

***CURRICULUM VITAE***

**Richard P. Phipps Ph.D.**  
**Professor and Director**

Place of Birth: Baltimore, Maryland

Citizenship: U.S.A.

Home Address: 26 Greylock Ridge  
Pittsford, New York 14534

Office Address: Lung Biology & Disease Program, Box 850,  
MRBX, Rm 3-11104  
University of Rochester  
School of Medicine & Dentistry  
601 Elmwood Avenue  
Rochester, New York 14642  
Phone: 585-275-8326  
Fax: 585-276-0239  
E-mail: richard\_phipps@urmc.rochester.edu

**EDUCATION**

Loyola College, Baltimore, Maryland  
1973-1977, BS. MT. (ASCP)

Mercy Hospital, Department of Pathology, Baltimore, Maryland  
1976-1977, Medical Technology Internship

Medical College of Virginia, Richmond, Virginia  
1977-1980, Predoctoral Student (Adviser: Dr. John Tew)

The Walter & Eliza Hall Institute of Medical Research  
Melbourne, Australia, 1979-1980, Postgraduate Scholar  
(Advisers: Prof. Sir Gustav Nossal, Dr. Thomas Mandel)

Ph.D. Dissertation: Role and characterization of antigen retention in lymphoid follicles on antigen retaining dendritic cells, 1980.

Medical College of Virginia, Richmond, Virginia  
1980-1981, Postdoctoral Fellow (Adviser: Dr. John Tew)

Duke University, School of Medicine, Division of Immunology, Durham, N.C.  
1981-1983, Postdoctoral Fellow (Adviser: Dr. David Scott)

## APPOINTMENTS

University of Rochester Cancer Center, 1983-1984.  
Senior Instructor of Oncology in Microbiology and Immunology

University of Rochester Cancer Center, 1984-1989.  
Assistant Professor of Oncology in Microbiology and Immunology

University of Rochester Cancer Center, 1989-1990.  
Associate Professor of Oncology in Microbiology and Immunology

University of Rochester Cancer Center, 1991-1994  
Associate Professor of Oncology in Microbiology & Immunology and Pediatrics

University of Rochester Cancer Center, 1994-1996.  
Associate Professor of Oncology in Microbiology & Immunology, Pediatrics and Environmental Medicine

University of Rochester Cancer Center, 1994-2000.  
Co-Director-Thoracic Oncology Program

University of Rochester Cancer Center, 1996-2001.  
Professor of Oncology in Microbiology & Immunology, Pediatrics and Environmental Medicine

University of Rochester, Department of Environmental Medicine 2001- present  
Professor of Environmental Medicine, Medicine, Microbiology & Immunology, Oncology, Ophthalmology, Obstetrics & Gynecology, Pathology & Laboratory Medicine, and Pediatrics

Director: Lung Biology and Diseases Program, University of Rochester School of Medicine & Dentistry, 2001- present

## RESEARCH INTERESTS (see last page of c.v. for extended research interest description)

- Control of normal and malignant B lymphocyte activation, proliferation and differentiation by prostaglandins and cytokines.
- Role of the CD40-CD40 ligand system in lung fibrosis and fibroblast activation.
- Tobacco smoke induced activation of fibroblasts and lung inflammation.
- Fibroblast subsets and Graves' ophthalmopathy
- Platelet biology and inflammation

## **SPECIAL AWARDS, FELLOWSHIPS AND HONORS**

Loyola College Scholarship, Maryland Senatorial Scholarship, Cummins Engine Company Scholarship, 1973-1977.

Graduated magna cum laude, Loyola College, 1977.

Predoctoral Fellowship, Department of Microbiology, The Medical College of Virginia, N.I.H. Research Training in Infectious Disease, 1977-1979.

Predoctoral Fellowship, Department of Microbiology, The Medical College of Virginia, N.I.H. Research Training in Cancer Etiology and Treatment, 1979-1980.

Postgraduate Scholar at the Walter & Eliza Hall Institute of Medical Research, Melbourne, Australia, 1979-1980.

First Prize, Virginia Academy of Science, Microbiology Section, 1980.

Postdoctoral Fellowship, Division of Immunology, Duke University Medical Center, NIH Research Training in Immunology, 1981-1982.

Arthritis Foundation Fellowship, 1982-1984.

Arthritis Foundation Investigatorship: 1984-1987.

National Institute of Arthritis, Arthritis Foundation Travel Fellowship to attend NIH conference on Molecular Biological Approaches to Rheumatic Diseases, 1986.

Arthritis Foundation/Merck, Sharp & Dohme Travel Fellowship to attend American Rheumatism Association Meeting, 1986.

Featured Speaker-Second Interlaken Conference on Prostaglandins and Leukotrienes, Interlaken, Switzerland, 1992.

Visiting Professor: Russian Pulmonary Research Institute and the Institute for Experimental Medicine, Moscow and St. Petersburg, Russia, C.I.S. 1993.

Distinguished Alumni Award for Excellence in Research and Scholarship-Medical College of Virginia, Richmond, Virginia, 1993.

Arthur Kornberg Research Prize-University of Rochester School of Medicine and Dentistry, 1998.

Burroughs-Wellcome Visiting Professor MRC Center for Reproductive Biology-Edinburgh, Scotland, 1999.

University of Rochester, Faculty Award for Mentoring Pre-Doctoral students and Post-Doctoral Fellows, 2002.

University of Rochester, Excellence in Research Award, 2006.

University of Rochester, Toxicology Student Award for Teaching, 2007.

## **MEMBERSHIP - SCIENTIFIC, HONORARY & PROFESSIONAL SOCIETIES**

American Association for Cancer Research (2006-present)  
The American Physiological Society (2005-present)  
The American Association of Immunologists (1983-present)  
The American Society of Clinical Pathology (1977-present)  
American Society for Investigative Pathology (2003-present)  
Phi Kappa Phi - Honor Society (1974-present)  
The American Thoracic Society (1990-1994, 1999-present)  
The New York Academy of Science (1983-1993)  
The Wound Healing Society (1989-1995)  
Society for Leukocyte Biology (1977-1980, 1988-1992)  
Genesee Valley Arthritis Foundation (1983-1991)

## **PRESENTATION OF SPECIAL SEMINARS OR LECTURES**

Department of Microbiology, Medical College of Virginia, Richmond, VA, 1978, "Spontaneous induction and feedback regulation of specific antibody synthesis".

Department of Microbiology, University of Southern California Medical School, Los Angeles, CA, 1979, "Antigen retention and the follicular dendritic cell".

The Walter & Eliza Hall Institute of Medical Research, Melbourne, Australia, 1979, "The antigen retaining follicular dendritic cell".

Dept. of Microbiology, Medical College of Virginia, Richmond, VA, 1980, Ph.D. Defense: "Role and characterization of antigen retention in lymphoid follicles on antigen retaining dendritic cells".

Department of Immunology & Microbiology, Wayne State Univ. School of Medicine, 1980, "Role and characterization of antigen retention in lymphoid follicles on antigen retaining dendritic cells".

Department of Pathology, School of Medicine, University of California San Diego, La Jolla, CA, 1980, "The antigen retaining follicular dendritic cell".

Division of Immunology, Duke University Medical Center, 1980, "Role and characterization of antigen retention in lymphoid follicles on antigen retaining dendritic cells".

Merck Institute - Research Laboratories, Rahway, NJ, 1983, "Accessory cell enhancement of immunological responsiveness".

University of Rochester Cancer Center, Rochester, NY, 1983, "A novel role for macrophages in tolerance induction".

Department of Microbiology and Immunology, University of Kentucky, Lexington, KY, 1983, "The ability of macrophages to tolerize B cells".

University of Rochester, Rochester, NY, 1984, "Conversion of a tolerogenic signal to an immunogenic one".

East Carolina University School of Medicine, Greenville, NC, 1986, "Nucleic acid antigens: ability to trigger DNA-specific B cells in vitro".

University of Rochester, Rochester, NY, 1986, "Isolation and characterization of autoreactive DNA-specific B cells".

International Symposium on Antigen Presenting Cells: Richmond, VA, 1987, "Macrophage and lymphoid dendritic cell differential presentation of immunoglobulin tolerogen and immune complexes".

Eastman Kodak, Rochester, NY, 1987, "Triggering of guanosine-specific B lymphocytes using DNA as an antigen".

Department of Microbiology and Immunology, Medical College of Virginia, Richmond, VA, 1988, "Role of macrophage-secreted prostaglandin in potentiating negative signaling of normal and neoplastic B cells".

Genentech, Inc., San Francisco, CA, 1988, "Role of macrophage-secreted prostaglandin in potentiating negative signaling of normal and neoplastic B cells".

NHLBI, Mechanisms of Lung Fibrosis, Bethesda, MD, 1989, "Fibroblast involvement in developing pulmonary fibrosis".

Department of Microbiology and Immunology, University of Miami, Miami, FL, 1989, "Characterization of two major populations of lung fibroblasts and their regulation by lymphokines".

Medical Oncology Division, University of Rochester, Rochester, NY, 1989, "Chemotherapy and Radiation Induced Pulmonary Fibrosis: Role of Cytokines and Fibroblast Subpopulations".

Cancer Center, University of Maryland, Baltimore, MD, 1990, "Characterization and immune functions of two major subsets of lung fibroblasts".

Fisons Pharmaceutical Co. Inc. Rochester, NY, 1990, "Immunologic characterization of lung fibroblast subpopulations".

Department of Immunology and Infectious Disease, Johns Hopkins University, Baltimore, MD, 1990, "Characteristics of subpopulations of lung fibroblasts".

Departments of Pediatrics and Microbiology and Immunology, University of Texas at San Antonio, San Antonio, TX. 1991, "Characterization and Immune functions of subsets of pulmonary fibroblasts".

Wilford Hall U.S. Air Force Hospital, San Antonio, TX, 1991, "Immune functions of subsets of pulmonary fibroblasts".

Department of Radiation Oncology, University of Rochester, Rochester, NY, 1992, "Differential cytokine synthesis by subsets of pulmonary fibroblasts".

Featured speaker: Second Interlaken Conference on Prostaglandins and Leukotrienes, Interlaken, Switzerland, 1992, "Prostaglandin E regulation of the immune response".

