

Prodrug Design and Development

Miss. Hrutuja Ramesh Sawarkar, Shruti Wankhade, Akhil Maske

Vardhaman College of Pharmacy, Karanja (Lad), Maharashtra, India

Abstract: *Prodrugs represent an innovative strategy in pharmacology for overcoming delivery and targeting challenges associated with active drugs. By modifying chemical structures to create bioreversible derivatives, prodrugs improve bioavailability, reduce toxicity, and enable tissue-specific targeting. This project provides a detailed examination of prodrug classifications, bioactivation mechanisms, intricate design strategies, and the latest research advances in prodrug technologies, such as gene-directed enzyme prodrug therapy (GDEPT) and nanotechnology-driven systems. Furthermore, it covers the molecular dynamics underlying prodrug stability, activation, and clinical applications, offering a visionary perspective on the future of precision medicine*

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