

CURRICULUM VITAE FORMAT
University of Pittsburgh
School of Medicine

BIOGRAPHICAL

Name: Douglas S. Reed
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EDUCATION and TRAINING

UNDERGRADUATE:

1984-1987	Oklahoma State University Stillwater, OK	Bachelor of Science	1987	Microbiology
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GRADUATE:

1988-1990	Oklahoma State University Stillwater, OK	Master of Science	1990	Microbiology
1990-1995	UT Southwestern Medical Center Dallas, TX	Doctor of Philosophy	1996	Immunology

POSTGRADUATE:

1995-1999	University of Connecticut Health Center Farmington, CT	Postdoctoral Fellow		Immunology
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APPOINTMENTS and POSITIONS

ACADEMIC:

2013 – current	Department of Immunology	Associate Professor
2008 – 2013	Department of Immunology	Assistant Professor
2008 – current	Center for Vaccine Research Regional Biocontainment Laboratory University of Pittsburgh, Pittsburgh, PA	Aerobiology Manager
2014-current	Laboratory of Infectious Disease Research University of Missouri, Columbia, MO	Adjunct Faculty

NON-ACADEMIC:

2013- current	Data Sciences International Customer Advisory Board	Member
2007-07	U.S. Army Medical Research Institute of Infectious Diseases Fort Detrick, Frederick, MD	Department Chief
2005-07	U.S. Army Medical Research Institute of Infectious Diseases Fort Detrick, Frederick, MD	Team Leader

1999-2005 U.S. Army Medical Research Institute of Infectious Diseases Microbiologist
Fort Detrick, Frederick, MD

MEMBERSHIPS in PROFESSIONAL and SCIENTIFIC SOCIETIES

American Association of Immunologists	2000-present
American Society for Microbiology	2008-present
American Association for Aerosol Research	2010-present

HONORS

U.S. Army Research & Development Award	2003
U.S. Army Achievement Medal for Civilian Service	2005

PUBLICATIONS

Refereed articles

1. **Reed, D.**, and Burnham, K. 1991. Tumor-associated macrophages share *in vitro* growth characteristics with resident but not elicited macrophages. *J. Leuk. Biol.* 50: 167-75.
2. Kim, S.-K., **Reed, D.S.**, Heath, W.R., Carbone, F., and Lefrancois, L. 1997. Activation and migration of CD8 T cells in the intestinal mucosa. *J. Immunol.* 157(9): 4295-4306. PMID: 9379025
3. **Reed, D.S.**, Olson, S., and Lefrancois, L. 1998. Glycosyltransferase regulation mediated by pre-TCR signaling in early thymocyte development. *Int. Immunol.* 10(4):445-51. PMID: 9620600
4. Kim, S.-K.*, **Reed, D.S.***, Olson, S., Schnell, M.J., Rose, J.K., Morton, P.A., and Lefrancois, L. 1998. Generation of primary mucosal cytotoxic T cells by tissue-specific environmental and costimulatory pathways. *Proc. Nat. Acad. Sci. (USA)*. 95(18):10814-9. PMID: 9724787 * - equal contribution
5. Lopez, K.R., Gibbs, P.H., and **Reed, D.S.** 2002. A comparison of body temperature changes due to the administration of ketamine/acepromazine and tiletamine/zolazepam anesthetics in cynomolgus macaques (*Macaca fascicularis*). *Contemp Top Lab Anim Sci.* 41(2):47-50. PMID: 11958603
6. **Reed, D.S.**, Smoll, J., Gibbs, P., and Little, S.F. 2002. Mapping of antibody responses to the Protective Antigen of *Bacillus anthracis* by flow cytometric analysis. *Cytometry.* 49(1):1-7. PMID: 12210604
7. McElroy, A.K., Bray, M., **Reed, D.S.**, and Schmaljohn, C.S. 2002. Andes virus infection of cynomolgus macaques. *J Infect Dis.* 186:1706-12. PMID: 12447754
8. Geisbert T., Hensley, L.E., Larsen, T., Young, H.A., **Reed, D.S.**, Geisbert, J.B., Scott, D.P., Kagan, E., Jahrling, P.B., and Davis, K.J. 2003. Pathogenesis of Ebola hemorrhagic fever in cynomolgus macaques: evidence that dendritic cells are early and sustained targets of infection. *Am J Pathol* 163(6):2347-2370. PMID: 14633608
9. **Reed, D.S.**, Hensley, L., Geisbert, J., Jahrling, P.B., and Geisbert, T. 2004. Depletion of peripheral blood T lymphocytes and NK cells during the course of Ebola hemorrhagic fever in cynomolgus macaques. *Viral Immunology* 17(3): 390-400. PMID: 15357905
10. **Reed, D.S.**, Lind, C.M., Sullivan, L.J., Pratt, W., and Parker, M. 2004. Aerosol infection of cynomolgus macaques with enzootic strains of Venezuelan Equine Encephalitis. *J Infect Dis.* 189:1013-7. PMID: 14999604

