

CURRICULUM VITAE
MELISSA J. CAIMANO, Ph.D.

PERSONAL INFORMATION

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Date of Birth December 4, 1967
Place of Birth Rhode Island, US
Citizenship US Citizen
Sex Female

RESEARCH AND PROFESSIONAL EXPERIENCE

2013 – present Assistant Professor, Department of Molecular Biology and Biophysics, UCHC, Farmington, CT.
2011 – present Assistant Professor, Department of Pediatrics, Division of Infectious Diseases, UCHC, Farmington, CT.
2009 - present Assistant Professor, Department of Medicine, UCHC, Farmington, CT
2000 - 2009: Instructor, Department of Medicine, UCHC, Farmington, CT.
1999 - 2000: Postdoctoral fellowship, Center for Microbial Pathogenesis (UCHC)
1996 - 1999: Postdoctoral fellow, Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, TX.
1992 - 1996: Graduate student, Department of Microbiology, University of Alabama at Birmingham (UAB), Birmingham, AL.
1990 - 1992: Graduate research, Department of Microbiology, UAB
1988 - 1989: Undergraduate research, Department of Microbiology, University of Rhode Island (URI), Kingston, RI.

EDUCATION

University of Rhode Island, Kingston, RI; B.S., Microbiology, 1989
University of Alabama at Birmingham, Birmingham, AL, Ph.D., Microbiology, 1996

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

COMMITTEES AND ORGANIZATIONS

2010 - Member, Institutional Animal Care and Use Committee, UCHC

PROFESSIONAL AFFILIATIONS

1993 - Member, American Society for Microbiology

EDITORIAL BOARDS

2006 – *Infection and Immunity* (American Society for Microbiology)

TEACHING EXPERIENCE

2013-2014 Instructor, Medical Microbiology, UCHC
2013 Instructor, Medical Microbiology, UCHC
2011 Instructor, Seminars in Microbial Pathogenesis, UCHC
2010 Instructor, Microbial Pathogenesis, Infectious Disease fellows, UCHC

- 2007 & 2004 Instructor, two- and three-week laboratory training courses in basic molecular biology and quantitative PCR methodologies, Centro Internacional de Entrenamiento e Investigaciones (CIDEIM), Cali, Colombia
- 2005 Instructor, three-week training course in the application of the peritoneal dialysis membrane chamber model for cultivation of mammalian host adapted *Leptospira interrogans*. Fiocruz, Oswaldo Cruz Foundation, Salvador, Bahia, Brazil.
- 2001-2004 Instructor, Fundamentals of Microbiology, UCHC
- 2002 Instructor, graduate course in computer-assisted sequence analysis, UCHC
- 1994-1995 Instructor, Medical Microbiology, UAB

PUBLICATIONS

1. 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**: 201-202.
2. **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**: 11-24.
3. 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**:1-11.
4. 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**:1526-1532.
5. **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**:4072-83.
6. 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**:2049-56.
7. 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**:6008-6018.
8. Hardy, G.G., **M.J. Caimano**, and J. Yother. 2000. Capsule biosynthesis and basic metabolism in *Streptococcus pneumoniae* are linked through the cellular phosphomutase. *J. Bacteriol.* **182**:1854-1863.
9. **Caimano, M.J.**, X. Yang, T. Popova, D.R. Akins, M.V. Norgard, and J.D. Radolf. 2000. Molecular and evolutionary characterization of the cp32/18 family of supercoiled plasmids in *Borrelia burgdorferi* 297. *Infect. Immun.* **68**:1575-1586.
10. Bergman, D.K., M.J. Palmer, **M.J. Caimano**, J.D. Radolf, and S.K. Wikel. 2000. Isolation and molecular cloning of a secreted immunosuppressant protein from *Dermacentor andersoni* salivary gland. *J. Parasitol.* **86**:516-525.
11. 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**:4759-4764.
12. Hazlett, K.R., T. J. Sellati, T. T. Nguyen, D. L. Cox, M. L. Clawson, **M.J. Caimano**, J. D. Radolf. 2001. The TprK protein of *Treponema pallidum* is periplasmic and is not a target of opsonic antibody or protective immunity. *J. Exp. Med.* **193**:1015-1026.
13. Hefty, P.S., S.E. Joliff, **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**:3618-3627.
14. Hardy, G.G., A.D. Magee, C.L. Ventura, **M.J. Caimano**, and J. Yother. 2001. An essential role for the cellular phosphoglucosyltransferase (PGM) in virulence of type 3 *Streptococcus pneumoniae*. *Infect. Immun.* **69**:2309-2317.
15. Eggers, C.H., **M.J. Caimano**, M.L. Clawson, W.G. Miller, D.S. Samuels, and J.D. Radolf. 2002.

