Charles V. Rice, Ph.D.

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Education:
1993: B.S., Chemistry, Illinois State University
1995: M.S., Chemistry, Illinois State University
2000: Ph.D., Chemistry, Purdue University

Academic Appointments:
2002: Assistant Professor, University of Oklahoma, OK
2008: Associate Professor, University of Oklahoma, OK

Other Experience and Professional Memberships:
2012-present: Associate Member, Institute for Natural Products Applications and Research Technologies (INPART) at the University of Oklahoma

Research Support:
Current:

Past

- 2016: OCAST HR16-084, "Potentiating Beta-Lactams to Treat MRSA Infections, Role: Principle Investigator", Awarded: $135,000
- 2010-2015: NIH 1 R01 GM090064-01, "Metal Binding to the Bacterial Cell Wall, Role: Principle Investigator", Awarded: $1,325,000

Selected Publications:

1. Foxley, M. A.; Friedline, A. W., Jensen, J. M.; Nimmo, S. L. Scull, E. M.; King, J. B.; Strange, S.; Xiao, M. T.; Smith, B. E.; Thomas, K. J.; Glatzhofer, D. T.; Cichewicz, R. H.; Rice, C. V.; "Efficacy of Ampicillin Against Methicillin-Resistant Staphylococcus aureus Restored Through Synergy with Branched Poly(ethylenimine)" Journal of Antibiotics. 2016; doi: 10.1038/ja.2016.44. PMID: 27189119. Published on-line May 18; http://www.nature.com/ja/journal/vaop/ncurrent/abs/ja201644a.html.
2. Friedline, A. W.; Zachariah, M. M.; Middaugh, A.N.; Garimella, R.; Vaishampayan, P.A.; Rice, C.V. "Sterilization Resistance of Bacterial Spores Explained with Water Chemistry". Journal of Physical Chemistry B, 2015, 119, 14033-14044. DOI: 10.1021/acs.jpcb.5b07437. PubMed PMID: 26435315.
3. Thomas III, K. J.; Rice, C. V.; "Equilibrium binding behavior of magnesium to wall teichoic acid", Biochimica et Biophysica Acta (BBA) - Biomembranes, 2015, 1848(10), 1981–1987. PMID: 25969394, PMC4554814.
4. Friedline, A.W.; Zachariah, M. M.; Middaugh, A.N.; Heiser, M.; Khanna, N.; Vaishampayan, P.; Rice, C. V.; "Sterilization of Hydrogen Peroxide Resistant Bacterial Spores with Stabilized Chlorine Dioxide", Applied Microbiology and Biotechnology Express, 2015, 5 (1), 24. PMID: 25897406; PMCID: PMC4398677.

5. Charles V. Rice; Amy Middaugh; Jason R. Wickham; Anthony Friedline; Kieth J. Thomas III; Erin Scull; Karen Johnson; Malcolm Zachariah; Ravindranath Garimella; "Bacterial Lipoteichoic Acid Enhances Cryosurvival", Extremophiles, 2015, 19, 297-305. PubMed PMID: 25477208; PubMed Central PMCID: PMC4342304.
6. Friedline, A. W.; Zachariah, M. M.; Johnson, K.; Thomas, K.J.; Middaugh, A.N.; Garimella, R.; Powell, D.R.; Vaishampayan, P.A.; Rice, C.V. "Water Behavior in Bacterial Spores by Deuterium NMR Spectroscopy". Journal of Physical Chemistry B, 2014; 118 (30): 8945-55. PMID: 24950158; PMCID: PMC4216197.
7. Thomas, III, K. J.; Rice, C. V.; "Revised model of calcium and magnesium binding to the bacterial cell wall", Biometals, 2014, 27: 1361-1370. PMID: 25315444; PMCID: PMC4299761.
8. Pastoor, Kevin J.; and Rice, Charles V., "Cation Effects on the Phase Transition of N-Isopropylacrylamide Hydrogels", Macromolecular Chemistry and Physics, 2015, 216 (9), 10214-1032.
9. Todd M. Alam, Kimberly K. Childress, Kevin Pastoor, Charles V. Rice, "Characterization of Free, Restricted and Entrapped Water Environments in Poly(N-Isopropyl Acrylamide) Hydrogels via 1H HRMAS PFG NMR Spectroscopy", Journal of Polymer Science Part B: Polymer Physics, 2014, 52, 1521-1527.
10. Halye, J. L.; Rice, C. V.; "Cadmium chelation by bacterial teichoic acid from solid-state nuclear magnetic resonance spectroscopy", Biomacromolecules, 2010, 11 (2), 333-340. PMID: 20067325.
11. Garimella, R.; Halye, J. L.; Harrison, W.; Klebba, P.; Rice, C. V.; "Conformation of the Phosphate D-Alanine Zwitterion in Bacterial Teichoic Acid from Nuclear Magnetic Resonance Spectroscopy." Biochemistry, 2009, 48 (39), 9242-9249; PMID: 19746945; PMCID: PMC4196936.
12. Wickham, J. R.; Hayle, J. L.; Kashtanov, S.; Khandogin, J.; Rice, C. V.; "Revisiting Magnesium Chelation by Teichoic Acid with Phosphorus Solid-State NMR and Theoretical Calculations", Journal of Physical Chemistry B, 2009, 113, pp 2177–2183. PMID: 19173634.

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