

Clay B. Marsh M.D.
West Virginia University Health Sciences
Department of Medicine

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Personal

https://en.wikipedia.org/wiki/Clay_Marsh

Education

Fellowship, Ohio State University, 1995.
Major: Instructor/Extension of Research Fellowship, Pulmonary and Critical Care Medicine

Fellowship, Ohio State University, 1992.
Major: Fellow, Pulmonary and Critical Care Medicine

Chief Resident, Ohio State University, 1990.
Major: Internal Medicine

Fellowship, Ohio State University, 1989.
Major: Research Fellow, Pulmonary and Critical Care Medicine

Residency, Ohio State University, 1988.
Major: Internal Medicine

MD, West Virginia University, 1985.
Major: Medicine

BS, West Virginia University, 1981.
Major: Biology

Professional Positions

Academic - Post-Secondary

Professor, Department of Medicine, West Virginia University, Morgantown, West Virginia. (February 15, 2015 - Present).

Vice Dean of Innovation, College of Medicine, The Ohio State University, Columbus, Ohio. (2013 - 2015).

Professor, Medical Science Graduate Program, The Ohio State University, Columbus, Ohio. (2010 - 2015).

Professor, Molecular and Cellular Developmental Biology Program, The Ohio State University, Columbus, Ohio. (2007 - 2015).

Professor, Biochemistry Program, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Professor, Department of Veterinary Sciences, The Ohio State University, Columbus, Ohio, United States. (2004 - 2015).

Professor, Department of Molecular Virology, Immunology and Medical Genetics, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Professor, Department of Pathology, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Professor, Integrated Biomedical Science Graduate Program, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Professor of Medicine, Pulmonary, Allergy, Critical Care and Sleep Medicine, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Associate Professor, Integrated Biomedical Science Graduate Program, The Ohio State University, Columbus, Ohio. (2000 - 2015).

Vice Chairman, Research, Department of Internal Medicine, The Ohio State University, Columbus, Ohio. (2000 - 2015).

Investigator, The Heart and Lung Institute, The Ohio State University, Columbus, Ohio. (July 1998 - 2015).

Vice Dean of Research, College of Medicine, The Ohio State University, Columbus, Ohio. (2009 - 2013).

Chair, Center for Critical Care and Respiratory Medicine, The Ohio State University, Columbus, Ohio. (2006 - 2013).

Associate Professor, Department of Veterinary Sciences, The Ohio State University, Columbus, Ohio. (2001 - 2004).

Associate Professor, Biochemistry Program, The Ohio State University, Columbus, Ohio. (2001 - 2004).

Associate Professor, Department of Molecular Virology, Immunology and Medical Genetics, The Ohio State University, Columbus, Ohio. (2000 - 2004).

Associate Professor, Department of Pathology, The Ohio State University, Columbus, Ohio. (2000 - 2004).

Associate Professor of Medicine, Pulmonary and Critical Care Medicine, The Ohio State University, Columbus, Ohio. (July 1998 - June 2004).

Assistant Professor of Medicine, Pulmonary and Critical Care Medicine, The Ohio State University, Columbus, Ohio. (July 1995 - June 1998).

Clinical Instructor of Medicine/Extended Research Fellowship, The Ohio State University, Columbus, Ohio. (July 1993 - June 1995).

Professional

Covid-19 Czar, State of WV (3/20-), Coordination of all agencies in state response to Covid-19, appointment by Gov Jim Justice.

Vice President and Executive Dean, West Virginia University Health Sciences, Morgantown, West Virginia. (February 15, 2015 - Present).

Senior Associate Vice President for Health Sciences, The Ohio State University, Columbus, Ohio. (2009 - 2015).

Executive Director, Center for Personalized Health Care, The Ohio State University, Columbus, Ohio. (2009 - 2015).

Associate Director, Pulmonary Research, Davis Heart and Lung Research Institute, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Deputy Director, Davis Heart and Lung Institute, The Ohio State University, Columbus, Ohio. (2004 - 2015).

