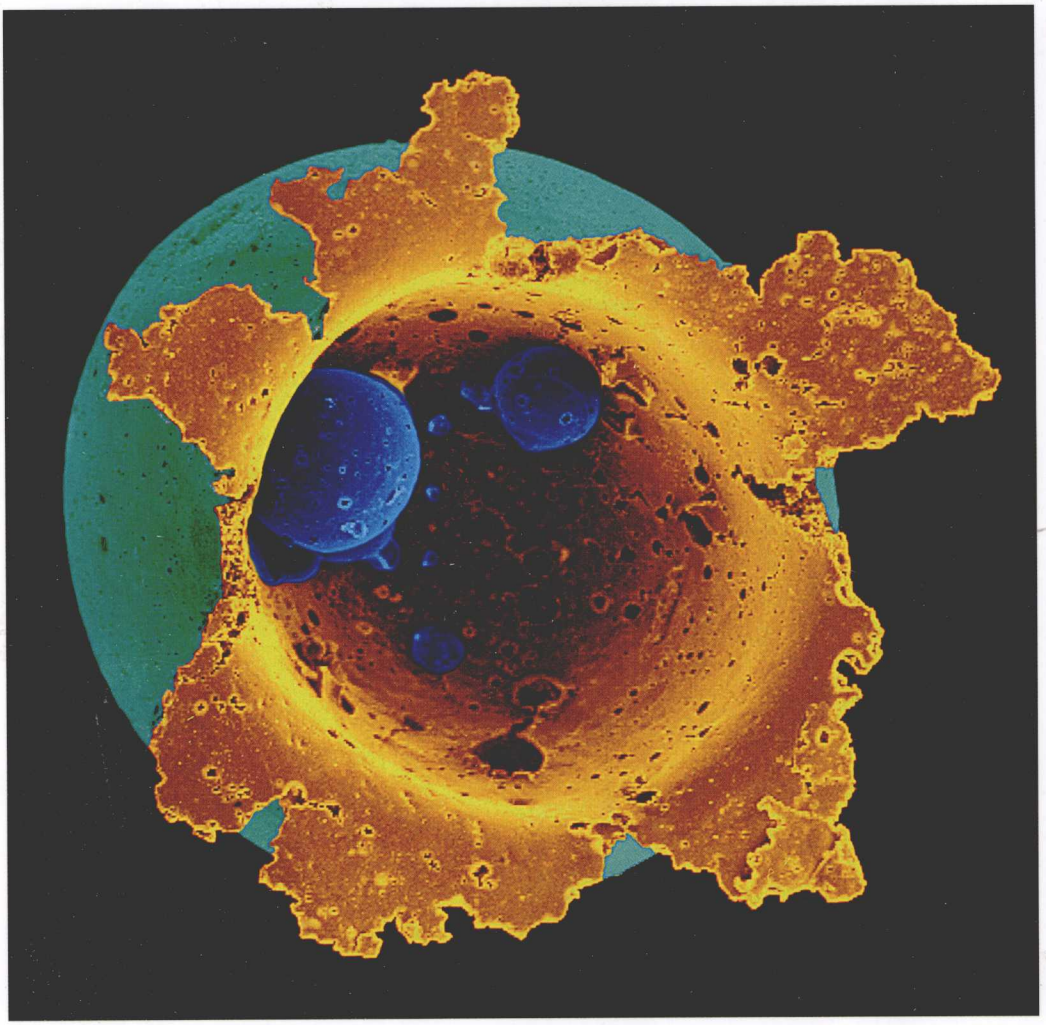
RSC Drug Discovery

Edited by Maria Jose Alonso and Noemi S. Csaba

Nanostructured Biomaterials for Overcoming Biological Barriers



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Preface

The book *Nanostructured Biomaterials for Overcoming Biological Barriers* provides a terrific summary of how nanostructures can be helpful in the biomedical area. It starts with a historical perspective and then goes over how nanostructures can be used to overcome different barriers in the body. Such barriers include the intestinal barrier, the nasal barrier, the ocular barrier, the pulmonary barrier, the skin barrier and finally the blood brain barrier. In each case the book is very well organized with chapters in each section going over physiological considerations and mechanistic issues followed by various formulation strategies for delivering specific types of molecules. For example, in the section for nanostructures for overcoming the intestinal barrier, oral vaccines are considered and the same is true for the section on nasal barriers. In the sections for the ocular, pulmonary, skin and blood-brain barriers; drugs, including large molecular weight drugs, are primarily discussed.

The book continues by going over how nanostructures can overcome biological barriers related to parenteral drug delivery. Here the idea of using lipid nanocapsules for parenteral drug delivery is discussed as well as how one can overcome biological barriers with parenteral nanomedicines. Finally parenteral drug delivery using polymers is evaluated.

The next chapters go over biological barriers to tissue engineering and specifically discuss physiological and mechanistic issues as well as drug delivery related to this field. Next, regulatory issues such as nanotoxicology are reviewed. This is an important area that scientists want to understand more about for the practical use of nanomedicines. Finally, a clinically relevant case study by Bioalliance Pharma is presented and the book is tied together with thoughtful closing remarks.

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Overall, the book provides a very good understanding of the biological barriers and discusses the most innovative current approaches to overcome these barriers through the use of nanotechnologies and biomaterials.

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