
Contents

Microbes: The Most Friendly Beings?	1
Vipin C. Kalia	
Part I Quorum Sensing Mediated Processes	
Evolution of MDRs	9
Ashima Kushwaha Bhardwaj and Kittappa Vinothkumar	
Biofilms: Maintenance, Development, and Disassembly of Bacterial Communities Are Determined by QS Cascades	23
Hadas Ganin, Eliane Hadas Yardeni, and Ilana Kolodkin-Gal	
Quorum Sensing in Pathogenesis and Virulence	39
Pragasam Viswanathan, Suneeva S.C., and Prasanth Rathinam	
Quorum Sensing in Nitrogen Fixation	51
Jie Gao, Anzhou Ma, Xuliang Zhuang, and Guoqiang Zhuang	
Quorum Sensing in Competence and Sporulation	61
Navneet Rai, Rewa Rai, and K.V. Venkatesh	
How Important Is the Absolute Configuration to Bacteria Quorum Sensing and Quorum Quenching?	65
Francisca Diana da Silva Araújo, Armando Mateus Pomini, and Anita Jocelyne Marsaioli	
Part II Quorum Sensing Systems in Microbes	
Quorum-Sensing Systems in <i>Pseudomonas</i>	73
Jamuna Bai Aswathanarayan and V. Ravishankar Rai	
Quorum Sensing in <i>Escherichia coli</i>: Interkingdom, Inter- and Intraspecies Dialogues, and a Suicide-Inducing Peptide	85
Bloom-Ackermann Zohar and Ilana Kolodkin-Gal	
Quorum Sensing in <i>Acinetobacter baumannii</i>	101
Nidhi Bhargava, Prince Sharma, and Neena Capalash	
Quorum Sensing Systems in <i>Aeromonas</i> spp.	115
Weihua Chu, Wei Zhu, and Xiyi Zhuang	

Rhizobial Extracellular Signaling Molecules and Their Functions in Symbiotic Interactions with Legumes	123
Walter Giordano	
Quorum Sensing Systems in Clostridia	133
Charles Darkoh and Godfred Ameyaw Asiedu	
Quorum-Sensing Systems in Enterococci	155
Ravindra Pal Singh and Jiro Nakayama	
Quorum-Sensing Systems in <i>Bacillus</i>	165
Lalit K. Singh, Neha Dhasmana, and Yogendra Singh	
Part III Detectors for Quorum Sensing Signals	
Quorum Sensing Biosensors	173
Navneet Rai, Rewa Rai, and K.V. Venkatesh	
<i>Caenorhabditis elegans</i> as an In Vivo Non-Mammalian Model System to Study Quorum Sensing in Pathogens	185
Sajal Sarabhai, Neena Capalash, and Prince Sharma	
Strategies for Silencing Bacterial Communication	197
Kristina Ivanova, Margarida M. Fernandes, and Tzanko Tzanov	
Part IV Natural Quorum Sensing Inhibitors	
Silencing Bacterial Communication Through Enzymatic Quorum-Sensing Inhibition	219
Manuel Romero, Celia Mayer, Andrea Muras, and Ana Otero	
Fungal Quorum Sensing Inhibitors	237
Rohit Sharma and Kamlesh Jangid	
Marine Organisms as Source of Quorum Sensing Inhibitors	259
Fohad Mabood Husain and Iqbal Ahmad	
Plant Quorum Sensing Inhibitors: Food, Medicinal Plants, and Others	269
Pragasam Viswanathan, Prasanth Rathinam, and Suneeva S.C.	
Part V Synthetic Quorum Sensing Inhibitors	
Synthetic Quorum Sensing Inhibitors: Signal Analogues	285
Dimpy Kalia	
Synthetic Quorum Sensing Inhibitors (QSIs) Blocking Receptor Signaling or Signal Molecule Biosynthesis in <i>Pseudomonas aeruginosa</i>	303
Christine K. Maurer, Cenbin Lu, Martin Empting, and Rolf W. Hartmann	

Development of Quorum-Sensing Inhibitors Targeting the <i>fsr</i> System of <i>Enterococcus faecalis</i>	319
Ravindra Pal Singh and Jiro Nakayama	

Part VI Alternative Strategies as Quorum Sensing Inhibitors

An Alternative Strategy as Quorum-Sensing Inhibitor: Pheromone-Guided Antimicrobial Peptides	327
Yung-Hua Li and Xiao-Lin Tian	

Alternative Strategies to Target Quorum Sensing (QS): Combination of QS Inhibitors with Antibiotics and Nanotechnological Approaches	335
Divakara S.S.M. Uppu, Chandradhish Ghosh, and Jayanta Halder	

Heterologous Expression of Quorum Sensing Inhibitory Genes in Diverse Organisms	343
Prasun Kumar, Shikha Koul, Sanjay K.S. Patel, Jung-Kul Lee, and Vipin C. Kalia	

Part VII Biotechnological Applications of Quorum Sensing Inhibitors

Potential Applications of Quorum Sensing Inhibitors in Diverse Fields	359
Vipin C. Kalia and Prasun Kumar	

Biotechnological Applications of Quorum-Sensing Inhibitors in Aquacultures	371
Faseela Hamza, Ameeta Ravi Kumar, and Smita Zinjarde	

The Battle: Quorum-Sensing Inhibitors Versus Evolution of Bacterial Resistance	385
Vipin C. Kalia and Prasun Kumar	

Quorum Sensing vs Quorum Quenching: A Battle with
No End in Sight

Kalia, V.C. (Ed.)

2015, XI, 391 p. 94 illus., 42 illus. in color., Hardcover

ISBN: 978-81-322-1981-1