

## NIST Lyme Diagnostic Workshop Bibliography

Space does not permit for a complete list of all relevant publications in each of the eight fields of the workshop. Bibliography is intended for background and reference purposes.

1. **Aucott J**, Morrison C, Munoz B, Rowe PC, Schwarzwald A and West SK. Diagnostic challenges of early Lyme disease: Lessons from a community case series. *BMC Infectious Diseases* 2009, 9:79 doi:10.1186/1471-2334-9-79.
2. Cho YS, Dobos KM, Prenni J, Yang H, Hess A, Rosenkrands I, Andersen P, Ryoo SW, Bai GH, Brennan MJ, Izzo A, Bielefeldt-Ohmann H, **Belisle JT**. Deciphering the proteome of the in vivo diagnostic reagent “purified protein derivative” from *Mycobacterium tuberculosis*. *Proteomics*.12:979-991, 2012.
3. Bhamidi, S., L. Shi, D. Chatterjee, **J.T. Belisle**, D.C. Crick, and M.R. McNeil. A bioanalytical method to determine the cell wall composition of *Mycobacterium tuberculosis* grown in vivo. *Anal Biochem.* 421:240-249, 2012.
4. Nahid P, Saukkonen J, Mac Kenzie WR, Johnson JL, Phillips PP, Andersen J, Bliven-Sizemore E, **Belisle JT**, Boom WH, Luetkemeyer A, Campbell TB, Eisenach KD, Hafner R, Lennox JL, Makhene M, Swindells S, Villarino ME, Weiner M, Benson C, Burman W. National Institutes of Health; Centers for Disease Control and Prevention. CDC/NIH Workshop. Tuberculosis biomarker and surrogate endpoint research roadmap. *Am. J. Respir. Crit. Care Med.* 184:972-979, 2011.
5. Basile F, Sibray T, **Belisle JT**, Bowen RA. Analysis of lipids from crude lung tissue extracts by desorption electrospray ionization mass spectrometry and pattern recognition. *Anal. Biochem.* 408:289-296. 2011.
6. Sartain MJ, Dick DL, Rithner CD, Crick DC, **Belisle JT**. Lipidomic analyses of *Mycobacterium tuberculosis* based on accurate mass measurements and the novel “Mtb LipidDB”. *J. Lipid Res.* 52:861-872. 2011.
7. Deenadayalan A, Heaslip D, Rajendiran AA, Velayudham BV, Frederick S, Yang HL, Dobos K, **Belisle JT**, Raja A. Immunoproteomic identification of human T cell antigens of *Mycobacterium tuberculosis* that differentiate healthy contacts from tuberculosis patients. *Mol Cell Proteomics.* 2010 Mar;9(3):538-49. doi: 10.1074/mcp.M900299-MCP200.
8. Singh KK, Sharma N, Vargas D, Liu Z, **Belisle JT**, Potharaju V, Wanchu A, Behera D, Laal S. Peptides of a novel *Mycobacterium tuberculosis*-specific cell wall protein for immunodiagnosis of tuberculosis. *J Infect Dis.* 2009 Aug 15;200(4):571-81. doi: 10.1086/603539.
9. Qian F, Wang X, Zhang L, Chen S, Piecychna M, Allore H, **Bockenstedt L**, Malawista S, Bucala R, Shaw AC, Fikrig E, Montgomery RR. (2012). Age-associated elevation in TLR5 leads to increased inflammatory responses in the elderly. *Aging Cell.* 11(1):104-10.

