Program Director/Principal Investigator (Last, First, Middle): Sparling, Philip Frederick

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.

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NAME Philip F. Sparling	POSITION TITLE Professor of Medicine & Microbiology and Immunology
eRA COMMONS USER NAME (credential, e.g., agency login) philip_sparling	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Princeton University, Princeton NJ	AB	1958	Biology
Harvard Medical School, Boston MA	MD	1962	Medicine
Massachusetts General Hospital, Boston MA	--	1962-1964	Intern/Resident
Harvard Medical School, Dept. of Bacteriology	--	1966-1968	Postdoc Fellow
Massachusetts General Hospital, Boston MA	--	1968-1969	Postdoc Fellow

A. Positions and Honors.

Positions and Employment

1976-1981 Professor of Medicine and Bacteriology and Chief of Division of Infectious Diseases, University of NC School Medicine
1981-1989 Professor and Chair of Microbiology and Professor of Medicine, UNC
1989-1999 Professor and Chair of Medicine and Professor of Microbiology, UNC
1986-2001 J. Herbert Bate Professor of Medicine and Microbiology and Immunology, UNC
1991- Director, North Carolina Sexually Transmitted Infections/Topical Microbicides Cooperative Research Center
2001- J Herbert Bate Professor of Medicine and Microbiology and Immunology, Emeritus, UNC
2002-2005 Coordinator UNC programs in Biodefense Research; member SERCEB (SE Regional Center for Excellence in Biodefense and Emerging Infections) steering committee
2005- 2008 Professor of Medicine, Human Vaccine Institute, Duke University, Durham NC
2005- 2008 Director, SERCEB, based at Duke University, Durham NC
2008- Director, SERCEB, based at UNC, Chapel Hill NC
2008- Professor, Medicine & Microbiology and Immunology, UNC, Chapel Hill NC

Other Experience and Professional Memberships

1962 AOA Harvard
1975 American Society for Clinical Investigation
1980 Association of American Physicians
1980- 1984 Bacteriology and Mycology StudySection, NIAID, NIH (Member, 1980-84; Chair, 1982-84)
1985- 1988 Council, Infectious Diseases Society of America (IDSA),
1988 Chair, Gordon Research Conference on Microbial Toxins Member
1986 National Academy/Institute of Medicine (IOM) Committee on AIDS
1988- 1991 Member, Infectious Diseases and MicrobiologyResearch Committee, NIAID, NIH
1991- 1992 Member, IOM Committee on Emerging Microbial Threats to Health
1994- 2006 Member, Merck Scientific Advisory Board
1995- 1998 Council, Infectious Diseases Society of America (IDSA)

1996- 1997 President, Infectious Diseases Society of America
1996- Member, IOM Forum on Emerging Infectious Diseases, [cochair 2004-2008]
1999- 2003 Member, NIH [CSR] Committee on Scientific Boundaries for Review
2000- 2003 Member, IOM Committee on Emerging Microbial Threats to Health
2002- 2005 Chair, Burroughs Wellcome Fund Committee for Investigators in Infectious Diseases Pathogenesis.

Honors

1988- 1998 NIH Merit Award
1989 Joseph Smadel Award, Infectious Diseases Society of America
1992 Parran Award, AVDA
1993 Distinguished Faculty Award, University of North Carolina School of Medicine
2000 Maxwell Finland Award, Infectious Diseases Society of America

Personal Statement

I no longer have a personal laboratory but remain actively involved in research and training, including service as director of two large grants: one in emerging infections and biodefense, and the other in STDs with an emphasis on vaccines. I also remain active in mentoring fellows and junior faculty and graduate students. I have mentored over 20 postdoctoral fellows, many of whom are in academic positions currently, and have taken 10 of my own graduate students through to their PhDs. My long standing interest in STDs and in training qualifies me for service on international efforts in STD training as well. .

