

Cellular Drug Delivery

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Principles and Practice

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HUMANA PRESS  TOTOWA, NEW JERSEY

© 2004 Humana Press Inc.
999 Riverview Drive, Suite 208
Totowa, New Jersey 07512

humanapress.com

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This publication is printed on acid-free paper. 
ANSI Z39.48-1984 (American Standards Institute)
Permanence of Paper for Printed Library Materials.

Production Editor: Robin B. Weisberg.

Cover design: Patricia F. Cleary.

Cover illustration provided by Robert Lu, PhD.

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Printed in the United States of America. 10 9 8 7 6 5 4 3 2 1

1-59259-745-9 (e-book)

Library of Congress Cataloging in Publication Data

Cellular drug delivery : principles and practice / edited by D. Robert Lu and Svein Øie.
p. cm.

Includes bibliographical references and index.

ISBN 1-58829-254-1 (alk. paper)

1. Drug targeting. 2. Cell membranes. I. Lu, D. Robert. II. Øie, Svein.

RM301.63.C45 2004
615'.7--dc22

2003056682

Preface

Cellular drug design and development of pharmaceutical platforms for controlled delivery of bioactive substances to the cellular sites of action have been the focus of considerable research and literature discussions throughout the last decade. To understand the controlling mechanisms of drug delivery (including drug targeting and drug transport) to cells, and to effectively design novel pharmaceutical formulations and drug delivery devices, it is essential to carry out research and development with different cell types and characteristics. Work in this area has been rapidly evolving, creating a critical need to develop a resource devoted to the fundamentals, principles, and practice of cellular drug delivery.

Cellular Drug Delivery: Principles and Practice is intended to serve as an up-to-date reference book covering this broad field. It includes 18 chapters contributed by well-established scientists from US schools of pharmacy and the pharmaceutical industry. The introductory chapter gives an overview of recent progress, as well as the future potential of cellular drug delivery. Part I contains two chapters that describe both the fundamental concepts and the best current thinking in the areas of cellular structure, transport, growth, and defense response, as well as their involvement in cellular drug delivery. Part II addresses the broad spectrum of cellular delivery principles, and ranges from the coverage of cell-mediated immunity, gene delivery, and protein targeting to discussions of cellular drug transport, cellular drug permeability, and a variety of carrier systems related to targeted drug delivery. Part III focuses on technological development in cellular drug delivery. The development of novel formulations for the delivery of DNA and antisense oligonucleotides, as well as drug targeting with immunoglobulin formulations and antibody-mediated approaches are discussed in depth. Finally, research and development on the efficient cellular delivery of bioactive substances through automated processes, which has become a vital part of the modern pharmaceuticals, is critically evaluated.

The editors would like to express their sincere appreciation to each of the chapter authors who have contributed their time and expertise to make *Cellular Drug Delivery: Principles and Practice* a comprehensive and valuable resource.

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