Featured speaker: Winter International Prostaglandins Conference, Keystone, CO, 1993, "Prostaglandin E<sub>2</sub> control of normal and neoplastic B cell proliferation and differentiation".

Department of Pathology, University of Pennsylvania, Philadelphia, PA, 1993, "Prostaglandin E<sub>2</sub>: Suppressor or regulator of normal and malignant B lymphocytes".

Bayer AG Pharmaceutical Inc., Wuppertal, Germany, 1993, "Prostaglandin E<sub>2</sub> regulation of the immune response".

Russian Institute of Perinatology and Neonatology, Moscow, Russia, 1993, "Prostaglandin E<sub>2</sub> control of normal and malignant B cell growth and differentiation".

Russian Pulmonary Research Institute, Moscow, Russia, 1993, "Radiation-induced lung fibrosis: Role of fibroblast subsets."

Institute of Carcinogenesis-Cancer Research Center, Moscow, Russia, 1993, "Prostaglandin E<sub>2</sub> regulation of B lymphoma growth and survival".

Russia State Medical University, Moscow, Russia, 1993, "Regulation of IgE synthesis by prostaglandin E<sub>2</sub>".

Russian Academy of Medical Sciences, St. Petersburg, Russia, 1993, "Regulation of normal and neoplastic B lymphocyte growth and differentiation by prostaglandin E<sub>2</sub>".

The Institute for Experimental Medicine, St. Petersburg, Russia, 1993, "Cytokine production by pulmonary fibroblast subsets".

Russia State Medical University, Moscow, Russia, 1993, "Molecular and cellular analysis of lung fibroblast subsets".

Wilford Hall U.S. Air Force Hospital, San Antonio, TX, 1993, "Induction of nitric oxide synthase by cytokines in lung fibroblast subsets".

Medical College of Virginia, Dept. of Microbiology & Immunology, Richmond, VA, 1993, "PGE<sub>2</sub> regulation of IgE synthesis".

Fisons Corp. Rochester, NY, 1994, "Nitric oxide production by pulmonary fibroblast subsets".

Biogen Corp., Boston, MA, 1994, "Regulation of normal and neoplastic B lymphocytes by prostaglandins".

Zeneca Pharmaceuticals, Wilmington, DE, 1994, "Pulmonary fibroblast subsets and interstitial lung disease".

International Institute of Biological Medicine, Moscow, Russia, 1994, "Pulmonary fibroblast heterogeneity".

University of Rochester, Department of Medicine, 1994, "Nitric oxide production by lung fibroblasts".

University of Rochester, Endocrinology Unit, 1994, "Prostaglandins and the immune response".

University of Rochester, Cancer Center, 1994, "Fibroblast Heterogeneity-Lung fibrosis and Inflammation".

Plenary Speaker, International Conference on Wound Healing, San Francisco, CA, 1994, "Fibroblast heterogeneity".

University of Rochester, Neonatology Division, 1994, "Pulmonary fibroblast heterogeneity".

Gordon Research Conference on Periodontal Disease, 1994, "Characterization of fibroblasts from periodontal and other tissues".

University of Alberta at Edmonton, Burn Research Unit, 1994, "Fibroblast Heterogeneity and Interaction with Tissue Mast Cells".

University of Alberta, Edmonton, Pulmonary Division, 1994, "Cytokine Production by Lung Fibroblasts and Interaction with T lymphocytes".

University of Maryland at Baltimore, Dept. of Microbiology and Immunology and Cancer Center, 1995, "Fibroblast heterogeneity: Implications for lung inflammation, and fibrosis".

Medical College of Georgia, Augusta, GA. School of Dentistry, 1995, "Prostaglandin regulation of B lymphocyte differentiation".

Albany Medical College, Albany, NY, Department of Medicine Grand Rounds, 1995, "Pulmonary inflammation, fibrosis and fibroblast subsets".

Wayne State University, Detroit, MI, Department of Radiation Oncology, 1995, "Fibroblast heterogeneity: Implications for pulmonary fibrotic disease".

Setchenov Medical Academy, Moscow Russia, 1995, "Fibroblast heterogeneity".

International Institute of Biological Medicine, 1995, "Inflammation and cytokines".

Organogenesis, Boston, MA, 1995, "Fibroblast subsets and interaction with T lymphocytes".

University of Maryland at Baltimore, Cancer Center, 1995, "Regulation of B cell lymphomas by prostaglandins".

Bristol-Myers-Squibb, Syracuse, NY, 1995, "Significance of CD40 expression on human fibroblasts".

Invited Speaker-International Conference on Periodontology, NY, 1995, "Periodontal fibroblast heterogeneity".

Invited Speaker-International Conference on Eicosanoids, Cancer and Inflammation, Hong Kong, 1995, "PGE<sub>2</sub> regulation of B lymphocytes and T helper cells: Induction of inflammatory vs. allergic responses".

University of Rochester, Department of Psychiatry, 1995, "Control of Th1 and Th2 responses by Prostaglandins".

University of Rochester, Cancer Center Grand Rounds, 1996, "Radiation induced lung injury-therapeutic strategies".

Bristol-Myers Squibb, Syracuse, NY, 1996, "Role of CD40 in lung inflammation and fibrosis".

University of Rochester, Neonatology Division, 1996, "Role of CD40 in oxygen-induced lung inflammation and fibrosis".

National Cancer Institute, Bethesda, MD, 1996, "Prostaglandins and normal and malignant B lineage cells".

University of Kentucky, Department of Microbiology and Immunology, 1996, "CD40 is an activation antigen for human fibroblasts".

Oxford Bioresearch Labs, Oxford, United Kingdom, 1996, "Importance of CD40 in fibroblast activation and wound repair".

Boehringer-Ingelheim Inc. Ridgeway, CT, 1996, "Fibroblast activation by the CD40-CD40L pathway".

Pasteur Merieux Connaught, Toronto, Ontario, Canada, 1997, "Prostaglandin E<sub>2</sub> control of antibody responses and Th1 and Th2 cytokines".

Medical University of South Carolina, Charleston, SC, 1997, "Fibroblast-immune cell interactions in acute and chronic lung injury".

Plenary speaker: Fourth International Congress on Essential Fatty Acids and Eicosanoids, Edinburgh, Scotland, 1997, "Prostaglandin E<sub>2</sub> regulation of normal and malignant B lineage cells".

Symposia speaker: Fifth International Conference on Eicosanoids and other Bioactive Lipids in Cancer, Inflammation and Related Diseases, San Diego, CA, 1997, "Prostaglandin E<sub>2</sub> promotes B lymphocyte differentiation to IgE secreting cells: implications for allergy and asthma".

University of Rochester, Department of Radiation Oncology, 1998, "Role of the CD40-CD40 ligand system in pulmonary fibrosis induced by ionizing radiation".

Biogen Corp. Boston, MA, 1998, "Role of the CD40-CD40 ligand system in pulmonary wound repair".

Genetics Institute. Boston, MA, 1998, "Fibroblast interaction with immune cells: Role of the CD40-CD40 ligand system in wound repair".

University of Edinburgh, Edinburgh, Scotland, 1998, "Fibroblast regulation of wound healing in the lung and other tissues".

University of Strathclyde, Glasgow, Scotland, 1998, "Prostaglandins regulate Th1 and Th2 immune responses".

Vanderbilt University, Nashville, TN, 1998, "Fibroblast interaction with immune cells: Role of the CD40-CD40 ligand system in wound repair".

Duke University School of Medicine, 1998, "Fibroblast heterogeneity and role of fibroblasts in immune cell activation".

University of Glasgow, Department of Immunology, 1999, "Role of the CD40-CD40 ligand system in wound healing".

University of Rochester, Department of Obstetrics and Gynecology, 1999, "Fibroblast heterogeneity in the reproductive tract".

Biogen Corporation, Cambridge, MA, 1999, "Disruption of the CD40-CD40 ligand pathway in lung inflammation and fibrosis".

University of Rochester, Immunology research in progress forum, 1999, "CD40-CD40 ligand interactions in the fibroblast".

University of Rochester, Department of Obstetrics and Gynecology, 2000, "Fibroblast heterogeneity in the female reproductive tract and production of inflammatory cytokines".

National Institutes of Health, NICHD, 2000, "Fibroblast heterogeneity in the female reproductive tract and production of inflammatory cytokines".

University of Rochester, Pulmonary Biology seminar series, 2000, "Role of the CD40-CD40 ligand system in lung inflammation and fibrosis".

Genetics Institute, Andover, MA, 2000, "Fibroblasts as sentinel cells of the lung".

University of Rochester, Rochester, NY, 2000, "Fibroblast Immune cell interactions".

Schering-Plough, Kenilworth, NJ, 2000, "The role of the CD40/CD40 ligand system in lung inflammation and fibrosis".

UCLA School of Medicine, Los Angeles, CA, 2001, "The CD40/CD40 ligand system and lung fibrosis".

UCLA Harbor School of Medicine, Torrance, CA, 2001, "The CD40/CD40 ligand system and lung inflammation and fibrosis".

Stanford University, Palo Alto, CA, 2001, "Prostaglandin regulation of immunity".

Robert Wood Johnson School of Medicine, New Jersey, 2001, "Fibroblast immune cell interaction in lung fibrosis".

FASEB New Orleans, LA 2002, “Anti-inflammatory 15d-PGJ2 and PPAR $\gamma$  agonists induce apoptosis in B lineage cells by a caspase and NF $\kappa$ B dependent mechanism: implications for immunity”.

Schering-Plough, Kenilworth, NJ, 2002, “PPAR $\gamma$  agonists as anti-inflammatory agents”.

University of Rochester, Rochester, NY, Lung Biology Seminar Series, 2002, “Lung fibroblast activation by the CD40-CD40 ligand system”.

University of Rochester, Department of Pathology, Rochester, NY, 2002, “Fibroblast activation by the CD40/CD40 ligand system”.

University of Rochester, Rochester, NY, 2002, MRB-X Opening Ceremony Presentations. “Asthma, Current and Future Therapies”.

Schering-Plough, Kenilworth, NJ, 2002, “Autoinducers-bacterial pathogenesis and immune regulation”.