B. Selected publications (in chronological order, from over 200).

1. Elkins, C, CA Barkley, AJ Coimbre, VA Varela, NH Carbonetti, & PF Sparling: Immunobiology of recombinant gonococcal outer membrane porin protein purified from *E. coli. Molec Microbiol*, **14**(5):1059-1075, 1994.
2. Beucher, M, PF Sparling: Cloning, sequencing, and characterization of the gene encoding FrpB, a major iron-regulated outer membrane protein of *Neisseria gonorrhoeae, J Bacteriol*, **177**:2041-2049, 1995.
3. Biswas, GD, PF Sparling. Characterization of *lbpA*, the structural gene for a lactoferrin receptor in *Neisseria gonorrhoeae,* Inf. and Imm. **63**(8):2958-67, 1995.
4. Heine, R.P, C. Elkins, P.B. Wyrick, and P.F. Sparling. Transferrin Increases Adherence of Iron-Deprived Neisseria Gonorrhoeae to Human Endometrial Cells, Am J. Ob. & Gyn, Feb, 1996.
5. Cornelissen, C, PF Sparling. Binding and Surface Exposure Characteristics of the Gonococcal Transferrin Receptor Are Dependent on Both Transferrin Binding Proteins, J Bacteriol, 178(5):1437-1444, 1996
6. Chen, C-J, Sparling, P.F., Lewis, L.A., Dyer, D.W., and Elkins, C. Identification and Purification of a Hemoglobin-Binding Outer Membrane Protein from *Neisseria gonorrhoeae*, Infect. Immun, 64(12):5008-5014, 1996.
7. Moore, TDE, PF Sparling. Interruption of the *gpxA* Gene Increases the Sensitivity of *Neisseria meningitidis* to Paraquat. J Bacteriol, 178(14):4301-4305, 1996.
8. Thomas, CE, PF Sparling. Isolation and Analysis of a *fur* Mutant of Neisseria gonorrhoeae. J Bacteriol, 178(14):4224-4232., 1996.
9. Cornelissen, C.N., Anderson, J.E., Sparling, P.F. Characterization of the Diversity and the Transferrin-Binding Domain of Gonococcal Transferrin-Binding Protein 2, Inf Immun 65(2):822-828, 1997.
10. Biswas, G.D., Anderson, J.E., Sparling, P.F. Cloning and Functional Characterization of *Neisseria gonorrhoeae tonB, exbB* and *exbD* Genes, Mol. Micro. 24(1):169-179, 1997.
11. Cornelissen, C.N., Anderson, J.E., Sparling, P.F. Energy-dependent changes in the gonococcal transferrin receptor, Molec Microbiol, 26(1):25-35, 1997.
12. Cornelissen, C.N., Kelley, M., Hobbs, M.M., Anderson, J.E., Cannon, J.G., Cohen, M.S., Sparling, P.F. The gonococcal transferrin receptor is required for human infection. Molec. Microbiol, 27(3):611-616, 1998.
13. Chen, CJ, Elkins, C., Sparling, P.F. Phase variation of Hemoglobin Utilization in *Neisseria gonorrhoeae.* Infect Immun 66(3):987-93, 1998.