10. Dunne DW, Shaw A, **Bockenstedt LK**, Allore HG, Chen S, Malawista SE, Leng L, Mizue Y, Piecychna M, Zhang L, Towle V, Bucala R, Montgomery RR, Fikrig E. (2010). Increased TLR4 expression and downstream cytokine production in immunosuppressed adults compared to non-immunosuppressed adults. *PLoS ONE* 5(6):e111343. doi:10.1371/journal.pone.0011343
11. Swei A, Russell BJ, Naccache SN, Kabre B, Veeraraghavan N, Pilgard MA, Johnson B, **Chiu CY**. (2013) The Genome Sequence of Lone Star Virus, a Highly Divergent Bunyavirus Found in the *Amblyomma americanum* Tick. *PLoS ONE* 8(4): e62083. doi:10.1371/journal.pone.0062083
12. Grard G\*, Fair JN\*, Lee D\*, Slikas E, Steffen I, Muyembe J-J, Sittler T, Veeraraghavan N, Ruby G, Wang C, Makuwa M, Mukendi EB, Mulembakani P, Mazet J, Rimoin A, Taylor T, Schneider BS, Simmons G, Delwart E, Wolfe ND, **Chiu CY\*\***, and Leroy, E\*\*. (2012) A novel rhabdovirus associated with acute hemorrhagic fever in Central Africa. *PLoS Pathogens* 8(9):e1002924.
13. Lee D, Das Gupta J, Gaughan C, Steffen I, Tang N, Luk K-C, Qiu X, Urisman A, Fischer N, Molinaro R, Broz M, Schochetman G, Klein EA, Ganem D, DeRisi JL, Simmons G, Hackett, Jr J, Silverman RH, **Chiu CY**. (2012) In-depth investigation of archival and prospectively collected samples reveals no evidence for XMRV infection in prostate cancer. *PLoS ONE* 7(9):e44954.
14. Chen EC, Miller SA, DeRisi, JL, **Chiu, CY**. Using a Pan-Viral Microarray Assay (Virochip) to Screen Clinical Samples for Viral Pathogens. *J. Vis. Exp.* (50), e2536, doi:10.3791/2536 (2011).
15. Greninger AL, Chen EC, Sittler T, Scheinerman A, Roubinian N, Yu G, Kim E, Pillai DR, Guyard C, Mazzulli T, Isa P, Arias CF, Hackett, Jr. J, Schochetman G, Miller S, Tang P, and **Chiu CY**. (2010) A metagenomic analysis of pandemic influenza (H1N1) infection in patients from North America. *PLoS ONE* 5(10):e13381.
16. Coulter P, Lema C, Flayhart D, Linhardt AS, Aucott JA, Auwaerter PG, **Dumler JS**. Two-year Evaluation of *Borrelia burgdorferi* culture and supplemental tests for definitive diagnosis of Lyme Disease. *J Clin Micro*, 2005 v43, No 10: 5080-5084
17. **Dumler JS**. Molecular methods for ehrlichiosis and Lyme disease. *Clin Lab Med.* 2003; 23:867-84.
18. **Dumler JS**. Molecular diagnosis of Lyme disease: Review and meta-analysis. *Mol Diagn* 2001; 6:1-11.
19. Gibson DS, Rooney ME, Finnegan S, Qiu J, Thompson DC, LaBaer J, Pennington SR, **Duncan MW**. Biomarkers in Rheumatology, Now and in the Future. *Rheumatology (Oxford)*. 51(3), 423-33, 2011. (Epub ahead of print.) PMID: 22179724.
20. **Duncan MW**, Aebersold R, Caprioli RM. The Pros and Cons of Peptide-Centric Proteomics. *Nature Biotechnology*. 28 (7): 659-64, 2010. PMID: 20622832.
21. Ndao M, Spithill TW, Caffrey R, Li H, Podust VN, Perichon R, Santamaria C, Ache A, **Duncan M**, Powell MR, Ward BJ. Identification of Novel Diagnostic Serum Biomarkers for Chagas Disease in Asymptomatic Subjects by Mass Spectrometric Profiling. *J Clin Microbiol.* 2010, 48 (4): 1139-49. PMID: 20071547.

22. Taguchi F, Solomon B, Gregorc V, Roder H, Gray R, Kasahara K, Nishio M, Brahmer J, Spreafico A, Ludovini V, Massion PP, Dziadziszko R, Schiller J, Grigorieva J, Tsypin M, Hunsucker SW, Caprioli R, **Duncan MW**, Hirsch FR, Bunn PA Jr, Carbone DP. Mass spectrometry to classify non-small-cell lung cancer patients for clinical outcome after treatment with epidermal growth factor receptor tyrosine kinase inhibitors: a multicohort cross-institutional study. *J Natl Cancer Inst* (2007) 99 (11): 838-846. doi: 10.1093/jnci/djk195.
