

## CURRICULUM VITAE

### PERSONAL DATA

- a. Name Gary A. Jarvis, Ph.D.
- b. Current Mailing address Veterans Affairs Medical Center  
Department of Laboratory Medicine  
Mailstop 111W1  
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San Francisco, CA 94121
- c. Telephone and Fax Numbers and E-mail Tel: 415-221-4810, ext. 26303  
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E-mail: [Gary.Jarvis@ucsf.edu](mailto:Gary.Jarvis@ucsf.edu)
- d. Professional Facilities:  
Office and Laboratory Locations Department of Laboratory Medicine  
Bldg. 2, room 579 (Office)  
Bldg. 2, rooms 580 and 590 (Laboratories)

### EDUCATION

- a. Baccalaureate University of Wisconsin, Madison B.S.; Medical Microbiology 1978
- b. Graduate University of California, Berkeley Ph.D.; Microbiology 1985

### POSTDOCTORAL TRAINING

VA Medical Center, San Francisco, Immunology and Infectious Diseases, 1985-1988

### APPOINTMENTS

- a. University appointments
- |              |   |
|--------------|---|
| 2006-present | Professor, Department of Laboratory Medicine, University of California, San Francisco           |
| 1998-2006    | Associate Professor, Department of Laboratory Medicine, University of California, San Francisco |
| 1996         | Visiting Scientist, Department of Bacteriology and Immunology, University of Helsinki, Finland  |
| 1988-1997    | Assistant Professor, Department of Laboratory Medicine, University of California, San Francisco |
| 1985-1988    | Postdoctoral Research Fellow, VA Medical Center, San Francisco                                  |
- b. VA appointments
- |              |                                  |
|--------------|----------------------------------|
| 2014-present | Senior Research Career Scientist |
| 2009-2014    | Research Career Scientist        |
| 2006-2009    | Research Biologist               |
| 1992-1995    | Research Biologist               |

c. Other professional employment

1981-1984	Research Assistant, Department of Biomedical Sciences, University of California, Berkeley
1981-1982	Teaching Assistant, Medical Microbiology Laboratory Course, Department of Biomedical Sciences, University of California, Berkeley
1978-1979	Research Specialist, Food Research Institute, University of Wisconsin, Madison

**PROFESSIONAL AFFILIATIONS AND MEMBERSHIP IN SCIENTIFIC SOCIETIES**

1985-present	American Society for Microbiology
1987-present	Society for General Microbiology
1990-present	International Complement Society
1992-present	American Association of Immunologists (FASEB member)
1993-present	Society for Mucosal Immunology
1995-present	American Association for the Advancement of Science
1998-present	Infectious Diseases Society of America

**SERVICE TO PROFESSIONAL ORGANIZATIONS**

SERVICE TO GRANTING AGENCIES

2002	Ad Hoc Reviewer, The Wellcome Trust, United Kingdom, Dr. Hans Hagen, Scientific Programme Officer
2004	Ad Hoc Reviewer, Spencer Dayman Meningitis Laboratories Research Grant, United Kingdom, Dr. Nigel Klein, Advisory Board Member
2006	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, October, 2006
2007	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, February, 2007
2007	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, June, 2007
2007	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, October, 2007
2008	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, February, 2008
2008	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Paek-Gyu Lee, SRA, June, 2008
2009	Study Section Member, NIH ZRG1-F07-L NRSA F32 Immunology Fellowship Study Section, Dr. Jin Huang, SRA, February, 2009
2012	Ad Hoc Reviewer, VA Merit Review INFB Committee, Susan Stern, Ph.D., Program Manager, June 2012
2013	Ad Hoc Reviewer, NIH Host Interactions with Bacterial Pathogens (HIBP) Study Section, Fouad A. El-Zaatari, Ph.D., SRO, February, 2013
2015	Ad Hoc Reviewer, NIH Topics in Bacterial Pathogenesis (IDM-B 80) Study Section, Richard Kostriken, PhD, March, 2015
2016	Ad Hoc Reviewer, NIH Topics in Bacterial Pathogenesis Study Section, IDM-B (81) Study Section, Richard Kostriken, Ph.D., March, 2016
2016	Ad Hoc Reviewer, NIH Support of Competitive Research (SCORE) Program, ZGM1 RCB-7 Study Section, Lisa Dunbar, Ph.D., August, 2016