14. Turner, P., Thomas, C.E., Elkins, C., Clary, S., Sparling, P.F. *Neisseria gonorrhoeae* heme biosynthetic mutants utilize heme and hemoglobin as a heme source, but fail to grow within epithelia cells. Infect. Immun, 66(11):5215-23, 1998.
15. Fox, K.K., Thomas, J.C., Weiner, D.H., Davis, R.H., Sparling, P.F., Cohen, M.S. Longitudinal Evaluation of Serovar-Specific Immunity to *Neisseria gonorrhoeae*, Am. J of Microbiology, 149(4):353-358, 1999.
16. Hobbs, MM, Alcorn, TM, Davis, RH, Fischer, W, Thomas, JC, Martin, I, Ison, C, Sparling, PF, Cohen, MS. Molecular typing of *Neisseria gonorrhoeae* causing repeated infections: evolution of porin during passage within a community. J Infect. Dis. 179(2):371-81, 1999.
17. Biswas, G.D., Anderson, J.E., Chen, C.J., Cornelissen, C.N., Sparling, P.F. Identification and functional characterization of the *Neisseria gonorrhoeae lbpB* gene product. Infect. Immun., 67(1):455-9, 1999.
18. Carson, SD, Klebba, PE, Newton, SM, Sparling, PF. Ferric enterobactin binding and utilization by *Neisseria gonorrhoeae*. J Bacteriology 181(9):2895-901, 1999.
19. Cornelissen, CN, Anderson, JE, Boulton, IC, Sparling, P.F. Antigenic and sequence diversity in gonococcal transferrin-binding protein. Infect. Immun 68(8):4725-35, 2000.
20. Carson, SD, Stone, B, Beucher, M, Fu, J, Sparling, PF. Phase variation of the gonococcal siderophore receptor FetA. Mol. Microbiol. (36)3:585-93, 2000.
21. Turner, P.C., Thomas, C.E., Stojiljkovic, I., Elkins, C., Kizel, G., Ala'Aldeen, D.A.A., Sparling, P.F.: Neisserial TonB-dependent outer membrane proteins: detection, regulation and distribution of three putative candidates identified from the genome sequences.Microbiol 147:1277-1290,2001
22. Anderson, J.E., Leone, P.A., Miller, W.C., Chen, C., Hobbs, M.A., Sparling, P.F. Selection for expression of the gonococcal hemoglobin receptor during menses. J. Inf. Dis. 184:1621-23, 2001
23. Chen, C. McLean, D., Thomas, C.E., Anderson, J. E. Sparling, P.F., Point mutations in HpuB enable gonococcal HpuA deletion mutants to grow on hemoglobin. J. Bacteriol. 184:420-6,2002
24. Anderson, J.E., Hobbs, M.M., Biswas, G.D., Sparling, P.F. Opposing selective forces for expression of the gonococcal lactoferrin receptor. Molec.Micro. 48:5 1325-1337, 2003
25. Zhu, W., Thomas, C.E., Sparling, P.F. DNA immunization of mice with a plasmid encoding *Neisseria gonorrhoeae* PorB protein by intramuscular injection and epidermal particle bombardment. Vaccine 22: 660-669, 2004.
26. Chen, C.-J., Tobiason, D.M., Thomas, C.E., Shafer, W.M., Seifert, H.S., Sparling, P.F. A mutant form of the *Neisseria gonorrhoeae* pilus secretin protein PilQ allows increased entry of heme and antimicrobial compounds. J. Bacteriol. 186:730-739, 2004.
27. Zhu, Weiyan, Thomas, Christopher E., Chen, Ching-ju, Van Dam, Cornelius N., Johnston, Robert E., Davis, Nancy L., Sparling, P. F. Comparison of Immune Responses to Gonococcal PorB Delivered as Outer Membrane Vesicles, Recombinant Protein, or Venezuelan Equine Enchphalitis Viral Replicon Particles. Infect Immun 73 (11):7558-7568, 2005.
28. Thomas, C. E., Zhu, W., Van Dam, C. N., Davis, N. L., Johnston, R. E., Sparling, P. F. Vaccination of Mice with Gonococcal TbpB Expressed in Vivo from Venezuelan Encephalitis Viral Replicon Particles. Infect Immun 74:1612-1620, 2006.
29. Sparling, PF. A Vaccine for Genital HPV: A Time to Rejoice. North Carolina Medical Journal. 65(5) September/October: 384-385. 2006.
30. Yakubovsky A, Sokolovsky E, Miller WC, Sparling PF, Ryder RW, Hoffman IF. Syphilis management in St. Petersburg, Russia: 1995-2001.. Sex Transm Dis. 33(4):244-9, 2006.
31. Bennett, Julia S., Jolley, Keith A., Sparling, P. F., Saunders, Nigel J., Hart, Anthony, Feavers, Ian M., Maiden, Martin C. J. Species Status of Neisseria gonorrhoeae: Evolutionary and Epidemiological Inferences from MLST. BMC Biology 5:35, 2007.
32. Duncan JA, Gao X, Huang MT, O'Connor BP, Thomas CE, Willingham SB, Bergstralh DT, Jarvis GA, Sparling PF, Ting JP. Neisseria gonorrhoeae activates the proteinase cathepsin B to mediate the signaling activities of the NLRP3 and ASC-containing inflammasome. J Immunol. May 15;182(10):6460-9, 2009.
33. Sena, A C, White B, Sparling PF. Novel Treponemal pallidum serologic tests: A paradigm shift in syphilis screening for the 21st century. Clin Inf Dis 51 (6): 700-708, 201
34. Sparling, PF. Diagnosis of Neurosyphilis: New Tools. Sex. Trans. Dis. 37(5): 288-289, 2010.
35. Hobbs, M M, Sparling, P F, Cohen, M S, Shafer, W M, Deal, C D, Jerse, A E. Experimental gonococcal infection in male volunteers: cumulative experience with *Neisseria gonorrhoeae* strains FA1090 and MS11 mkc. Frontiers Microbiol: doi. 10.3389/fmicb.2011.00123, 31 May 2011.