Director, Pulmonary, Allergy, Critical Care and Sleep Medicine, The Ohio State University, Columbus, Ohio. (2003 - 2009).

Associate Director of Education and Research Initiatives, The Ohio State University, Columbus, Ohio. (2000 - 2004).

Interim Director, Pulmonary and Critical Care Medicine, The Ohio State University, Columbus, Ohio. (2002 - 2003).

Licensures and Certifications

American Board of Internal Medicine. 1988.

National Board of Medical Examiners. 1985.

Pulmonary Medicine, 1993, renewed 2002, ABIM recertification test pass, 2013.

Critical Care Medicine, 1994, renewed 2003, ABIM recertification test pass, 2013.

Professional Memberships

Association of Academic Health Centers. (2009 - Present).

American College of Physicians. (2008 - Present).

Society for Critical Care Medicine. (2007 - Present).

American Society for Clinical Investigation. (2004 - Present).

American Society for Biochemistry and Molecular Biology. (2002 - Present).

American Association for the Advancement of Science. (1993 - Present).

American Federation for Medical Research. (1993 - Present).

American Thoracic Society. (1989 - Present).

Ohio Thoracic Society. (1989 - 2014).

Federation of American Society for Experimental Biology. (1997 - 2012).

American Association of Immunologists. (1995 - 2012).

Central Society for Clinical Research. (2000 - 2010).

International Cytokine Society. (1994 - 2008).

Development Activities Attended

Leadership Academy, Fisher School of Business and OSU College of Medicine, Columbus, Ohio. (2001 - 2002).

Awards and Honors

Elbert Fretwell Education Award, Boy Scouts of America, Mountaineer Area Council. (12/20).

2018 Who's Who Business Award, The State Journal. (June 12, 2018).

America's Best Doctors Award Recipient, AHC. (2002 - 2014).

Member, Board of Directors, Personalized Medicine Coalition. (2009 - 2013).

Scientific Advisory Committee, GSK, complexity and COPD management. (2011 - 2012).

American College of Physicians, Fellow. (2011).

Member, Battelle/Institute of Systems Biology Pulmonary Advisory Committee. (2007 - 2010).

Member, Executive Committee, National Summit on Personalized Healthcare, State of Utah. (2009).

Chair, Governance Committee, Sarnoff Foundation for Cardiovascular Sciences. (2008-2009).

Member, American Thoracic Society, Research Advocacy Board. (2004-2008).

Chair Elect, Board of Directors, Sarnoff Endowment for Cardiovascular Sciences. (2007-2008).

Chair Elect, Scientific Board, Sarnoff Endowment for Cardiovascular Sciences. (2005-2007).

Member, Scientific Board, Stanley Sarnoff Foundation, (2001-2005)

Faculty Research Award, Landacre Society, The Ohio State University. (2005).

Unverferth Research Award, The Ohio State University, Department of Internal Medicine. (2004).

American Society for Clinical Investigation. (2004).

Presidential Award, American Lung Association of Ohio. (2003).

Johnie Walker Murphy Career Investigator Award. (1999 - 2002).

Faculty Teaching Award, Department of Family Medicine, The Ohio State University. (2001).

Inaugural Faculty Mentor Award, Davis Heart and Lung Research Institute, The Ohio State University. (2001).

Central Society for Clinical Research. (2000).

Faculty Member of the Year, Landacre Society, The Ohio State University. (1998 - 1999).

Teacher of the Year, Department of Internal Medicine, The Ohio State University. (1997-1998).

James V. Warren Research Award, The Ohio State University, Department of Internal Medicine.

(1993).

American Federation of Clinical Research Trainee Investigator Award. (1992).

Medical Student Teaching Award, The Ohio State University. (1988).

Outstanding Medical Resident Award, The Ohio State University, Department of Internal Medicine. (1988).

Alpha Omega Alpha Honor Society. (1987).

Veterans Administration Service Award. (1987).

Trainee Awards (Marsh sponsor)

Breakthroughs in Pulmonary Medicine, abstract competitively chosen, American Thoracic Society International Conference, Duaa Dakhallah. (2014).