11. **Reed, D.S.**, Lind, C.M., Lackemeyer, M., Sullivan, L.J., Pratt, W., and Parker, M. 2005. Genetically engineered, live attenuated vaccines protect nonhuman primates against aerosol challenge with a virulent IE strain of Venezuelan equine encephalitis virus. *Vaccine*: 23(24) pp. 3139-3147. PMID: 15837213
12. **Reed, D.S.**, Larsen, T., Sullivan, L.J., Lind, C.M., Lackemeyer, M.G., Pratt, W.D., and Parker, M.D. 2005. Aerosol exposure to western equine encephalitis virus causes fever and encephalitis in cynomolgus macaques. *J Infect Dis*. 192(7):1173-82 PMID: 16136459
13. **Reed, D.S.** and Martinez, M. 2006. Respiratory immunity is important for the protection elicited by a subunit vaccine against pneumonic plague. *Vaccine*. 24(13)2283-9. PMID: 16377037
14. **Reed, D.S.**, Lackemeyer, M.G., Garza, N.L., Norris, S., Gamble, S., Sullivan, L.J., Lind, C.M., Raymond, J.L. 2007. Severe encephalitis in cynomolgus macaques exposed to aerosolized Eastern Equine Encephalitis virus. *J Infect Dis*. 196:441-450. PMID: 17597459
15. Koterski, J., Twenhaufl, N., Porter, A., **Reed, D.S.**, Martino-Catt, S., Sobral, B., Crasta, O., Downey, T., daSilva, L. 2007. Gene expression profiling of nonhuman primates exposed to aerosolized Venezuelan equine encephalitis virus (VEEV). *FEMS Immuno Med Micro*. 51(3)461-72. PMID: 17894805
16. Rubins, K. H., Hensley, L.E., Wahl-Jenson, V., Daddario, K.M., Young, H., **Reed, D.S.**, Jahrling, P.B., Brown, P.O., Relman, D.A., Geisbert, T.W. 2007. The temporal program of peripheral blood gene expression in the response of non-human primates to ebola hemorrhagic fever. *Genome Biology* 8(8)R174:1-14. PMID: 17725815
17. Rogers, J., Schoepp, R., Clements, T., Schroder, O., Holland, T., Li, J., Li, J., Lewis, L. M., Dirmeier, R., Frey, G., Tan, X., Wong, K., Woodnutt, G., Keller, M., **Reed, D.**, Kimmel, B., Tozer, E. 2008. Rapid discovery and optimization of therapeutic antibodies against emerging infectious diseases. *Protein Eng Des Sel*. 21(8):495-505. PMID: 18480090
18. Fritz, E.A., Geisbert, J.B., Geisbert, T.W., Hensley, L.E., **Reed, D.S.** 2008. Cellular immune response to Marburg virus infection in cynomolgus macaques. *Viral Immunol*. 21(3):355-64. PMID: 18788943
19. Geisbert, T.W., Daddario-Dicaprio, K.M., Geisbert, J.B., **Reed, D.S.**, Feldmann, F., Grolla, A., Stroher, U., Fritz, E.A., Hensley, L.E., Jones, S.M., Feldmann, H. 2008. Vesicular stomatitis virus-based vaccines protect nonhuman primates against aerosol challenge with Ebola and Marburg viruses. *Vaccine*. 26(52):6894-6900. PMID: 18930776
20. Rossi, C.A., Ulrich, M., Norris, S., **Reed, D.S.**, Pitt, M.L.M., Leffel, E.K. 2008. Identification of a surrogate marker for infection in the African green monkey model of inhalational anthrax. *Infect Immun*. 76:5790-5801. PMID: 18852240
21. Martin, S.S., Bakken, R.R., Lind, C., **Reed, D.S.**, Price, J.L., Koehler, C., Parker, M.D., Hart, M.K., Fine, D.L. 2009. Telemetric analysis to detect febrile responses in mice following vaccination and challenge with Venezuelan equine encephalitis virus. *Vaccine* 27(49):6814-23. PMID: 19761841
22. Roy, C.J., **Reed, D.S.**, Wilhelmsen, C., Hartings, J., Norris, S., Geisbert, J., Jahrling, P., Steele, K.E. 2009. Pathogenesis of aerosolized Eastern Equine Encephalitis virus in guinea pigs. *Virology J*. 6:170. PMID: 19852817
23. Alves, D.A., Glynn, A.R., Lackemeyer, M.G., Garza, N.L., Buck, J.G., **Reed, D.S.** 2010. Aerosol exposure to the Angola strain of Marburg virus causes lethal viral hemorrhagic fever in cynomolgus macaques. *Vet Pathol*. 47(5):831-51. PMID: 20807825
24. Dupuy, L.C., Richards, M.J., **Reed, D.S.**, Schmaljohn, C.S. 2010. Immunogenicity and protective efficacy of a DNA vaccine against Venezuelan equine encephalitis virus aerosol challenge in nonhuman primates. *Vaccine* 28(46):7345-50. PMID: 20851089
25. **Reed, D.S.**, Lackemeyer, M.G., Garza, N.L., Sullivan, L.J., Nichols, D. K. 2011. Aerosol exposure to Zaire ebolavirus in three nonhuman primate species: differences in disease course and clinical pathology. *Micro Infect*. 13(11):930-6. PMID: 21651988

26. **Reed, D.S.**, Smith, L., Dunsmore, T., Trichel, A., Ortiz, L.A., Cole, K.S., Barry, E. 2011. Pneumonic tularemia in rabbits resembles the human disease as illustrated by radiographic and hematological changes after infection. *PLoS One*. 6(9):1-9. PMID: 21931798
27. Homer, L.C., Hartman, A.L., Heflin, D.T., Trichel, A.M., **Reed, D.S.**, Cole, K.S. 2011. Enhancement of the mentored training program for investigative staff at the University of Pittsburgh Regional Biocontainment Laboratory. *Applied Biosafety* 16(4): 231-9.
28. Bales, J.M., Powell, D.S., Bethel, L.M., **Reed, D.S.**, Hartman, A.L. 2012. Choice of inbred rat strain impacts lethality and disease course after respiratory infection with Rift Valley Fever virus. *Front Cell Inf Microbio* 2(105):1-14. PMID: 22919694
29. Faith, S.A., Smith, L.P., Swatland, A.S., **Reed, D.S.** 2012. Growth conditions and environmental factors impact aerosolization but not virulence of *Francisella tularensis* infection in mice. *Front Cell Inf Microbio*. 2(126):1-10. PMID: 23087911
30. Hartman, A.L., Powell, D.S., Bethel, L.M., Caroline, A.L., Schmid, R.J., Oury, T., **Reed, D.S.** 2014. Aerosolized Rift Valley Fever virus causes fatal encephalitis in African green monkeys and common marmosets. *J. Virol*. 88(4):2235-2245. PMID: 24335307
31. Powell, D.S., Walker, R.C., Heflin, D.T., Fisher, D., Kosky, J.B., Homer, L.C., **Reed, D.S.**, Cole, K.S., Trichel, A.M., Hartman, A.L. 2014. Development of novel mechanisms for housing, handling, and remote monitoring of common marmosets at animal biosafety level 3 (ABSL-3). *Pathog Dis* 71(2):219-226 PMID: 24453160
32. **Reed, D.S.**, Bethel, L.M., Powell, D.S., Hartman, A.L. 2014. Differences in aerosolization of Rift Valley Fever virus resulting from choice of inhalation exposure chamber: implications for animal challenge studies. *Pathog Dis* 71(2):227-233 PMID: 24532259
33. Caroline, A.L., Powell, D.S., Bethel, L.M., Oury, T.D., **Reed, D.S.**, Hartman, A.L. 2014. Broad spectrum antiviral activity of Favipiravir (T-705): Protection from highly lethal inhalational Rift Valley Fever in Wistar-Furth rats. *PLoS Negl Trop Dis* 8(4):e2790 PMID: 24722586
34. **Reed, D.S.**, Smith, L., Cole, K.S., Santiago, A.E., Mann, B.J., Barry, E.M. 2014. Live attenuated mutants of *Francisella tularensis* protect rabbits against aerosol challenge with a virulent type A strain. *Infect Immun* 82(5):2098-2105 PMID: 24614653
35. **Reed, D.S.***, Glass, P.J.*, Bakken, R.R., Barth, J.F., Lind, C.M., Hart, M.K., Rayner, J., Alterson, K., Custer, M., Dudek, J., Owens, G., Kamrud, K.I., Parker, M.D., Smith, J. 2014. Combined alphavirus replicon particle vaccine induces durable and cross-protective immune responses against equine encephalitic viruses. *J. Virol*. 88(20):12077-86 PMID: 25122801 *- equal contribution
36. Scanga, C.A., Lopresti, B.J., Tomko, J., Frye, L.J., Coleman, T.M., Fillmore, D., Carney, J.P., Lin, P.L., Flynn, J.L., Gardner, C.L., Sun, C., Klimstra, W.B., Ryman, K.D., **Reed, D.S.**, Fisher, D.J., Cole, K.S. 2014. In vivo imaging in an ABSL-3 regional biocontainment laboratory. *Pathog Dis*. 71(2):207-212 PMID: 24838691