23. **Embers ME**, Hasenkampf NR, Jacobs MB, Philipp MT. Dynamic longitudinal antibody responses during *Borrelia burgdorferi* infection and antibiotic treatment of rhesus macaques. *Clin Vaccine Immunol*. 2012 Aug;19(8):1218-26. doi: 10.1128/CVI.00228-12.
24. **Embers ME**, Barthold SW, Borda JT, Bowers L, Doyle L, Hodzic E, Jacobs MB, Hasenkampf NR, Martin DS, Narasimhan S, Phillippi-Falkenstein KM, Purcell JE, Ratterree MS, Philipp MT. Persistence of *Borrelia burgdorferi* in rhesus macaques following antibiotic treatment of disseminated infection. *PLoS One*.2012;7(1):e29914. doi: 10.1371/journal.pone.0029914. Epub 2012 Jan 11. Erratum in: *PLoS One*. 2012;7(4):10.1371/annotation/4cafed66-fb84-4589-a001-131d9c50aea6.
25. Wormser GP, Liveris D, Hanincová K, Brisson D, Ludin S, Stracuzzi VJ, **Embers ME**, Philipp MT, Levin A, Aguero-Rosenfeld M, Schwartz I. Effect of *Borrelia burgdorferi* genotype on the sensitivity of C6 and 2-tier testing in North American patients with culture-confirmed Lyme disease. *Clin Infect Dis*. 2008 Oct 1;47(7):910-4. doi: 10.1086/591529. PubMed PMID: 18724824; PubMed Central PMCID: PMC2773679.
26. **Embers ME**, Jacobs MB, Johnson BJ, Philipp MT. Dominant epitopes of the C6 diagnostic peptide of *Borrelia burgdorferi* are largely inaccessible to antibody on the parent VlsE molecule. *Clin Vaccine Immunol*. 2007 Aug;14(8):931-6. Epub 2007 Jun 13. PubMed PMID: 17567769; PubMed Central PMCID: PMC2044495.
27. **Embers ME**, Wormser GP, Schwartz I, Martin DS, Philipp MT. *Borrelia burgdorferi* spirochetes that harbor only a portion of the lp28-1 plasmid elicit antibody responses detectable with the C6 test for Lyme disease. *Clin Vaccine Immunol*. 2007 Jan;14(1):90-3. Epub 2006 Nov 15. PubMed PMID: 17108288; PubMed Central PMCID: PMC1797709.
28. Schutzer SE, Berger BW, Krueger JC, **Eshoo MW**, Ecker DJ, Aucott JN. Atypical Erythema Migrans in Patients with PCR-Positive Lyme Disease. *Letter. Emerging Infectious Diseases*. 2013 May;19(5):815-817.
29. **Eshoo MW**, CC, Rebman AW, Rounds MA, Matthews HE, Picuri JM, Soloski MJ, Ecker DJ, Schutzer SE and Aucott JN. Direct Molecular Detection and Genotyping of *Borrelia burgdorferi* from Whole Blood of Patients with Early Lyme Disease. *PLoS ONE* 2012. 7(5): e36825. Doi:10.1371/journal.pone.0036825
30. Rounds MA, Crowder CD, Matthews HE, Philipson CA, Scoles GA, Ecker DJ, Schutzer SE, **Eshoo MW**. Identification of endosymbionts in ticks by broad-range polymerase chain reaction and electrospray ionization mass spectrometry. *J Med Entomol*. 2012 Jul;49(4):843-50.

31. **Eshoo MW**, Crowder CD, Li H, Matthews HE, Meng S, Sefers SE, Sampath R, Stratton CW, Blyn LB, Ecker DJ, Tang YW. Detection and identification of Ehrlichia species in blood by use of PCR and electrospray ionization mass spectrometry. *J Clin Microbiol*. 2010 Feb;48(2):472-8. doi: 10.1128/JCM.01669-09.
