ELSEVIER New Release

Everything needed to understand the vast applications of this multi-functional glucan

Chemistry, Biochemistry, and Biology of $(1\rightarrow 3)$ - β -Glucans and Related Polysaccharides

Antony Bacic

Australian Centre for Plant Functional Genomics, School of Botany, University of Melbourne, VIC, Australia

Geoffrey B. Fincher

Australian Centre for Plant Functional Genomics, University of Adelaide, SA, Australia

Bruce A. Stone

Department of Biochemistry, La Trobe University, Bundoora, VIC, Australia

KEY FEATURES:

* Topics of medical relevance include detailing the glucans' interactions with the immune system and research for cancer therapy applications

* Web resource links allow scientists to explore additional beta glucan research

* Separate indexes divided into Species and Subject for enhanced searchability

DESCRIPTION:

The book presents a comprehensive, systematic and authoritative survey of information about a family of chemically related, but functionally diverse, naturally occurring polysaccharides- the (1-3)-glucans. International contributors describe the chemical and physicochemical properties of these glucans and their derivatives and the molecular biological and structural aspects of the enzymes involved in their formation and breakdown. A detailed analysis of their physiological roles in the various biological situations in which they are found will be provided. Additionally, evolutionary relationships among the family of these glucans will be described.

PUB DATE: August 2009

LIST PRICE: \$125/€ 91.95/£62.99

ISBN-13: 978-0-12-373971-1

AUDIENCE: Plant physiologists & cell biologists, enzymologists, polysaccharide chemists, immunochemists, immunologists, alternative cancer therapy researchers

Order online today!

http://www.elsevierdirect.com/ 9780123739711



ELSEVIER

Elsevier Order Fulfillment 11830 Westline Industrial Drive, St. Louis, MO, USA 63146 Toll-free (800) 545-2522/FAX (800) 535-9935/email:usbkinfo@elsevier.com Find us on the Web! http://www.elsevier.com Prices are subject to change without notice. ©**ATICopyrightYear** by Elsevier. All Rights Reserved. JP/Life Sciences ABBP/KID - **ATIPackageDate** Package Mail Date **ATIMailDate**

Chemistry, Biochemistry, and Biology of $(1\rightarrow 3)$ - β -Glucans and Related Polysaccharides

Table of Contents

1. Introduction and historical background by Adrienne E. Clarke

2. CHEMISTRY AND PHYSICO-CHEMISTRY

- 2.1 Chemistry of β -glucans by Bruce A. Stone
- 2.2 Physico-Chemistry of (1,3)-β-Glucans by Michael J. Gidley and Katsuyoshi Nishinari

3. BIOCHEMISTRY

- 3.1 Plant and Microbial Enzymes Involved in the Depolymerisation of (1,3)-β-D-Glucans and Related Polysaccharides by Maria Hrmova and Geoffrey B. Fincher
- 3.2 Interactions between Proteins and (1,3)- β -Glucans and Related Polysaccharides by D. Wade Abbott and Alisdair B. Boraston
- 3.3 BIOSYNTHETIC ENZYMES
- 3.3.1 Enzymology and Molecular Genetics of Biosynthetic Enzymes for (1,3)-β-Glucans: Prokaryotes by Vilma A. Stanisich and Bruce A. Stone
- 3.3.2 Biosynthetic Enzymes for (1,3)-β-Glucans and (1,3;1,6)-β-Glucans in Protozoans and Chromistans: Biochemical Characterization and Molecular Biology by Vincent Bulone
- 3.3.3 Biosynthetic Enzymes for (1,3)-β-Glucans, (1-3;1-6)-β-Glucans from Yeasts: Biochemical Properties and Molecular Biology by Satoru Nogami and Yoshikazu Ohya
- Biochemical and Molecular Properties of Biosynthetic Enzymes for (1,3)-β-Glucans in Embryophytes, Chlorophytes and Rhodophytes by Lynette Brownfield, Monika Doblin, Geoffrey B. Fincher and Antony Bacic

4. BIOLOGY

- 4.1 Functional Roles of (1,3)-β-Glucans and Related Polysaccharides: Prokaryotes by Vilma A. Stanisich and Bruce A. Stone
- 4.2 Protozoans and Chromistans Biology of (1,3)- β -glucans and related glucans in protozoans and chromistans
- 4.3 Organization of Fungal, Oomycete and Lichen (1,3)-β-Glucans by Cecile Clavaud, Vishu Kumar Aimanianda and Jean-Paul Latge
- 4.4 RHODOPHYTES, CHLOROPHYTES AND EMBRYOPHYTES
- 4.4.1 Callose in Cell Division by Roy C. Brown and Betty E. Lemmon
- 4.4.2 Cytology of the (1-3)-β-Glucan (Callose) in Plasmodesmata and Sieve Plate Pores by Amit Levy and Bernard L. Epel
- 4.4.3 Callose and Its Role in Pollen and Embryo-Sac Development in Flowering Plants by Ed Newbigin, Antony Bacic and Steve Read
- 4.4.4 Callose in Abiotic Stress by Angelika Stass and Walter J. Horst
- 4.4.5 Callose in Biotic Stress (Pathogenesis) by Christian A. Voigt and Shauna C. Somerville
- 4.5 $(1\rightarrow 3)$ - β -GLUCANS IN INNATE IMMUNITY
- 4.5.1 Biological and Immunological Aspects of Innate Defence Mechanisms Activated by (1,3)-β-Glucans and Related Polysaccharides in Invertebrates by Lage Cerenius, Shun-ichiro Kawabata and Kenneth Soderhall
- 4.5.2 (1,3)- β -Glucans in Innate Immunity: Mammalian Systems by Gordon D. Brown and David L. Williams
- 4.6 Distribution, Fine Structure and Function of (1,3;1,4)-β-Glucans in the Grasses and Other Taxa by Philip J. Harris and Geoffrey B. Fincher
- 4.7 Evolutionary Aspects of (1,3)-β-Glucans and Related Polysaccharides by Philip J. Harris and Bruce A. Stone