Identification of loci critical for replication and compatibility of a *Borrelia burgdorferi* cp32 plasmid and use of a cp32-based shuttle vector for expression of fluorescent reporters in the Lyme disease spirochaete. *Mol. Microbiol.* 42:281-295.

16. 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.* 70:2139-2150.
17. Hefty, P.S., S.E. Jolliff, **M.J. Caimano**, S.K. Wikel, 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.* 70:3468-78.
18. Fouad, A.F., J. Barry, **M. Caimano**, M. Clawson, Q. Zhu, R. Carver, K. Hazlett, J. D. Radolf. 2002. PCR-based identification of bacteria associated with endodontic infections. *J. Clin. Micro.* 40:3223-3231.
19. Roberts, D.M., **M. Caimano**, J. McDowell, M. Theisen, A. Holme, S. Alban, E. Orff, D. Nelson, S. Wikel, J. Radolf, R. T. Marconi. 2002. Environmental regulation and differential expression of members of the Bdr protein family of *Borrelia burgdorferi*. *Infect. Immun.* 70:7033-7041.
20. 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, I. Schwartz. 2002. *Borrelia burgdorferi* gene expression profiling with membrane-based arrays. *Methods Enzymol.* 358:165-177.
21. 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, I. Schwartz. 2003. Profiling temperature-induced changes in *Borrelia burgdorferi* gene expression using whole genome arrays. *Infect. Immun.* 71:1689-1705.
22. Burgrysheva, J., E.Y. Dobrikova, **M.J. Caimano**, T.J. Daniels, J.D. Radolf, H.P. Godfrey, F.C. Cabello. 2003. Characterization of the stringent response and *relB_B* expression in *Borrelia burgdorferi*. *J. Bacteriol.* 185:957-965.
23. Parveen, N., **M. Caimano**, J.D. Radolf, 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.* 47:1433-1444.
24. Purser, J.E., M.B. Lawrenz, **M.J. Caimano**, J.D. Radolf, S.J. Norris. 2003. A plasmid-encoded nicotinamidase (PncA) is essential for infectivity of *Borrelia burgdorferi* in a mammalian host. *Mol. Microbiol.* 48:753-764.
25. Narasimhan, S., **M.J. Caimano**, F.T. Liang, F. Santiago, M. Laskowski, M.T. Philipp, A.R. Pachner, J.D. Radolf, E. Fikrig. 2003. *Borrelia burgdorferi* transcription in the central nervous system of non-human primates. *Proc. Natl. Acad. Sci. USA.* 100:15953-15958.
26. Fouad, A.F. K.Y. Kum, M.L. Clawson, J. Barry, C. Abenoja, Q. Zhu, **M. Caimano**, J.D. Radolf. 2003. Molecular characterization of the presence of *Eubacterium* spp and *Streptococcus* ssp in endodontic infections. *Oral Microbial. Immunol.* 18:249-55.
27. 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, J.D. Radolf. 2003. Coevolution of markers of innate and adaptive immunity in skin and peripheral blood of patients with erythema migrans. *J. Immunol.* 171:2660-70.
28. Liang, F.T., **M.J. Caimano**, J.D. Radolf, E. Fikrig. 2004. *Borrelia burgdorferi* *ospB* expression independent of *ospA*. *Microbial. Pathog.* 37:35-40.
29. 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.* 72:4864-4867.
30. Grimm D., C.H. Eggers, **M.J. Caimano**, K. Tilly, P.E. Stewart, A.F. Elias, J.D. Radolf, 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. 72:5938-5946.
31. Eggers, C.H., **M.J. Caimano**, J.D. Radolf. 2004. Analysis of promoter elements involved in the transcriptional initiation of RpoS-dependent *Borrelia burgdorferi* genes. *J. Bacteriol.* 186:7390-7402.
32. **Caimano, M.J.**, C.H. Eggers, K.R.O. Hazlett, and J.D. Radolf. 2004. RpoS_{Bb} is not central to the

