

## CURRICULUM VITAE

**Melissa J. Caimano, Ph.D.**  
Associate Professor  
Department of Medicine  
University of Connecticut Health

### ACADEMIC APPOINTMENTS

10/2017 - Associate Professor, Departments of Medicine, Pediatrics, and Molecular Biology and Biophysics, UCHC, Farmington, CT  
2/2013 – 2017 Assistant Professor, Department of Molecular Biology and Biophysics, UCHC, Farmington, CT  
7/2011 –2017 Assistant Professor, Department of Pediatrics, Division of Infectious Diseases, UCHC, Farmington, CT  
3/2009 - Assistant Professor, Department of Medicine, UCHC, Farmington, CT  
8/2000 – 3/2009 Instructor, Department of Medicine, UCHC, Farmington, CT

### PROFESSIONAL EXPERIENCE

3/2016 - Appointed to the Graduate School  
6/2014 - Research Associate, International Center for Medical Research and Training (CIDEIM) Cali, Colombia  
8/2013 - Scientific Advisor, Connecticut Children's Medical Center, Hartford, CT

### EDUCATIONAL BACKGROUND

4/1999 - 8/2000 Postdoctoral fellowship, Center for Microbial Pathogenesis, UCHC  
8/1996 - 4/1999 Postdoctoral fellowship, Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX  
9/1989 – 7/1996: University of Alabama at Birmingham, Birmingham, AL, Ph.D., Microbiology  
9/1985 – 6/1989 University of Rhode Island, Kingston, RI; B.S., Microbiology (Graduation with Distinction)

### PRINT AND ORAL SCHOLARSHIP

#### **Peer-Reviewed Journal Articles**

1. **Caimano, M.J.**\* (2018) Generation of mammalian host-adapted *Borrelia burgdorferi* by cultivation in dialysis membrane chamber implantation in rats. *Methods in Mol. Biol.* 1690:35-45.PMID: 29032534.
2. Hawley, K.L., A.R. Cruz, S.J. Benjamin, C.J. La Vake, J.L. Cervantes, M. LeDoyt, L.G. Ramirez, D. Mandich, M. Fiel-Gan, **M.J. Caimano**, J.D. Radolf, J.C. Salazar. (2017) IFN $\gamma$  enhances CD64-potentiated phagocytosis of *Treponema pallidum* opsonized with human syphilitic serum by human macrophages. *Front. Immunol.* 8:1227. PMID:29051759.
3. Puthenveetil, R., S. Kumar, **M.J. Caimano**, A. Dey, A. Anand, O. Vinogradova, and J.D. Radolf. (2017) The major outer sheath protein forms distinct conformers and multimeric complexes in the outer membrane and periplasm of *Treponema denticola*. *Scientific Reports.* 7(1):13260. PMID:

29038532.

