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Novel Drug Delivery System

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Abstract: *Novel drug delivery systems (NDDS) are advanced technologies designed to improve the therapeutic efficacy, safety, and patient compliance of conventional drugs. These systems aim to deliver drugs in a controlled, targeted, and sustained manner, overcoming limitations such as poor solubility, rapid metabolism, and systemic side effects. NDDS encompass a variety of strategies, including nanoparticles, liposomes, micelles, hydrogels, dendrimers, and polymeric carriers, each offering unique advantages in terms of bioavailability, site-specific targeting, and controlled release. The integration of smart materials and stimuli-responsive mechanisms further enables precision therapy, minimizing off-target effects and enhancing treatment outcomes. Ongoing research focuses on optimizing formulation stability, reducing toxicity, and enabling personalized medicine approaches. The development and implementation of novel drug delivery systems hold significant potential to revolutionize the treatment of chronic diseases, cancer, neurological disorders, and infectious diseases.*

Keywords: Novel drug delivery system, controlled release, targeted therapy, nanoparticles, liposomes, polymeric carriers, bioavailability, stimuli-responsive delivery, precision medicine

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