- 2017 Ad Hoc Reviewer, NIH Bacterial Pathogenesis and Host Interactions, ZRG1 IDM-R (02) Study Section, Soheyla Saadi, Ph.D., March, 2017
- 2017 Ad Hoc Reviewer, NIH Topics in Bacterial Pathogenesis Study Section, ZRG1 IDM-B (81) S, Richard Kostriken, Ph.D., July, 2017
- 2018 Ad Hoc Reviewer, USU Infectious Disease Clinical Research Program (IDCRP), Department of Preventive Medicine and Biostatistics, Jie Min, MS, Research Program Specialist, December, 2018

SERVICE TO PROFESSIONAL SOCIETIES

- 2002-2003 Organizing Committee Member for HTLV2003: HTLV and Related Viruses, 11<sup>th</sup> International Conference on Human Retrovirology; San Francisco, CA, Dr. Edward Murphy, Conference Chairman
- 2013-2014 Board Member, Scientific Advisory Board, 19th International Pathogenic *Neisseria* Conference, Asheville, North Carolina, October 12-17, 2014
- 2017-2018 Board Member, Meeting Planning and Scientific Advisory Board, 21st International Pathogenic *Neisseria* Conference, Asilomar, CA, September 23-28, 2018

SERVICE TO PROFESSIONAL PUBLICATIONS AS REVIEWER (1993-present; 84 total)

- 1993 Clinical and Diagnostic Laboratory Immunology
- 1994 Clinical and Diagnostic Laboratory Immunology (2)
- 1995 Clinical and Diagnostic Laboratory Immunology  
Trends in Microbiology
- 1996 Infection and Immunity
- 1997 Infection and Immunity
- 1998 Infection and Immunity
- 1999 Infection and Immunity (2)  
Journal of Clinical Investigation (2)  
Journal of Endotoxin Research  
Microbiology  
Molecular Medicine  
Molecular Microbiology
- 2000 Journal of Endotoxin Research (3)
- 2001 Clinical and Diagnostic Laboratory Immunology  
Infection and Immunity  
Journal of Endotoxin Research (4)
- 2002 Infection and Immunity  
Journal of Infectious Diseases
- 2003 Infection and Immunity (2)  
Journal of Immunological Methods
- 2004 Cancer Research  
Infection and Immunity  
Journal of Clinical Microbiology
- 2005 Clinical and Diagnostic Laboratory Immunology  
Infection and Immunity (2)  
Journal of Laboratory and Clinical Medicine
- 2006 Infection and Immunity (2)  
Journal of Infectious Diseases  
Vaccine
- 2007 Journal of Infectious Diseases
- 2008 Biologicals  
Infection and Immunity (2)

2009	Biologicals Infection and Immunity PLOS Pathogens
2010	FEMS Immunology and Medical Microbiology Infection and Immunity
2011	International Journal of Molecular Sciences Rapid Communications in Mass Spectrometry
2012	American Journal of Reproductive Immunology Experimental Brain Research Journal of Neuroinflammation
2013	Infection and Immunity mBio Mediators of Inflammation Retrovirology: Research and Treatment
2014	Case Reports in Medicine FEBS Letters Journal of Infectious Diseases Journal of Neuroinflammation
2015	Cell Host & Microbe Cellular and Molecular Neurobiology (2)
2016	Cell Host & Microbe Cell Reports Frontiers in Immunology - Immunotherapies and Vaccines International Journal of Molecular Sciences Scandinavian Journal of Immunology
2017	Behavioural Brain Research Cellular Physiology and Biochemistry Frontiers in Immunology - Mucosal Immunity Journal of Clinical Investigation Journal of Neuroinflammation
2018	Current Pharmaceutical Design Experimental Dermatology Frontiers in Immunology - Mucosal Immunity (2) Infection and Immunity PLOS ONE PLOS Pathogens (2)