4. Grove, A.P., D. Liveris, R. Iyer, M. Petzke, J. Rudman, **M.J. Caimano**, J.D. Radolf, and I. Schwartz. (2017) Two distinct mechanisms govern RpoS-mediated repression of tick-phase genes during mammalian host adaptation by *Borrelia burgdorferi*, the Lyme disease spirochete. *MBio*. 2017 Aug 22;8(4). pii: e01204-17. PMID: 28830947
5. Fitzstevens, J.L., K.C. Smith, J.I. Hagadorn, M.J. **Caimano**, A.P. Matson, and E.A. Brownell. (2017) Systematic review of the human milk microbiota. *Nutr. Clin. Pract.* 32(3): 354-364. PMID:27679525
6. Nally, J.E., A.A. Grassmann, S. Planchon, K. Sergeant, J. Renaut, J. Seshu, A.J. McBride, **M.J. Caimano**. (2017) Pathogenic leptospires modulate protein expression and post-translational modifications in response to mammalian host signals. *Front Cell Infect Microbiol.* 7:362. PMID: 28848720.
7. Miller, D.P., L.D. Oliver, Jr, B.K. Tegels, L.A. Reed, N.S. O'Bier, K. Kurniyati, L.A. Faust, C.K. Lawson, A.M. Allard, **M.J. Caimano** and R.T Marconi (2016) The *Treponema denticola* FhbB protein is a dominant early antigen that elicits FhbB variant specific antibodies that block FH binding and cleavage by dentilisin. *Infect. Immun.* 84(7):2051-2058. PMID: 27113359.
8. **Caimano, M.J.**, D. Drecktrah, F. Kung and D.S. Samuels (2016) Interaction of the Lyme disease spirochete with its tick vector. *Cellular Microbiology.* 18(7):919-927. PMID: 27147446. **Selected for the Journal Cover.**
9. Gulia-Nuss, M., Nuss A.B., Meyer J.M., Sonenshine D.E., Roe R.M., Waterhouse R.M., Sattelle D.B., De La Fuente J., Ribeiro J.M., Megy K., Thimmapuram J., Miller J.R., Walenz B.P., Koren S., Hostetler J.B., Thiagarajan M., Joardar V.S., Hannick L.I., Bidwell S., Hammond M.P., Young S., Zeng Q., Abrudan J.L., Almeida F.C., Ayllón N., Bhide K., Bissinger B.W., Bonzon-Kulichenko E., Buckingham S.D., Caffrey D.R., **Caimano M.J.**, Croset V., Driscoll T., Gilbert D., Gillespie J.J., Giraldo-Calderón G.I., Grabowski J.M., Jiang D., Khalil S.M.S., Kim D., Kocan K.M., Koči J., Kuhn R.J., Kurtti T.J., Lees K., Lang E.G., Kennedy R.C., Kwon H., Perera R., Qi Y., Radolf J.D., Sakamoto J.M., Sánchez-Gracia A., Severo M.S., Silverman N., Šimo L., Tojo M., Tornador C., Van Zee J.P., Vázquez J., Vieira F.G., Villar M., Wespiser A.R., Yang Y., Zhu J., Arensburger P., Pietrantonio P.V., Barker S.C., Shao R., Zdobnov E.M., Hauser F., Grimmelikhuijzen C.J.P., Park Y., Rozas J., Benton R., Pedra J.H.F., Nelson D.R., Unger M.F., Tubio J.M.C., Tu Z., Robertson H.M., Shumway M., Sutton G., Wortman J.R., Lawson D., Wikel S.K., Nene V.M., Fraser C.M., Collins F.H., Birren B., Nelson K.E., Caler E. and Hill C.A. (2016) Genomic insights into the *Ixodes scapularis* tick vector of Lyme disease. *Nature Comm.* 7:10507. doi: 10.1038/ncomms10507. PMID: 26856261.
10. Bauer W.J., A. Luthra, G. Zhu, J.D. Radolf, M.G. Malkowski and **M.J. Caimano\***. (2015) Structural characterization and modeling of the *Borrelia burgdorferi* hybrid histidine kinase Hk1 periplasmic sensor: A system for sensing small molecules associated with tick feeding. *J Struct Biol.* 192(1):48-58. PMID: 26321039.
11. Grassmann A.A., A.J. McBride, J.E. Nally and **M.J. Caimano\***. (2015) Generation of mammalian host-adapted *Leptospira interrogans* by cultivation in peritoneal dialysis membrane chamber implantation in rats. *Bio Protoc.* 5(14). pii: e1536. PMID: 26258158.
12. **Caimano, M.J.\***, S. Dunham-Ems, A.M. Allard, M.B. Cassera, M. Kenedy and J.D. Radolf. (2015) C-di-GMP modulates gene expression in Lyme disease spirochetes at the tick-mammal interface to promote spirochete survival during the blood meal and tick-to-mammal transmission. *Infect. Immun.* 83(8):3043-60. PMID: 25825429.
13. Luthra A., A. Anand, K.L. Hawley, M. LeDoyt C.J. La Vake, **M.J. Caimano**, A.R. Cruz, J.C. Salazar and J.D. Radolf. (2015) A homology model reveals novel structural features and an immunodominant surface loop/opsonic target in the *Treponema pallidum* BamA ortholog TP0326. *J Bacteriol.* 197(11):1906-20. PMID: 25825429.
14. Iyer R., **M.J. Caimano**, A. Luthra, D. Axline Jr, A. Corona, D.A. Iacobas, J.D. Radolf and I. Schwartz.

