K **:** Drug metabolism; Pharmacokinetics; Absorption; Distribution; Metabolism; Excretion; Bioavailability; Drug clearance; Drug-drug interactions

I

e pharmacological e ects of drugs are governed not only by their chemical properties and interactions with molecular targets but also by their pharmacokinetic behavior within the body. Drug metabolism and pharmacokinetics (DMPK) encompass a series of dynamic processes that dictate the absorption, distribution, metabolism, and excretion of drugs, collectively known by the acronym ADME. By elucidating the complexities of DMPK, researchers can gain valuable insights into the pharmacological behavior of drugs and optimize their therapeutic use [1,2].

A **:** Absorption is the process by which a drug enters the bloodstream from its site of administration, in uencing the onset and intensity of pharmacological e ects. Factors a ecting drug absorption include route of administration, physicochemical properties of the drug molecule, and physiological characteristics of the individual. Oral administration is the most common route for drug delivery, with factors such as solubility, permeability, and rst-pass metabolism in uencing oral bioavailability [3].

D **:** Following absorption, drugs are distributed throughout the body via the bloodstream, where they interact with various tissues and organs. Distribution is in uenced by factors such as