SERVICE TO PROFESSIONAL PUBLICATION EDITORIAL BOARDS

2007-2017	<i>Retrovirology: Research and Treatment</i> Publisher: Libertas Academica Editor-in-Chief: Dr. Carey Farquhar, University of Washington
2009-2017	<i>HIV/AIDS - Research and Palliative Care</i> Publisher: Dove Medical Press Editor-in-Chief: Dr. Shenghan Lai, Johns Hopkins School of Medicine
2011-present	<i>Frontiers in Immunology - Mucosal Immunology</i> Publisher: Frontiers Head Office, Lausanne, Switzerland Editor-in-Chief: Dr. Nils Yngve Lycke, University of Gothenburg

## PROFESSIONAL AWARDS AND HONORS

### VA AWARD

2009-2014 VA Research Career Scientist Award

2014-present VA Senior Research Career Scientist Award

### TEACHING AWARDS

2004-2005 UCSF School of Pharmacy Dean's recognition for excellence in teaching  
2005-2006 UCSF School of Pharmacy Dean's recognition for excellence in teaching  
2006-2007 UCSF School of Pharmacy Dean's recognition for excellence in teaching  
2007-2008 UCSF School of Pharmacy Dean's recognition for excellence in teaching  
2008-2009 UCSF School of Pharmacy Dean's recognition for excellence in teaching

## FUNDED RESEARCH PROJECTS

### CURRENT FUNDING:

SOURCE OF FUNDING	GRANT NUMBER	TITLE OF PROJECT	ROLE	DATES
VA Merit Review	BX000727	Interaction of LOS & Innate Immune Receptors in <i>Neisseria</i> Infection	P.I.	7/1/16-6/30/20
VA	none	Senior Research Career Scientist Award	P.I.	10/1/14-9/30/21
NIH	R01 AI097312 (PI: Alison Criss, Univ. Virginia)	Survival of <i>Neisseria gonorrhoeae</i> after Primary Human Neutrophil Challenge	Co-Invest.	11/01/18-10/31/22

## UCSF TEACHING

### DIDACTIC TEACHING

1994-2010 Winter Quarter; Microbiology 117: "Infection and Host Response"; Introductory Microbiology Laboratory Instructor for First Year Dental Students, 20 classes per quarter  
1994-2010 Spring Quarter; Microbiology 120: "Microbiology in Pharmacy"; Introductory Microbiology Laboratory Instructor for Second Year Pharmacy Students, 20 classes per quarter

