

Bifidobacteria

Genomics and Molecular Aspects

Edited by: Baltasar Mayo¹ and Douwe van Sinderen²

¹Depto Microbiología y Bioquímica, Instituto de Productos Lácteos de Asturias (CSIC), Villaviciosa, Asturias, Spain

²Dept of Microbiology, Alimentary Pharmabiotic Centre, University College Cork, Western Road, Cork, Ireland

c. 265 pp, August 2010

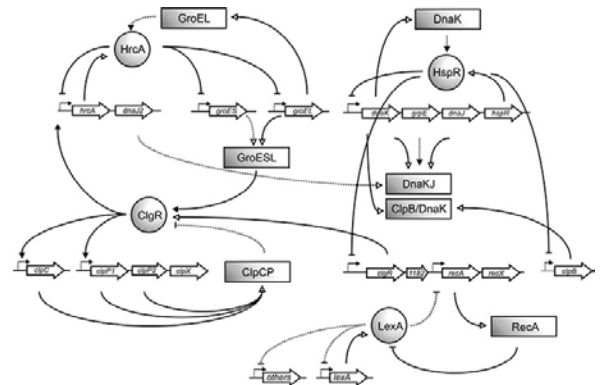
ISBN 978-1-904455-68-4, \$319/£159

Bifidobacteria are Gram-positive anaerobic bacteria, found naturally in the gut of humans and other mammals. They are widely used as probiotic organisms in a vast array of formulations for the prevention, alleviation and treatment of many intestinal disorders. However bifidobacteria are fastidious microorganisms and difficult to study in the laboratory, so until recently, understanding of their genetics lagged behind that of other high GC content Gram-positive bacteria. The application of modern whole genome approaches to bifidobacteria research has changed all of this, permitting the accumulation of an impressive amount of data, something that could not have been foreseen a few years ago.

This book brings together the expertise and enthusiasm of the leading bifidobacteria experts from around the world to provide a state-of-the art overview of the molecular biology and genomics of this exciting and important microbial genus. Essential reading for every bifidobacteria researcher, from the PhD student to the experienced scientist, and recommended reading for everyone with an interest in probiotics.

Table of Contents

• Preface: *Diego Matteuzzi* • Chapter 1: Analysis of bifidobacterial populations in bowel ecology studies. *Gerald W. Tannock* • Chapter 2: Genomics of bifidobacteria: Where we stand now and where we are going. *Marco Ventura, Francesca Turroni, Francesca Bottacini and Douwe van Sinderen* • Chapter 3: Bifidobacterial ecology and comparative genomics: Perspectives and prospects. *Marco Ventura, Francesca Turroni, Francesca Bottacini, Vanessa Giubellini and Douwe van Sinderen* • Chapter 4: Metabolism of bifidobacteria. *David A. Sela, Neil P. J Price and David A. Mills* • Chapter 5: Acid and bile resistance and stress response in bifidobacteria. *Borja Sánchez, Lorena Ruiz, Douwe van Sinderen, Abelardo Margolles, and Aldert L. Zomer* • Chapter 6: Probiotic properties of bifidobacteria. *Maddalena Rossi, and Alberto Amaretti* • Chapter 7: Antimicrobial activity of the genus *Bifidobacterium*. *Ismail Fliss, Arthur C. Ouwehand, Ehab Kheadr, Sampo Lahtinen, and Stephen J. Davids* • Chapter 8: Interaction of bifidobacteria with the intestinal mucosa with a focus on immuno-modulating effects. *Eiji Miyauchi, Jin-zhong Xiao, and Soichi Tanabe* • Chapter 9: Safety assessment of bifidobacteria. *Maria H. Saarela* • Chapter 10: Synthesis and utilization of exopolysaccharides and prebiotics. *Sandra Macfarlane, Katie E. Blackett and George T. Macfarlane* • Chapter 11: Antibiotic resistance/susceptibility profiles of bifidobacteria and molecular analysis of atypical resistances. *Baltasar Mayo, Sigrid Mayrhofer, Susana Delgado, and Konrad J. Domig* • Chapter 12: Viability and stability of bifidobacteria in commercial preparations. *Kamila Goderska and Catherine Stanton* • Chapter 13: Mobile genetic elements, cloning vectors and genetic manipulation of bifidobacteria. *Pablo Álvarez Martín, Simone Guglielmetti, and Baltasar Mayo*



Further Details on this and all our books at

WWW.CAISTER.COM

Two-Component Systems in Bacteria

Edited by: R Gross, D Beier
c. 410 pp, August 2012

ISBN: 978-1-908230-08-9, \$360/£180

Latest research on structure-function analysis, sensing mechanisms, atypical two-component systems, stress responses, developmental processes, virulence and symbiosis.

Foodborne & Waterborne Bacterial Pathogens

Epidemiology, Evolution and Molecular Biology

Edited by: SM Faruque
c. 330 pp, July 2012

ISBN: 978-1-908230-06-5, \$319/£159

Review topics such as pathogenic properties, population genetics, virulence genes, evolution, drug resistance, epidemiology, detection, identification and control strategies.

