

□ Prodrug

A prodrug is a pharmacologically inactive or less active compound that is converted into an active drug inside the body through metabolic or environmental processes (e.g., enzymatic activation, pH change, hypoxia).

□ Formal Definition: A prodrug is a chemical compound that, after administration, undergoes biotransformation in vivo to release the pharmacologically active parent drug, improving aspects such as selectivity, solubility, bioavailability, or tissue targeting.

⚙ Why use a prodrug? To reduce systemic toxicity

To target specific tissues (e.g., hypoxic tumors, CNS)

To improve absorption, distribution, metabolism, and excretion (ADME) profiles

To bypass physiological barriers, such as the blood–brain barrier (BBB)

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