Tailored Polymeric Materials for Controlled Delivery Systems

Iain McCulloch, EDITOR
Hoechst-Celanese Corporation

Shalaby W. Shalaby, EDITOR
Poly-Med Inc.

Developed from a symposium sponsored by the Division of Polymer Chemistry at the 214th National Meeting of the American Chemical Society, Las Vegas, Nevada, September 7–11, 1997

American Chemical Society, Washington, DC
Contents

Preface .................................................................................................................................................. xi

CRITICAL REVIEWS

1. Intravitreal Treatment of Cytomegalovirus Retinitis and the Need for Controlled Release Systems ............................................. 2
   Marc Shalaby and Shalaby W. Shalaby

2. Key Features and Future Perspectives in the Development of Intravaginal Drug Delivery Systems ......................................... 23
   Waleed S. W. Shalaby and Shalaby W. Shalaby

MOLECULAR DESIGN OF POLYMERIC CARRIERS

3. Cationic Hydrogels for Controlled Release of Proteins and Other Macromolecules ................................................................. 56
   Lisa M. Schwarte, Kairali Podual, and Nicholas A. Peppas

4. Water-Soluble Polyanions as Oral Drug Carriers: Poly(sulfopropyl methacrylate potassium-co-alkyl methacrylate) .................. 67
   Yvonne N. Nujoma, Cherng-ju Kim, and Rey T. Chern

5. Polymeric Prodrugs: Novel Polymers with Bioactive Components .......... 83
   Laura Erdmann, Cheryl Campo, Christi Bedell, and Kathryn Uhrich

6. Synthesis of Thioester End-Functionalized Poly(ε-caprolactone) and Its Application in Chemoselective Ligation ....................... 92
   Qiang Ni and Luping Yu

7. The Reactive Polymeric Micelle, Convenient Tool for Targeting Drug Delivery System ....................................................... 105
   Yukio Nagasaki and Kazunori Kataoka

8. Branched Polymeric Micelles: Synthesis and Encapsulation ............... 117
   S. Anna Jiang, Hongbo Liu, and Kathryn E. Uhrich

9. Injectable Absorbable Gel-Formers for the Controlled Release of Bioactive Agents–Drugs ................................................... 125
   Shalaby W. Shalaby
10. Novel Ionogenic Acrylate Copolymer Networks for Sustained Solute Delivery
Robert A. Scott and Nicholas A. Peppas

11. Direct Synthesis of Polyester Microspheres, Potential Carriers of Bioactive Compounds
S. Slomkowski, S. Sosnowski, M. Gadzinowski, C. Pichot, and A. Elaissari

STRATEGIES TO MODULATING AND MONITORING THE RELEASE PROFILE

12. Novel Bioadhesive Complexation Networks for Oral Protein Drug Delivery
A. M. Lowman, Nicholas A. Peppas, M. Morishita, and T. Nagai

13. Shell Cross-Linked Knedels: Amphiphilic Core-Shell Nanospheres with Unique Potential for Controlled Release Applications
K. Bruce Thurmond II and Karen L. Wooley

14. Multilayered Semicrystalline Polymeric Controlled Release Systems
Surya K. Mallapragada and Shook-Fong Chin

15. Electroconductive Gels for Controlled Electrorelease of Bioactive Peptides
Anthony Guiseppi-Elie, Anne M. Wilson, and Andrew S. Sujdak

16. Thermally Triggered Gelation of Alginate for Controlled Release
H. Cui and P. B. Messersmith

17. Effect of Surfactants on the Release of Griseofulvin from Polyvinylpyrrolidone Dispersions
Hanife Akin, Jeorge Heller, and Frank W. Harris

18. Self-Diffusion of Solvents and Solute Probes in Polymer Solutions and Gels: The Use of a New Physical Model of Diffusion
X. X. Zhu, L. Masaro, J.-M. Petit, B. Roux, and P. M. Macdonald

Nuo Wang, Jin Song Qiu, and Xue Shen Wu

20. Lactic–Glycolic Acid Oligomeric Microgranules for Aspirin Delivery and Stabilization
Nuo Wang and Xue Shen Wu
CONTEMPORARY APPLICATIONS

21. Antitumor Drug Delivery by Dextran Derivatives Immobilizing Platinum Complex (II) Through Coordination Bond.................................266
   Yuichi Ohya, Tatsunori Masunaga, Tatsuro Ouchi, Katsuro Ichinose,
   Mikirou Nakashima, Masataka Ichikawa, and Takashi Kanematsu

22. Potential Role of Controlled Drug Delivery in Tissue Engineering..........279
   K. J. L. Burg and S. W. Shalaby

   Roman Bielski and Dorsey Montenecourt

24. Structural Characterization and Effects of Gibberellic Acid-
    Containing Organotin Polymers on Sawgrass and Cattail Germination and Seedling Growth for Everglades Restoration.................295
   Charles E. Carraher, Jr., Anupam Gaonkar, Herbert H. Stewart,
   Shi Li Miao, and Shawn M. Carraher

INDEXES

Author Index..................................................................................................................311

Subject Index................................................................................................................313