Bausch & Lomb, Rochester, NY 2002, “Fibroblast diversity and role in inflammation”.

Schering-Plough, Kenilworth, NJ, 2003, “Lung inflammation, neutrophil activation, and cigarette smoking”.

Johnson and Johnson, Rochester, NY, 2003, “Pre-clinical animal models of lung disease”.

FASEB:, Washington, D.C, 2004. “Prostaglandins and PPAR $\gamma$  agonists as attenuators of B lymphocytes and B cell lymphomas”

Roswell Park, Buffalo, NY, 2004. “Prostaglandins and PPAR $\gamma$  agonist regulation of B cells and B cell lymphoma”

NIH/NIAID, Bethesda, MD, 2004. “Radiation lung scarring and the CD40-CD40 ligand pathway”

AADR, Rochester, NY, 2004. “Platelet expression of PPAR $\gamma$ : implications for periodontitis, diabetes, and cardiovascular disease”

James P. Wilmot Cancer Center, Rochester, NY, 2004, “Research opportunities and development plans for the Lung Biology and Disease Program”

Institute of Oncology International Cancer Conference, Ismir, Turkey, 2004, “PPAR $\gamma$  agonists as potential therapy for B cell lymphoma”

Hacettepe University, Ankara Turkey, 2004. “Prostaglandins and PPAR $\gamma$  agonists as attenuators of B lymphocytes and B cell lymphomas”

NIH/NIAID/HHS, Bethesda, MD, 2004. “Novel strategies for protecting against radiation injury”

NIH/NHLBI, Bethesda, MD, 2004. “Role of Platelets in Inflammation”

European Tissue Repair Society Meeting, Nyon, Switzerland, 2004, “Fibroblast Heterogeneity”

Bausch and Lomb, Rochester, NY, 2005 “Immunity, Inflammation, and the PPAR $\gamma$  Pathway”

UCLA, Los Angeles, CA, 2005. “Orbital Fibroblast Adipogenesis”

ACT Cancer Technology, San Diego, CA, 2005 “PPAR $\gamma$  Ligands as Anti-Cancer Agents”

Eicosanoids Conference, San Francisco, CA, 2005, “Human Platelets and Megakaryocytes Express the Transcription Factor Peroxisome Proliferator Activated Receptor gamma (PPAR gamma) and Respond to Prostaglandin PPAR gamma ligands: Implications for Inflammation, Diabetes and Cardiovascular Disease”

SUNY Buffalo, Buffalo, NY, 2005 “Fibroblasts as Modulators of Immunity, Inflammation and Cancer”

U of Vermont, Burlington, VT, 2005 “The PPARgamma pathway attenuates lung scarring and inflammation”

Chantilly, VA 2005 “The role of aryl hydrocarbon receptor (AHR) in controlling inflammatory responses induced by cigarette smoke”

Pacific National Laboratories, Richland, WA 2006 “Role of the transcription factor PPAR $\gamma$  in platelet activation and in inflammatory lung disease”

Hunter College, New York, NY, 2006, “Prostaglandins and PPARgamma ligands as modulators of B lymphocytes and B cell lymphomas”

NIH Bethesda, MD – Rochester, NY, 2006, “Strategies to mitigate radiation damage to the lung and other tissues”

East Carolina School of Medicine, Greenville, NC, 2006, “PPAR $\alpha$  and PPAR $\beta$  ligand regulation of normal and malignant B lineage cells”

University of Rochester, Rochester, NY 2006 Excellence in Research Day “Platelets: Sentinels of the Circulation”

University of Rochester, Rochester, NY 2007, Ophthalmology Department, Research Colloquium, “Thyroid Eye Disease: role of the orbital fibroblast and white blood cells”

New York University School of Medicine, New York, NY, 2007, “B lymphocyte expression of cyclooxygenase-2 and antibody production”

Bausch and Lomb, Rochester, NY, 2007, “Inflammation and Ocular Diseases”

**PAPERS DELIVERED AT CONFERENCES** \*oral presentation

\*1979 FASEB, Atlanta, GA.

1979 Australian Society For Immunology, Sydney, Australia.

\*1980 Virginia Academy of Science, Charlottesville, VA. (invited).

\*1980 National Meeting of Reticuloendothelial Society, Tampa, FL.

- 1981 National Meeting of Reticuloendothelial Society, Milwaukee, WI.  
1982 FASEB, New Orleans, LA.  
1983 UCLA - Symposia on Molecular and Cellular Biology, Steamboat Springs, CO.  
\*1983 FASEB, St. Louis, MO.  
\*1983 Arthritis Foundation Fellows Conference, Amelia Island, FL. (invited).  
1984 UCLA - Symposia on Molecular and Cellular Biology, Park City, UT.  
\*1984 FASEB, New Orleans, LA.  
1985 FASEB, St. Louis, MO.  
\*1985 Arthritis Foundation Fellows Conference, Sanibel Island, FL. (invited).  
\*1986 American Rheumatism Association Meeting, New Orleans, LA.  
\*1986 Sixth International Congress of Immunology, Toronto, Canada  
1987 FASEB, Washington, D.C.  
\*1987 International Reticuloendothelial Society Symposia, Richmond, VA. (invited).  
1988 FASEB, Las Vegas, NV.  
\*1989 Cellular and Molecular Mechanisms of Lung Fibrosis, Bethesda MD. (invited).  
\*1989 UCLA Symposia: Immunogenicity, Steamboat Springs, CO.  
\*1989 International Immunology Congress, West Berlin, Germany.  
1990 Midwinter Conference of Immunologists, Asilomar, CA.  
\*1990 Intl. Meeting of The Society for Aerosols in Medicine, Rochester, NY. (invited).  
\*1990 World Conference on Lung Health, Boston, MA.  
1991 Midwinter Conference of Immunologists, Asilomar, CA.  
1991 UCLA Symposia: Cytokines and their Receptors, Keystone, CO.  
\*1992 FASEB-American Association of Pathology, Anaheim, CA. (invited)  
\*1992 American Lung Assoc/American Thoracic Society, Miami, FL.  
\*1992 2nd Interlaken Conf. on Prostaglandins and Leukotrienes, Interlaken, Switz.(invited).  
\*1993 Winter International Prostaglandins Conference, Keystone, CO. (invited).  
1993 UCLA Symposia: B lymphocytes, Taos, NM.  
1993 AAI-CIS Immunology Conference, Denver, CO.  
\*1993 Intl. Conf. on Eicosanoids, Radiation Injury and Cancer, Washington DC. (invited).  
1994 Symposia on inflammation, Tamarron, CO.  
\*1994 4th International Lung Conference, Moscow, Russia. (invited).  
\*1994 International Wound Healing Society Conference, San Francisco, CA. (invited).  
\*1994 Gordon Research Conference on Periodontal Disease, New Hampshire. (invited).  
\*1994 International Conference on Prostaglandins and Leukotrienes, Florence, Italy.  
\*1995 International Conference on Pulmonary Disease, Moscow, Russia.  
\*1995 International Conference on Periodontology, NY. (invited).  
1995 International Immunology Congress, San Francisco, CA.  
\*1995 Intl. Conf. on Eicosanoids, Radiation and Inflammation, Hong Kong. (invited).  
1996 International Conference on Wound Repair, Taos, NM.  
\*1996 International Conference on Eicosanoids, Vienna, Austria  
1997 Keystone symposia on B lymphocytes, Steamboat Springs, CO.  
\*1997 Fourth International Congress on Essential Fatty Acids and Eicosanoids, Edinburgh, Scotland.  
(Invited Plenary speaker).  
\*1997 Fifth International Conference on Eicosanoids and other Bioactive Lipids in Cancer.  
Inflammation and Related Diseases, San Diego, CA. (Invited Speaker)  
\*1998 Regional Cancer Center Symposia, Buffalo, NY. (Invited Speaker)  
1998 Intl. Conference on fibrosis, Siena, Italy.  
1999 Conference on Th2 cytokines and helminth infections

- \*1999 New York Academy of Sciences Intl. Conference of Lysophospholipids, NY, NY (Invited Speaker)
- \*1999 American Society for Nephrology-Intl. Conference-Miami, (Invited Plenary Speaker)
- \*2000 Aspen Lung Conference on Lung fibrosis- Aspen, CO, (Invited Speaker)
- \*2000 American Association of Immunologists-San Francisco
- 2000 International Wound Healing Society Conference-Toronto, Canada
- \*2000 International Conference on Lung fibrosis, Stockholm, Sweden-(Invited Plenary Speaker)
- 2001 Society for Gynecologic Investigation. Toronto, CA
- 2001 NIH Workshop on Endometriosis
- \*2001 FASEB, Orlando, FL
- \*2001 Conference on cardiovascular effects associated with air pollution, Rochester, NY (Invited speaker)
- 2001 B Cell Immunobiology and Disease
- \*2001 International Graves Ophthalmopathy Conference, NY, NY (invited speaker and panelist)
- \*2002 FASEB, New Orleans, LA
- \*2002 Inflammation Research Group, Lake George, NY (Invited Speaker)
- \*2002 Upstate New York, Trudeau Institute Immunology Conference (Invited Speaker)
- \*2003 Keystone Conference on PPAR $\gamma$ , Silverhome, CO
- \*2003 Eicosanoid Conference, Chicago, IL
- \*2003 FASEB, San Diego, CA
- \*2003 ATS, Seattle, WA
- 2003 Society for Gynecologic Investigation, Annual Scientific Meeting, Washington, DC
- \*2003 NIH Workshop for Women's Health Research Initiative, Bethesda, MD
- 2004 Keystone Conference on Lymphocytes, Steamboat Springs, CO.
- 2004 American Association for Cancer Research, Waikoloa, HI
- \*2004 FASEB, Washington, D.C.
- \*2004 AADR, Rochester, N.Y.
- \*2004, James P. Wilmot Cancer Center, Rochester, NY
- \*2004 International Conference on Clinical Oncology, Izmir
- \*2004, Hacettepe University, Ankara Turkey
- \*2004, NIH/NIAID/HHS, Bethesda, MD
- \*2004, NIH/NHLBI, Bethesda, MD
- \*2004, European Tissue Repair Society Meeting, Nyon, Switzerland,
- 2005, American Association for Cancer Research, Waikoloa, HI
- \*2005, UCLA at Harbor, Los Angeles, CA
- 2005, Keystone Conference, Keystone, CO
- \*2005, BIOS Conference, Philadelphia, PA
- \*2005, Eicosanoids Conference, San Francisco, CA
- \*2005, Immunology Conference, Buffalo, NY
- 2006, Keystone Conference, Vancouver, BC
- 2006, American Association for Cancer Research, Maui, HI
- \*2006, Eicosanoid Conference, Baltimore, MD
- 2006, BIOS Conference, Chicago, IL
- \*2006, American Association of Immunologists, Boston, MA
- \*2006, Eye Diseases Conference, UCLA Los Angeles, CA (Invited Speaker and Workshop Chairman)
- \*2006, Western New York Bioscience Summit, Rochester, NY
- \*2007, American Association for Cancer Research, Kona, HI
- 2007, BIOS Conference, Boston, MA
- \*2007, International Conference, Bioactive Lipids in Cancer, Inflammation and Related Diseases, Montreal, Canada

