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Book Review

Poly(ethylene glycol) Chemistry

Biotechnical and Biomedical Applications

J. MILTON HARRIS, ED.

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Poly(ethylene glycol), PEG, is a polymer having unique properties and applications in biotechnology and medicine. It has curious solubility properties (it is very hydrophilic, but is soluble in both water and many organic solvents); it has been used successfully to "disguise" proteins from immune surveillance; it is a common component in the two-phase aqueous polymer systems useful in separations of biomolecules and cells; it partitions into lipid layers and promotes cell fusion; it is a component of many successful biocompatible materials. This volume provides an excellent introduction to the scattered literature of the field of biomedical and biotechnological applications of PEG, and is a valuable resource for anyone working with or interested in PEG and its derivatives.

The 22 chapters are derived from a symposium ("Pacifichem 89") held in 1989; most of these chapters contain references to articles published in 1990 and 1991, and the literature coverage is good. There are almost no citations to the patent literature.

The chapters cover a range of topics: thermodynamics of PEG/water systems (one chapter); computer simulations of proteins interacting with a surface of PEG (one chapter); use of PEG:dextran two-phase systems for separations of proteins and cells (three chapters); conjugates of PEG and proteins and nonprotein catalysts for various purposes (suppression of the immune response, extension of circulating lifetime in vivo—seven chapters); preparation of biocompatible surfaces (four chapters); use in gels for drug delivery (one chapter); use in peptide synthesis (two chapters). There is also an introduction, and a useful chapter on synthetic methods applicable to modification of PEG. The authors come from the US, Europe, and Japan, and from both academic and industrial positions. The collective

coverage of the chapters is, therefore, good. The quality and style of the individual chapters vary widely, but all provide points of entry into the literature.

For most readers, the primary value of this book will be the access to the literature that it provides. It gives a good overview of the uses of PEG in biomedical areas. The range of the technical subjects covered by the individual chapters is, however, sufficiently large that it is unlikely that more that a few of them will be directly relevant to any single research interest. All provide entries to literature scattered through a large number of unrelated journals.

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