Reviews, invited published papers, proceedings of conference and symposia, monographs, books and book chapters

1. Leffel, E.B., **Reed, D.S.** 2004. Marburg and Ebola viruses as aerosol threats. *Biosecurity & Bioterrorism* 2(3): 186-191. PMID: 15588056
2. Pratt, W.D., Hart M.K., **Reed, D.S.** and Steele, K.E. 2005. Alphaviruses. In: *Biodefense: Research Methodology and Animal Models*. CRC Press LLC. Boca Raton, FL.
3. Roy, C.J., Leffel, E., **Reed, D.** 2006. Respiratory pathogens: Preclinical models of infection. *Respiratory Drug Delivery* 1:49-56
4. **Reed, D.S.** and Mohamadzadeh, M. 2007. Status and challenges of filovirus vaccines. *Vaccine* 25(11):1923-34. PMID: 17241710

5. Steele, K., **Reed, D.S.**, Hart, M.K., Ludwig, G.V., Glass, P., Pratt, W.D., Parker, M.D., and Smith, J.F. 2007. Viral Encephalitides. In *Medical Aspects of Biological Warfare, Textbook of Military Medicine*. Office of the Surgeon General, Department of the Army, United States of America.
6. Roy, C.J., **Reed, D.S.**, and Hutt, J.A. 2010. Pathological Considerations in the Inhalation Exposure to Biological Select Agents and Toxins. *Vet Pathol.* 47(5):779-89. PMID: 20682804
7. Pratt, W.D., Fine, D.L., Hart, M.K., Martin, S.S., and **Reed, D.S.** 2012. Alphaviruses. In: *Biodefense: Research Methodology and Animal Models, 2nd ed.* CRC Press LLC. Boca Raton, FL.
8. Dupuy, L.C., **Reed, D.S.** 2012. Nonhuman Primate Models of Encephalitic Alphavirus Infection: Historical Review and Future Perspectives. *Curr Opin Virol.* 2(3):363-7 PMID: 22709522
9. Roy, C.J., **Reed, D.S.** 2012. Infectious disease aerobiology: miasma incarnate. *Front Cell Inf Microbio.* 2(163):1-2. PMID: 23267441
10. **Reed, D.S.**, Nalca, A., Roy, C.J. In Press. Aerobiology: History, Development & Programs. In *Medical Aspects of Biological Warfare, Textbook of Military Medicine*. Office of the Surgeon General, Department of the Army, United States of America.
11. Honnold, S.P., Mossel, E.C., Dupuy, L.C., Morazzani, E.M., Martin, S.S., Hart, M.K., Ludwig, G.V., Parker, M.D., Smith, J.F., **Reed, D.S.**, and Glass, P.J. In Press. Alphavirus Encephalitides. In *Medical Aspects of Biological Warfare, Textbook of Military Medicine*. Office of the Surgeon General, Department of the Army, United States of America.

Published abstracts

Other publications

Abstracts submitted to meetings

1. **Reed, D.** and Kettman, J.R. 1992. T cell maturation during *in vitro* culture with polyomavirus transformed salivary epitheliomas. *Texas Immunology Conference*.
2. **Reed, D.** and Kettman, J.R. 1993. T cell maturation during *in vitro* culture with polyomavirus transformed salivary epitheliomas. *Annual Meeting of the American Association of Immunologists*.
3. **Reed, D.S.**, Kim, S.-K., and Lefrancois, L. 1998. Oral tolerance of antigen-specific CD8 T cells is regulated by $\gamma\delta$ T cells. *Experimental Biology 98*.
4. Kim, S.-K., **Reed, D.S.**, Olson, S., Mathias, J., Schnell, M.J., Rose, J.K., and Lefrancois, L. 1998. Split tolerance *in vivo*: potent mucosal cytotoxic T cells are induced with tolerizing antigen. *Experimental Biology 98*.
5. **Reed, D.S.**, Smoll, J. 2000. The subtype of the antibody response elicited by a candidate plague vaccine is dependent upon both the antigen and the adjuvant given during the first vaccination. *Experimental Biology 2001*.
6. **Reed, D.S.**, Little, S., Smoll, J. 2001. Multi-color flow cytometric analysis for simultaneous mapping of the antibody response to multiple epitopes of the protective antigen of *Bacillus anthracis*. 4th *International Conference on Anthrax*.
7. **Reed, D.S.**, Smoll, J. 2001. Utility of respiratory vaccination with recombinant subunit vaccines for protection against pneumonic plague. *2001 Scientific Conference on Chemical & Biological Defense Research*.
8. Roy, C.J., **Reed, D.S.**, Duniho, S., Krieg, A.M., and DaSilva, L. 2001. Safety and immunogenicity of inhaled murine CpG oligonucleotides as a mucosal adjuvant in combination with a recombinant superantigen vaccine. *2002 annual meeting of the Society of Toxicology*.
9. **Reed, D.S.**, Crise, B., Pratt, W., Smoll, J., Lind, C., Sullivan, L., Gibbs, P., and Parker, M. 2001. Recombinant live attenuated vaccines protect cynomolgus macaques against aerosol challenge with a virulent Venezuelan Equine Encephalomyelitis virus of the IE subtype. *Experimental Biology 2002*.