32. Crowder CD, Matthews HE, Schutzer S, Rounds MA, Luft BJ, Nolte O, Campbell SR, Phillipson CA, Li F, Sampath R, Ecker DJ, **Eshoo MW**. (2010) Genotypic Variation and Mixtures of Lyme Borrelia in Ixodes Ticks from North America and Europe. *PLoS ONE* 5(5): e10650. doi:10.1371/journal.pone.0010650
33. Grant-Klein RJ, Baldwin CD, Turell MJ, Rossi CA, Li F, Lovari R, Crowder CD, Matthews HE, Rounds MA, **Eshoo MW**, Blyn LB, Ecker DJ, Sampath R, Whitehouse CA. Rapid identification of vector-borne flaviviruses by mass spectrometry. *Mol Cell Probes*. 2010 Aug;24(4):219-28. doi: 10.1016/j.mcp.2010.04.003.
34. Crowder CD, Rounds MA, Phillipson CA, Picuri JM, Matthews HE, Halverson J, Schutzer SE, Ecker DJ, **Eshoo MW**. Extraction of total nucleic acids from ticks for the detection of bacterial and viral pathogens. *J Med Entomol*. 2010 Jan;47(1):89-94.
35. Schweitzer PJ, **Fallon BA**, Mann JJ, Kumar JS. PET tracers for the peripheral benzodiazepine receptor and uses thereof. *Drug Discov Today*. 2010 Nov;15(21-22):933-42. doi: 10.1016/j.drudis.2010.08.012.
36. **Fallon BA**, Lipkin RB, Corbera KM, Yu S, Nobler MS, Keilp JG, Petkova E, Lisanby SH, Moeller JR, Slavov I, Van Heertum R, Mensh BD, Sackeim HA. Regional Cerebral Blood Flow and Metabolic Rate in Persistent Lyme Encephalopathy. *Archives of General Psychiatry*. 2009;66: 554-563
37. **Fallon BA**, Das S, Plutchok JJ, Tager F, Liegner K, Van Heertum R. Functional brain imaging and neuropsychological testing in Lyme disease. *Clin Infect Dis*. 1997 Jul;25 Suppl 1:S57-63.
38. Ivanova L, Christova I, Neves V, Aroso M, Meirelles L, Brisson D, **Gomes-Solecki M**. Comprehensive seroprofiling of sixteen *B. burgdorferi* OspC: implications for Lyme disease diagnostics design. *Clin Immunol*. 2009 Sep;132(3):393-400. doi: 10.1016/j.clim.2009.05.017.
39. **Gomes-Solecki MJ**, Meirelles L, Glass J, **Dattwyler RJ**. Epitope length, genospecies dependency, and serum panel effect in the IR6 enzyme-linked immunosorbent assay for detection of antibodies to *Borrelia burgdorferi*. *Clin Vaccine Immunol*. 2007 Jul;14(7):875-9.
40. Lerner MB, Dailey J, Goldsmith BR, Brisson D, **Johnson AT**. Detecting Lyme disease using antibody-functionalized single-walled carbon nanotube transistors. *Biosens Bioelectron*. 2013 Jul 15;45:163-7. doi: 10.1016/j.bios.2013.01.035.
41. Douglas TA, Tamburro D, Fredolini C, Espina BH, Lepene BS, Ilag L, Espina V, Petricoin EF 3rd, Liotta LA, **Luchini A**. The use of hydrogel microparticles to sequester and concentrate bacterial antigens in a urine test for Lyme disease. *Biomaterials*. 2011 Feb;32(4):1157-66. doi: 10.1016/j.biomaterials.2010.10.004.
42. Chandra A, Wormser GP, **Marques AR**, Latov N, Alaedini A. Anti-*Borrelia burgdorferi* antibody profile in post-Lyme disease syndrome. *Clin Vaccine Immunol*. 2011 May;18(5):767-71. doi: 10.1128/CVI.00002-11.