## BIBLIOGRAPHY

### a. Papers published in peer-reviewed journals

1. Burr, D. H., H. Sugiyama, and **G. Jarvis**. 1982. Susceptibility to enteric botulinum colonization of antibiotic-treated adult mice. *Infect. Immun.* 37:845.
2. Schneider, H., J. McL. Griffiss, R. E. Mandrell, and **G. A. Jarvis**. 1985. Elaboration of a 3.6-kilodalton lipooligosaccharide, antibody against which is absent from human sera, is associated with serum resistance of *Neisseria gonorrhoeae*. *Infect. Immun.* 50:672-677.
3. **Jarvis, G. A.**, and N. A. Vedros. 1987. Sialic acid of group B *Neisseria meningitidis* regulates alternative complement pathway activation. *Infect. Immun.* 55:174-180.
4. Apicella, M. A., M. Shero, **G. A. Jarvis**, J. McL. Griffiss, R. E. Mandrell, and H. Schneider. 1987. Phenotypic variation in epitope expression of the *Neisseria gonorrhoeae* lipooligosaccharide. *Infect. Immun.* 55:1755-1761.
5. Griffiss, J. McL., H. Schneider, R. E. Mandrell, **G. A. Jarvis**, J. J. Kim, B. Gibson, and M. A. Apicella. 1987. The immunochemistry of neisserial LOS. *Antonie van Leeuwenhoek* 53:501-507.
6. Sullam, P. M., **G. A. Jarvis**, F. H. Valone. 1988. Role of immunoglobulin G in platelet aggregation by viridans group streptococci. *Infect. Immun.* 56:2907-2911.
7. **Jarvis, G. A.**, and J. McL. Griffiss. 1989. Human IgA1 initiates complement-mediated killing of *Neisseria meningitidis*. *J. Immunol.* 143:1703-1709.
8. Blumenfeld, W., R. E. Mandrell, **G. A. Jarvis**, and J. McL. Griffiss. 1990. Localization of host immunoglobulin G to the surface of *Pneumocystis carinii*. *Infect. Immun.* 58:456-463.
9. Griffiss, J. McL., **G. A. Jarvis**, H. Schneider, J. P. O'Brien, and M. M. Eads. 1991. Lysis of *Neisseria gonorrhoeae* initiated by binding of normal human IgM to a hexosamine-containing lipooligosaccharide epitope is augmented by strain-specific, properdin binding-dependent alternative complement pathway activation. *J. Immunol.* 147:298-305.
10. **Jarvis, G. A.**, and J. McL. Griffiss. 1991. Human IgA1 blockade of IgG-initiated lysis of *Neisseria meningitidis* is a function of antigen-binding fragment binding to the polysaccharide capsule. *J. Immunol.* 147:1962-1967.
11. Hamadeh, R. M., **G. A. Jarvis**, U. Galili, R. E. Mandrell, Ping Zhou, and J. McL. Griffiss. 1992. Human natural anti-Gal IgG regulates alternative complement pathway activation on bacterial surfaces. *J. Clin. Invest.* 89:1223-1235.
12. Mandrell, R. E., H. Smith, **G. A. Jarvis**, J. McL. Griffiss, and J. A. Cole. 1993. Detection and some properties of the sialyltransferase implicated in the sialylation of lipopolysaccharide of *Neisseria gonorrhoeae*. *Microb. Pathog.* 14:307-313.
13. **Jarvis, G. A.** 1994. Analysis of C3 deposition and degradation on *Neisseria meningitidis* and *Neisseria gonorrhoeae*. *Infect. Immun.* 62:1755-1760.
14. Hamadeh, R. M., M. Estabrook, P. Zhou, **G. A. Jarvis**, and J. McL. Griffiss. 1995. Anti-Gal binds to pilus of *Neisseria meningitidis*; the IgA isotype blocks complement-mediated killing. *Infect. Immun.* 63:4900-4906.
15. Hamadeh, R. M., **G. A. Jarvis**, P. Zhou, A. C. Coteleur, and J. McL. Griffiss. 1996. Bacterial enzymes can add galactose  $\alpha$ 1,3 to human erythrocytes and create a senescence-associated epitope. *Infect. Immun.* 64:528-534.
16. **Jarvis, G. A.**, J. Li, J. Hakulinen, K. A. Brady, S. Nordling, R. Dahiya, and S. Meri. 1997. Expression and function of the complement membrane attack complex inhibitor protectin (CD59) in human prostate cancer. *Int. J. Cancer* 71:1049-1055.
17. Estabrook, M. M., J. McL. Griffiss, and **G. A. Jarvis**. 1997. Sialylation of *Neisseria meningitidis* lipooligosaccharide (LOS) inhibits serum bactericidal activity by masking lacto-N-neotetraose. *Infect. Immun.* 65:4436-4444.
18. Rautemaa, R., **G. A. Jarvis**, P. Marnila, and S. Meri. 1998. Acquired resistance of *Escherichia coli* to complement lysis by binding of glycoposphoinositol-anchored protectin (CD59). *Infect. Immun.* 66:1928-1933.