10. Gallagher, P., Sullivan, L., Esham, K., Lind, C., Pratt, W., Parker, M., and **Reed, D.** 2002. Changes in lymphocyte subsets following aerosol exposure of cynomolgus macaques to a virulent Venezuelan Equine Encephalomyelitis virus of the IIIA subtype. *Fort Detrick Spring Research Festival*.
11. **Reed, D.S.**, Hensley, L.E., Jahrling, P.B., Geisbert, T.W. 2002. Depletion of peripheral blood T lymphocytes and NK cells during the course of Ebola virus infection in cynomolgus macaques. *12th International Congress of Virology*.
12. McElroy, A.K., Bray, M., **Reed, D.**, Schmaljohn, C.S. 2002. Infection of cynomolgus macaques with Andes virus. *12th International Congress of Virology*.
13. **Reed, D.S.**, Pratt, W., Gallagher, P., Lackemeyer, M., Lind, C., Sullivan, L., and Parker, M. 2002. Live attenuated recombinant vaccines protect nonhuman primates against aerosol challenge with Venezuelan equine encephalitis viruses. *2002 Joint Service Scientific Conference on Chemical & Biological Defense Research*.
14. **Reed, D.S.**, Hart, M.K., Pratt, W., Gallagher, P., Lind, C., Sullivan, L., and Parker, M. 2002. Live attenuated recombinant vaccines protect nonhuman primates against aerosol exposure with Venezuelan Equine Encephalitis viruses of two distinct subtypes. *23rd Army Science Conference*.
15. Parker M.D., Hart M.K., Pratt W., Smoll J., Lind C., Sullivan L., Gibbs P., and **Reed D.S.** 2002. Recombinant, live attenuated vaccines protect mice and nonhuman primates against aerosol challenge with epizootic and enzootic strains of VEE. *51st annual meeting of the American Society of Tropical Medicine and Hygiene*.
16. Hart, M.K., Raymond, J., Steele, K., **Reed, D.**, Pratt, W., Bakken, R., Barth, J., Muhammad, M., Pennock, D., Robertson, M., Whelan, N., Lind, C., and Parker, M. 2003. Development of an improved vaccine for Venezuelan Equine Encephalitis virus. *Annual Meeting of the American Association of Immunologists*.
17. **Reed, D.S.**, Hart, M.K., Pratt, W., Lind, C., Gallagher, P., Lackemeyer, M., and Parker, M. 2003. Evaluation of a genetically modified live attenuated vaccine for Venezuelan equine encephalitis virus. *6th Annual Conference on Vaccine Research*.
18. Pratt, W., **Reed, D.S.**, Hart, M.K., and Parker, M. 2003. Development of a multivalent genetically engineered, live attenuated vaccine for Venezuelan equine encephalitis virus. *American Society of Microbiology Future Directions in Biodefense Research Conference 2003*.
19. **Reed, D.S.**, Lind, C., Gallagher, P., Pratt, W., and Parker, M. 2003. Delayed onset of fever in macaques after aerosol exposure to a Venezuelan equine encephalitis subtype IIIA virus. *American Society of Microbiology Future Directions in Biodefense Research Conference 2003*.
20. Hensley, L.E., Young, H.A., **Reed, D.S.**, Jahrling, P.B., and Geisbert, T.W. 2003. Pathogenesis of Ebola hemorrhagic fever: the impact of viral infection of dendritic cells and other antigen presenting cells. *12th International Conference on Negative Strand Viruses*.
21. Hart, M.K., **Reed, D.**, Pratt, W., Ludwig, G., Bakken, R., Barth, J., Muhammad, M., Robertson, M., and Parker, M. 2003. Development of alphavirus vaccines containing a deletion of the PE2 cleavage site. *Viral Vaccines*.
22. **Reed, D.S.**, Wilhelmsen, C., Larsen, T., Pratt, W., Lind, C., and Parker, M. 2003. A nonhuman primate model for aerosol infection with alphaviruses. *52nd Annual Meeting of the American Society of Tropical Medicine and Hygiene*.
23. **Reed, D.S.** 2003. Telemetry in nonhuman primates after aerosol exposure to alphaviruses. *Data Sciences NIH/Government Telemetry Users Group Meeting*.
24. **Reed, D.S.**, Wilhelmsen, C., Larsen, T., Pratt, W., Lind, C., and Parker, M. 2003. A nonhuman primate model for aerosol infection with western equine encephalitis viruses. *2003 Joint Scientific Conference on Chemical and Biological Defense Research*.