- (2015) Stage-specific global alterations in the transcriptomes of Lyme disease spirochetes during tick feeding and following mammalian host adaptation. *Mol Microbiol.* 95(3):509-38. PMID: 25425211.
15. Miller, K. A., M.A. Motaleb, J. Liu, **M.J. Caimano**, M.R. Miller and N.W. Charon. (2014) Initial characterization of the FlgE hook high molecular weight complex of *Borrelia burgdorferi*. *PLoS One.* 9(5):e98338. PMID: 24859001.
  16. **Caimano, M.J.\***, S.K. Sivasankaran, A. Allard, D. Hurley, K. Hokamp, A.A. Grassmann, J.C.D. Hinton and J.E. Nally. (2014) A model system for studying the transcriptomic and physiological changes associated with mammalian host-adaptation by *Leptospira interrogans* serovar Copenhageni. *PLoS Pathogens.* 10(3):e1004004. PMID: 24626166.
  17. Brandt, K.S., T.G. Patton, A.S. Allard, **M.J. Caimano**, J.D. Radolf and R.D. Gilmore. (2014) Evaluation of the *Borrelia burgdorferi* BBA64 protein as a protective immunogen in mice. *Clin. Vaccine Immunol.* 21(4):526-33. PMID: 24501342.
  18. Salman-Dilgimen A, P.O. Hardy, J.D. Radolf, **M.J. Caimano** and G. Chaconas. (2013) HrpA, an RNA helicase involved in RNA processing, is required for mouse infectivity and tick transmission of the Lyme disease spirochete. *PLoS Pathogens.* 9(12):e1003841. PMID: 24367266.
  19. Miller, D.P., J.V. McDowell, D. Rhodes, A. Allard, **M. Caimano**, J. Bell and R.T. Marconi. (2013) Sequence divergence in the *Treponema denticola* FhbB protein and its impact on factor H binding. *J. Mol. Oral Microbiol.* 28(4):316-30. PMID: 23601078.
  20. Anand, A., A. Luthra, M.E. Edmond, M. Ledoyt, **M.J. Caimano** and J.D. Radolf. (2013) The major outer sheath protein (Msp) of *Treponema denticola* has a bipartite domain architecture and exists as periplasmic and outer membrane-spanning conformers. *J. Bacteriol.* 195(9):2060-71. PMID: 23457251.
  21. Ristow, L.C., H.E. Miller, L.J. Padmore, R. Chettri, N. Salzman, **M.J. Caimano**, P.A. Rosa and J. Coburn. (2012) The  $\beta(3)$ -integrin ligand of *Borrelia burgdorferi* is critical for infection of mice but not ticks. *Mol Microbiol.* 85(6):1105-1118. PMID: 22758390.
  22. Anand A., A. Luthra, S. Dunham-Ems, **M.J. Caimano**, C. Karanian, M. LeDoyt, A.R. Cruz, J.C. Salazar and J.D. Radolf. (2012) TprC/D (Tp0117/131), a trimeric, pore-forming rare outer membrane protein of *Treponema pallidum*, has a bipartite domain structure. *J Bacteriol.* 194(9):2321-33. PMID: 22389487.
  23. Dunham-Ems, **M.J. Caimano**, C.H. Eggers and J.D. Radolf. (2012) *Borrelia burgdorferi* requires the alternative sigma factor RpoS for dissemination within the vector during tick-to-mammal transmission. *PLoS Pathogens.* 8(2):e1002532. PMID: 3280991.
  24. Harman, M.W., S.M. Dunham-Ems, **M.J. Caimano**, A.A. Belperron, L.K. Bockenstedt, H.C. Hu, J.D. Radolf and C.W. Wolgemuth. (2012) The heterogeneous motility of the Lyme disease spirochete in gelatin mimics dissemination through tissue. *Proc. Natl. Acad. Sci. USA* 109(8):3059-64. PMID: 3286914.
  25. Hawley, K.L., C.M. Olson Jr, J.M. Iglesias-Pedraz, N. Navasa, J.L. Cervantes, **M.J. Caimano**, H. Izadi, R.R. Ingalls, U. Pal, J.C. Salazar, J.D. Radolf and J. Anguita. (2012) CD14 cooperates with complement receptor 3 to mediate MyD88-independent phagocytosis of *Borrelia burgdorferi*. *Proc. Natl. Acad. Sci. USA.* 109(4):1228-32. PMID: 22232682.
  26. Radolf, J.D., **M.J. Caimano**, B. Stevenson and L.T. Hu. (2011) Of Ticks, Mice, and Men: Understanding the two host lifestyle of Lyme disease spirochetes. *Nature. Rev. Microbiol.* 10(2):87-99. PMID: 3313462. **Selected for Journal Cover.**
  27. Luthra, A., G. Zhu, D. Desrosiers, C.H. Eggers, V. Mulay, A. Anand, F.A. McArthur, F.B. Romano, **M.J. Caimano**, A.P. Heuck, M.G. Malkowski and J.D. Radolf. (2011) The transition from closed to open conformation of *Treponema pallidum* outer membrane-associated lipoprotein TP0453 involves membrane sensing and integration by two amphipathic helices. *J Biol Chem.* 286(48):41656-68.