19. **Jarvis, G. A.**, J. Li., and K. V. Swanson. 1999. Invasion of human mucosal epithelial cells by *Neisseria gonorrhoeae* upregulates expression of intercellular adhesion molecule-1 (ICAM-1). *Infect. Immun.* 67:1149-1156.
20. Wang J., **G. A. Jarvis**, M. Achtman, E. Rosenqvist, T. E. Michaelsen, A. Aase, and J. McL. Griffiss. 2000. Functional activities and immunoglobulin variable regions of human and murine monoclonal antibodies specific for the P1.7 PorA protein loop of *Neisseria meningitidis*. *Infect. Immun.* 68:1871-1878.
21. Jack, D. L., **G. A. Jarvis**, C. L. Booth, M. W. Turner, and N. J. Klein. 2001. Mannose-binding lectin accelerates complement activation and increases serum killing of *Neisseria meningitidis* serogroup C. *J. Infect. Dis.* 184:836-845.
22. Swanson, K. V., **G. A. Jarvis**, G. F. Brooks, B. J. Barham, M. D. Cooper, and J. McL. Griffiss. 2001. CEACAM is not necessary for *Neisseria gonorrhoeae* to adhere to and invade female genital epithelial cells. *Cell. Microbiol.* 3:681-691.
23. John, C. M., **G. A. Jarvis**, K. V. Swanson, H. Leffler, M. D. Cooper, M. E. Huflejt, and J. McL. Griffiss. 2002. Galectin-3 binds lactosaminylated lipooligosaccharides from *Neisseria gonorrhoeae* and is selectively expressed by mucosal epithelial cells that are infected. *Cell. Microbiol.* 4:649-661.
24. Stewart, L., A. L. Oesterle, J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2002. Gram-negative bacteria killed by complement are associated with more severe biliary infections and produce more TNF- $\alpha$  in sera. *Surgery* 132:408-414.
25. Stewart, L., A. L. Oesterle, J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2003. Cholangitis: Bacterial virulence factors that facilitate cholangiovenous reflux and TNF- $\alpha$  production. *J. Gastrointest. Surg.* 7:191-199.
26. John, C. M., H. Leffler, B. Kahl-Knutsson, I. Svensson, and **G. A. Jarvis**. 2003. Truncated galectin-3 inhibits tumor growth and metastasis in orthotopic nude mouse model of human breast cancer. *Clin. Cancer Res.* 9:2374-2383.
27. Pridmore, A. C., **G. A. Jarvis**, C. M. John, D. L. Jack, S. K. Dower, and R. C. Read. 2003. Activation of Toll-like receptor (TLR) 2 and TLR4/MD2 by *Neisseria* is independent of capsule and LOS sialylation, but varies widely amongst LOS from different strains. *Infect. Immun.* 71:3901-3908.
28. Cheshenko, N., M. J. Keller, V. MasCasullo, **G. A. Jarvis**, H. Cheng, M. John, J.-H. Li, K. Hogarty, R. A. Anderson, D. P. Waller, L. J.D. Zaneveld, A. T. Profy, M. E. Klotman, and B. C. Herold. 2004. Candidate topical microbicides bind herpes simplex viral glycoprotein B and prevent viral entry and cell-cell spread. *Antimicrob. Agents Chemother.* 48:2025-2036.
29. Estabrook, M. E., D. L. Jack, N. J. Klein, and **G. A. Jarvis**. 2004. Mannose-binding lectin binds to two major outer membrane proteins, opacity protein and porin, of *Neisseria meningitidis* but not to lipooligosaccharide. *J. Immunol.* 172:3784-3792.
30. **Jarvis, G. A.**, E. N. Janoff, H. Cheng, D. Devita, C. Fasching, C. E. McCulloch, and E. L. Murphy. 2005. Human T lymphotropic virus type II infection and humoral responses to pneumococcal polysaccharide and tetanus toxoid vaccines. *J. Infect. Dis.* 191:1239-1244.
31. Takamatsu D., B. A. Bensing, H. Cheng, **G. A. Jarvis**, I. R. Siboo, J. A. López, J. McL. Griffiss, and P. M. Sullam. 2005. Binding of the *Streptococcus gordonii* Surface Glycoproteins GspB and Hsa to Specific Carbohydrate Structures on Platelet Membrane Glycoprotein Iba. *Mol. Microbiol.* 58:380-392.
32. Scordi-Bello, I. A., A. Mosoian, C. He, Y. Chen, Y. Cheng, **G. A. Jarvis**, M. J. Keller, K. Hogarty, D. P. Waller, A. T. Profy, B. C. Herold, and M. E. Klotman. 2005. Candidate sulfonated and sulfated topical microbicides: comparison of anti-human immunodeficiency virus activities and mechanisms of action. *Antimicrob. Agents Chemother.* 49:3607-3615.
33. Liu, X., A. Mosoian, T. L. Chang, B. Zerhouni-Layachi, A. Snyder, **G. A. Jarvis**, and M. E. Klotman. 2006. Gonococcal LOS suppresses HIV infection in human primary macrophages through induction of innate immunity. *J. Infect. Dis.* 194:751-759.
34. Stewart, L., J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2006. Biliary bacterial factors determine the path of gallstone formation. *Am. J. Surg.* 192:598-603.