NIH supplemental grant, Tierra Ware. (2013).

T32 Training Grant, Duaa Dakhallah. (2013).

1st place, post-doctoral researcher presentation, Davis HLRI, Duaa Dakhallah. (2013).

1st place, Staff research presentation, Davis Heart and Lung Research Institute. Yijie Wang. (2010).

1st place, graduate student research forum, Ohio State University, Noura Ismail. (2010).

T32 Training Grant, Julie Roda. (2009).

T32 Training Grant, Jeff Voorhees (2009).

American Thoracic Society Investigator Award, Melissa Piper-Hunter. (2008).

R00/K99 Grant, Tim Eubank. (2008).

R03 Grant, Chris Baran. (2008).

Parker B Francis Research Award, Melissa Hunter. (2007).

1st Place, Staff Research Award, Pulmonary and Critical Care Research Day Yijie Wang. (2007).

1st Place, Post-Doctoral Research Award, Pulmonary and Critical Care, Tim Eubank. (2007).

Research Day Accepted to the London School of Economics, London England, Chinnu Parinandi. (09/2007).

Edward J. Ray Travel Award for Scholarship and Service, The Ohio State University Graduate School, \$750 travel award, Ryan, Roberts. (2007).

1st Place, Professional Biological Sciences, Edward F. Hayes Graduate Research Forum, The Ohio State University Council of Graduate Students, Ryan Roberts, \$300 cash award, \$500 travel grant. (2007).

1st Place, Pre-Doctoral Category, Davis Heart and Lung Research Institute Abstract Competition, The Ohio State University, \$500 travel award, Ryan Roberts. (2007).

- 1st Place Research Scientist Oral Presentation, Davis Heart and Lung Research Institute Retreat, Chris Baran. (2007).
- Clinical Fellow Poster Award, Division of Pulmonary, Allergy, Critical Care and Sleep Medicine Research Retreat, Benjamin Bringardner. (2006).
- 1st Place in Research Scientist/Faculty Research, Division of Pulmonary, Allergy, Critical Care and Sleep Medicine Research Retreat, Chris Baran. (2006).
- Davis Heart and Lung Research Thematic Program Grant, \$50,000, OSU, 2006 OSU Pre-Doctoral Pulmonary Fellowship, Jennifer Curry, The Ohio State University. Timothy Eubank. (2006).
- Chief Pulmonary Pre-Doctoral Fellow, Jennifer Curry. (2006).
- Matching Tuition and Fees Award, Graduate School, The Ohio State University, Tuition and Fees waiver for duration of Fellowship Grant, Ryan Roberts. (2006).
- Pre-doctoral Fellowship (BC050083), Department of Defense Breast Cancer Research Program, \$90,000 over 3 years, Ryan Roberts. (2005).
- Chief Post-Doctoral Fellow, Pulmonary Medicine, Tim Eubank. (2005).
- 1st place, research award, OSU Research Day College of Medicine, PostDoctoral Category Naeem Ali. (2004).
- 1st place, research award, OSU Research Day College of Medicine, Pre Doctoral category, Frank Lichtenberger. (2004).
- American Society of Investigative Pathology, Student Research Award, FASEB, Judy Opalek. (2004).
- American Society of Investigative Pathology, Student Research Award, FASEB, Judy Opalek. (2003).
- Outstanding Presentation, MD/PhD Students, combined research day, The Ohio State University, Frank Lichtenberger. (2003).
- Outstanding Presentation, Post-Doctoral Fellows, combined research day, The Ohio State University, Naeem Ali. (2003).
- American Society of Investigative Pathology, Trainee investigator award, FASEB, Michelle Galloway. (2002).
- Outstanding Presentation, Bennett Student Research Day, Christopher Baran. (2002).
- Stanley Sarnoff Fellowship, Aaron Kirkpatrick. (2001-2002).
- AMA Leadership Award, Gregory Lam, B.S. (2001).
- Stanley Sarnoff Fellowship, Gregory Lam, B.S. (2000-2001).
- AHA Grant-in aid, AnujGoyal, M.D. (2000-2002).
- James V. Warren Award (Outstanding Research Award for Fellows, Department of Internal Medicine), Richard W. Pomerantz, M.D. (1999)
- Travel award, Midwest section, AFMR, Richard W. Pomerantz, M.D. (1998)

Travel award, National AFMR, Richard W. Pomerantz, M.D. (1998)

National Research Service Award, NIH/NHLBI, Richard W. Pomerantz, M.D. (1997).

