



# Introduction to **Novel Drug Delivery Systems**

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Delivery Systems**



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# Preface

**N**ovel Drug Delivery System refers to strategy, technology, formulation based approaches and customized system(s) developed for safe administration and within body transportation of drugs as needed for optimum therapeutic benefits while ensuring minimum to nil toxic effects.

Multidisciplinary approaches and cutting edge technology have been used to develop the carrier modules to deliver the contained drug to the target tissues in a pre-programmed manner. The process desirably modifies the drug distribution and accumulation thereby producing optimum therapeutic effects.

Carrier-mediated drug delivery has emerged as a powerful technology for the treatment of various difficult pathologies.

The therapeutic index of conventional and novel drug is enhanced owing to specificity due to targeting of drug to the particular tissue.

There has been a persistent need of a book which introduces the concept, carrier(s), material, design, novelty, present status and future prospects of various novel drug delivery systems/ carriers. The present book shall be a useful source for the undergraduates and also to all those interested in the working concepts of a system and its performance. The book contains 23 chapters including introduction to novel drug delivery, oral osmotic pumps, bioadhesive and mucoadhesive systems, multiple emulsions, colon-specific drug delivery systems, transdermal drug delivery systems, spherical crystallization, microemulsion, implants and inserts, micellar systems, liposomes, microspheres and microcapsules, nanoparticles, nanospheres and nanocapsules, resealed erythrocytes, transfersomes and ethosomes, organogels, dendrimers, niosomes, solid lipid nanoparticles, drug conjugates, cyclodextrin complexes, multifunctional nanomedicines, and floating drug delivery system(s). Each chapter attempts to discuss introduction, concept, progress, status and future prospects of the concerned novel drug delivery system. Hope the book shall be a useful compilation to the undergraduate, postgraduate, pharmacy students and researchers working in drug delivery research, research and development and National Research Institutes.

I am thankful to my research team that includes Madhu Gupta, Udit Agrawal, Devyani Dubey, Nishi Mody, Surbhi Dubey, Neeraj Mishra and Rajeev Sharma. The inputs and support from them helped enormously in bringing out the book to the presentable and printable shape. I thankfully acknowledge the support of my family who assisted me to their fullest by sparing me from family responsibilities. I place on record the motivation/inspiration of my wife Mrs Vasundhara Vyas during the preparation of this book. My sincere thanks are due to my daughter Dr Sonal, son Himanshu and daughter-in-law Akanksha who have ever been supporting. I am also thankful to CBS Publishers & Distributors Pvt. Ltd., New Delhi for their interest and support in quality printing of the book. I realize that feedback, suggestions and inputs from teachers in pharmacy, researchers and students shall help improving the next edition of the book.





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