35. Stewart, L., J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2007. Gallstones containing bacteria are biofilms: Bacterial slime production and ability to form pigment solids determines infection severity and bacteremia. *J. Gastrointest. Surg.* 11:977-984.
36. Estabrook, M. M., **G. A. Jarvis**, and J. McL. Griffiss. 2007. Affinity-purified human immunoglobulin G that binds a lacto-*N*-neotetraose-dependent lipooligosaccharide structure is bactericidal for serogroup B *Neisseria meningitidis*. *Infect. Immun.* 75:1025-1033.
37. Stewart, L., J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2007. Bacteria entombed in the center of cholesterol gallstones induce fewer infectious manifestations than bacteria in the matrix of pigment stones. *J. Gastrointest. Surg.* 11:1298-1308.
38. Stewart, L., J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2008. Elderly patients have more severe biliary infections: influence of complement killing and induction of TNF- $\alpha$  production. *Surgery* 143:103-112.
39. Quan, D. N., M. D. Cooper, J. L. Potter, M. H. Roberts, H. Cheng, and **G. A. Jarvis**. 2008. TREM-2 binds to lipooligosaccharides of *Neisseria gonorrhoeae* and is expressed on reproductive tract epithelial cells. *Mucosal Immunol.* 1:229-238.
40. Klotman, M. E., A. Rapista, N. Teleshova, A. Micsenyi, **G. A. Jarvis**, W. Lu, E. Porter, and T. L. Chang. 2008. *Neisseria gonorrhoeae*-induced human defensins 5 and 6 increase HIV Infectivity: Role in enhanced transmission. *J. Immunol.* 180:6176-6185.
41. John, C. M., M. Liu, and **G. A. Jarvis**. 2009. Profiles of structural heterogeneity in native lipooligosaccharides of *Neisseria* and cytokine induction. *J. Lipid Res.* 50:424-438.
42. Duncan, J. A., X. Gao, M. T. Huang, B. P. O'Conner, C. E. Thomas, S. B. Willingham, D. T. Bergstralh, **G. A. Jarvis**, P. F. Sparling, and J. P.-Y. Ting. 2009. *Neisseria gonorrhoeae* activates the proteinase cathepsin B to mediate the signaling activities of the NLR3 and ASC-containing inflammasome. *J. Immunol.* 182:6460-6469.
43. John, C. M., M. Liu, and **G. A. Jarvis**. 2009. Natural phosphoryl and acyl variants of lipid A from *Neisseria meningitidis* strain 89I differentially induce TNF- $\alpha$  in human monocytes. *J. Biol. Chem.* 284:21515-21525.
44. Ding, J., A. Rapista, N. Teleshova, G. Mosoyan, **G. A. Jarvis**, M. E. Klotman, and T. L. Chang. 2010. *Neisseria gonorrhoeae* enhances HIV-1 infection of primary resting CD4+ T cells through TLR2 activation. *J. Immunol.* 184:2814-2824.
45. Liu, M., C. M. John, and **G. A. Jarvis**. 2010. Phosphoryl moieties of lipid A from *Neisseria meningitidis* and *N. gonorrhoeae* lipooligosaccharides play an important role in activation of both MyD88- and TRIF-dependent TLR4/MD-2 signaling pathways. *J. Immunol.* 185:6974-6984.
46. Bingham, D., C. M. John, S. S. Panter, and **G. A. Jarvis**. 2011. Post-injury treatment with lipopolysaccharide or lipooligosaccharide protects rat neuronal and glial cell cultures. *Brain Res. Bull.* 85:403-409.
47. Cheng, H., Z. Yang, M. M. Estabrook, C. M. John, **G. A. Jarvis**, S. McLaughlin, and J. McL. Griffiss. 2011. Human IgG that bind the galactose truncated  $\alpha$  chain of *Neisseria meningitidis* lipooligosaccharides are bactericidal for endemic disease strains. *J. Biol. Chem.* 286:43622-43633.
48. Liu, Y., E. A. Islam, **G. A. Jarvis**, S. D. Gray-Owen, and M. W. Russell. 2012. *Neisseria gonorrhoeae* selectively suppresses the development of Th1 and Th2 cells, and enhances Th17 cell responses, through TGF- $\beta$ -dependent mechanisms. *Mucosal Immunol.* 5:320-331.
49. Cooper, M.D., M. H. Roberts, O. L. Barauskas, and **G. A. Jarvis**. 2012. Secretory leukocyte protease inhibitor binds to *Neisseria gonorrhoeae* outer membrane opacity protein and is bactericidal. *Am. J. Reprod. Immunol.* 68:116-127.
50. John, C. M., M. Liu, N. J. Phillips, Z. Yang, C. R. Funk, L. I. Zimmerman, J. M. Griffiss, D. C. Stein, and **G. A. Jarvis**. 2012. Lack of lipid A pyrophosphorylation and functional *lptA* reduces inflammation by *Neisseria* commensals. *Infect. Immun.* 80:4014-4026.
51. Stewart, L., J. McL. Griffiss, **G. A. Jarvis**, and L. W. Way. 2012. The association between body mass index and severe biliary infections: a multivariate analysis. *Am. J. Surg.* 204:574-579.
52. Bingham, D., C. M. John, J. Levin, S. S. Panter, and **G. A. Jarvis**. 2013. Post-injury conditioning with lipopolysaccharide or lipooligosaccharide reduces inflammation in the brain. *J. Neuroimmunol.* 256:28-37.