43. Ning X, Lee S, Wang Z, Kim D, Subtlefield B, Gilbert E, **Murthy N**. Maltodextrin based imaging probes detect bacteria in vivo with high sensitivity and specificity. *Nature Materials*. (2011), 10(8), 602-7
44. Songane M, Kleinnijenhuis J, Alisjahbana B, Sahiratmadja E, Parwati I, Oosting M, Plantinga TS, Joosten LA, Netea MG, Ottenhoff TH, van de Vosse E, van Crevel R. (2012) Polymorphisms in Autophagy Genes and Susceptibility to Tuberculosis. *PLoS ONE* 7(8): e41618. doi:10.1371/journal.pone.0041618 [Work associated with **Pieken W**]
45. Quintin J, Saeed S, Martens JH, Giamarellos-Bourboulis EJ, Ifrim DC, Logie C, Jacobs L, Jansen T, Kullberg BJ, Wijmenga C, Joosten LA, Xavier RJ, van der Meer JW, Stunnenberg HG, Netea MG. *Candida albicans* infection affords protection against reinfection via functional reprogramming of monocytes. *Cell Host Microbe*. 2012 Aug 16;12(2):223-32. doi: 10.1016/j.chom.2012.06.006. [Work associated with **Pieken W**]
46. **Sapi E**, Pabbati N, Datar A, Davies EM, Rattelle A, Kuo BA. Improved culture conditions for the growth and detection of *Borrelia* from human serum. *Int J Med Sci*. 2013;10(4):362-76. doi: 10.7150/ijms.5698.
47. Schneider BS, **Schriefer ME**, Dietrich G, Dolan MC, Morshed MG, Zeidner NS. *Borrelia bissettii* Isolates Induce Pathology in a Murine Model of Disease. 2008 *Vector Borne Zoonotic Dis*. 74:4519-29.
48. Dolan MC, Piesman J, Schneider BS, **Schriefer M**, Brandt K, Zeidner NS. Comparison of Disseminated and Non-Disseminated Strains of *Borrelia burgdorferi sensu stricto* in Mice Naturally Infected by Tick Bite. 2004 *Infection & Immunity* 72: 5363-5266.
49. Felz MW, Chandler FW Jr, Oliver JH Jr, Rahn DW, **Schriefer ME**. Solitary erythema migrans in Georgia and South Carolina. *Arch Dermatol*. 1999;135(11):1317-26.
50. Seinost G, Dykhuizen DE, Dattwyler RJ, Golde WT, Dunn JJ, Wang IN, Wormser GP, **Schriefer ME**, Luft BJ. Four clones of *Borrelia burgdorferi sensu stricto* cause invasive infection in humans. *Infect Immun*. 1999;67(7):3518-24
51. Liveris D, **Schwartz I**, McKenna D, Nowakowski J, Nadelman R, DeMarco J, Iyer R, Bittker S, Cooper D, Holmgren D, Wormser GP. Comparison of five diagnostic modalities for direct detection of *Borrelia burgdorferi* in patients with early Lyme disease. *Diagn Microbiol Infect Dis*. 2012 Jul;73(3):243-5. doi: 10.1016/j.diagmicrobio.2012.03.026.
52. Liveris D, **Schwartz I**, McKenna D, Nowakowski J, Nadelman RB, DeMarco J, Iyer R, Cox ME, Holmgren D and Wormser GP. Quantitation of Borrelial DNA in the blood of Lyme disease patients with erythema migrans. *Eur. J. Clin. Microbiol. Infect. Dis*. 31, 791-795, 2012.
53. Liveris D, **Schwartz I**, McKenna D, Nowakowski J, Nadelman RB, DeMarco J, Iyer R, Bittker S, Cooper D, Holmgren D and Wormser GP. Comparison of Five Diagnostic Modalities for Direct Detection of *Borrelia burgdorferi* in Patients with Early Lyme Disease. *Diagn. Microbiol. Infect. Dis*. 73, 243-245, 2012.

54. Liveris D, **Schwartz I**, Bittker S, Cooper D, Iyer R, Cox ME and Wormser GP. Improving the yield of blood cultures in early Lyme disease. *J. Clin. Microbiol.* 49, 2166-2168, 2011.
55. Petzke MM, Brooks A, Krupna MA, Mordue D and **Schwartz I**. Recognition of *Borrelia burgdorferi*, the Lyme disease spirochete, by TLR7 and TLR9 induces a type I in human immune cells. *J. Immunol.* 183, 5279-5292, 2009.