- \*2008, Wound Healing Society,
- \*2008, Eicosanoid Conference, Baltimore, MD
- \*2008, FASEB, SanDiego, CA

## **ADMINISTRATIVE ACTIVITIES/PROFESSIONAL EXPERIENCE**

### **EDITORIAL BOARDS**

Editorial Board, *PPAR Research*, 2007-present  
Associate Editor/Reviewer for 'Cutting Edge' Articles, *Journal of Immunology*, 1995-2000.  
Associate Editor, *Journal of Immunology*, 1990-1994.  
Editorial Board, *Clinical Immunology*, 1991-present.  
Guest Editor, *Regional Immunology*, 1992-1993.  
Editor, CRC Press, *Pulmonary Fibroblast Heterogeneity*, 1990-1992.  
Editorial Board, *Regional Immunology*, 1991-1997.  
Editor, Academic Press, *ImmunoMethods*, Prostaglandin regulation of the immune response. 1992-1994.  
Ad Hoc Reviewer for *Journal of Leukocyte Biology*, *Journal of Immunological Methods*, *Journal of Aerosol Medicine*, *International Journal of Radiation Oncology, Biology and Physics*, *Metabolism-Clinical and Experimental*, *Prostaglandins*, *Lipids*, *Journal of Clinical Investigation*, *American J. of Pathology*, *PNAS*, *Trends in Immunology*, *Journal of Biological Chemistry*, *Journal of Immunology*

### **STUDY SECTIONS**

Ad Hoc consultant for Tumor Microenvironment (TME) Study Section NIH, 2007-present  
Ad Hoc consultant for Transplantation, Tolerance, and Tumor Immunology, Study Section NIH, 2005.  
Reviewer for Diabetes, United Kingdom, 2005-present.  
Reviewer for the Strong Children's Research Center, 1994-present.  
Reviewer for Cancer Center Discovery Fund, 1997-present  
Ad Hoc consultant for the National Heart Lung Blood Institute, 2000-present  
Reviewer – South Plains Foundation 2004-present  
Ad Hoc Reviewer for: NIDCR/NIH, 2004-present  
Member; Dean's Committee on Internal Research Proposals 2004 –present  
Ad Hoc Reviewer for: Veterans Administration, American Cancer Society, 1994-present.  
Ad Hoc consultant for Immunological Sciences Study Section, 2002-2004.  
Consultant for the National Institute of Dental Research-Intramural Program, 1997  
Ad Hoc consultant for the Lung Biology and Pathology NIH Study Section, 1997.  
Reviewer for the International Science Foundation, 1993-1996.  
Ad Hoc consultant for The Immunobiology NIH Study Section, 1994-1995.  
Ad Hoc consultant for The Radiation Study Section, NIH, 1992-1993.  
Member; Research Grant Review Committee, American Heart Association, 1990-1993.  
Member; Biomedical Science Grant Review Committee, National Arthritis Foundation, 1989-1990.  
Member; Committee on Research and Development, National Arthritis Foundation, 1986-1988.  
Member; Medical and Scientific Committee, Genesee Valley Arthritis Foundation, 1983-1990.  
Member; Grant Review Committee, Genesee Valley Arthritis Foundation, 1983-1990.

### **MEETING/WORKSHOP CHAIRMAN**

Workshop Chairman: International Reticuloendothelial Society Symposium "Antigen presenting cells", Richmond, VA, 1987.  
Session Chairman: Lake Ontario Immunology Conference, Rochester, NY, 1987.

Workshop Co-Chairman: UCLA Symposia: Immunogenicity, Steamboat Springs, CO, 1989.  
Panelist: International Meeting of The Society for Aerosols in Medicine, Rochester, NY, 1990.  
International Program Committee: International Conference on Eicosanoids, Radiation Injury and Cancer, 1993-present.  
Minisymposia organizer: International Conference on Eicosanoids, Radiation Injury and Cancer, 1996-present.  
Workshop Chair, Fourth International Congress on Essential Fatty Acids and Eicosanoids, Edinburgh, Scotland, 1997.  
Reviewer for New York Academy of Sciences Conference on Lipids, 1999.  
Session Chair, URCC Cancer Center Symposia, 1999.  
Workshop/Minisymposia Chair on inflammation, FASEB, 2001.  
Panelist, International Graves' Ophthalmopathy Conference, 2001.  
Panelist, NIAID/NIH Workshop on Radiation Terrorism, 2004.  
Panelist, University of Rochester Conference on Disaster Medicine, 2004.  
Panelist/Discussant, Buffalo Conference on Immunology, 2005.  
Workshop/Discussion Leader, EPA Conference, 2005  
Symposia Co-Chair, Eicosanoids Conference, Baltimore, MD, 2006  
Workshop Chair, Graves' Disease International Symposium, Jules Stein Eye Institute, Los Angeles, CA, 2006.

#### **ADMINISTRATIVE DUTIES**

Co-Director, Integrated Health Sciences Facility Core (NIEHS/EHSC) 2007-present.  
Planning Director: Integrative Health Science Facility Core (NIEHS/EHSC): 2006-2007  
Search Committee for Endocrinology Unit Chief, 2007-present  
Director, Toxicology Seminar Course (Tox 558) 2006-2007  
University Committee on Proteomics 2006-present  
University Committee on Flow Cytometry, 2005-present  
Johnson and Johnson/University of Rochester Pilot Project Review Team 2005-2007.  
Planning and Design Committee – New University of Rochester Eye Institute Building: 2003-2007  
Medical Center Committee on Faculty Teaching Awards, 2004-present.  
Chair, Search Committee for Faculty Recruits – Lung Biology and Disease Program, 2001-present.  
Director: Lung Biology and Diseases Program, 2001-present.  
Executive Committee, Pulmonary Biology Training Program, 2000-present.  
Consultant to search committee for new chief of Pulmonary and Critical Care-2005-2006  
Departmental Promotion and Tenure Committee, 1992-present.  
Member Faculty Promotion Committee – Dept. of Obstetrics/Gynecology, 2003 - present  
Member Search Committee – Dept. of Obstetrics/Gynecology Faculty Recruitment, 2003-2004.  
Executive Committee Immunology Training Grant, 1992-2004, 2006-present.  
Dean's Committee on Sabbatical Leave, 2003-2004  
University Committee on Animal Resources, 2000-2003.  
Dean's Committee on Animal Resources, 2001-2003.  
Cancer Center Membership Committee Chair, 1997-1998, 2001-2003.  
Planning/Design Committee MRBX (U of R) 2000-2002.  
Arthur Kornberg Research Award Committee, 1999-2001.

Graduate Education Committee, Department of Microbiology and Immunology, University of Rochester, 1985-1986, 1988-1989, 1991-2001.  
Microbiology & Immunology/Vaccine Biology Applicant recruitment and Visit Day Committee, 1995-2001.  
Ph.D. Qualifying Examination Committee, Immunology representative, Department of Microbiology and Immunology, University of Rochester, 1993-1995, 1995-2001, first alternate representative.  
Co-Director Thoracic Oncology Program: University of Rochester Cancer Center, 1994-2000.  
Member, Eastman Dental Center Human Subjects Institutional Review Board, 1995-1998.  
Member, University of Rochester Faculty Senate, 1995-1998.  
Davey Cancer Research Award Committee Chair, 1998.  
Dean's Committee on the Faculty Incentive Plan, 1997-1998.  
Cancer Center Symposia Committee, 1996-1997.  
Member White Paper Committee, Department of Environmental Medicine, 1996-1997.  
Ad Hoc Committee, Cancer Center Core Pathology Facility, 1996-1997.  
Member, University of Rochester Research Policy Committee, 1993-1996.  
University of Rochester Medical Center Strategic Planning Committee for Vaccine Biology/Immunology/Infectious Disease, 1996.  
Advisory Member, Premier Medical Group (U.S.A.), Central Clinical Hospital (Moscow, Russia), 1993-1996.  
Member search committee for new chief of Allergy, Clinical Immunology and Rheumatology, Department of Medicine, 1993-1995.  
Cancer Center Construction Committee, University of Rochester, 1990-1993.  
Admission Committee, Department of Microbiology and Immunology, University of Rochester, 1985-1986, 1988-1989.  
Planning/Design Committee for Cancer Center Construction, University of Rochester, 1983-1987.  
Seminar and Retreat Committee, Department of Microbiology and Immunology, University of Rochester, 1983-1986.  
Medical Faculty Council, University of Rochester, 1986.

## TEACHING EXPERIENCE

Toxicology – Lung Biology (Tox 522) 2002, 2003, 2004, 2005, 2006, 2007.

Toxicology (Tox 558) Course Director 2006-2007, Course Co-Director, 2008

Toxicology Retreat: Organizer for Grant Writing Session, 2002, 2003, 2004, 2005, 2006, 2007, 2008.

Advanced Topics in Virology Seminar (MBI 450), 2007.

Lecturer/Case Presenter, University of Rochester, MD/Ph.D. Students, 2003.

Immunology (MBI 473) University of Rochester School of Medicine, Spring 1984, Fall 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992 (course director), 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007.