53. Stephenson, H. N., C. M. John, N. Naz, O. Gundogdu, N. Dorrell, B. W. Wren, **G. A. Jarvis\***, M. Bajaj-Elliott. 2013. *Campylobacter jejuni* lipooligosaccharide sialylation, phosphorylation and amide/ester linkage modifications fine-tune human toll-like receptor 4 activation. *J. Biol. Chem.* 288:19661-19672. **\*Corresponding author**
54. Liu, M., C. M. John, and **G. A. Jarvis**. 2014. Induction of endotoxin tolerance by pathogenic *Neisseria* is correlated with the inflammatory potential of lipooligosaccharides and regulated by microRNA-146a. *J. Immunol.* 192:1768-1777.
56. Gong Z., M. M. Tang, X. Wu, N. Phillips, D. Galkowski, **G. A. Jarvis**, and H. Fan. 2016. Arginine- and polyamine-induced lactic acid resistance in *Neisseria gonorrhoeae*. *PLOS ONE* 11: e0147637. doi:10.1371/journal.pone.0147637
57. John C. M., N. J. Phillips, R. Din, M. Liu, E. Rosenqvist, E. A. Høiby, D. C. Stein, and **G. A. Jarvis**. 2016. Lipooligosaccharide structures of invasive and carrier isolates of *Neisseria meningitidis* are correlated with pathogenicity and carriage. *J. Biol. Chem.* 291:3224-3238.
58. Phillips N. J., C. M. John, and **G. A. Jarvis**. 2016. Analysis of bacterial lipooligosaccharides by MALDI-TOF MS with traveling wave ion mobility. *J. Am. Soc. Mass Spectrom.* 27:1263-1276.
59. Anandan, A., G. L. Evans, K. Condic-Jurkic, M. L. O'Mara, C. M. John, N. J. Phillips, **G. A. Jarvis**, S. S. Wills, K. A. Stubbs, I. Isabel Moraes, C. M. Kahler, and A. Vrielink. 2017. Structure of a lipid A phosphoethanolamine transferase suggests how conformational changes govern substrate binding. *Proc. Natl. Acad. Sci. USA.* 114:2218-2223.
60. John, C. M., N. J. Phillips, D. C. Stein, and **G. A. Jarvis**. 2017. Innate immune response to lipooligosaccharide: pivotal regulator of the pathobiology of invasive *Neisseria meningitidis* infections. *Pathog. Dis.* 75: ftx030. doi: 10.1093/femspd/ftx030
61. John, C. M., D. Feng, and **G. A. Jarvis**. 2018. Treatment of human challenge and antibiotic-resistant strains of *Neisseria gonorrhoeae* with LpxC inhibitors. *J. Antimicrob. Chemother.* 73:2064-2071.
62. Brunner, K., C. M. John, N. J. Phillips, D. G. Alber, M. R. Gemmell, R. Hansen, H. L. Nielsen, G. L. Hold, M. Bajaj-Elliott, and **G. A. Jarvis**. 2018. Novel *Campylobacter concisus* lipooligosaccharide is a determinant of inflammatory potential and virulence. *J. Lipid Res.* 59:1893–1905.