25. **Reed, D.S.**, Hart, M.K., Pratt, W., Lind, C., Gallagher, P., Lackemeyer, M., and Parker, M. 2003. Evaluation of a genetically modified live attenuated vaccine for Venezuelan equine encephalitis virus. *1st International Conference Crossing Boundaries – Medical Biodefense and Civilian Medicine*.
26. **Reed, D.S.**, Lackemeyer, M. 2004. Comparison of peripheral blood lymphocyte responses from three species of Old -World monkeys after in vitro stimulation with staphylococcal enterotoxins. *Experimental Biology 2004*.
27. **Reed, D.S.** 2004. Nonhuman primate models of aerosol exposure to alphaviruses. *2nd International Conference Crossing Boundaries – Medical Biodefense and Civilian Medicine*.
28. **Reed, D. S.** 2005. Aerosol exposure of macaques to encephalitic alphaviruses. *American Society for Microiology Biodefense 2005*.
29. **Reed, D.S.** 2005. Aerosol virulence of two strains of Marburg in guinea pigs. *13th International Congress of Virology*.
30. **Reed, D.S.**, Lackemeyer, M.G., Lind, C.M., Raymond, J.L., daSilva, L.M., Stahl, N.L., Sullivan, L.J., and Parker, M.D. 2005. Aerosol exposure of cynomolgus macaques to eastern equine encephalitis virus causes fever and severe encephalitis. *American Society of Tropical Medicine & Hygiene*.
31. Lackemeyer, M.G., Nalca, A., Garza, N.L., Nichols, D.K., and **Reed, D.S.** 2006. Disease course and pathogenesis of aerosolized Marburg virus in guinea pigs. *American Society for Microiology Biodefense 2006*.
32. **Reed, D.S.**, Lackemeyer, M.G., Garza, N.L., and Nichols, D.K. 2006. Aerosolized Ebola Zaire (EBOV-Z) in three species of nonhuman primates: differences in disease course and pathology among species have implications for vaccine efficacy studies. *American Society for Microiology Biodefense 2006*.
33. **Reed, D.S.**, Fritz, E., Hensley, L., and Geisbert, T. 2006. Cellular immune response to Marburg virus infection in cynomolgus macaques. *Third International Filovirus Symposium*.
34. Dupuy, L., Richards, M., Paidhungat, M., Whalen, R.G., Locher, C.P., **Reed, D.S.**, and Schmaljohn, C. 2007. Directed Molecular Evolution Improves the Immunogenicity and Protective Efficacy of a Venezuelan Equine Encephalitis Virus DNA Vaccine. *DNA Vaccines 2007*
35. **Reed, D.S.**, Rubins, K., Goff, J., Huggins, J., Hensley, L. 2007. Delayed immune response to monkeypox infection in cynomolgus macaques. *13th International Congress of Immunology*.
36. Lackemeyer, M.G., Lind, C.M., Parker, M.D., and **Reed, D.S.** 2007. PE2 cleavage site deletion mutant Venezuelan equine encephalitis virus (VEEV) produces broad cross-reactive antibody to multiple subtypes of VEEV in nonhuman primates. *13th International Congress of Immunology*.
37. **Reed, D.**, Faith, S.A., Hartman, A., and Cole, K.S. 2009. Aerosol exposure results in increased deposition and retention of fluorescent microspheres in the lungs of Balb/c mice compared to intranasal inoculation. *American Society for Microiology Biodefense*.
38. Faith, S.A., **Reed, D.S.**, and Nau, G.J. 2009. Impact of environmental factors on virulence of aerosolized *Francisella tularensis*. *American Society for Microiology Biodefense*.
39. Hartman, A.L., Homer, L.C., Trichel, A.M., Fisher, D., **Reed, D.S.**, Frerotte, J., Cole, K.S. 2009. Development of a facility-specific BSL-3 training program for the University of Pittsburgh Regional Biocontainment Laboratory. *American Society for Microiology Biodefense*.
40. Homer, L.C., Fisher, D., **Reed, D.**, Hartman, A., Trichel, A., Frerotte, J.M., and Cole, K.S. 2009. Development and validation of vaporized hydrogen peroxide decontamination of a class III biological safety cabinet. *American Society for Microiology Biodefense*.
41. **Reed, D.S.**, and Faith, S.A. 2009. Standardization and characterization of *Francisella tularensis* aerosols for experimental infection of animals. *Aerobiology in Biodefense III*.
42. Faith, S.A., Nau, G.J., and **Reed, D.S.** 2009. The effects of growth media on the virulence of aerosolized *Francisella tularensis* in Balb/c mice. *Aerobiology in Biodefense III*.

43. Beigi, R., Faith, S., Hattemer, A., Hartman, A., **Reed, D.S.**, Cole, K.S. 2009. Development of a non-traditional pregnant animal model for aerosol infection of influenza. *Aerobiology in Biodefense III*.
44. Homer, L.C., Fisher, D.A., **Reed, D.S.**, Cole, K.S. 2009. Vaporized Hydrogen Peroxide Decontamination of a Class III Biosafety Cabinet and Mobile Transfer Cart. *Aerobiology in Biodefense III*.
45. Jaeger, R. **Reed, D.S.**, Faith, S.A., Hartings, J. 2010. Evaluation of the Stainless Steel Impinger (SSTI) for aerosol sampling using *Francisella tularensis*. *American Society for Microbiology Biodefense 2010*.
46. **Reed, D.S.**, Faith, S.A., Cole, K.S., Beigi, R.H. 2010. Small-particle aerosolization enhances the virulence and time to death of mouse-adapted influenza viruses in Balb/c mice. *American Society for Microbiology Biodefense 2010*.
47. Faith, S.A., Hattemer, A.S., Nau, G.J., **Reed, D.S.** 2010. Growth media affects physical characteristics of aerosolized *F. tularensis* (LVS) but not lethality. *American Society for Microbiology Biodefense 2010*.
48. Beigi, R., Faith, S. Hattemer, A., Hartman, A., **Reed, D.**, Cole, K.S. 2010. Aerosolized influenza infection during murine pregnancy and the effects on the offspring. *Society for Gynecologic Investigation 57th Annual Scientific Meeting*.
49. Santiago, A.E., **Reed, D.S.**, Mann, B.J., Cole, K., Barry, E.M. 2011. Evaluation of *F. tularensis* Type A Derived Live Attenuated Vaccines in the Rabbit Model. *American Society for Microbiology Biodefense 2011*
50. **Reed, D.S.**, Dunsmore, T., Smith, L., Trichel, A., Cole, K.S., Barry, E. 2011. Pneumonic tularemia in rabbits: utility of X-rays and laboratory diagnostics in predicting outcome. *American Society for Microbiology Biodefense 2011*.
51. **Reed, D.S.**, Hartman, A., Cole, K.S. 2011. Aerobiology in the Pittsburgh RBL. *Seventh National Regional Centers of Excellence Meeting 2011*.
52. Hartman, A.L., Powell, D., Bales, J., Bethel, L., **Reed, D.S.** 2011. Respiratory infectivity of Rift Valley Fever virus for inbred rats. *Aerobiology in Biodefense IV*.
53. **Reed, D.S.**, Smith, L.P. 2011. Approaching Nirvana: improving precision and accuracy in achieving target presented doses with *F. tularensis*. *Aerobiology in Biodefense IV*.
54. **Reed, D.S.**, Santiago, A.E., Smith, L.P., Dunsmore, T., Trichel, A., Mann, B.J., Cole, K.S., Barry, E.M. 2011. Type A-derived live attenuated *Francisella tularensis* vaccines protect rabbits against a lethal aerosol challenge with a type A strain. *Aerobiology in Biodefense IV*.
55. **Reed, D.S.**, Santiago, A.E., Smith, L.P., Dunsmore, T., Trichel, A., Mann, B.J., Cole, K.S., Barry, E.M. 2011. Type A-Derived Genetically Modified Live Attenuated *Francisella tularensis* Vaccines Protect Rabbits Against a Lethal Aerosol Challenge with a Type A Strain. *2011 Chemical & Biological Defense Science & Technology Conference*.
56. Hartman, A.L., Bales, J.M., Powell, D.S., Bethel, L.M., Pandrea, I., **Reed, D.S.** 2011. Respiratory infectivity of Rift Valley Fever virus for several inbred rat strains. *2011 Chemical & Biological Defense Science & Technology Conference*.
57. Bales, J.M., Powell, D.S., Bethel, L.M., Pandrea, I., **Reed, D.S.**, Hartman, A.L. 2012 Distinct differences in disease presentation after aerosol exposure to Rift Valley Fever virus dependent upon inbred rat strain exposed. *American Society for Microbiology Biodefense 2012*.
58. **Reed, D.S.**, Powell, D.S., Bethel, L.M., Caroline, A., Bales, J.M., Trichel, A.M., Oury, T.D., Hartman, A.L. 2012. Development of a nonhuman primate model for aerosol exposure to Rift Valley Fever virus. *FDA Animal Model Development Workshop*.
59. **Reed, D.S.**, Santiago, A.E., Smith, L.P., Dunsmore, T., Trichel, A., Mann, B.J., Cole, K.S., Barry, E.M. 2012. Type A-Derived Genetically Modified Live Attenuated *Francisella tularensis* Vaccines Protect

