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Book Review

Role of Lipid Excipients in Modifying Oral and Parenteral Drug Delivery. Kishor M. Wasan, (Ed.). Wiley-Interscience, 2007, Hardcover, 205 pp. ISBN-13: 978-0-471-73952-4.

The chemical and physical diversity and versatility of lipid excipients as well as their biocompatibility has resulted in an expanded use in multiple delivery platforms and marketed drug products. These applications include drug solubilization and stabilization, site-specific targeting, and modulation of drug absorption and bioavailability. Critical to their widespread use and success, however, is a better understanding of the processing and stability aspects of lipid excipients and formulations incorporating these excipients and the impact of these parameters to the in vivo processing and performance. This is particularly important in cases where their function in the formulation goes well beyond their use as inactive components to solubilize and stabilize drug molecules.

The book "Role of Lipid Excipients in Modifying Oral and Parenteral Drug Delivery" with focus on basic principles and biological examples does address current aspects of lipid excipients and is divided into seven chapters the titles of which are discussed in the following paragraphs. Although applications of lipid excipients in modifying oral drug delivery are covered in the first two chapters, the primary emphasis of this book is on parenteral drug delivery applications. Each chapter incorporates both fundamental and practical aspects and many literature citations are presented. The specific comments on each chapter are discussed below.

Chapter 1, *Interaction of Drug Transporters with Excipients*, provides a nice and concise overview of the structural aspects of membrane transporters and substrate drugs and their role in drug transport and absorption. The discussion on the modulation of membrane transporters by lipids and other excipients is very well presented. However, a more critical discussion on in vitro/in vivo correlations and impact on drug development is not presented.

Chapter 2, *Formulation Issues Around Lipid-Based Oral and Parenteral Delivery Systems*, overviews some of the formulation issues with commonly used lipidic formulations for oral and parenteral administration. Although it is good and useful introduction of the formulation issues, a critical comparison between the various formulation approaches against certain desired product quality and biopharmaceutical characteristics is lacking.

Chapter 3, *Lipid-Based Parenteral Drug Delivery Systems: Biological Implications*, is an excellent overview and discussion on the use of liposomes and polymeric micelles based on phospholipids for intracellular delivery and targeting. The citation list is also very extensive and useful to the reader.

Chapter 4, *Principles in the Development of Intravenous Lipid Emulsions*, is also an excellent review and discussion of the processing and stability aspects of intravenous emulsions and in vivo biodistribution. Particularly useful are the Tables and discussion on commercially available intravenous emulsion products and those in preclinical and clinical development as well as the list on non-phospholipid surfactants approved for intravenous administration or in clinical development.

Chapter 5, *Protein Adsorption Patterns on Parenteral Lipid Formulations: Key Factor Determining the In Vivo Fate*, is very well written and broadly covers the topic. However, there are too many illustrations on two-dimensional gel electrophoresis that could have been minimized.

Chapter 6, *Nanoparticle Targeting for Drug Delivery Across the Blood-Brain Barrier*, discusses general aspects of nanoparticle design and targeting, including CNS targeting and cancer drug delivery. An expanded discussion is needed, however, particularly on the 1- to 100-nm nanoparticles from formulation development, manufacturing, and toxicity perspectives.

Finally, Chapter 7, *Lipid-Coated Perfluorocarbon Structures as Parenteral Therapeutic Agents*, presents the state-of-the-art in this field and complements quite nicely the other chapters on parenteral drug delivery.

Overall, the content of this book is current, very well written, and concise and can be a valuable source to those interested in the oral and parenteral applications of lipidic excipients. As the utility of lipid excipients in drug formulation and delivery expands, we will definitely see enhanced publication activity in this area.

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