#### b. Published proceedings

1. **Jarvis, G. A.**, and N. A. Vedros. 1985. Antibody-dependent alternative complement pathway killing of group B meningococci, p. 592-596. In G. K. Schoolnik, J. A. McCutchan, G. F. Brooks, and S. A. Morse (eds.), *The Pathogenic Neisseria*. American Society for Microbiology, Washington, D.C.
2. **Jarvis, G. A.**, H. Schneider, M. K. Albertson, and J. McL. Griffiss. 1988. Strain-specific direct binding of properdin accounts for variable lysis of *Neisseria gonorrhoeae*, p. 717-722. In: J. T. Poolman, H. Zanen, T. Mayer, J. Heckels, P. H. Makela, H. Smith, and C. Beuvery (eds.), *Gonococci and Meningococci*. Kluwer Academic Publishers, Dordrecht, The Netherlands
3. Griffiss, J. McL., H. Schneider, R. E. Mandrell, **G. A. Jarvis**, J. J. Kim, B. Gibson, and M. Apicella. 1988. The immunochemistry of neisserial LOS, p.529-535. In: J. T. Poolman, H. Zanen, T. Mayer, J. Heckels, P. H. Makela, H. Smith, and C. Beuvery (eds.), *Gonococci and Meningococci*. Kluwer Academic Publishers, Dordrecht, The Netherlands
4. Apicella, M. A., M. Shero, R. E. Mandrell, **G. A. Jarvis**, S. A. Morse, and J. M. Griffiss. 1988. Phenotypic variation in gonococcal lipooligosaccharide, p.477-483. In: J. T. Poolman, H. Zanen, T. Mayer, J. Heckels, P. H. Makela, H. Smith, and C. Beuvery (eds.), *Gonococci and Meningococci*. Kluwer Academic Publishers, Dordrecht, The Netherlands
5. **Jarvis, G. A.**, and J. McL. Griffiss. 1994. Analysis of C3 deposition and degradation on neisserial surfaces, p. 697-702. In: C. J. Conde-Glez, S. Morse, P. Rice, F. Sparling, and E. Calderón (eds.), *Pathobiology and Immunobiology of Neisseriaceae*. Instituto Nacional de Salud Pública, Cuernavaca, México.

c. Review articles

1. **Jarvis, G. A.**, and T. L. Chang. 2012. Modulation of HIV transmission by *Neisseria gonorrhoeae*: molecular and immunological aspects. *Curr. HIV Res.* 10:211-217.

d. Books and book chapters

1. **Jarvis, G. A.**, L. Mirandola, Y. Yuefei, E. Cobos, M. Chiriva-Internati, and C. M. John. Galectin-3C: Human Lectin for Treatment of Cancer. In: *Galectins and Disease Implications for Targeted Therapeutics*; Klyosov, A., and P. G. Traber, eds.; ACS Symposium Series, vol. 1115; Chapter 12, pp. 195-232; American Chemical Society: Washington, DC, 2012.

e. Patents

1. “N-Terminally Truncated Galectin-3 For Use In Treating Cancer”  
**Gary A. Jarvis**, Constance M. John, Hakon Leffler, inventors; August 3, 2004; United States Patent Number 6,770,622