Rabbits Against a Lethal Aerosol Challenge with a Type A Strain. *FDA Animal Model Development Workshop*.

60. Hartman, A.L., Powell, D.S., Bethel, L.M., Bales, J.M., Caroline, A.L., Oury, T.D., **Reed, D.S.** 2012. Rats as tools for modeling human inhalational Rift Valley Fever. *FDA Animal Model Development Workshop*.
61. **Reed, D.S.**, Powell, D.S., Bethel, L.M., Caroline, A., Bales, J.M., Trichel, A.M., Oury, T.D., Hartman, A.L. 2012. Aerosol infection of nonhuman primates with Rift Valley Fever virus. *Emerging Viruses: Disease Models and Strategies for Vaccine Development*.
62. **Reed, D.S.**, Powell, D.S., Bethel, L.M., Caroline, A., Bales, J.M., Trichel, A.M., Oury, T.D., Hartman, A.L. 2013. Fatal encephalitis in African green monkeys and common marmosets after aerosol infection with Rift Valley Fever virus. *American Society for Microbiology Biodefense 2013*.
63. Cole, K., Gage, E., **Reed, D.**, Trichel, A., Oury, T., Beigi, R. 2013. Aerosolized Influenza infection during late gestation pregnancy results in severe clinical outcomes in the ferret model. *Annual Meeting of the American Association of Immunologists*.
64. Hartman, A.L., Powell, D.S., Bethel, L.M., Caroline, A.L., Bales, J.M., Schmid, R.J., Oury, T. D., **Reed, D.S.** 2013. Efficient induction of viral encephalitis after aerosol exposure to Rift Valley Fever virus. *XV International Conference on Negative Strand Viruses*.
65. **Reed, D.S.**, Powell, D.S., Bethel, L.M., Caroline, A., Bales, J.M., Trichel, A.M., Oury, T.D., Hartman, A.L. 2013. Fatal encephalitis in African green monkeys and common marmosets after aerosol infection with Rift Valley Fever virus. *XV International Conference on Negative Strand Viruses*.
66. Kaynar, A.M., Tutuncuoglu, E., Lemley, D., Burton, C., Wasserloos, K., Bain, D., **Reed, D.**, Gregory, A., Alcorn, J.F., Shapiro, S.D., Pitt, B.R. 2013. Role of zinc in age-related immune dysfunction during H1N1 infections. *2013 Pittsburgh International Lung Conference*.
67. **Reed, D.S.**, Powell, D.S., Bethel, L.M., Caroline, A., Bales, J.M., Trichel, A.M., Oury, T.D., Hartman, A.L. 2013. Fatal encephalitis in African green monkeys and common marmosets after aerosol infection with Rift Valley Fever virus. *2013 Pittsburgh International Lung Conference*.
68. Hartman, A.L., Powell, D.S., Bethel, L.M., Caroline, A.L., Bales, J.M., Oury, T.D., **Reed, D.S.** 2013. Fatal neurological disease in rats and non-human primates after inhalational exposure to Rift Valley Fever virus. *2013 Annual Meeting of the American Society of Tropical Medicine & Hygiene*.
69. Hartman, A.L., Powell, D.S., Bethel, L.M., Caroline, A.L., Oury, T., Lenk, R., Reed, D.S. 2014. Broad spectrum antiviral activity of Favipiravir (T-705): protection from highly lethal inhalational Rift Valley Fever. *American Society for Microbiology Biodefense 2014*.
70. **Reed, D.S.**, Caroline, A.L., Stinson, E.M., Cole, K.S., Santiago, A.E., Mann, B.J., Barry, E.M. 2014. Type A-Derived Genetically Modified Live Attenuated Francisella tularensis is Immunogenic and Efficacious in Rabbits. *2014 Annual Meeting of the American Association of Immunologists*.
71. Hartman, A.L., Caroline, A.L., Bethel, L.M., Powell, D.S., Oury, T., **Reed, D.S.** 2014. Dysregulated host inflammatory response in rats with fatal encephalitic Rift Valley Fever. *2014 Annual Meeting of the American Association of Immunologists*.
72. **Reed, D.S.**, Caroline, A.L., Stinson, E.M., Cole, K.S., Santiago, A.E., Mann, B.J., Barry, E.M. 2015. Type A-Derived Genetically Modified Live Attenuated Francisella tularensis is Immunogenic and Efficacious in Rabbits. *2015 ASM Biodefense & Emerging Infectious Diseases Conference*.
73. Stinson, E.M., Hazlett, K., Caroline, A.L., Cole, K.S., Santiago, A.E., Mann, B.J., Barry, E.M., Reed, D.S. 2015. Sterilizing immunity against pneumonic tularemia achieved by prime-boost aerosol vaccination in the rabbit model. *2015 Chemical & Biological Defense Science & Technology Conference*