Advanced Topics in Immunology (MBI 540) University of Rochester, School of Medicine, Spring 1984, 1985, 1986, 1988, 1997, course director 1997.

Immunology Research in Progress Series (MBI 580) Course Director, Fall, Spring 1987, 1988, 1989, 1993, 1994, 1995, 1996, 1999, 2000, 2001.

Lecturer: Pulmonary and Critical Care Medicine Colloquium-2000, 2001, 2002.

Cellular and Molecular Basis of Disease (Path 593), University of Rochester, Fall, 1996.

Introduction to Pathogenic Microbiology (MBI 218) University of Rochester, School of Medicine, Spring 1988, 1989, 1990. Director of Immunology Section.

Immunology Journal Club (MBI 580), Coordinator, 1990-1991, 1991-1992.

Microbiology and Immunology Student Seminar (MBI 501) Coordinator, 1991, 1992, 1993.

Mucosal Immunity (DEN 589) University of Rochester School of Medicine, Spring 1990.

Immunobiology (BMS 403) University of Rochester School of Medicine, 1985, 1986.

Immunotoxicology (ENV 492) University of Rochester School of Medicine, Fall 1984.

Medical Microbiology (MBI 510) Immunology Section, University of Rochester School of Medicine, Fall 1983.

Immunobiology, Division of Immunology, Duke University Medical Center, 1982, 1983.  
Microbiology for Pharmacy Students, Department of Microbiology, Medical College of Virginia, Fall 1980.

Immunobiology Laboratory, Department. of Microbiology, Medical College of Virginia, Spring 1980.

## **RESEARCH TRAINEES**

### **Present**

Holly Hindman, M.D., Harvard University, Junior Faculty, 2007-present.

Simona Bancos, Ph.D., Academy of Sciences, Szeged, Hungary, Postdoctoral Fellow, 2007-present.

Naxin Guo, M.D./Ph.D., Akita University, Akita, Japan (Ph.D.) and China Medical University, Shenyang, China (M.D.) Postdoctoral Fellow, 2007-present

Lawrence Fialkow, D.O., University College of Osteopathic Medicine, Des Moines, Iowa, Postdoctoral Fellow, 2006-present

Geniece M. Lehmann, Ph.D., University of Rochester, Postdoctoral Fellow 2006-present.

Matthew Bernard, B.S., SUNY Genesee, Ph.D. Candidate, 2005-present

Jamie O'Brien, B.S., University of Rochester, Ph.D. Candidate, 2005-present

Tatiana Garcia, B.S., University of Colombia, Ph.D. Candidate, 2004-present

David McMillan, B.S., Vanderbilt University, Ph.D. Candidate, 2007-present

Kurt Bertram, M.S., Northeastern University, Ph.D. Candidate, 2007-present

Ajay Kuriyan, University of Rochester Medical Student, Independent Study, 2007-2008.

Current Position: Medical Student, University of Rochester

Jacqueline Gertz: Undergraduate, Independent Study, University of Rochester 2007-present.

### **Past**

Shika Gupta, St. Bonaventure University, Summer Student, 2007.

Tracey Bielein, University of Michigan (undergraduate), Summer Student, 2007.

Current Position: University of Michigan (undergraduate), Summer Student, 2007.

Thomas Thatcher, Ph.D., University of Rochester, University of Rochester, Postdoctoral Fellow 2002-2007. \*T. Thatcher was awarded a postdoctoral fellowship from the Philip Morris Foundation.

Current Position: Research Assistant Professor of Medicine

- Denise Ray, Ph.D. University of Rochester, 2004. Postdoctoral Fellow 2004-2006  
Current Position: Senior Fellow, NIEHS  
\*Denise Ray won the Melville Hare Award for the best dissertation in Microbiology & Immunology, 2005
- TseYao Wang, B.S., National Chung-Hsing University, Masters Candidate 2005- 2006.  
Current Position: Research Associate, University of Rochester
- Carolyn Baglole, Ph.D., University of Calgary, Alberta, Canada, Postdoctoral Fellow 2002-2006.  
Current Position: Research Assistant Professor, Environmental Medicine, University of Rochester.  
\*C. Baglole was awarded a postdoctoral fellowship from the American Lung Association.
- Elizabeth Ryan, B.S., Bowling Green State, Ph.D. Candidate, 2002-2006.  
Current Position: Research Assistant Professor, University of Colorado at Boulder  
\*Elizabeth Ryan won the M. Buonocore Award for Best Presentation Rochester Section of the AADR, 2004. \*Elizabeth Ryan won an award for the best poster at the Cancer Center Retreat, 2004. \*Elizabeth Ryan won the University of Rochester Graduate Student Society Merit Award. \*Elizabeth Ryan won the award William F. Neuman Award for exemplary scholarship and citizenship, 2005. \*Elizabeth Ryan won a Bristol-Meyers Squibb Co. Award for meritorious research projects, 2005. \*Elizabeth Ryan won a travel award from the Society of Toxicology, 2006. \*Elizabeth Ryan won the Drug Discovery Award Society of Toxicology.
- Sireesha Reddy, M.D., Columbia University, M.S. Candidate, 2000-2003.  
Current Position: Assoc. Professor of OB/GYN, University of Rochester,
- Josue Padilla, D.D.S., University of Puerto Rico, M.S., Ph.D. Candidate and Periodontology Specialty Training, 1997-2004.,  
Current Position: Clinical Asst. Professor of Periodontology, Eastman Dental Center, Private Practitioner, Periodontal Health.
- Julia Kaufman, B.S., SUNY Albany, Ph.D. Candidate, 1997-2004, Ph.D., 2004.  
Current Position: Scientist, Rockefeller University.
- Timothy Barreiro, B.A., W VA Wesleyan College, DO., Ohio University College of Medicine, Pulmonary Fellow, 2002-2003.,  
Current Position: Clinical Asst. Professor, Ohio State University
- Filiz Akbiyik, M.D., Ph.D., Hacettepe University, Ankara, Turkey, NATO Postdoctoral Fellow, 2003.  
Current Position: Associate Professor of Medicine, Hacettepe University, Ankara, Turkey.
- Lisa Vanderlinde, M.D., University of Rochester, Postdoctoral fellow, 2001-2002.  
Current Position: Asst. Professor UNC/Chapel Hill, NC.
- Christine Martey, Ph.D., Lehigh University, Postdoctoral fellow, 2001-2002.  
Current Position: Assoc. Professor, Shippensburg State College
- Kate O'Reilly, M.D., McGill University. Postdoctoral fellow, 2000-2002.  
Current Position: Sr. Lecturer, Southampton Univ. Medical School, England, UK
- Laura Koumas, B.S., Rutgers University, Ph.D. candidate, 1999-2002.  
Current Position: Lecturer (Asst. Professor), University of Cyprus, Cyprus.
- Roger Smith, B.S. Eastern University, Ph.D. Candidate, 1995-2002, Ph.D. 2002.  
Current Position: Sr. Postdoctoral Fellow, Harvard University, Cambridge, MA.  
\*Dr. Smith received the M.W. Hare and the W. Fenn awards for best Ph.D. dissertation-2002.
- Sarah Harris, B.S.: West Virginia University, Ph.D. Candidate, 1996-2001, Ph.D. 2001.  
Current Position: Manager, Biogen-IDEc Pharmaceutical, San Diego, CA.
- Beth Graf, B.S., SUNY Geneseo, M.S. Candidate, 1999-2001, M.S. 2001.  
Current Position: Technical Associate, University of Rochester.
- Chantal Turner, University of Vermont, M.S. Candidate, 1999-2001, M.S. 2001.  
Current Position: Technical Associate, University of Connecticut.
- Edward Leung, Ph.D., Postdoctoral fellow, 1999-2001.  
Current Position: Sr. Scientist, Bausch & Lomb
- Kuljeet Kaur, Ph.D., University of Bombay, Postdoctoral fellow, 1996-1998.  
Current Position, Research Associate Professor, University of Miami.