PMID: 21965687.

28. Eggers, C.H., **M.J. Caimano**, R.A. Malizia, T. Kairu, B. Cusack, D.C. Desrosiers, K.R.O. Hazlett, A. Claiborne, U. Pal and J.D. Radolf. (2011) The coenzyme A disulfide reductase of *Borrelia burgdorferi* is important for rapid growth throughout the enzootic cycle and essential for infection of the mammalian host. *Mol. Microbiol.* 82(3):679-97. PMID: 21923763.
29. Pappas, C.J., R. Iyer, M.M. Petzke, **M.J. Caimano**, J.D. Radolf and I. Schwartz. (2011) *Borrelia burgdorferi* requires glycerol for maximum fitness during the tick phase of the enzootic cycle. *PLoS Pathog.* 7(7) Pii:e1002102. PMID: 21750672.
30. Desrosiers, D.C., A. Anand, A. Luthra, S.M. Dunham-Ems, M. LeDoyt, M.A. Cummings, A. Eshghi, C.E. Cameron, A.R. Cruz, J.C. Salazar, **M.J. Caimano** and J.D. Radolf. (2011) TP0326, a *Treponema pallidum*  $\beta$ -barrel assembly machinery (BamA) orthologue and rare outer membrane protein. *Mol. Microbiol.* 80(6):1496-1515. PMID: 21488980.
31. **Caimano, M.J.\***, M.R. Kenedy, T. Kairu, D.C. Desrosiers, M. Harman, S. Dunham-Ems, D.R. Akins, U. Pal and J.D. Radolf. (2011) The hybrid histidine kinase Hk1 is part of a two-component system that is essential for survival of *Borrelia burgdorferi* in feeding *Ixodes scapularis* ticks. *Infect. Immun.* 79(8):3117-30. PMID: 21606185. **Selected as an Editor's "Spotlight" article.**
32. Banik, S., D. Terekhova, R. Iyer, C.J. Pappas, **M.J. Caimano**, J.D. Radolf and I. Schwartz. (2011) BB0844, an RpoS-regulated protein, is dispensable for *Borrelia burgdorferi* infectivity and maintenance in the mouse-tick infectious cycle. *Infect. Immun.* 79(3):1208-1217. PMID: 21173312.
33. Cox, D.L., A. Luthra, S. Dunham-Ems, D.C. Desrosiers, J.C. Salazar, **M.J. Caimano** and J.D. Radolf. (2010) Surface immunolabeling and consensus computational framework to identify candidate rare outer membrane proteins of *Treponema pallidum*. *Infect. Immun.* 78(12):5178-5194. PMID: 20876295.
34. Xu, H., **M.J. Caimano**, T. Lin, M. He, J.D. Radolf, S.J. Norris, F. Gherardini, A.J. Wolfe and X.F. Yang. (2010). Role of acetyl-phosphate in activation of the Rrp2-RpoN-RpoS pathway in *Borrelia burgdorferi*. *PLoS Pathogens.* 6(9):e1001104. PMID: 20862323.
35. Balic, A., H.L. Aguila, **M.J. Caimano**, V.P. Francone and M. Mina. (2010) Characterization of stem and progenitor cells in the dental pulp of erupted and unerupted murine molars. *Bone.* 46(6):1639-1651. PMID: 20193787.
36. Dunham-Ems, S., **M.J. Caimano**, U. Pal, C.W. Wolgemuth, C.H. Eggers, A. Balic and J.D. Radolf. (2009) Live imaging reveals a biphasic mode of dissemination of *Borrelia burgdorferi* in ticks. *J. Clin. Invest.* 119(12):3652-3665. PMID: 19920352. **Selected for Journal Cover.**
37. Salazar, J.C., S. Dunham-Ems, C. LaVake, A. R. Cruz, M. W. Moore, **M.J. Caimano**, L. Velez-Climent, J. Shupe, W. Krueger and J. D. Radolf. (2009) Activation of human monocytes by phagocytosed *Borrelia burgdorferi* generates TLR2-dependent and -independent signals which include induction of interferon- $\beta$ . *PLoS Pathogens.* 5(5): e1000444. PMID: 19461888.
38. Mulay, V., **M.J. Caimano\*** (shared first authorship and corresponding author), R. Iyer, S. Dunham-Ems, D. Liveris, M.M. Petzke, I. Schwartz and J.D. Radolf. (2009) *bba74* is expressed exclusively during tick feeding and is regulated by both arthropod- and mammalian host-specific signals. *J. Bacteriol.* 191(8):2783-2794. PMID: 19218390.
39. Emmanuel T., M. R. Benhnia, Y. Kinjo, R. Patsey, C. Lena, M. Haller, **M.J. Caimano**, M. Imamura, C.-H. Wong, S. Crotty, J. D. Radolf, T. J. Sellati and M. Kronenberg. (2008) NKT cells prevent chronic joint inflammation following infection with *Borrelia burgdorferi*. *Proc. Natl. Acad. Sci. USA.* 105(5):19863-19868.
40. **Caimano, M.J.\***, R. Iyer, C.H. Eggers, C. Gonzalez, I. Schwartz and J.D. Radolf. (2007) Analysis of the RpoS regulon in *Borrelia burgdorferi* in response to mammalian host signals provides insight into RpoS function during the enzootic cycle. *Mol. Microbiol.* 65(5):1193-1217.

