1. Record Nr. UNINA990006232000403321

Autore Caspari, Otto

Titolo Das Problem uber die Ehe! / Otto Caspari

Pubbl/distr/stampa Frankfurt: F.D. Sanerlander's, 1899

Descrizione fisica 126 p.; 24 cm

Disciplina 173

Locazione FGBC

Collocazione BUSTA 15 2 (25)

Lingua di pubblicazione Non definito

Formato Materiale a stampa

Livello bibliografico Monografia

Record Nr. UNINA9910530485503321

Autore De Bartolo Loredana

Titolo Membrane systems : for bioartificial organs and regenerative medicine

// Loredana De Bartolo, Efrem Curcio, Enrico Drioli

Pubbl/distr/stampa Berlin, [Germany];; Boston, Massachusetts:,: De Gruyter,, 2017

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ISBN 3-11-039088-4

3-11-026801-9

Descrizione fisica 1 online resource (264 pages) : illustrations

Disciplina 574.875

Soggetti Membranes (Biology)

Lingua di pubblicazione Inglese

Formato Materiale a stampa

Livello bibliografico Monografia

Nota di bibliografia Includes bibliographical references at the end of each chapters and

index.

Nota di contenuto Frontmatter -- Preface -- Contents -- 1 Natural and synthetic

membranes -- 2 Basic issues in membrane separation for biomedical devices -- 3 Artificial organs -- 4 Blood-membrane interactions -- 5

## Sommario/riassunto

Engineering of membrane bio-hybrid organs -- 6 Cell-membrane interactions -- 7 Membrane bioartificial organs -- 8 Regulatory framework and ethical issues -- Index

Membrane processes today play a significant role in the replacement therapy for acute and chronic organ failure diseases. Current extracorporeal blood purification and oxygenation devices employ membranes acting as selective barriers for the removal of endogeneous and exogeneous toxins and for gas exchange, respectively. Additionally, membrane technology offers new interesting opportunities for the design of bioartificial livers, pancreas, kidneys, lungs etc. This book reviews the latest developments in membrane systems for bioartificial organs and regenerative medicine, investigates how membrane technology can improve the quality and efficiency of biomedical devices, and highlights the design procedures for membrane materials covering the preparation, characterization, and sterilization steps as well as transport phenomena. The different strategies pursued for the development of membrane bioartifi cial organs, including crucial issues related to blood/cell-membrane interactions are described with the aim of opening new and exciting frontiers in the coming decades. The book is a valuable tool for tissue engineers, clinicians, biomaterials scientists, membranologists as well as biologists and biotechnologists. It is also a source of reference for students, academic and industrial researchers in the topic of biotechnology, biomedical engineering, materials science and medicine.

Record Nr. UNINA9910437844703321 Autore Venkatachalam Geetha Titolo Cyclic beta-glucans from microorganisms: production, properties and applications / / Geetha Venkatachalam, Sathyanarayana Gummadi, Mukesh Doble New York, : Springer, 2013 Pubbl/distr/stampa **ISBN** 1-283-90870-0 3-642-32995-0 Edizione [1st ed. 2013.] Descrizione fisica 1 online resource (98 p.) Collana SpingerBriefs in microbiology, , 2191-5385 Altri autori (Persone) GummadiSathyanarayana DobleMukesh Disciplina 572.566 Soggetti **Biochemistry** Biodegradation Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Description based upon print version of record. Note generali Nota di bibliografia Includes bibliographical references. Cyclic b-Glucans from Microorganisms; Contents; Abbreviations; 1 Nota di contenuto Introduction: Abstract: 1.1...History of Polysaccharides from Bacteria: 1.2...Cyclic beta -Glucans; 1.3... alpha -Cyclic Glucan; 1.4...Linear Glucans; 1.5...Cyclodextrins; References; 2 Applications of Cyclic beta -Glucans; Abstract; 2.1...In Food; 2.2...Medical Technology; 2.3...As Wound Dressing Material; 2.4...Microparticulate Form of beta -Glucan for Pharmaceutical Application; 2.5...Synthesis of Selenium Nanowires; 2.6...Drug Delivery; 2.7...Enantiomeric Separator; 2.8...In Chiral Technology; 2.9...Chiral Stationary Phase 2.10...Carboxymethylated Cyclic beta -(1,2)-Glucans2.11...Inclusion Complexes; 2.12... beta -D-Glucans Complexation with Zearalenone; 2.13...Inclusion Complex with Paclitaxel; 2.14...Inclusion Complexation with a Plant Flavonoid Luteolin; 2.15...Inclusion Complexation with Naproxen; 2.16...Functionalized beta -(1,3)-Glucan in Carbon Nanotubes; 2.17...Application of Cyclic beta -(1,3),(1,6)-Glucans in Chiral Technology; References; 3 Properties of Cyclic Glucans; Abstract; 3.1...Structure; 3.2...Molecular Biological Function of beta -Glucans in Immunity; 3.2.1 The beta -Glucan Receptor-Dectin-1

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## Sommario/riassunto

to Cyclic glucans are polysaccharides that are predominantly produced by Agrobacterium, Bradyrhizobium and Rhizobium sp. and widely used in the pharmaceutical and food industries. In this book, the applications, properties, analytical tools, production and genes of four main cyclic -glucans from microorganisms are highlighted and critically evaluated. As biocompatible and biodegradable renewable resources, they have an immense potential for future applications, which has not yet been fully exploited. This concise review will help to bridge this gap.

7.4...Enzymes Involved in Cyclic beta -(1,2)-Glucan Synthesis