Yersinia

Systems Biology and Control

Edited by: E Carniel, BJ Hinnebusch
c. 240 pp, July 2012

ISBN: 978-1-908230-05-8, \$319/£159

Leading *Yersinia* researchers review the hot topics in the systems biology and control of these important bacteria.

Stress Response in Microbiology

Edited by: JM Requena
c. 500 pp, June 2012

ISBN: 978-1-908230-04-1, \$360/£180

Expert authors from around the world summarise the current knowledge on microbial stress response and comprehensively review the recent findings that have greatly advanced the understanding of stress response systems.

Bacterial Regulatory Networks

Edited by: AAM Filloux
c. 400 pp, June 2012

ISBN: 978-1-908230-03-4, \$360/£180

Authoritative, up-to-date reviews of the current research and theories on regulatory networks in bacteria. Critical reviews written by the leading research scientists in the field.

Systems Microbiology

Current Topics and Applications

Edited by: BD Robertson, BW Wren
c. 200 pp, June 2012

ISBN: 978-1-908230-02-7, \$319/£159

Cutting-edge reviews by world-leading experts on the systems biology of microorganisms. Includes theoretical approaches, mathematical modelling, case studies on microbial species and the systems analysis of microbial phenomena.

Quantitative Real-time PCR in Applied Microbiology

Edited by: M Filion

c. 280 pp, May 2012

ISBN: 978-1-908230-01-0, \$319/£159

Aimed specifically at microbiologists, this volume describes and explains the most important aspects of current real-time quantitative PCR (qPCR) strategies, instrumentation and software.

Bacterial Spores

Current Research and Applications

Edited by: E Abel-Santos

c. 300 pp, April 2012

ISBN: 978-1-908230-00-3, \$319/£159

Comprehensive, up-to-date reviews on the current state of our knowledge of bacterial endospores. Essential text for everyone involved in spore research, the expression of recombinant proteins and pathogen detection.

Small DNA Tumour Viruses

Edited by: K Gaston

x + 324 pp, March 2012

ISBN: 978-1-904455-99-8, \$319/£159

Leading scientists from around the world review current hot-topics on small DNA tumour virus research providing a fascinating overview of their molecular biology and interactions with the host.

Extremophiles

Microbiology and Biotechnology

Edited by: RP Anitori

xiv + 300 (colour figures) pp, January 2012

ISBN: 978-1-904455-98-1, \$319/£159

Current and topical areas of extremophile research. The latest insights into the mechanisms these fascinating organisms use to survive and the most recent and novel biotechnological uses of extremophiles.

Bacillus

Cellular and Molecular Biology (2e)

Edited by: P Graumann

xii + 398 pp, February 2012

ISBN: 978-1-904455-97-4, \$360/£180

A valuable reference work providing a comprehensive and up-to-date analysis. Critical reviews on the most recent and topical research.

Microbial Biofilms

Current Research and Applications

Edited by: G Lear, GD Lewis

x + 228 pp, February 2012

ISBN: 978-1-904455-96-7, \$319/£159

An up-to-date review of the latest scientific research on microbial communities and a discussion of future trends and growth areas in biofilm-related research.

Bacterial Glycomics

Current Research, Technology and Applications

Edited by: CW Reid, SM Twine, AN Reid
x + 270 pp, February 2012

ISBN: 978-1-904455-95-0, \$319/£159

Up-to-date overview of our current understanding of bacterial glycomes, the main analytical methods and recent and novel applications.

Non-coding RNAs and Epigenetic Regulation of Gene Expression

Drivers of Natural Selection

Edited by: KV Morris

x + 216 pp, February 2012

ISBN: 978-1-904455-94-3, \$319/£159

An important and up-to-date overview of the modulation of gene transcription by non-coding RNAs. An essential reference book and a major information resource for those working in the area.

Brucella

Molecular Microbiology and

Genomics

Edited by: I López-Goñi, D O'Callaghan
x + 262 pp, February 2012

ISBN: 978-1-904455-93-6, \$319/£159

Highly acclaimed *Brucella* scientists comprehensively review the most important advances in the field. Topics include: genetic diversity, proteomic analysis, transcriptomic analysis, and much more.

Molecular Virology and Control of Flaviviruses

Edited by: P-Y Shi

x + 358 pp, January 2012

ISBN: 978-1-904455-92-9, \$360/£180

An up-to-date and cutting-edge anthology from the leading experts in the flavivirus field. Essential reading for flavivirus researchers at the graduate level and beyond.

"a valuable resource" (Doodys)

Bacterial Pathogenesis

Molecular and Cellular Mechanisms

Edited by: C Locht, M Simonet

x + 370 pp, January 2012

ISBN: 978-1-904455-91-2, \$360/£180

Distinguished scientists comprehensively describe the most relevant and up-to-date information on pathogenic features across the bacterial world.

"useful to those in many areas of research" (Doodys)