- general stress response in *Borrelia burgdorferi* but does control expression of one or more essential virulence determinants. *Infect. Immun.* 72:6433-6445.
33. 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, T.J. Sellati. 2005. Signaling through CD14 attenuates the inflammatory response to *Borrelia burgdorferi*, the agent of Lyme disease. *J. Immunol.* 174:1539-48.
 34. **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.* 187:7845-52.
 35. 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.* 59:1859-75.
 36. Schimanski, B., J. Brandenburg, T.N. Nguyen, **M.J. Caimano** and A. Günzl. 2006. A TFIIB-like protein is required for spliced leader RNA gene transcription in *Trypanosoma brucei*. *Nucl. Acids Res.* 34:1676-84.
 37. 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.* 189:2063-2068.
 38. **Caimano, M.J.***, R. Iyer, C.H. Eggers, C. Gonzalez, I. Schwartz, 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.* 65:1193-1217.
 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.* 105:19863-19868.
 40. Mulay, V., **M.J. Caimano*** (shared first authorship), S. Ems, R. Iyer, D. Liveris, 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.* 191:2783-2794.
 41. 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- β . *PLoS Pathog.* 5(5): e1000444
 42. 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.* 116:3652-3665.
 43. Balic, A., H.L. Aguila, **M.J. Caimano**, V.P. Francone, M. Mina. 2010. Characterization of stem and progenitor cells in the dental pulp of erupted and unerupted murine molars. *Bone.* 46:1639-1651.
 44. 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 Pathog.* Pii:e1001104.
 45. 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.* 78:5178-5194.
 46. 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.* 79:1208-1217.
 47. **Caimano, M.J.***, M.R. Kenedy, T. Kairu, D.C. Desrosiers, M. Harman, S. Dunham-Ems, D.R. Akins, U. Pal, 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.* 79:3117-30. Selected as an Editor's "Spotlight" article.
 48. Desrosiers, D.C., A. Anand, A. Luthra, S.M. Dunham-Ems, M. Ledoyt, M.A. Cummings A. Eshghi, C. Cameron, J.C. Salazar, **M.J. Caimano**, and J.D. Radolf. 2011. TP0326, a *Treponema pallidum* β -barrel assembly machinery (BamA) orthologue and rare outer membrane protein. *Mol. Microbiol.* 80:1496-1515.

