BIOGRAPHICAL SKETCH

NAME	POSITION TITLE
Donna M. Paulnock	Professor of Medical Microbiology & Immunology
eRA COMMONS USER NAME Hidden	Associate Dean for Biological Sciences

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Mount Holyoke College, South Hadley, MA	A.B.	1971	Biology
Stanford University, Stanford, CA	Ph.D.	1980	Immunology
Stanford University, Stanford, CA	Postdoc	1983	Immunology

A. Personal Statement

My professional career has been focused on the cellular and molecular mechanisms of macrophage activation. Recently this focus has encompassed analyses of host-microbe interactions that modulate macrophage activation events during the innate and adaptive immune response. In particular our work has revealed how regulation of macrophage functional activity, by host factors and by parasite molecules released in trypanosome infection, have the capacity to shape the nature and outcome of the host immune response to this parasite. Several key contributions to the field include the recent documentation that GPI residues associated with released soluble surface coat VSG molecules (GIP-sVSG) as well as CpG DNA molecules released from dead and damaged trypanosomes activate and regulate innate immunity and downstream elements of host resistance; the demonstration that GIP-sVSG molecules bind to type A scavenger receptors on the macrophage membrane and initiate internalization and subcellular signaling events; evidence that these internal signaling events are negatively regulated by a TLR- and Traf-6-dependent signaling pathway that can be enhanced by therapeutic activation with TLR9 agonists; and evidence that the type I IFN pathway is unexpectedly activated in response to GIP-sVSG during infection. The studies proposed here are based on these observations and are a natural extension of a long-term and highly productive collaboration with the Mansfield lab.

B. Positions and Honors

Professional Experience

1972-1976	Research Assistant, Stanford University Medical School, Dept. of Radiology (Division of Radiobiology), Stanford, CA
1976-1980	Graduate Student, Stanford University Medical School, Department of Medical Microbiology, Stanford, CA with Drs. Henry S. Kaplan and Samuel Strober
1981-1983	Postdoctoral Fellow, Stanford University, Dept. of Biological Sciences, Stanford, CA with Dr. Patricia P. Jones
1983-1989	Assistant Professor, University of Wisconsin Medical School, Department of Medical Microbiology and Immunology
1989-1994	Associate Professor, University of Wisconsin Medical School, Department of Medical Microbiology and Immunology
1994-present	Professor, University of Wisconsin Medical School, Department of Medical Microbiology and Immunology,
2005-present	Associate Dean for the Biological Sciences, University of Wisconsin Graduate School

Honors and Awards

Postdoctoral Fellowship awarded from the Arthritis Foundation, 1981-1983
Associate Member of the Wisconsin Clinical Cancer Center, 1984-present
Shaw Scholar of the Milwaukee Foundation, 1985-1990
NIH Study Section Member: NIAID, 1988-1991; NCI, 1994-1998
Section Editor, Journal of Immunology, 1995-2001; Associate Editor, 1990-1994
Section Editor, J. Leukocyte Biology, 1996-present
Society for Leukocyte Biology: elected Councilor, 1994-1998; Treasurer, 1998-99; President, 2000-2001

C. Selected Peer Reviewed Publications

Most Relevant

Wynn, T.A., C.M. Nicolet, and D.M. Paulnock. 1991. Identification and characterization of a new gene family induced during macrophage activation. J. Immunol. 147:4384-4393.

Nicolet, C.M. and D.M. Paulnock. 1994. Promoter region analysis of an interferon-inducible gene associated with macrophage activation. J. Immunol. 152:153-162.

McDowell, M.A., D. M. Lucas, C. M. Nicolet, and D.M. Paulnock. 1995. Differential utilization of interferon-γ response elements in two maturationally distinct macrophage cell lines. J. Immunol. 155:4933-4938.

Paulnock, D.M. and S.P. Coller. 2001. Analysis of macrophage activation in African trypanosomiasis. J. Leuk. Biol. 69:685-690.

Coller, S.P., J.M. Mansfield, and D.M. Paulnock. 2003. Glycosylinositolphosphate soluble variant surface glycoprotein (GIP-sVSG) inhibits IFN-γ-induced nitric oxide production via reduction in STAT1 phosphorylation in African trypanosomiasis. J. Immunol. 171:1466-1472

Harris, T.H., N.M. Cooney, J.M. Mansfield and D.M. Paulnock. 2006. Signal transduction, gene transcription and cytokine production triggered in macrophages by exposure to trypanosome DNA. Infection and Immunity, 74:4530-4537.