41. Mulay, V., **M.J. Caimano**, D. Liveris, D.C. Desrosiers, J.D. Radolf and I. Schwartz. (2007) *Borrelia burgdorferi* BBA74, a periplasmic protein associated with the outer membrane, lacks porin-like properties. *J. Bacteriol.* 189(5):2063-2068.
42. Schimanski, B., J. Brandenburg, T.N. Nguyen, **M.J. Caimano** and A. Günzl. (2006) A TFIIIB-like protein is required for spliced leader RNA gene transcription in *Trypanosoma brucei*. *Nucl. Acids Res.* 34(6):1676-84.
43. Eggers, C.H., **M.J. Caimano** and J.D. Radolf. (2006) Sigma factor selectivity in *Borrelia burgdorferi*: RpoS recognition of the *ospE/ospF/elp* promoters is dependent on the sequence of the -10 region. *Mol. Microbiol.* 59(6):1859-75.
44. **Caimano, M.J.\***, C.H. Eggers, C. Gonzalez and J.D. Radolf. (2005) Alternate sigma factor, RpoS, is required for the *in vivo*-specific repression of the *Borrelia burgdorferi* lp54-encoded *ospA* and *lp6.6* genes. *J. Bacteriol.* 187(22):7845-52.
45. Benhnia M.R., D. Wroblewski, M.N. Akhtar, R.A. Patel, W. Lavezzi, S.C. Gangloff, S.M. Goyert, **M.J. Caimano**, J.D. Radolf and T.J. Sellati. (2005) Signaling through CD14 attenuates the inflammatory response to *Borrelia burgdorferi*, the agent of Lyme disease. *J. Immunol.* 174(3):1539-48.
46. **Caimano, M.J.\***, C.H. Eggers, K.R.O. Hazlett and J.D. Radolf. (2004) RpoS<sub>Bb</sub> is not central to the general stress response in *Borrelia burgdorferi* but does control expression of one or more essential virulence determinants. *Infect. Immun.* 72(11):6433-6445.
47. Eggers, C.H., **M.J. Caimano** and J.D. Radolf. (2004) Analysis of promoter elements involved in the transcriptional initiation of RpoS-dependent *Borrelia burgdorferi* genes. *J. Bacteriol.* 186(21):7390-7402.
48. Grimm D., C.H. Eggers, **M.J. Caimano**, K. Tilly, P.E. Stewart, A.F. Elias, J.D. Radolf and P.A. Rosa. (2004) Experimental assessment of the roles of linear plasmids lp25 and lp28-1 of *Borrelia burgdorferi* throughout the infectious cycle. *Infect Immun.* 2004. 72(10):5938-5946.
49. Blevins, J.S., A.T. Revel, **M.J. Caimano**, X.F. Yang, J.A. Richardson, K.E. Hagman and M.V. Norgard. (2004) The *luxS* gene is not required for *Borrelia burgdorferi* tick colonization, transmission to a mammalian host, or induction of disease. *Infect. Immun.* 72(8):4864-4867.
50. Liang, F.T., **M.J. Caimano**, J.D. Radolf and E. Fikrig. (2004) *Borrelia burgdorferi ospB* expression independent of *ospA*. *Microbial. Pathog.* 37(1):35-40.
51. Salazar, J.C., C.D. Pope, T.J. Sellati, H.M. Feder, Jr., T.G. Kiely, K.R. Dardick, R.L. Buckman, M.W. Moore, **M.J. Caimano**, J.G. Pope, P.J. Krause and J.D. Radolf. (2003) Coevolution of markers of innate and adaptive immunity in skin and peripheral blood of patients with erythema migrans. *J. Immunol.* 171(5):2660-70.
52. Fouad, A.F. K.Y. Kum, M.L. Clawson, J. Barry, C. Abenoja, Q. Zhu, **M. Caimano** and J.D. Radolf. (2003) Molecular characterization of the presence of *Eubacterium* spp and *Streptococcus* ssp in endodontic infections. *Oral Microbial. Immunol.* 18(4):249-55.
53. Narasimhan, S., **M.J. Caimano**, F.T. Liang, F. Santiago, M. Laskowski, M.T. Philipp, A.R. Pachner, J.D. Radolf and E. Fikrig. (2003) *Borrelia burgdorferi* transcription in the central nervous system of non-human primates. *Proc. Natl. Acad. Sci. USA.* 100(26):15953-15958.
54. Purser, J.E., M.B. Lawrenz, **M.J. Caimano**, J.D. Radolf and S.J. Norris. (2003) A plasmid-encoded nicotinamidase (PncA) is essential for infectivity of *Borrelia burgdorferi* in a mammalian host. *Mol. Microbiol.* 48(3):753-764.
55. Parveen, N., **M. Caimano**, J.D. Radolf and J.M. Leong. (2003) Adaptation of the Lyme disease spirochete in the mammalian host environment results in enhanced glycosaminoglycan and host cell binding. *Mol. Microbiol.* 47(5):1433-1444.
56. Burgrysheva, J., E.Y. Dobrikova, **M.J. Caimano**, T.J. Daniels, J.D. Radolf, H.P. Godfrey and F.C.

