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Descrizione fisica	1 online resource (172 p.)
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Soggetti	Plant breeding Aquatic ecology Pharmaceutical technology Plant anatomy Plants - Development Plant Breeding/Biotechnology Freshwater & Marine Ecology Pharmaceutical Sciences/Technology Plant Anatomy/Development
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	The Biopharmaceuticals Field and Algae as Expression Hosts -- Genetic Engineering Approaches for Algae -- Algae-made Vaccines Targeting Human Diseases -- Algae-made Vaccines Targeting Animal Pathogens -- Algae-made Antibodies and Immunotoxins -- Algae-made Cytokines and Growth Factors -- Other Biopharmaceuticals Produced in Algae -- Algae-made Nutraceuticals -- Perspectives for the Algae-made Biopharmaceuticals Field.
Sommario/riassunto	This book constitutes a key reference on the use of algae in the BFs production field; providing an updated outlook on the achievements accomplished thus far and transmitting a prospective view for this biotechnological application. This book provides a detailed description of the technology as well as an updated outlook of the strides achieved thus far in the field of algae-based biopharmaceuticals. Algae constitute attractive expression hosts for the production of

recombinant proteins with medical applications. Among the features that make them attractive candidates are: low cost, fast growth, wide biosynthetic capacity, and absence of human pathogens; which constitute substantial advantages with respect to bacterial and mammalian systems. First, the features of algae as convenient hosts for the production of BF<sub>s</sub> are analyzed in terms of production costs, biosynthetic capacity, and safety (Chapter 1). Second, the genetic engineering tools for algae-species are described. Nuclear and chloroplast-based expression approaches are analyzed and compared in terms of biosynthetic advantages, gene expression complexity, and DNA transfer approaches (Chapter 2). In the following sections, chapters 3 to 7, the state of the art on producing distinct types of BF<sub>s</sub> in algae species is presented. Although this book is mainly focused on BF<sub>s</sub>, considering that the production of compounds with health-promoting properties are achieved using genetically-engineered algae strains, chapter 8 deals with nutraceuticals. In the ninth chapter, the developments reported thus far are placed in perspective and challenges for the field are discussed. Critical future prospects comprise the following: optimizing large-scale production in bioreactors, implementing glycoengineering approaches, optimizing nuclear expression, exploring new approaches for oral delivery, and implementing regulatory frameworks to accomplish technology transfer and regulatory approval of algae-made BF<sub>s</sub>.

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