Leppert, B.J., J.M. Mansfield, and D. M. Paulnock. 2007. The soluble variant surface glycoprotein of African trypanosomes is recognized by a macrophage scavenger receptor and induces I-kappa-B-alpha degradation independently of TRAF6-mediated TLR signaling. Journal of Immunology, 179:548.

R. Lopez, K.P. Demick, J.M. Mansfield and D.M. Paulnock. 2008. Type I interferons play a role in early resistance but subsequent susceptibility to the African trypanosomes. Journal of Immunology, 181:4809.

Dagenais, T.R., J.D. Bangs, K.T. Forest, D.M. Paulnock, and J.M. Mansfield. 2009. T cell Responses to the trypanosome variant surface glycoprotein are not limited to hypervariable subregions. Infection and Immunity, 77:141 (ASM Spotlight Paper).

Dagenais, T.R., B.E. Freeman†, K.P. Demick, D.M. Paulnock and J.M. Mansfield. 2009. Processing and presentation of variant surface glycoprotein molecules to T Cells In African trypanosomiasis. Journal of Immunology,183: 3344-55.

Other Significant Contributions

Paulnock-King, D.M., K. Sizer, Y.R. Freund, J.R. Parnes, and P.P. Jones. 1985. Coordinate induction of Iaα, β, I_i mRNAs in a macrophage cell line. J. Immunol. 135:632-636.

Paulnock-King, D.M. and P.P. Jones. 1983 Induction of Ia and H-2 antigens on a macrophage cell line by immune interferon. J. Immunol. 131:315-318.

Lambert, L.E., and D.M. Paulnock. 1987 Modulation of macrophage function by γ-irradiation. J. Immunol. 139:2834-2841.

Paulnock, D.M., C. Smith, and J.M. Mansfield. 1987. Antigen presenting cell function in African trypanosomiasis. In: Prog. Leuk. Biol., Vol. 7. Schook, L.B., and J.G. Tews (eds), Alan R. Liss, Inc., New York, NY, pp. 135-143.

Lambert, L.E., and D.M. Paulnock. 1989. Differential induction of activation markers in macrophage cell lines by interferon-gamma. Cell Immunol. 120:401-418.

Paulnock, D.M. and L.E. Lambert. 1990. Identification and characterization of monoclonal antibodies specific for macrophages at intermediate stages in the tumoricidal activation pathway. J. Immunol. 144:765-773.

Wynn, T.A., Y.R. Freund, and D.M. Paulnock. 1992. TNF-α differentially regulates Ia antigen expression and macrophage tumoricidal activity in two murine macrophage cell lines. Cell, Immunol. 140:184-186.

Lucas, D.M., M.A. Lokuta, M.A. McDowell, J.E. Stuckey, and D.M. Paulnock. 1998. Analysis of the interferon-gamma signaling pathway in macrophages at different stages of maturation. J. Immunol. 160:4337-4342.

Lokuta, M.A., M.A. McDowell, and D.M. Paulnock. 1998. Identification of a new isoform of STAT5 preferentially expressed in immature macrophages. J. Immunol. 161:1594-1597.

Paulnock, D.M., K.P. Demick, and S.P. Coller. 2000. Analysis of IFN-γ-dependent and -independent pathways of macrophage activation. J. Leuk. Biol. 67:677-682.

Coller, S.P. and D.M. Paulnock. 2001. Analysis of the signaling pathways initiated in macrophages following engagement of Type A scavenger receptors. J. Leuk. Biol. 70:142-148.

Mansfield, J.M. and D.M. Paulnock. 2005. Regulation of innate and acquired immunity in African trypanosomiasis. Parasite Immunology, 27:357-36031.

Mansfield, J.M. and D.M. Paulnock. 2008. Genetic manipulation of African trypanosomes as a tool to dissect the immunobiology of infection. Parasite Immunology, 30:245.

Harris, T.H., J.M. Mansfield, and D.M. Paulnock. 2007. CpG oligodeoxynucleotide treatment enhances innate resistance and acquired immunity to African trypanosomes. Infection and Immunity 75:2366.

Inverso, J.A., T. Uphoff, S.C. Johnson, D.M. Paulnock and J.M. Mansfield. 2010. Biological variation among African trypanosomes. I. Virulence expression is not linked to the variant surface glycoprotein (VSG) or the VSG gene telomeric expression site. DNA and Cell Biology, 29:01.