- Ying Zhang, Ph.D., SUNY Syracuse, Postdoctoral Fellow, 1996-1998.  
Current Position: Senior Scientist, Wyeth Pharmaceuticals, Pearl River, NY.
- Adnan Adawi, M.D., Sackler School of Medicine, Pulmonary Fellow, 1995-1998.  
Current Position: Private Practice, South Carolina.
- Gregory Sempowski, B.S., Syracuse University, Ph.D. Candidate 1992-1997, Ph.D. 1997.  
Current Position: Associate Professor, Duke University, Durham, NC.  
\*Dr. Sempowski received the M.W. Hare award for best Ph.D. dissertation-1997.
- Melinda Borrello, B.S. University of Rochester, Ph.D. Candidate 1991-1996, Ph.D. 1996.  
Current Position: Director of Cellular Immunology-Vaccinex Corp, Rochester, NY.
- Eric Fedyk, B.S. Allegheny College, Ph.D. Candidate 1991-1996, Ph.D. 1996.  
Current Position: Director of Immunotoxicology, Millenium Pharmaceuticals, Boston MA.  
\*Dr. Fedyk received the M.W. Hare award for best Ph.D. dissertation-1996.
- Alicia Linares, B.S. University of Rochester, M.S. Candidate, 1994-1995. M.S. 1995.  
Current Position: Ph.D. student, University of Colorado-Denver, CO.
- Kristin Fries, Ph.D., University of Rochester, Postdoctoral Fellow, 1992-1994.  
Current Position: Associate Professor of Chemistry, Damon College, Buffalo, NY.
- John Roper, B.S. Allegheny College, M.S. Candidate, 1993-1994. M.S. 1994.  
Current Position: Medical Technology Instructor, Pittsburgh, PA.
- Maria Silvera, B.S. University of Rochester, Ph.D. Candidate, 1989-1994. Ph.D. 1994.  
Current Position: Clinical Professor, University of Arizona.
- Deborah Brown, B.S. SUNY Geneseo, M.S. Candidate 1992-1994. M.S. 1994.  
Current Position: Postdoctoral Fellow, Trudeau Institute, Saranac Lake, NY.
- Rachel Roper, B.S. Texas A&M University, Ph.D. candidate 1987-1992, Ph.D. 1992.  
Current Position: Associate Professor, East Carolina School of Medicine.  
\*Dr. Roper received the M.W. Hare award for best Ph.D. dissertation-1992.
- Helena Watts, M.D. Harvard University, Postdoctoral Fellow 1990-1992.  
Current Position: Chief Pulmonologist, St. Agnes Hospital, Baltimore, MD.  
Clinical Associate Professor, University of Maryland Medical Ctr, Baltimore, MD.
- Sidney Stein, D.M.D. Washington University, Ph.D. Candidate 1986-1991, Ph.D. 1991.  
Current Position: Associate Professor of Periodontology and Oral Biology  
University of Tennessee, Memphis, TN.
- Michael Froncek, B.S. University of Rochester, M.S. Candidate 1990-1991, M.S. 1991.  
Current Position: Rheumatologist, Gastonia, NC
- Stephen Derdak, D.O. Texas College of Medicine, Postdoctoral Fellow, 1988-1989.  
Current Position: Professor and Director of Pulmonary and Critical Care Medicine Wilford Hall  
Air Force Medical Center, San Antonio, TX.
- Victoria Schad, B.S. William Smith College, Ph.D. Candidate 1984-1989, Ph.D. 1989.  
Current Position: Senior Scientist, Biotransplant Inc. Charlestown, MA.
- Clare Baecher, B.S. Hamilton College, M.S. Candidate 1985-1987, M.S. 1987.  
Current Position: Research Associate Professor, Boston University, Boston, MA.
- S. Sadegh-Nasseri, Ph.D. University of California, Los Angeles, Postdoctoral Fellow 1984-1986,  
Current Position: Associate Professor, Johns Hopkins School of Medicine, Baltimore., MD.
- Michael Spaulding, B.S. Notre Dame University, M.S. Candidate 1985-1987, M.S. 1987.  
Current Position: Physician, University of Pittsburgh Medical Center, Pittsburgh, PA.
- David Lee, B.S. University of Rochester, undergraduate senior thesis, 1987-1988.  
Current Position: Pharmacist, Buffalo, NY.
- Karl Illig, B.S. Harvard University, undergraduate independent research 1983-1984.  
Current Position: Associate Professor of Surgery, University of Rochester, Rochester, NY.
- Karim Bhimani, B.S. University of Rochester, undergraduate independent research 1983-1984.  
Current Position: Research Associate, Sloan-Kettering Institute for Cancer Research, New York, NY.

**Ph.D. THESIS COMMITTEES (CURRENT)**

Matthew Bernard	Lai, Jiann-Jyh	Tam Quach	Kurt Bertram
Elizabeth Wilson	Vanessa Morales	Sam Caito	
Tatiana Garcia	Jamie O'Brien	David McMillan	

MS thesis committees: None at present.

**Faculty mentor for Junior Clinical faculty**

Dr. Steven Cook, Pediatrics, 2006-present  
 Dr. Katherine Schaefer, Medicine, 2005-present  
 Dr. Sherry Spinelli, Pathology, 2005-present  
 Dr. Elizabeth Ryan, Cancer Center, 2006-2007  
 Dr. Patricia Sime, Medicine 1999-2006  
 Dr. Sireesha Reddy, Obstetrics and Gynecology 2000-2004  
 Dr. Arnoldo Arbino, Pathology, 2002-2003  
 Dr. Gloria Pryhuber, Pediatrics 1998-2001  
 Dr. Patricia Chess, Pediatrics, 1997-2000  
 Dr. Carl D'Angio, Pediatrics 1997-2000

**Ph.D. AND \*M.S. THESIS COMMITTEES (PAST)**

Victoria Schad	Virginia Winn	David O'Brien	*Michael Spaulding
Jacquelin Chase	Leonard Dragone	Lambert Liou	*Deborah Brown
John Cogswell	Sidney Stein	Chandra Louise	*Anne Koninski
Rachel Roper	Laura Haynes	Ravi Patil	*John Ripper
Clare Baecher	Joel Dopp	Alex McAdam	*Mark Tran
Maria Silvera	Luc Joseph	Gary Brenner	*Alicia Linares
Greg Sempowski	Melinda Borrello	Eric Fedyk	*Ray Michalowski
Julie Ostberg	Roger Hawks	*Regina Harley	*Kristin Heers
Branda Hu	Ping Xing	Regis O'Keefe	Frank Murante
Stephanos Kyrkanides	Tom Thatcher	Minh Doan Nguyen	Sarah Harris
*Beth Graf	*Chantal Turner	Roger Smith	Mary Maida
Tracey Callahan	Laura Koumas	Lisa Flick	Josue Padilla
Sang Li	Denise Ray	Julia Kaufman	Sireesha Reddy
*TseYao Wang	Elizabeth Ryan	David Farrer	Yuri Shapolov
Nipa Mody			

**PRESENTATIONS AT MEETINGS FROM PREDOCTORAL STUDENTS AND POSTDOCTORAL FELLOWS** \* oral presentation

- 1985 FASEB, St Louis, MO.
- 1986 Sixth International Congress of Immunology, Toronto, Canada.
- \*1987 International Reticuloendothelial Society Symposia, Richmond, VA.
- 1987 FASEB, Washington, D.C.
- \*1988 Lake Ontario Immunology Society, Rochester, NY.
- \*1988 International Association for Dental Research, Montreal, Canada.
- \*1989 American College of Physicians-USA Society of Physicians, Bethesda, MD.
- \*1989 UCLA Symposia: Immunogenicity, Steamboat Springs, CO.
- 1989 American Thoracic Society, Cincinnati, OH.
- \*1989 American Association of Dental Research, San Francisco, CA.
- \*1989 7th International Congress of Immunology, West Berlin, Germany.
- \*1989 American Association of Dental Research, Niagara Falls, NY.

- 1990 Miami Biotechnology Winter Symposia, Miami, FL.
- \*1990 International. Association of Dental Research, Cincinnati, OH.
- \*1990 Dentist-Scientist Conference, NIDR, Bethesda, MD.
- 1990 International Meeting of the Society for Aerosols in Medicine, Rochester, NY.
- \*1990 World Conference on Lung Health, Boston, MA.
- \*1990 Texas Society for Thoracic Medicine, San Antonio, TX.
- \*1990 Scientific Assembly - American Society of Chest Physicians, Toronto, Canada.
- \*1990 Eighth International Conference on Periodontal Research, San Antonio, TX.
- 1990 Lake Ontario Immunology Society, Geneva, NY.
- \*1991 International Conference on Periodontal Disease, San Antonio, TX.
- 1991 Midwinter Conference of Immunologists, Asilomar, CA.
- 1991 UCLA Symposia, Cytokines and their Receptors, Keystone, CO.
- 1992 Midwinter Conference of Immunologists, Asilomar, CA.
- \*1992 American Lung Association/American Thoracic Society Intl Conference, Miami, FL.
- 1992 Eighth International Conference on Prostaglandins and Leukotrienes, Montreal, Canada.
- \*1992 International Immunology Congress, Budapest, Hungary.
- 1993 AAI-CIS Immunology Conference, Denver, CO.
- 1994 Conference on Inflammation, Tamarron, CO.
- \*1994 American Thoracic Society/Lung Conference, Boston, MA.
- \*1994 American Association of Immunologists/FASEB, San Francisco, CA.
- \*1995 International Immunology Congress, San Francisco, CA.
- 1996 American Thoracic Society/Lung Conference, San Francisco, CA.
- 1996 American Association of Dental Research, San Francisco, CA.
- \*1997 Keystone Symposia on B Lymphocyte Biology, Steamboat Springs, CO.
- 1997 American Association of Dental Research, Orlando, FL.
- 1997 International Conference of Eicosanoids and Cancer and Inflammation, LaJolla, CA.
- 1998 American Society for Microbiology, CA.
- 1999 Cancer Center Symposia.
- 1999 International Conference on Eicosanoids and Lysophospholipids, New York, NY.
- 2000 Intl Conf on Eicosanoids, Boston MA.
- \*2001 FASEB.
- \*2001 International Conference on Dental Research.
- 2001 Keystone Conference on Apoptosis.
- 2001 Keystone Conference on Prostanoids and PPARgs.
- 2001 Society for Gynecologic Investigation.
- \*2001 International Conference on Eicosanoids.
- \*2002 International Society for Gynecologic Investigation.
- \*2003 NIH Workshop on Endometriosis/Pelvic Pain
- \*2003 Keystone Conference on PPARgs
- 2004 Keystone Conference on Lymphocyte Activation, Steamboat Springs, CO
- 2004 FASEB, Washington, D.C.
- 2004 AADR, Rochester, N.Y.
- 2005 Keystone Conference on PPARgs, Whistler, British Columbia
- \*2005 9th International Conference on Eicosanoids
- 2006 Keystone Conference on Eicosanoids in Inflammation, Park City, Utah
- \*2006 Society of Toxicology, San Diego, CA
- 2006 Eicosanoid Conference, Baltimore, MD
- 2006 American Thoracic Society, San Francisco, CA
- 2007 Keystone Conference on Biology of B Cells in Health and Disease, Banff, Alberta
- \*2007 American Association of Dental Research, Rochester, NY
- 2007 American Thoracic Society, San Francisco, CA
- \*2008 Society of Toxicology, Seattle Washington
- \*2008 FASEB, San Diego, CA