- Cabello. (2003) Characterization of the stringent response and *rel<sub>Bb</sub>* expression in *Borrelia burgdorferi*. *J. Bacteriol.* 185(3):957-965.
57. Ojaimi, C., C. Brooks, S. Casjens, P. Rosa, A. Elias, A. Barbour, A. Jasinskas, J., Benach, L. Katona, J. Radolf, **M. Caimano**, J. Skare, K. Swingle, D. Akins and I. Schwartz. (2003) Profiling temperature-induced changes in *Borrelia burgdorferi* gene expression using whole genome arrays. *Infect. Immun.* 71(4):1689-1705.
  58. Ojaimi, C., C. Brooks, D. Akins, S. Casjens, P. Rosa, A. Elias, A. Barbour, A. Jasinskas, J., Benach, L. Katonah, J. Radolf, **M. Caimano**, J. Skare, K. Swingle, S. Sims and I. Schwartz. (2002) *Borrelia burgdorferi* gene expression profiling with membrane-based arrays. *Methods Enzymol.* 358:165-177.
  59. Roberts, D.M., **M. Caimano**, J. McDowell, M. Theisen, A. Holme, S. Alban, E. Orff, D. Nelson, S. Wikel, J. Radolf and R. T. Marconi. (2002). Environmental regulation and differential expression of members of the Bdr protein family of *Borrelia burgdorferi*. *Infect. Immun.* 70(12):7033-7041.
  60. Fouad, A.F., J. Barry, **M. Caimano**, M. Clawson, Q. Zhu, R. Carver, K. Hazlett and J. D. Radolf. (2002) PCR-based identification of bacteria associated with endodontic infections. *J. Clin. Micro.* 40(9):3223-3231.
  61. Hefty, P.S., S.E. Jolliff, **M.J. Caimano**, S.K. Wikel and D.R. Akins. (2002). Changes in temporal and spatial patterns of outer surface lipoprotein expression generate population heterogeneity and antigenic diversity in the Lyme disease spirochete, *Borrelia burgdorferi*. *Infect Immun.* 70(7):3468-78.
  62. Elias, A.F., P.E. Stewart, D. Grimm, **M.J. Caimano**, C.H. Eggers, K. Tilly, J.L. Bono, D.R. Akins, J.D. Radolf, T.G. Schwan and P. Rosa. (2002) Clonal polymorphism of *Borrelia burgdorferi* strain B31 MI: implications for mutagenesis in an infectious strain background. *Infect. Immun.* 70(4):2139-2150.
  63. Eggers C.H., **Caimano M.J.**, Clawson M.L., Miller W.G., Samuels D.S. and Radolf J.D. (2002) Identification of loci critical for replication and compatibility of a *Borrelia burgdorferi* cp32 plasmid and use of a cp32-based shuttle vector for the expression of fluorescent reporters in the Lyme disease spirochaete. *Mol. Microbiol.* 43(2):281-295.
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  65. Hefty, P.S., S.E. Jolliff, **M.J. Caimano**, S. K. Wikel and J.D. Radolf. (2001) Regulation of the OspE-related, OspF-related and Elp lipoproteins of *Borrelia burgdorferi* strain 297 by mammalian host-specific signals. *Infect. Immun.* 69(6):3618-3627.
