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Nota di contenuto	Membranes for the Life Sciences Volume- 1; Contents; Preface; Contributors ((Peinemann Vol. 1)); 1 Membranes in Hemodialysis; 1.1 Introduction; 1.2 Historical Achievements; 1.3 Membranes for Hemodialysis: Polymers and Nomenclature; 1.3.1 Membranes from Regenerated Cellulose; 1.3.1.1 Modified Cellulosic Membranes; 1.3.1.2 Cellulose Acetates; 1.3.1.3 DEAE-Modified Cellulose, Hemophan; 1.3.1.4 Benzyl-Modified Cellulose (Synthetically Modified Cellulose, SMC); 1.3.1.5 PEG-Grafted Cellulose; 1.3.1.6 Vitamin E-Modified Cellulosic Membranes; 1.3.2 Synthetic Membranes; 1.3.2.1 Polyacrylonitrile (PAN) 1.3.2.2 Polymethylmethacrylate (PMMA)1.3.2.3 Polysulfone (PSu); 1.3.2.4 Polyamide (PA); 1.4 Dialyzer Constructions; 1.4.1 Hollow Fiber Dialyzers; 1.4.2 Housing; 1.4.3 Potting Material; 1.4.4 Fiber Bundle; 1.5 Dialysis Membranes and Performance: Principles of Membrane Transport; 1.6 Dialysis Membranes and Biocompatibility; 1.6.1 Some

Basic Information on Membranes and Biocompatibility Parameters; 1.6.2 Thrombogenicity of Different Types of Dialyzers and Filters; 1.6.3 Complement Activation by Different Dialyzers and Filters; 1.6.4 Cell Activation by Different Types of Dialyzers and Hemofilters 1.6.4.1 Apoptosis 1.6.5 Oxygen Species Production - Induction of Oxidative Stress; 1.6.5.1 Degranulation of Neutrophils; 1.6.6 Stimulation of Cytokine Generation by Different Types of Dialyzers and Hemofilters; 1.6.6.1 The Impact of Membrane Types on LPS-Stimulated IL-1 Secretion; 1.6.7 The Impact of Large-Pore Dialysis Membranes on the Inflammatory Response in HD Patients by Cytokine Elimination; 1.6.8 The Effect of Different Dialyzers on the Acute Phase Reaction; 1.6.9 Activation of the Kinin System by Different Types of Dialyzers and Hemofilters; 1.7 Conclusion

2 Membranes for Artificial Lungs 2.1 Introduction; 2.2 History of Blood Oxygenation; 2.2.1 Membrane Oxygenators; 2.3 Principle of Gas Transfer; 2.4 Membranes and Membrane Properties; 2.4.1 Microporous Membranes; 2.4.2 Dense Membranes/"Diffusion Membranes"; 2.5 Membrane Production; 2.6 Operational Modes and Membrane Makeup in Oxygenators; 2.6.1 Microporous Capillary Membranes, Blood Inside; 2.6.2 Microporous Capillary Membranes, Blood Outside; 2.7 Extracorporeal Circulation; 2.7.1 Cardiopulmonary Bypass (CPB); 2.7.2 Lung Support Systems; 3 Membranes for Blood Fractionation/Apheresis

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Sommario/riassunto

Examining artificial membranes in terms of biocompatibility, drug delivery and controlled release, this book illustrates how existing membrane technologies are being exploited and advanced in emerging medical applications. This work, edited by internationally recognized experts, has author contributions from prominent members of this field who discuss details of all aspects of this technology. This volume provides broad, yet detailed information on synthetic membranes and their applications, including dialysis and artificial kidneys, gas exchange, artificial lungs, devices to assist liver func