**GRANTS AWARDED****A. CURRENT RESEARCH SUPPORT**

<u>Funding Organization/ Type of Grant</u>	<u>Title</u>	<u>Total Direct Costs and Dates of Award</u>
NIDCR R01 DE011390-20 R. Phipps, PI	Regulation of Immunity by Prostaglandins	\$1,200,000 8/05-7/10
NEIHS R01 EY017123 R. Phipps, PI	Role of T Cells and PPARgamma in Graves' Orbital Fibroblasts Adipogenesis	\$750,000 09/06-08/11
NHLBI R21 HL086367 R. Phipps PI	Normal and Type-2 Diabetic Platelet Proteomics and Storage for Transfusion	\$275,000 09/06-08/08
NEIHS R01 EY11708-12 T. Smith, PI R. Phipps, Co-PI	Functional Diversity of Orbital Fibroblasts Subcontract to R. Phipps	\$1,250,000 4/07-3/12
NIEHS ES001247 T. Gasiewicz, PI R. Phipps, Investigator, plus access to Center Core Facilities and Programs	NIEHS Center Grant: Environmental Agents as Modulators of Disease Processes	\$ 5,416,323 3/05-2/10
NHLBI R01 HL78604 R. Phipps, PI	Platelet Activation and Inflammatory Mediators	\$800,000 9/04-08/08
NIAID R21 AI071064 R. Phipps, PI	Role of Cyclooxygenase-2 in Antibody Responses to Vaccination	\$275,000 09/07-09/09
NIH R01 HL088325 P. Sime, PI R. Phipps, Investigator	Role of the Aryl Hydrocarbon Receptor in Lung Inflammation	\$1,250,000 12/07-11/12
Bausch and Lomb External Research Program R. Phipps, Program Director	Model Systems for Studying Human Ocular Fibroblasts: Inflammation and Scarring	\$450,000 10/06-09/11
Leukemia & Lymphoma Society S. Bernstein, PI R. Phipps, Co-PI	Targeting the PPARgamma Pathway as a Novel Therapeutic Approach for non-Hodgkin's Lymphoma	\$540,000 10/05-9/08
Lymphoma Research Foundation S. Bernstein, PI R. Phipps, Co-PI	Triterpenoids as Novel Therapeutic Agents for the Treatment of Mantle Cell Lymphoma	\$502,854 05/07-04/10

NHLBI R01HL75432 P. Sime, PI R. Phipps, Investigator	Modulation of Silica-Induced Pulmonary Fibrosis	\$1,250,000 8/05-7/10
NEIHS R01 EY015836 K. Huxlin, PI R. Phipps, Investigator	Corneal Wound Healing: Ocular Optics After Laser Surgery	\$1,250,000 7/04-6/09
NASA/Batelle/PNNL J. Z. Hu, PI R. Phipps, Co-PI	“Early Detection of Inflammatory Responses and the Subsequent Health Outcomes Due to High LET Particle Radiation: An Integrated Metabolomics Study” Subcontract to R. Phipps	\$300,000 11/07-12/08
NIAID R01 NS054578 S. Maggirwar, PI R. Phipps, Investigator	Inflammatory Mechanisms Associated with HIV-1 Dementia	\$1,100,000 12/05-11/10
EPA Center Grant R827354 G. Oberdörster, PI R. Phipps, Core Director	Ultrafine Particle Characterization: Pathophysiological Mechanisms Vascular & Inflammation Core	\$311,460 (core only) 10/05-9/10
Parker B. Francis Fellowship Award R. Phipps, Sponsor C. Baglolle, Awardee	The Aryl Hydrocarbon Receptor Regulates Cigarette Smoke-Induced Pulmonary Inflammation in a RelB- Dependent Mechanism	\$144,000 07/07-06/10
PhrMA Foundation Grant R. Phipps, Sponsor J. O’Brien, Awardee	Use of Small Electrophilic Prostaglandins to Enhance Platelet Production	\$40,000 01/08-12/10

**B. PENDING GRANT SUPPORT**

NIAID RC-1 R. Phipps, PI	Electrophilic Small Molecules Enhance Platelet Regeneration After Radiation	\$1,000,000 07/08-12/09
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**C. CURRENT TRAINING GRANT SUPPORT**

NIEHS T32-ES07026 N. Ballatori, PI R. Phipps, Pre and Postdoctoral trainer	Training in Toxicology (renewal is likely, score of 143)	\$1,230,890 7/03-06/08
NHLBI-T32-HL66988 M. Frampton/R. Phipps Co-PIs	Multidisciplinary Training in Pulmonary Research	\$2,064,450 09/06-08/11
NIH-T32-AI072855 E. Lord, PI R. Phipps: Pre and Postdoctoral Trainer	Pre-and Postdoctoral Training Program in Immunology	\$1,200,000 09/07-08/12

NIGMS T32 GM007356 C. O'Banion, PI R.P. Phipps, PI	Medical Scientists Training Program	\$1,500,906 7/06-6/09
NIH T32HL007152-31 C. Francis, PI R. Phipps, Pre and Postdoctoral Trainer	Graduate Training Program in Hematology Research	\$1,423,705 7/07-06/12
NIH T32 DE007202-17A1 R. Quivey, PI R. Phipps, Pre and Postdoctoral Trainer	Training Program in Oral Science	\$3,932,654 08/07-07/12

**D. PREVIOUS RESEARCH GRANTS (R. Phipps is the P.I. unless otherwise noted)**

<u>Funding Organization and Type of Grant</u>	<u>Grant Title</u>	<u>Direct Costs &amp; Dates of Award</u>
American Cancer Society: Institutional Research Award	Conversion of a Tolerogenic Signal to an Immune One. 1984	\$ 4,000
NIH: Biomedical Research Support Grant	Isolation of Autoreactive B cells.	\$ 9,633 1985
United Cancer Council:	Conversion of a Tolerogenic to an Immunogenic Signal by Accessory Cells.	\$ 7,826 1985-1986
NIH: Biomedical Research Support Grant	Accessory Cell Presentation of Immune Complexes.	\$ 9,633 1986
United Way	Activation and Regulation of Autoreactive B Cells	\$ 7,826 1986-1987
Genesee Valley Arthritis Foundation	Activation of Nucleic Acid Specific B Cells	\$ 7,826 12/87-12/88
NCI/RO1 CA-42739 (01-03) This project was renewed for the 04-08 years.	Accessory Cell Modulation of B Cell Tolerance and Triggering.	\$ 228,255 3/86-2/89
NIH: Biomedical Research Support Grant	Collagen Synthesis by subsets of Lung Fibroblasts.	\$ 9,440 1/89-12/89
Genesee Valley Arthritis R. Phipps/J. Looney Co-PI	Synovial Fibroblast Subsets	\$ 9,000 1990-1991

NHLBI/RO1 HL-39949 D. Penney, PI R. Phipps, Investigator	Fibroblast Involvement in Developing Pulmonary Fibrosis	\$ 592,346 9/87-7/92
NIDR/RO1 CA-42739 (09-12) This project was renewed for the 13-17 years.	Accessory Cell Modulation of B cell Tolerance and Triggering	\$ 495,000 3/89-8/94
NCI/RO1 CA-42739 (04-08) This project was renewed for the 09-12 years.	Accessory Cell Modulation of B cell Tolerance and Triggering	\$ 495,000 3/89-8/94
NCI/RO1 CA-55305 (01-04) R. Phipps, PI	Radiation-Induced Cytokine Synthesis and Lung Fibrosis	\$ 319,093 8/91-7/95
ES01247-Pilot Project	Functional Significance of CD40 on Lung Fibroblasts	\$ 18,350 4/94-3/95
NIDR/RO3 DE-11047 T. Blieden, PI R. Phipps, Co-PI	Periodontal Fibroblast Heterogeneity	\$ 50,000 5/94-4/96
Pepper Center R. Phipps, PI	The Role of IL-6 in the Development of Lung Fibrosis	\$ 10,000 7/95-6/96
Bristol-Myers Squibb R. Phipps, PI	Novel Therapies for Acute Lung Injury	\$ 60,754 4/96-4/97
Strong Children's Research Fund J. Palis, PI R. Phipps, Co-PI	Biphenotypic B/macrophage Cells	\$ 5,000 7/96-6/97
Univ. of Rochester Cancer Center R. Barth PI R. Phipps Co-PI	Role of CD40/CD40 ligand in chemotherapy induced lung injury	\$ 15,000 7/96-6/97
Rochester Area Pepper Center R. Phipps, PI	Fibroblast Activation Antigens	\$ 5,000 1/97-6/97
NCI/CA-11198 G. Abraham, PI R. Phipps-Thoracic Oncology Program Co-Leader plus access to Cancer Center Core Facilities and Programs	Cancer Center Core Grant	\$ 2,271,518 5/95-4/98
Cystic Fibrosis Foundation R. Phipps, PI B. Iglewski, Co-PI	Chronic lung inflammation and the Pseudomonas autoinducer	\$ 100,000 9/97-8/99
Cancer Center Discovery Fund	Prostanoids and Chronic Lymphocytic Leukemia	\$ 15,000 1/98-1/99
Burroughs Wellcome Foundation R. Phipps, PI	Sabbatical/visiting Professor	\$ 11,500 1/99-12/99

Cancer Center Discovery Fund R. Phipps, PI	Lung Fibrosis	\$ 30,000 12/99-11/00
NIEHS-Pilot project R. Phipps, PI	Lung Fibrosis and toxicants	\$ 25,000 1/00-1/01
Genetics Institute R. Phipps, PI	IL-13 and lung injury	\$ 26,000 11/00-10/01
NHLBI/NIA R01 R. Barth, PI R. Phipps, Investigator	Genes controlling chemotherapy induced lung fibrosis	\$ 591,584 11/98-10/01
NIEHS R01 EY11708-01 T. Smith PI R. Phipps, Co-PI	Functional diversity of orbital fibroblasts Subcontract to R. Phipps	\$60,000 5/97-4/02
NHLBI R01-HL 56002-05 R. Phipps, PI	Role of CD40 in lung inflammation & fibrosis	\$ 550,938 9/97-8/02
EPA-Pilot Project R. Phipps, PI	Platelet CD40L and fibroblast activation	\$ 15,000 6/01-7/02
NIH/NCI/CERRIS program P. Okunieff, PI R. Phipps, Investigator	Radiation induced cellular injury	\$ 2,184,370 8/98-7/02
Endometriosis Association R. Phipps, PI	Activation of Endometriosis Fibroblasts by the CD40/CD40L System	\$45,000 7/02-6/03
Cystic Fibrosis Foundation R. Phipps, PI	The Pseudomonas autoinducer and lung inflammation	\$ 180,000 1/00-12/03
University of Rochester Cancer Center N. Blumberg/R. Phipps Co-PIs	Consequences of platelet CD40L transfusion to adult myeloid myeloid leukemia patients	\$ 25,000 7/02-6/03
Schering-Plough Research Institute	Neutrophil Mediated Lung Injury And Cigarette Smoking	\$80,000 7/02-12/03
University of Rochester Howard Hughes Pilot Funding S. Feldon/R. Phipps Co-PIs	Studies on Graves' Ophthalmopathy	\$25,000 2003-2004
Wyman-Potter Foundation	Unrestricted Equipment Grant for Lung Biology	\$40,000 2004
NIDCR/R01 DE011390 R. Phipps PI	Regulation of Immunity by Prostaglandins	\$964,719 7/99-6/05