36. Zhu, W, Chen, C-J, Thomas C E, Anderson J E, Jerse A E, Sparling P F. Vaccines for gonorrhea: can we rise to the challenge? Frontiers Microbiol: doi. 10.3389/fmicb.2011.00124, 03 June 2011.
37. Marrazzo, J.M., Handsfield, H.H., and Sparling P.F. Neisseria gonorrhea. pp 2753-2770. In Gerald L. Mandell, John E. Bennett, and Raphael Dolin (eds.): Principles and Practice of Infectious Diseases, 7th ed. Churchill Livingstone, N.Y. 2010
38. Tucker, J.D., Sena, A.C., Sparling, P. F., Chen, X.-S., and Cohen, M.S. Treponemal infections. pp 289-294. In Guerrant, R.L., Walker, D.H., and Weller, P.F. (eds.): Tropical Infectious Diseases Principles, Pathogens and Practice 3rd ed. Saunders Elsevier, Edinburgh.2011
39. Bolan, Gail A, Sparling P F, Wasserheit, Judith A.. The Emerging Threat of Untreatable Gonococcal Infection. New Engl J Med 366: 485-487, 2012

C. Research Support

U-19-AI-013496-20 Sparling (PI) 09/01/09-08/31/14
SE STI Cooperative Research Center
Agency: National Institutes of Health/National Institute of Allergy and Infectious Diseases
A Center for Sexually Transmitted Infections. Iinvestigators from multiple institutions will carry out an interactive set of projects to design vaccines against two sexually transmitted infections: gonorrhea and chancroid. There are 6 projects and 3 cores.
Role: PI

5-U54-AI-057157-09 Sparling (PI) 03/01/09-02/28/14
The Southeast Regional Center of Excellence in Biodefense
Agency: National Institutes of Health/NIAID
SERCEB is the region 4 center for studies related to discovery and development of new therapeutics and vaccines for select agent and emerging pathogens, including coronaviruses, dengue and West Nile viruses, chikungunya viruses, influenza viruses, *Francisella tularensis* and *Yersinia pestis*.
Role: PI

T 32 A!07001-34 Sparling (Co-PI) 7/1/10-6/30/15
Training in Sexually Transmitted Diseases and AIDS
Agency: National Institutes of Health/National Institute of Allergy and Infectious Diseases
A training grant for six predoctoral and four postdoctoral trainees
Role: Co-Investigator