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  67. Hagman, K.E., X. Yang, S.K. Wikel, G.B. Schoeler, **M.J. Caimano**, J.D. Radolf and M.V. Norgard. (2000) Decorin-binding protein A (DbpA) of *Borrelia burgdorferi* is not protective when immunized mice are challenged *via* tick infestation and correlates with the lack of DbpA expression in tick midguts. *Infect. Immun.* 68(8):4759-4764.
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71. Yang, X., T.G. Popova, K.E. Hagman, S.K. Wikel, G.G. Schoeler, **M.J. Caimano**, J.D. Radolf and M.V. Norgard. (1999) Identification, characterization, and expression of three new members of the *Borrelia burgdorferi* Mlp (2.9) lipoprotein gene family. *Infect. Immun.* 67(11):6008-6018.
72. Sellati, T.J., D.A. Bouis, **M.J. Caimano**, J.A. Feulner, C. Ayers, E. Lein and J.D. Radolf. (1999) Activation of human monocytic cells by *Borrelia burgdorferi* and *Treponema pallidum* is facilitated by CD14 and correlates with surface-exposure of spirochetal lipoproteins. *J. Immunol.* 163(4):2049-56.
73. **Caimano, M.J.**, K.W. Bourell, T.D. Bannister, D. Cox and J.D. Radolf. (1999) The *Treponema denticola* major sheath protein is predominantly periplasmic and has only limited surface exposure. *Infect. Immun.* 67(8):4072-83.
74. Akins, D.R., **M.J. Caimano**, X. Yang, F. Cerna, M.V. Norgard and J.D. Radolf. (1999) Molecular and evolutionary analysis of *Borrelia burgdorferi* 297 circular plasmid-encoded lipoproteins with OspE- and OspF-like leader peptides. *Infect. Immun.* 67(3):1526-1532.
75. Akins, D.R., K.W. Bourell, **M.J. Caimano**, M.V. Norgard and J.D. Radolf. (1998) A new animal model for studying Lyme disease spirochetes in a mammalian host-adapted state. *J. Clin. Invest.* 101(10):1-11.
76. **Caimano, M.J.**, G.G. Hardy and J. Yother. (1997) Capsule genetics in *Streptococcus pneumoniae* and a possible role for transposition in the generation of the type 3 locus. *Microbiol. Drug Resistance* 4(1):11-24.
77. Yother, J., K.D. Ambrose and **M.J. Caimano**. (1997) Association of a partial H-rpt element with the type 3 capsule locus of *Streptococcus pneumoniae*. *Mol. Microbiol.* 25(1):201-202.
78. Dillard, J.P., **M. Caimano**, T. Kelly and J. Yother. (1995) Capsules and cassettes: genetic organization of the capsule locus of *Streptococcus pneumoniae*. *Dev. Biol. Stand.* 85:261-265.