Philip Morris Foundation R. Phipps, PI	Smoking related toxicants: Induction of Cox-2 and enhancement of pulmonary inflammation and asthma	\$ 558,831 11/01-4/05
Philip Morris External Research Program R. Phipps, PI	Cigarette smoke induction of the cyclooxygenase and Prostaglandin pathway: Implications for lung inflammation and cancer	\$620,000 9/03-8/06
American Lung Association Postdoctoral Fellowship R. Phipps, Sponsor C. Baglolle, Awardee	Cigarette smoke-induced human lung fibroblast activation: implications for inflammation and cancer	\$65,000 7/04-6/06
Philip Morris External Research Program Postdoctoral Fellowship R. Phipps, Sponsor T. Thatcher, Awardee	The AHR pathway and chronic lung inflammation	\$90,000 3/05-2/07
NEI R03 EY014564 S. Feldon, PI R. Phipps, Investigator	A novel in vitro model of thyroid ophthalmopathy	\$300,000 4/03-03/07
NIEHS R01 EY11708-06-10 T. Smith, PI R. Phipps, Co-PI	Functional diversity of orbital fibroblasts Subcontract to R. Phipps	\$ 1,382,289 4/02-3/07 \$65,000/yr
Philip Morris External Research Program I. Rahman, PI R. Phipps, Investigator	Molecular Mechanisms of Cigarette Smoke-Mediated Pro-Inflammatory Cytokines and Mediators	\$625,321 7/04-6/07
Philip Morris External Research Program I. Rahman, PI R. Phipps, Investigator	Role of VEGF and its Receptor KDR in Cigarette Smoke-Mediated Endothelial Cell Dysfunction	\$630,810 9/05-08/08

**E. OTHER GRANTS PREVIOUSLY AWARDED (Phipps is PI unless otherwise noted)**

NIH: Predoctoral Fellowship (Medical College of Virginia)	Pre and Postdoctoral Training Grant in Infectious Disease	\$ 3,900/yr. 1977-1979
NIH: Predoctoral Fellowship (Medical College of Virginia)	Pre and Postdoctoral Training Grant in Cancer Etiology and	\$ 3900/yr. 1979-1980 Treatment
NIH: Postdoctoral Fellowship (Duke University)	Pre and Postdoctoral Training Grant in Immunogenetics	\$ 14,000/yr. 1980-1981

Arthritis Foundation: Fellowship	Role of Accessory Cells In Growth, Triggering and Tolerance Induction of Hapten-Specific B Cells.	\$ 36,000 1981-1983
Arthritis Foundation: Investigatorship	Role of Accessory Cells in Modulating B cell Triggering and Tolerance.	\$ 69,000 1984-1987
NCI: Construction Grant 3-C06-CA 37558 R. Cooper P.I	Cancer Center Construction Grant. (for the Immunology Unit).	\$ 1,400,000 1984-1986
Arthritis Foundation/ Merck, Sharp, and Dohme	Travel Award to The American Rheumatism Association National Meeting to give a presentation.	\$ 800 1986
National Institute of Arthritis Travel Award	Molecular Biological Approaches to Rheumatic Diseases	\$ 500 1986
DuPont-American College of Chest Physicians S. Derdak P.I. R. Phipps, sponsor	Research-Scholar Award American College of Chest Physicians	\$1,000 1990

**PATENTS AWARDED**

US 6,395,282 B1  
05/28/02

Immunologic Conjugates of Gram-Negative  
Bacterial Autoinducer Molecules

US 6,713,059 B2  
03/30/04

Antibodies raised against immunogenic conjugates of  
gram-negative bacterial autoinducer molecules.

US 6,958,219 B2  
10/25/05

Method for detecting a gram-negative bacterial  
autoinducer molecule.

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*n.b. Authors denoted by a (\*) are students or postdocs who have trained or are currently training in my laboratory.*

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**Abstracts:** More than 200 abstracts have been published.

## RESEARCH INTERESTS

### **Role of Prostaglandins in B cell Biology and Immunity**

Prostaglandins are lipid mediators produced by the action of the cyclooxygenase 1 and 2 enzymes on membrane-derived arachidonic acid. Specific cellular synthases (e.g. from macrophages and fibroblasts) cause the formation of key immuno-regulatory prostanoids including PGE<sub>2</sub> and PGD<sub>2</sub>. Prostaglandins have both pro and anti-inflammatory properties that are poorly understood. The hypothesis this laboratory developed is that PGs of the E-series are not simply immuno-inhibitory agents, but rather are regulatory for normal B-lymphocytes. An emerging concept is that PGE<sub>2</sub> differentially regulates the immune response by preferentially enhancing certain antibody responses at the expense of inflammatory responses. This laboratory has published extensively on the ability of PGE<sub>2</sub> to stimulate, up to 26-fold, the production of IgE, which is responsible for allergic responses and for asthma. Clinically, concurrent high PGE<sub>2</sub> and elevated IgE levels occur in: Hyper IgE syndrome, AIDS, burn and trauma patients, and bone marrow/stem cell transplant patients. Our research has also shown that PGE<sub>2</sub> is capable of tipping the immunologic balance towards Th2 (type-2 allergic) cytokine responses and away from Th1 (type-1 cell mediated) responses. Thus PGE<sub>2</sub> promotes synthesis of the type 2 cytokines IL-4, IL-5 and IL-10 and inhibits the production of the type 1 cytokines IL-12 and IFN $\gamma$ . Recently, a novel class of prostaglandin nuclear receptor was discovered called peroxisome proliferator activated receptor  $\gamma$  (PPAR $\gamma$ ). This receptor acts as a transcription factor controlling lipid metabolism in fat cells. This lab discovered that T and B-lymphocytes highly express PPAR $\gamma$  and its activation by 15d-PGJ<sub>2</sub> (the natural PPAR $\gamma$  ligand) induces apoptosis in B lineage cells (normal and malignant). Our data and that of other labs show that the PPAR $\gamma$  system has immuno-inhibitory and possibly anti-inflammatory properties. Our current efforts focus on a molecular analysis of the PPAR $\gamma$  receptor on B and T cells. By understanding how prostaglandins regulate elements of the immune response it may become possible to specifically regulate the immune system via easily synthesized lipid mediators.

### **Cellular and Molecular Characterization of Fibroblasts as Mediators of Acute and Chronic Lung Inflammation and Fibrosis**

Injury to the lung from exposure to chemotherapeutic agents, ionizing radiation, tobacco smoke, or occupational hazards such as pesticides may lead to pulmonary fibrosis (scarring). The advanced stages of this disease are characterized by a fibroblast hyperplasia and by excessive accumulation of fibroblast-secreted connective tissue such as collagen. This laboratory is investigating the central role of the fibroblast in these processes and the mechanisms by which they activate and are activated by the infiltrating immune cells. Our studies support the hypothesis that the fibroblast is not simply a target for cytokines produced by cells such as macrophages and T lymphocytes, but that production of chemokines and cytokines by fibroblasts regulate the activities of cells of the immune system which inhabit and infiltrate the lung. Current efforts are directed at determining how a surface receptor called CD40 regulates fibroblast proliferation, cytokine production, and interaction with lymphocytes and proliferation. CD40 is the dominant regulator of fibroblast activation and through the CD40 ligand (CD40L) expressed on the surface of T cells, mast cells and platelets, allows communication between fibroblasts and immune cells. Recently, we have demonstrated that disruption of the CD40/CD40L pathway offers new therapy to prevent acute lung injury and lung fibrosis. Understanding the activities of fibroblasts will permit the design of more rational approaches to arrest or reverse potentially fatal and untreatable pulmonary fibrotic disease. A second major research thrust is to understand how tobacco smoke "activates" lung fibroblasts. Smoke induces fibroblast expression of the cyclo-oxygenase-2 enzyme, whose chronic expression predisposes to malignancy. We are studying the molecular mechanism of smoke activation of human lung cells and are studying the role of the aryl hydrocarbon receptor in smoke-induced lung inflammation. Reduction of pulmonary inflammation should reduce diseases such as chronic obstructive pulmonary disease (COPD).

### **Platelets and their Roles in Inflammation, Diabetes and Cardiovascular Disease**

Platelets are not only essential for clotting, but have an emerging role in inflammation, diabetes and cardiovascular disease in part due to their release or production of the pro-inflammatory and pro-atherogenic mediators CD40 ligand (L) and thromboxanes (TX). Peroxisome Proliferator Activated Receptor gamma (PPARgamma) is a ligand-activated transcription factor important in lipid metabolism, cardiovascular disease, diabetes, and inflammation. We discovered that human platelets and megakaryocytes express PPARgamma and that natural and synthetic small molecule PPARgamma agonists influence platelet release of bioactive mediators (see *Blood*, 104:1361, 2004). For example, incubation with a natural PPARgamma agonist, 15d-PGJ<sub>2</sub>, or with potent synthetic PPARgamma ligands used to treat type-2 diabetics, (e.g. rosiglitazone (Avandia<sup>®</sup>)) prevented thrombin-induced CD40L surface expression and release of CD40L and TXB<sub>2</sub>. Our results show that human platelets express PPARgamma and that PPARgamma agonists such as the thiazolidinedione class (e.g. rosiglitazone) of anti-diabetic drugs have a new target cell, the platelet. This may represent a novel mechanism for treatment of inflammation, thrombosis and vascular disease in high-risk patients. Our interest in platelets is further fueled by our studies showing that platelets prepared for transfusion become partially activated and that upon storage release many bioactive mediators that can induce fevers and lung injury (see *Blood*, 108, 2455, 2006). We are currently discovering the human platelet proteome in an effort to find new drug targets to regulate platelet function and to determine additional proinflammatory mediators produced by the most numerous white blood cell; the platelet.