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: Drug metabolism; Phase I metabolism; Phase II metabolism; Cytochrome P450 enzymes; Conjugation reactions; Pharmacokinetics; Pharmacogenomics; Personalized medicine; Drug interactions; erapeutic e cacy

Drug metabolism encompasses a series of enzymatic reactions that occur primarily in the liver and, to a lesser extent, in other tissues such as the kidneys, intestines, and lungs. ese metabolic transformations are essential for converting drugs into more water-soluble compounds that can be readily excreted from the body, thereby terminating their pharmacological e ects [1].

variants on drug metabolism, and integrate these insights into routine clinical practice. By advancing our understanding of drug metabolism pathways, we can optimize pharmacotherapy, enhance drug safety, and advance the eld of precision medicine toward more e ective and individualized patient care.

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