74. Bowling, J., Reed, D.S. 2015. Comparison of jet and vibrating-mesh nebulizers for generation of aerosols containing infectious agents. *2015 Chemical & Biological Defense Science & Technology Conference*
75. Caroline, A.L., Reed, D.S., Hartman, A.L. 2015. Broad spectrum antiviral activity of Favipiravir (T-705): protection from highly lethal inhalational Rift Valley Fever. *2015 Chemical & Biological Defense Science & Technology Conference*
76. Hartman, A.L., Reed, D.S., Wonderlich, E.R., Oury, T.D., and Barratt-Boyes, S. 2015. Biomarkers of lethal neurotropic disease in nonhuman primate models of inhalational Rift Valley Fever. *2015 Chemical & Biological Defense Science & Technology Conference*
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PROFESSIONAL ACTIVITIES

TEACHING:

- Fall 2009-2013: two lectures each fall for the graduate level Viral Pathogenesis class (Viral Immunology & Respiratory Viruses). Duties include providing questions for mid-term and final exams as well as grading answers to exams and assigned writing projects.
- Fall 2014-present: one lecture for Viral Pathogenesis class, Respiratory Viruses.
- Spring 2013-present: 1 lecture each spring for graduate level Comprehensive Immunology class (Immune Response to Infection).
- Spring 2015: 1 lecture for graduate level Innate Immunity class (Innate Immunity & Diseases II)
- Spring 2014-present: Problem-Based Learning classes with Medical Students, Immunology & Human Disease, Introduction and Resolution to 2 PBL cases
- Summer 2014: 1 lecture for INTBP 3240 Scientific Writing for Graduate Students, "How to Write Results & Discussion Sections"

2010-2013: dissertation committee for Samantha Slight, Immunology Ph.D. student (PI: Khader)

2013-present: dissertation committee for Nishank Bhalla, MMG Ph.D. student (PI: Klimstra)

2014-present: dissertation committee for Taylor Eddens, IMM Ph.D. student (PI: Kolls)

2015-present: dissertation committee for Whitney Lane, MMG Ph.D. student (PI: Klimstra)

May 2012: GSPH M.S. Comprehensive Exams committee

June 2013: Immunology Comprehensive Exam committee for Anthony Cadena

June 2014: Chair, Immunology Comprehensive Exam committee for Taylor Evans

With Dr. Amy Hartman, conduct weekly joint lab meetings/journal clubs 2008-present

Former Trainees

1. Audrey Glynn, Ph.D. National Research Council Postdoctoral Fellow (2006-08)
Current position: Research Analyst, Strategic Analysis Incorporated
2. Seth Faith, Ph.D. Postdoctoral Fellow (2009-10)
Current position: Assistant Professor, North Carolina State University
3. Suha Abdelbaqi, M.S. Graduate Student, Graduate School of Public Health (2012-2014)

Current Trainees

1. Elizabeth Stinson, M.S. Graduate Student, Graduate School of Public Health (2013-present)

- Jennifer Bowling, M.P.H. Graduate Student, Graduate School of Public Health (2014-present)

RESEARCH:

Current Grant Support:

- 1R01A|102966-01A1. Advancement of a defined, protective, live attenuated tularemia vaccine. 2013-6. Role: Co-Principal Investigator for University of Pittsburgh sub-award from University of Maryland. 10% effort. National Institutes of Health. \$482,157.
- N62645-14-C-4013. Therapeutic and Prophylactic Anti-Alphavirus Antibodies. 2014-7. Role: Co-Investigator on University of Pittsburgh sub-award from the Navy Medical Research Center. 15% effort. Defense Threat Reduction Agency. \$1,392,474.
- R21 NS088326-01. Immune mechanisms of neuropathogenic Rift Valley Fever. Role: Co-investigator providing support for aerosol exposures. 5% effort. National Institutes of Health. \$275,000
11564354. A novel inactivated trivalent vaccine to prevent infection by VEEV, EEEV, and WEEV. Role: Co-investigator on Pitt subaward providing support for aerosol exposures and nonhuman primate studies including radiotelemetry. 15% effort. Defense Threat Reduction Agency. \$5,900,000
- HHSN27200001/Task A31. Small Animal Models for Proof-of-Concept Testing of Vaccines & Therapeutics. Role: Co-investigator provided support for aerosol exposures. 15% effort. National Institutes of Health. \$45,907
- 1R01HL|105470-01. Improving Inhaled Drug Delivery with Self-dispersing Liquids. Role: Co-investigator conducting animal studies. 15% effort. National Institutes of Health. \$348,561

Prior Grant Support:

- HDTRA1-10-C-0066. Development of animal models for aerosol exposure to Rift Valley Fever Virus. 2010-14. Role: Co-Principal Investigator. 25% effort. Defense Threat Reduction Agency, Department of Defense. \$2.5 million
- U01 AI077909-01. Advancement of New Live Attenuated F. tularensis Type A Vaccine Strains. 2010-11. Co-Principal Investigator for University of Pittsburgh sub-award from University of Maryland. \$250,000
9598385. Evaluation of Novel Therapeutics for Influenza in the Ferret Model. Role: Co-Investigator providing support for aerosol exposures. 5% effort. Life Sciences Discovery Fund. \$27,821
- R01 A|100138. Criteria-Directed Vaccine Generation via Ag-Mimicry, Adjuvanticity, and APC-targeting. 2014 Role: Principal Investigator on University of Pittsburgh sub-award. 1% effort. National Institutes of Health. \$14,844
- Corporate Research Agreement I#0023694 with Cytosorbents. Co-Principal Investigator. \$83,185.
- U01 A1074509. DNA vaccine for seasonal and pandemic influenza. 2008-2010. Role: Co-Investigator.
- S1008576. Cell Mediated Immunity following LVS vaccination in Mice. 2009-10. Role: Study Director. 20% effort. Tularemia Vaccine Development Team, NIAID subcontract through Dynport Vaccine Company. \$620,000
- H.H.0003_07_RD_B. Development of replicon-based vaccines for alphaviruses. Co-Investigator, nonhuman primate testing of candidate vaccines. 50% effort. 2004-2008. NIH/DOD funded.
- X.X.009_06_RD_B. Animal models of aerosol infection with filoviruses. Principal Investigator. 50% effort. 2006-2008. DOD funded.
- H.H.0002_07_RD_B. Live Attenuated WEE and EEE Viruses for a Combined Equine Encephalitis Vaccine. Co-Investigator, nonhuman primate testing of candidate vaccines. 50% effort. 2001-2008. DOD funded.

11. W81XWH-06-C-0390. Novel viral biowarfare agent identification & treatment. Principal Investigator. 20% effort. 2006-2008. Congressional/DOD funded.

Seminars and invited lectureships related to your research.

1. Animal Research for Biodefense: A Principal Investigator's Viewpoint. Presented at the *Balancing Animal Welfare and Regulatory Compliance Issues in Preclinical Studies Conference 2004*.
2. Example of Animal Model Development: The Viral Encephalopathies. Presented at the *American Society for Microbiology Biodefense 2005*.
3. Development of animal models to assess efficacy of medical products against aerosolized select agents. Presented at *Aerobiology in Biodefense 2005*.
4. Disease course of aerosolized alphavirus infections in nonhuman primates. *Biodefense Clinical Research Workshop 2005*.
5. Aerobiology & Alphaviruses: Studies in nonhuman primates. University of Pittsburgh. 2006
6. Animal Models of Aerosol Exposure to Alphaviruses. Presented at *Aerobiology in Biodefense II*. 2007
7. Aerosolized filoviruses in three species of nonhuman primates. Presented at *Filoviruses: Current Status of Research into Pathophysiology and Potential Uses of Animal Models*. 2007. Published online at <http://www3.niaid.nih.gov/news/events/meetings/filo/presentations.htm>
8. Reed, D.S. Telemetry in nonhuman primates. Presented at the *Section Meeting of the American Association of Laboratory Animal Sciences*. 2007
9. Reed, D.S. Telemetry in nonhuman primates: applications for biodefense and infectious disease studies. Presented at *Respiratory Physiology in Laboratory Animal Models: An Advanced Course*. 2008
10. Reed, D.S. Development of animal models for exposure to aerosolized filoviruses. Presented at the *Gordon Research Conference on Chemical and Biological Terrorism Defense*. 2009
11. Reed, D.S. Combating Tularemia: Evaluation of live attenuated vaccine candidates for *Francisella tularensis* in a rabbit model. Presented at the *Allegheny Branch of the American Society of Microbiology Annual Fall Meeting*. 2012
12. Reed, D.S. Vaccines for pneumonic tularemia. University of Nebraska Medical Center, Omaha, Nebraska. October 9, 2013
13. Reed, D.S. Evaluation of Vaccine Candidates for Pneumonic Tularemia in the Rabbit Model. Albany Medical College, Albany, New York. October 31, 2013
14. Reed, D.S. Animal models of aerosol exposure to Rift Valley Fever virus. National Institute of Allergy & Infectious Disease Integrated Research Facility at Fort Detrick. Frederick, MD. February 26, 2014

Other research related activities.

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| 2000-2005 | Member, USAMRIID Laboratory Animal Care & Use Committee |
| 2008- | Member, RBL Management Team |
| 2009- | Member, University of Pittsburgh Institutional Animal Care & Use Committee |
| 2010 | Reviewer, Wellcome Trust |
| 2012 | Reviewer, Defense Threat Reduction Agency, Department of Defense |
| 2014- | Review Editor, <i>Frontiers in Microbiology</i> |

Ad-hoc reviewer: Antimicrobial Agents & Chemotherapy, Vaccine, Journal of Infection, Biosecurity & Bioterrorism, Aerosol Science & Technology, PLoS ONE, PLoS Neglected Tropical Diseases, Journal of General Virology, Journal of Biological Chemistry, Viruses, Journal of Neurovirology, Journal of Aerosol Science

LIST of CURRENT RESEARCH INTERESTS:

aerobiology, infectious diseases, inhalation, pneumonia, animal models, telemetry, host-pathogen interactions, innate immunity

SERVICE:

1. University and Medical School.
 - Regional Biocontainment Laboratory Utilization Committee, member 2008-2013 (Committee disbanded)
 - Institutional Animal Care and Use Committee, member, 2009-present
 - Aerobiology manager, 2008-present
 - ABSL-3 In Vivo Imaging System manager with Dr. Christina Gardner
 - CVR Retreat Committee, 2011-2013; chaired Committee in 2013 and organized 2013 CVR Faculty Retreat
 - CVR Seminar Committee Chair, 2014-
 - Immunology Website Committee, 2013-

2. Community activities.
 - Member, North Park Evangelical Presbyterian Church 2012-present
 - North Allegheny Senior High PostProm, Games Chairman 2013
 - Coach, PA West Soccer, 2009-2013
 - Referee, PA West Soccer, 2009-2011
 - National Federation of High Schools Soccer Referee, 2009-2011
 - United States Soccer Federation Referee, 2005, 2009-2011
 - Coach Instructor, American Youth Soccer Organization, 2006-2008
 - Regional Commissioner, Hagerstown Area Youth Soccer League 2006-2007
 - Referee Administrator, Hagerstown Area Youth Soccer League 2004-2005
 - Referee, American Youth Soccer Organization, 2003-2008
 - Coach, American Youth Soccer Organization, 2000-2008