Outstanding oral presentation, Ohio State University Medical Student Research Landacre Day, Ernest L. Mazzaferri, Jr., B.S. (as first year medical student). (1997)

TEACHING

Directed Student Learning

IBGP Graduate Student, "The role of epigenetics and HIF proteins in the sepsis response," Ohio State University. (2013).
Advised: Sara McMaken

IBGP Graduate Student, "The Role of epigenetics in telomere biology." (2013).
Advised: Tierra Ware

Sarnoff Foundation Endowment Sponsor, OSU, Rockefeller University. (2012).
Advised: Rohit Mital

Clinical Supervision, "RBC microvesicles in outcome in transfusion," Pediatric Critical Care, Nationwide Children's Hospital. (2010 - 2012).
Advised: Jennifer Muszynski, MD

Clinical Supervision, "Respiratory failure and oxidant biology," Pediatric Critical Care, Nationwide Children's Hospital. (2011).
Advised: Trent Tipple, MD

IBGP Graduate Student. (2008 - 2011).
Advised: Sara Fischer

MCDB Graduate Student, "17-92 MicroRNA Cluster in human disease," PACCS Medicine, OSUMC. (2007 - 2011).
Advised: Duaa Dakhallah

MCDB Graduate Student, "Microvesicles & cellular maturation," University of Michigan. (2006 - 2011).
Advised: Noura Ismail

Master's Project Committee Member. (2010).
Advised: Rishi Patel

Clinical Supervision, Private Practice, Cambridge, OH. (July 1, 2007 - 2010).
Advised: Brent Riscilli, MD

Research Advisor/Supervisor, "The role of HIF proteins in monocyte activation," Pulmonary, Allergy, Critical Care and Sleep Medicine, Research Scientist. (2007 - 2010).
Advised: Julie Roda, PhD

Research Advisor/Supervisor, "Lung Microenvironment," Wake Forest University. (May 2010 - August 2010).
Advised: Katherine Morrison

Summer High School Student, "Maturation of monocytes," Thomas Worthington High School. (May 2010 - August 2010).

- Advised: Katherine Grier
- Postdoctoral Research Supervision, "Microvesicles in sepsis outcome," Department of Surgery. (2009).
Advised: Jon Wisler, MD
- Research Advisor/Supervisor, "K99/R00 Tumor Associated macrophages in the tumor microenvironment," Tenure Track Faculty Pulmonary, Allergy, Critical Care and Sleep Medicine. (2006 - 2009).
Advised: Tim Eubank, PhD
- Summer High School Student, "Maturation of monocytes," Thomas Worthington High School. (May 2009 - August 2009).
Advised: Katherine Grier
- PhD Candidate Thesis Advisor, "The role of stress in breast and lung cancer growth," University of North Carolina, Charlotte. (March 8, 2005 - July 1, 2009).
Advised: Jennifer Curry
- Clinical Supervision, "Circulating MicroRNA in pediatric sepsis," Nationwide Children's Hospital. (2008).
Advised: Todd Karsies, MD
- Master's Project Committee Member. (2008).
Advised: Emily Steinhauer
- MCDB Graduate Student, "Transdifferentiation of cells." (2008).
Advised: Mary Forget
- Resident/Fellow Mentoring, "TSP-1 in the interface of emphysema and fibrosis," Assoc Prof, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU; Asst Prof Division, Pulm, Allergy, Crit Care, Sleep. (January 1, 2006 - 2008).
Advised: Michael Ezzie, MD
- MD/PhD Candidate Thesis Advisor, "Molecular Mechanisms of monocytes in angiogenesis," Residency, Nationwide Children's Hospital. (2004 - 2008).
Advised: Ryan Roberts
- Postdoctoral Research Supervision, "The role of p21 in monocyte differentiation," Asst Prof, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (May 1, 2003 - May 1, 2008).
Advised: Melissa Hunter, Ph.D.
- Master's Project Committee Member. (2007).
Advised: Michelle Klein
- Resident/Fellow Mentoring, "Signal transduction determining monocyte differentiation," Private practice, North Carolina. (2003 - 2007).
Advised: Ben Bringardner, MD
- Summer High School Student, "Angiogenesis & Cellular differentiation," Medical School, Harvard University. (May 2007 - August 2007).
Advised: Nworah Ayogu
- Master's Project Committee Member. (2006).
Advised: Tom Hagele
- Sarnoff Foundation Endowment Mentor, Duke, Mass Gen. (2006).
Advised: Aarti Asnani

