biosynthetic platform using mammalian DME expression systems in yeast.

Preparation of glucuronide using the yeast expressing UGT

STEP1：yeast cultivation

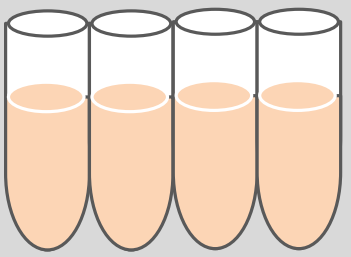
Recombinant yeast cells co-expressing UGT and UGDH



UGT：UDP-glucuronosyltransferase
UGDH：UDP-glucose dehydrogenase

STEP2: incubation

- Substrate
- Carbon source
- Reaction buffer

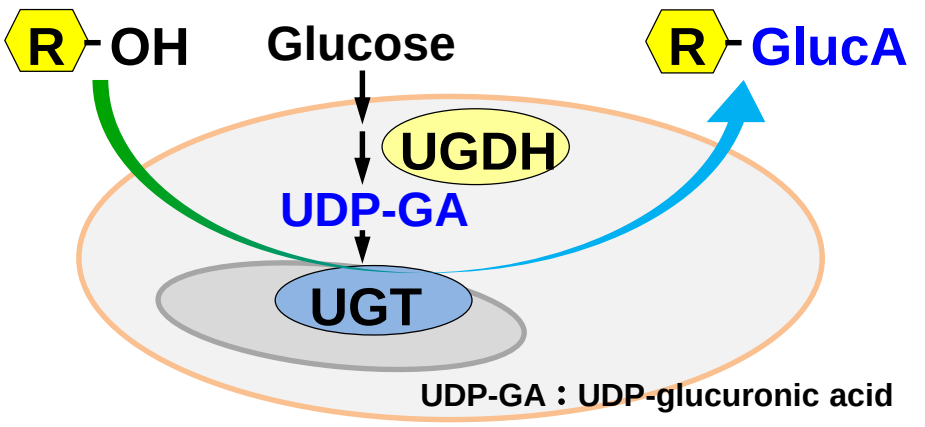


STEP3:purification

Preparative HPLC

Production system of glucuronide

Simultaneous expression of UGT and UGDH in yeast



UDP-GA：UDP-glucuronic acid

- No required microsome preparation
  →Time saving
- No required UDP-GA
  →Cost effective

Product usage

- Structural analysis
- Quantitative analysis
- Activity assay

Application of DME expression systems

1.Metabolite production
- ◆ Cytochrome P450(CYP)
- ◆ UDP-glucuronosyltransfetases (UGT)
- ◆ Sufotransferase (SULT)

2.Metabolite screening
- ◆ 15 human CYPs
- ◆ 14 human UGTs
- ◆ 6 human SULTs