49. 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.
50. Eggers, C.H., **M.J. Caimano**, R.A. Malizia, T. Kariu, B. Cusack, D.C. Desrosiers, K.R.O. Hazlett, 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.* 82:679-97.
51. 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.
52. 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.
53. 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 JD, and J. Anguita. 2012. CD14 cooperates with complement receptor 3 to mediate MyD88-independent phagocytosis of *Borrelia burgdorferi*. *PNAS.* 109(4):1228-32. PMID: 22232682
54. 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. *PNAS* 109(8):3059-64. PMID:3286914.
55. 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 Pathog.* 8(2):e1002532. PMID:3280991.
56. 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
57. Ristow, LC, 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. 2012. *Mol Microbiol.* 85:1105-1118. PMID:22758390
58. 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.
59. Miller, D.P., J.V. McDowell, D. Rhodes, A. Allard, **M. Caimano**, J. Bell, R.T. Marconi. 2013. Sequence divergence in the *Treponema denticola* FhbB protein and its impact on factor H binding. *J. Mol. Oral Microbiol.* 4:316-30
60. 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.* e1003841. PMID: 24367266.
61. 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.Clin. Vaccine. Immunol.* 21(4):526-33. PMID: 24501342.
62. **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.* e1004004. PMID: 24626166.
63. 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.
64. 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.

65. Luthra A, A. Anand, K.L. Hawley, M. LeDoyt C.J. La Vake, **M.J. Caimano**, A.R. Cruz, J.C. Salazar, 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. In Press.* PMID: 25825429.

#Shared first authorship.

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Invited Publications (Non-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., **Caimano M.J.**, and Radolf, J.D. 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.
3. Radolf, J.D. and **M.J. Caimano**. 2008. The long strange trip of *Borrelia burgdorferi* outer surface protein C. *Mol. Microbiol.* 69:1-4.

Research Support

Active Support

1. Funding Agency: NIH/NIAID

Dates of Award: 4/01/07-3/31/18

Title: "*RpoS Regulation of Borrelia burgdorferi genes in vivo*"

Grant Number: R01 AI-29735 (Radolf, PI)

The overall goals of the research are (1) to characterize selected RpoS-dependent *B. burgdorferi* genes upregulated during tick transmission; (2) to characterize selected RpoS-dependent genes repressed during tick inoculation; and (3) to understand the overall role of the RpoS regulon in the spirochete's enzootic cycle.

Role: Co-Investigator

2. Funding Agency: Connecticut Children's Medical Center (CCMC)

Dates of Award: 10/1/2013-3/31/14

Contract Number: 13-010226-10 (Salazar, PI)

The overall goal of this project is to assist Dr. Salazar and other faculty within the Dept. of Pediatrics on experiments incorporating advanced molecular techniques (*i.e.*, Next-Generation Sequencing, microbiome research, pathogen detection and genotyping).

Role: Research Scientist

3. Funding Agency: NIH/GM

Dates of Award: 09/01/10 – 08/31/14

Title: "*Biophysics of the morphology and motility of Borrelia burgdorferi in diverse environment*"

Grant Number: R01GM072004 (C. Wolgemuth, PI)

The overall goals of the research are 1) to assess the role of cell and flagellar stiffness in determining the morphology and motility of *B. burgdorferi*, 2) to assess the dynamics of borrelial swimming in a modular extracellular matrix, and 3) to assess the mechanisms of motility of *B. burgdorferi* in the tick, mouse, and in models of host tissue.

Role: Significant Contributor

Completed Research Support

Funding Agency: National Research Fund for Tick-borne Diseases

Dates of Award: 5/1/09 – 5/31/10

Title: "*Transit of Borrelia burgdorferi through the Ixodes scapularis midgut occurs in two distinct, but*

interrelated, phases"

Role in Project: PI

The overall goals of this research are to examine the contribution of tick midgut epithelial cells and spirochete: tick interactions during the blood meal to further our understanding of how *Borrelia* are transmitted to their human host.

Role: PI

Funding Agency: NIH/NIAID

Dates of Award: 6/01/10 - 5/31/13

Title: "*Transit of Borrelia burgdorferi through the Ixodes scapularis midgut occurs in two distinct, but interrelated, phases*"

Grant Number: R03 AI-085248

Role in Project: PI

The overall goals of this research are to examine the interaction between the Lyme disease spirochete and its arthropod vector during the blood meal using a combination of fluorescently-labeled bacteria and microscopy to further our understanding of how *Borrelia* are transmitted to their human host.

Role: PI