Sarnoff Foundation Endowment Sponsor, OSU, Duke. (2006).
Advised: James Wisler

Sarnoff Foundation Endowment Sponsor, OSU, Duke. (2006).
Advised: Robert Yates

Undergraduate Student Mentor, "The molecular targets and regulation of SHIP and other phosphatases by ITIMs," University of Virginia, graduate 05/06; Lab Technician, Marsh Lab, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU, London School of Economics. (June 2006 - August 2006).
Advised: Chinnu Parinandi

Summer High School Student, "Angiogenesis & Cellular differentiation," Medical School, Harvard University. (May 2006 - August 2006).
Advised: Nworah Ayogu

Research Advisor/Supervisor, "K23 recipient, Obesity and respiratory functions in critical care setting," Associate Professor, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (2005).
Advised: James O'Brien, MD

Research Advisor/Supervisor, "K08 recipient T-cell involvement in pulmonary disease after bone marrow transplant," Assistant Professor, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (2005).
Advised: Karen Wood, MD

Sarnoff Foundation Endowment Mentor, Duke, Brigham & Women's. (2005).
Advised: Jennifer Lin

Sarnoff Foundation Endowment Mentor, John's Hopkins, Mt Sinai. (2005).
Advised: Vardan Amirbekian

Postdoctoral Research Supervision, "The role of MCSF in regulating survival and signal transduction in breast cancer," Post-doctoral researcher, Cornell University. (2000 - 2005).
Advised: Christine Montague, Ph.D.

Undergraduate Student Mentor, "The molecular targets and regulation of SHIP and other phosphatases by ITIMs," University of Virginia, graduate 05/06; Lab Technician, Marsh Lab, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU, London School of Economics. (June 2005 - August 2005).
Advised: Chinnu Parinandi

Summer Research Student, "Molecular mechanisms of monocytes differentiation," Honors Student, Duke University. (June 4, 2005 - August 15, 2005).
Advised: Nandini Kumar

Resident/Fellow Mentoring, "Mechanisms of Macrophage differentiation," Private Practice, Norfolk, NE (J1 visa). (July 2002 - July 2005).
Advised: Daniel Iltchev, MD

Sarnoff Foundation Endowment Mentor, Brigham & Women's. (2004).
Advised: Powell Jose

Sarnoff Foundation Endowment Mentor, John's Hopkins, Mt Sinai. (2004).
Advised: Vardan Amirbekian

Sarnoff Foundation Endowment Sponsor, OSU, Duke. (2004).

