

Metabolic Rxns

Phase I Rxn

Introduces/exposes -OH, -NH₂, -COOH, -SH

Hydrolysis - esterases, dehydrogenases, amidases

Reduction

Oxidation

- Cytochrome P450
 - activate rxn
 - deactivate rxn
- Flavin-containing monooxygenases

$$MD = \frac{DI \times CL \times TDC}{F}$$

$$LD = \frac{TDC \times V_d}{F}$$

Phase II Metabolism

- Substrates often arise from Phase I metabolism
- Usually metabolites have decreased metabolic activity
- Metabolites are highly polar
- Some metabolites are excreted in bile

Glucuronidation

- Glucuronosyl Transferase
- Catalyzed by UDP-glucuronosyl transferase

Sulfation

- Transfer sulfate group from PAPS to substrate ^{→ cosubstrate}

Glutathione Conjugate Formation

- Glutathione transferases
- metabolized into mercapturic acids which are excreted in urine
- mercapturic acid in urine signify reactive metabolite was formed

Acetylation

- N-Acetyltransferase enzymes
- Formation of acetate w/ O, N, S - containing drugs/xenobiotics