#### **Invited Publications (Not peer reviewed)**

1. **Caimano, M.J.**\* (2005) Cultivation of *Borrelia burgdorferi* in dialysis membrane chambers in rat peritonea. *Curr. Protoc. Microbiol.* Chapter 12: Unit 12C.3.
2. Eggers C.H., **M.J. Caimano** and J.D. Radolf. (2006) Use of green fluorescent protein transcriptional reporters to study differential gene expression by *Borrelia burgdorferi*. In: Molecular Biology of Spirochetes. F.C. Cabello, D. Hulinska and H.P. Godfrey, eds. IOS Press, NATO Science Series.

#### **OTHER PROFESSIONAL ACCOMPLISHMENTS**

##### **Administrative Committees**

- 2017 Vice-Chairperson, Committee on Biohazards, UCHC
- 2017 - Member, NIH/NIAID Special Emphasis Panel (IDM-B) Study Section
  
- 2015 - Appointed to Graduate Faculty in Biomedical Science
- 2015 - Member, Graduate School Admissions Committee, UCHC
- 2015 - Member, Committee on Biohazards, UCHC
- 2010 - Member, Institutional Animal Care and Use Committee, UCHC

## Dissertation Committees

- 2015 – Member, Graduate student thesis committee for Sarah Benjamin (Mentor, Dr. Juan Salazar) UConn Health.
- 2015 Opponent, Graduate thesis committee for Mari Bonde (Mentor, Sven Bergstrom), Umea University, Umea, Sweden. Currently a postdoctoral fellow at Umea University.

## Editorial Boards

- 2017 – Associate Editor, *PLoS Neglected Tropical Diseases*
- 2017 Co-Editor, *Frontiers Research Topics Cellular and Infection Microbiology*, Research topic: “Borrelia Pathogenesis, Immunity and Vaccines”.
- 2015 –2017 Co-Editor, *Frontiers Research Topics in Immunology*, Research topic: “Spirochetes and immune evasion: infection, persistence and clearance”.
- 2105 – 2017 Guest Editor, *PLoS Neglected Tropical Diseases*
- 2006 – Editorial Board member, *Infection and Immunity*

## Study Section

- 2017 - present NIH/NIAID, ZRG1 IDM-B (81) Study Section
- 2016 *Ad hoc* grant reviewer, Czech Science Foundation, Prague, Czech Republic.
- 2016 *Ad hoc* project proposal reviewer, Stanford Synchrotron Radiation Lightsource (SSRL), SLAC National Accelerator Laboratory, Melano Park, CA.
- 2012 - 2013 Member of the Planning Committee and Chair of the Abstract Selection Committee, 13<sup>th</sup> International Conference on Lyme Borreliosis, Boston, MA

## Ad hoc Peer Reviewer

<i>Applied and Environmental Microbiology</i>	<i>Molecular Genetics and Genomics</i>
<i>BMC Genomics</i>	<i>Molecular Microbiology</i>
<i>BMC Microbiology</i>	<i>Nature Scientific Reports</i>
<i>Clinical Vaccine and Immunology</i>	<i>Pathogens</i>
<i>Emerging Tick-Borne Diseases</i>	<i>PLoS One</i>
<i>Infection and Immunity</i>	<i>PLoS Pathogens</i>
<i>Journal Clinical Microbiology</i>	<i>PLoS Neglected Tropical Diseases</i>
<i>Journal of Parasitology and Vector Biology</i>	<i>Scientific Reports</i>
<i>mBio</i>	<i>Ticks and Tick-Borne Diseases</i>
<i>Microbial Pathogenesis</i>	<i>Vector-Borne and Zoonotic Diseases</i>

## Professional Organizations

- 1996 – present Member, American Society for Microbiology

## HONORS AND AWARDS

- President’s Award for Student Excellence, URI, 1989
- Graduation with Distinction, URI, 1989
- Jack O. McCain Scholarship for Special Studies, UAB, 1995
- Molecular Pathogenesis Training Grant Award, (NIH/NIAID), 1991-1993; 1995
- Molecular Microbiology Training Grant Award, (NIH/NIAID), 1997-1998



## **GRANTS**

### **Active**

RpoS Regulation of *Borrelia burgdorferi* genes *in vivo*  
R01 AI029735-25 (PI, J. Radolf) 02/01/2016 – 01/31/2018

Co-Investigator

Essential role of Hk1/Rrp1 for survival of *B. burgdorferi* in ticks  
NIH/NIAID 1R21AI126146-01 07/01/2016 – 06/30/2018

Principal Investigator

Identification of genes required by *Leptospira interrogans* for  
persistence in the rat model.  
NIH/NIAID 1R21AI128379-01 09/01/2017 – 08/31/2019

mammalian host adaptation and/or  
Principal Investigator