- Advised: Michael Brunner
- Doctoral Research Dissertation Mentor, "Genetic and protein regulation of macrophage differentiation," PhD Pathology 12/03; Resh Spec, Surg/Trauma, GrantHospital, Columbus, Ohio. (2001 - 2004).
Advised: Judy Opalek
- MD/PhD Candidate Thesis Advisor, "Monocyte regulation of TGF- β activation," PhD, Veterinary Biosciences, 9/04; MD2006; Allergy/Immunology Fellow, NIH. (2000 - 2004).
Advised: Frank Lichtenberger, B.S.
- Summer Research Student, "Molecular mechanisms of monocytes differentiation," Honors Student, DukeUniversity. (June 4, 2004 - August 15, 2004).
Advised: Nandini Kumar
- Undergraduate Student Mentor, "Molecular mechanisms of monocytes differentiation," Ohio State University. (June 1, 2004 - August 15, 2004).
Advised: Rob Littleton
- Student Research Project Mentoring, "Microarray studies in SHP1-/- animal lungs," Biomedical engineering, Case Western Reserve University. (May 24, 2004 - August 15, 2004).
Advised: William Flavahan
- Summer Research Student, "Angiogenesis in Wound Repair," Brigham Young University. (May 24, 2004 - August 15, 2004).
Advised: Todd O'Neil
- Postdoctoral Research Supervision, "Abl in monocyte signaling and survival," England. (December 2002 - July 2004).
Advised: Rosemary Keogh, Ph.D.
- Postdoctoral Research Supervision, "Phosphatase signaling in Fc.R engagement," Professor, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (July 2002 - July 2004).
Advised: Susheela Tridandapani, Ph.D.
- OSBP PhD Thesis Advisor, "The molecular targets and regulation of SHIP and other phosphatases by ITIMs," Faculty, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (2001 - 2003).
Advised: Chris Baran
- Master's Project Advisor/Supervisor. (2000 - 2003).
Advised: Michelle Galloway
- OSBP PhD Thesis Advisor, "The role of growth factors in regulating angiogenesis," Ph.D., Biochemistry 12/03; Asst Prof, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (July 2002 - November 2003).
- Student Research Project Mentoring, "Microarray studies in SHP1-/- animal lungs," Biomedical engineering, Case Western Reserve University. (June 1, 2003 - August 15, 2003).
Advised: William Flavahan
- Undergraduate Student Mentor, "Molecular mechanisms of monocytes differentiation," Ohio State University. (June 1, 2003 - August 15, 2003).
Advised: Rob Littleton
- Resident/Fellow Mentoring, "K23 Awardee LAP in the regulation of TFG□" Assoc Professor, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (July 1, 1999 - June 20,

- 2003).
Advised: Naeem Ali, MD
- Teaching Advisor/Supervisor, "The Role of NfκB in mediating monocyte survival," Staff statistician: Center for Biostatistics, Ohio State University. (2002).
Advised: Xiaokui Mo, PhD
- Master's Project Advisor/Supervisor, "The role of PTEN in monocyte survival and differentiation," M.S. Molecular Virology, Research Counselor. (2001 - 2002).
Advised: Kelley McQuown
- Stanley Sarnoff Foundation Fellow Mentor, "The role of cytoskeletal proteins and Abl in regulating monocyte activation," Radiology Residency, US Army. (2001 - 2002).
Advised: Aaron Kirkpatrick
- Resident/Fellow Mentoring, "Microarray analysis in murine lungs," Critical Care Fellowship, Division of Pulmonary, Allergy, Critical Care & Sleep Medicine, OSU. (May 2002 - November 2002).
Advised: Brad Harrold
- Undergraduate Student Mentor, "PTEN in monocyte signaling," Harvard University. (July 2002).
Advised: Nithin Johnson
- Undergraduate Student Mentor, "Lung fibrosis in transgenic mice," Physician, OSU Radiology. (July 2002).
Advised: Pamela Habib
- Medical Student Trainee, "Signal transduction regulation of SHIP2 in monocytes," Internal Medicine/Pediatric residency, University of North Carolina. (October 2001 - December 2001).
- Master's Project Advisor/Supervisor, "The role of MCSF in monocytes angiogenesis," M.S. Pathology, 7/02; Teacher, Zanesville, OH. (2001).
Advised: Michele Galloway Ziegler
- Resident/Fellow Mentoring, "The role of cytoskeletal proteins and Abl in regulating monocyte activation," Private Practice, Columbus, Ohio. (2001).
Advised: Dan Malleske
- Stanley Sarnoff Foundation Fellow Mentor, "Role of reactive oxygen species in monocyte survival and differentiation," Cardiology Fellow, Duke University. (2000 - 2001).
Advised: Gregory Lam, B.S.
- Resident/Fellow Mentoring, "Regulation of monocyte survival in response to known survival factors," Private Practice, Dayton, OH. (1999 - 2001).
Advised: Anuj Goyal, M.D.
- Resident/Fellow Mentoring, "Role of monocytes in TGF," Private Practice, Utah. (2000).
Advised: Gregory Staker, M.D.
- Resident/Fellow Mentoring, "Role of nitric oxide production in monocyte survival," Private Practice. (2000).
Advised: Peter Mustillo, M.D.
- Resident/Fellow Mentoring, "Role of adherence in monocyte survival and differentiation," Fellow, Pulmonary and Critical care Medicine, University of Pittsburgh. (1999 - 2000).
Advised: Keith Niggemyer, M.D
- Medical and Graduate Student Mentoring, "Cell signaling pathways involved in control of apoptosis

