

---

# Contents

|  |           |
|--|-----------|
| <i>Preface</i> . . . . .   | <i>v</i>  |
| <i>Contributors</i> . . . . .  | <i>ix</i> |
| PART I DETECTION, QUANTIFICATION, AND CONFIRMATION   |           |
| 1 Sampling the Processing Environment for <i>Listeria</i> . . . . .  | 3         |
| <i>Anca Ioana Nicolau and Andrei Sorin Bolocan</i>   |           |
| 2 Traditional Methods for Isolation of <i>Listeria monocytogenes</i> . . . . .   | 15        |
| <i>Rui Magalhães, Cristina Mena, Vânia Ferreira,<br/>Gonçalo Almeida, Joana Silva, and Paula Teixeira</i>                |           |
| 3 Confirmation of Isolates of <i>Listeria</i> by Conventional<br>and Real-Time PCR . . . . .                             | 31        |
| <i>David Rodríguez-Lázaro and Marta Hernández</i>  |           |
| PART II CHARACTERIZATION AND TYPING  |           |
| 4 Serotype Assignment by Sero-Agglutination, ELISA, and PCR . . . . .  | 41        |
| <i>Lisa Gorski</i>   |           |
| 5 Pulsed-Field Gel Electrophoresis (PFGE) Analysis<br>of <i>Listeria monocytogenes</i> . . . . .                         | 63        |
| <i>Marion Dalmasso and Kieran Jordan</i>   |           |
| 6 Multilocus Sequence Typing (MLST) of <i>Listeria monocytogenes</i> . . . . .   | 73        |
| <i>Beatrix Stessl, Irene Rückerl, and Martin Wagner</i>  |           |
| 7 Ribotyping and Automated Ribotyping of <i>Listeria monocytogenes</i> . . . . .   | 85        |
| <i>Mazin Matloob and Mansel Griffiths</i>  |           |
| 8 Fluorescent Amplified Fragment Length Polymorphism (fAFLP)<br>Analysis of <i>Listeria monocytogenes</i> . . . . .      | 95        |
| <i>Corinne Amar</i>  |           |
| 9 High-Throughput Characterization of <i>Listeria monocytogenes</i><br>Using the OmniLog Phenotypic Microarray . . . . . | 103       |
| <i>Edward M. Fox and Kieran Jordan</i>   |           |
| 10 Analysis of <i>Listeria monocytogenes</i> Subproteomes . . . . .  | 109       |
| <i>Michel Hébraud</i>  |           |
| 11 The <i>Listeria</i> Cell Wall and Associated Carbohydrate Polymers . . . . .  | 129       |
| <i>Marcel R. Eugster and Martin J. Loessner</i>  |           |
| 12 Use of Bacteriophage Cell Wall-Binding Proteins<br>for Rapid Diagnostics of <i>Listeria</i> . . . . .                 | 141       |
| <i>Mathias Schmelcher and Martin J. Loessner</i>   |           |

|                              |   |     |
|------------------------------|---|-----|
| 13                           | Virulence Characterization of <i>Listeria monocytogenes</i> . . . . .   | 157 |
|                              | <i>Swetha Reddy and Mark L. Lawrence</i>  |     |
| 14                           | Internalization Assays for <i>Listeria monocytogenes</i> . . . . .  | 167 |
|                              | <i>Andreas Kühbacher, Pascale Cossart, and Javier Pizarro-Cerdá</i>   |     |
| PART III STRAIN MANIPULATION |   |     |
| 15                           | Extraction and Analysis of Plasmid DNA from <i>Listeria monocytogenes</i> . . . . .   | 181 |
|                              | <i>Aidan Casey and Olivia McAuliffe</i>   |     |
| 16                           | Generation of Nonpolar Deletion Mutants in <i>Listeria monocytogenes</i><br>Using the “SOEing” Method . . . . .                                     | 187 |
|                              | <i>Kathrin Rychli, Caitriona M. Guinane, Karen Daly,<br/>Colin Hill, and Paul D. Cotter</i>   |     |
| 17                           | Mutant Construction and Integration Vector-Mediated Gene<br>Complementation in <i>Listeria monocytogenes</i> . . . . .                              | 201 |
|                              | <i>Reha Onur Azizoglu, Driss Elhanafi, and Sophia Kathariou</i>   |     |
| 18                           | Absolute and Relative Gene Expression in <i>Listeria monocytogenes</i><br>Using Real-Time PCR . . . . .   | 213 |
|                              | <i>Roberta Mazza and Rina Mazzette</i>  |     |
| 19                           | Genome Sequencing of <i>Listeria monocytogenes</i> . . . . .  | 223 |
|                              | <i>Stephan Schmitz-Esser and Martin Wagner</i>  |     |
| 20                           | Using Enhanced Green Fluorescent Protein (EGFP) Promoter Fusions<br>to Study Gene Regulation at Single Cell and Population Levels . . . . .         | 233 |
|                              | <i>Marta Utratna and Conor P. O’Byrne</i>   |     |
| PART IV CONTROL METHODS      |   |     |
| 21                           | Control of <i>Listeria monocytogenes</i> in the Processing Environment<br>by Understanding Biofilm Formation and Resistance to Sanitizers . . . . . | 251 |
|                              | <i>Stavros G. Manios and Panagiotis N. Skandamis</i>  |     |
| 22                           | Vaccination Studies: Detection of a <i>Listeria monocytogenes</i> -Specific<br>T Cell Immune Response Using the ELISPOT Technique . . . . .         | 263 |
|                              | <i>Mohammed Bahey-El-Din and Cormac G.M. Gahan</i>  |     |
| 23                           | Sampling the Food Processing Environment: Taking Up the Cudgel<br>for Preventive Quality Management in Food Processing Environments . . . . .       | 275 |
|                              | <i>Martin Wagner and Beatrix Stessl</i>   |     |
|                              | <i>Index</i> . . . . .  | 285 |

*Listeria monocytogenes*

Methods and Protocols

Jordan, K.; Fox, E.M.; Wagner, M. (Eds.)

2014, X, 286 p. 42 illus., 17 illus. in color., Hardcover

ISBN: 978-1-4939-0702-1

A product of Humana Press