- in monocytes.," Pathology, Cleveland Clinic Foundation. (1997 - 2000).
Advised: Todd Kelly, M.S.
- Resident/Fellow Mentoring, "Control of monocyte survival by phosphatases," Assistant Professor of Clinical Medicine, Pulmonary and Critical Care Medicine. (1999).
Advised: Nitin Bhatt, M.D.
- Resident/Fellow Mentoring, "Role of Fc receptors in monocyte responses to growth factors.," Pulmonary and Critical Care Medicine, University of Washington, Seattle. (1998 - 1999).
Advised: Saadia Ahktar, M.D.
- Resident/Fellow Mentoring, "Regulation of monocyte survival," Private Practice. (1997 - 1999).
Advised: Richard Pomerantz, M.D.
- Medical Student Trainee, "Control of apoptosis Medical Council of Canada Med Student Research Trainee," Rheumatology Fellow, Cleveland Clinic Foundation. (1998).
Advised: Sey Lau, M.S.
- Summer Roessler MD Student Mentoring, "Role of MCSF in monocyte survival," Cardiology, University of Florida. (1997 - 1998).
Advised: Ernie Mazzaferri, Jr.
- Resident/Fellow Mentoring, "Role of proteinase-3 in FC-receptoralpha-1 antitrypsin interaction," Private Practice. (1992 - 1995).
Advised: David Ralston, M.D.

PhD Committee Membership

- Christopher Baran, 2001-03 (Supervising)
- Timothy D Eubank, 2002-03 (Supervising)
- Judy Opalek 2002-05 (Supervising)
- Frank Lichtenberger 2002-2007 (Supervising)
- Keri Lundsford, 2004-05 (Committee)
- Jeff Van Deusen, 2002-03 (Committee)
- Derek Marsee, 2002-03 (Committee)
- Stephanie Allen, 2003-06 (Committee)
- Aharon Freund, 2004-06 (Committee)
- Ryan Roberts, 2005-2008 (Supervising)
- Trupti Joshi, 2005-2007 (Committee)
- Krissy Kigerl, 2004-2006 (Committee)
- Jenny Curry, 2005-2008 (Supervising)
- Jackie McAlees, 2006 – 2009 (Committee)
- Daniele Vicari, 2006 –2008 (Committee)

Duaa Dakhlallah, 2006- current (Supervising)

Noura Ismail, 2006 –2010 (Supervising)

Julie Roda 2004 – 2007 (Committee)

Kishore Parsa, 2007 (Committee)

Amanda Claggett – 2006 – 2009 (Committee)

Kristen Smith, 2007 – 2012 (Committee)

Sara Vartanoff Fischer, 2008 – 2011 (Supervising)

Master's Defense

Michelle Galloway 2000-2003 (Supervising)

Kelley McQuown, 2001-2004 (Supervising)

Tom Hagele, 2006 (Committee)

Michelle Klein, 2007 (Committee)

Alon Peltz, 2007 (Committee)

Emily Steinhauer, 2008 (Committee)

Rishi Patel, 2010 (Committee)

Faculty mentor

Richard Gumina, MD, Assistant Professor, Cardiovascular Medicine (Faculty Mentor Committee)

Dean Boudoulas, MD, Assistant Professor, Cardiovascular Medicine (Faculty Mentor Committee)

Tim Eubank, PhD, Assistant Professor, PACCS (Faculty Mentor)

Melissa Piper, PhD, Assistant Professor, Research, PACCS (Faculty Mentor)

Peter Shields, MD, Professor, Oncology, CCC (Peer Mentor)

RESEARCH

Published Intellectual Contributions

Book Chapters

Wewers, M., Gadek, J., Marsh, C. B. (1996). Proinflammatory polypeptides. In R. Crystal & J. West (Eds.), *THE LUNG: Scientific Foundations* (2nd ed., pp. 117-132). LippencottRaven Publishers.

Marsh CB, Wewers, MD. (1996). Immunopathogenesis of sepsis. *Clinics in Chest Medicine*, P. Dorinsky, Ed., 17(2):183-197

Books

- C. B. Marsh, S. Tridandapani, & M. Piper (Eds.), (2011). *Regulation of Innate Immune Function*. ISBN 978-81-7895-492-9
- Sen, C., Eubank, T., Marsh, C. B. (2010). Cytokines and Growth Factors in the Regulation of Wound Inflammation. *Advances in Wound Care* (vol. 1). Mary Ann Liebert, Inc. Publishers.
- Marsh, C. B., Mazzaferri, E. L. (1993). *General Internal Medicine Pearls*, Hanley and Belfus, S. Sahn, J. Heffner, eds.

Conference Proceedings

- Piper, M. G., Moldovan, L., Dakhlallah, D., Marsh, C. B. (2012). Novel Epigenetic Agents To Treat Idiopathic Pulmonary Fibrosis (IPF). *B66. THE FIBROBLAST POOL ON THE MOVE: DERIVATION AND TARGETING*. American Thoracic Society. http://dx.doi.org/10.1164/ajrccm-conference.2012.185.1_meetingabstracts.a3502
- Eubank, T. D., Roberts, R. D., Bergdall, V., Biswas, S., Sen, C. K., Marsh, C. B. (2008). *Comparison of cytokine profiles between normal and ischemic wound tissue* (2nd ed., vol. 16, pp. A31-A31). WOUND REPAIR AND REGENERATION.
- Eubank, T. D., Curry, J. M., Roberts, R. D., Wang, Y., Pore, N., Maity, A., Marsh, C. B. (2008). *M-CSF-induced VEGF production from human monocytes is regulated by MAPK/ERK via SP-1* (2nd ed., vol. 16, pp. A20-A20). WOUND REPAIR AND REGENERATION.
- Ali, N., O'Brien, J., Dungan, K., Phillips, G., Marsh, C. B., Lemeshow, S., Connors, A., Preiser, J.-C. (2007). *Glucose variability is independently associated with mortality in patients with sepsis* (12th ed., vol. 35, pp. A257-A257). CRITICAL CARE MEDICINE.

Journal Articles

- Steinberger KJ, Forget MA, Bobko AA, Mihalik NE, Gencheva M, Roda JM, Cole SL, Mo X, Hoblitzell EH, Evans R, Gross AC, Moldovan L, Marsh CB, Khramtsov VV, Eubank TD. (2020). Hypoxia-Inducible Factor alpha regulate Tie-2-expressing macrophages that influence tumor oxygen and perfusion in murine breast cancer. *15;205(8):2301-2311*.
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Abstracts

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- Marsh, C.B., Lowe, M.P., Rovin, B.H., Knoell, D.L., Wewers, M. D. (1997). An Fc γ R-mediated pathway leads to parenchymal cell IL-8 release. American Journal of Respiratory and Critical Care Medicine 155:A540.
- Rovin, B.H., Danne, M., Wewers, M. D., Marsh, C.B., (1997). Lymphocyte Fc γ R cross-linking mediated human renal cell MCP-1 production through an IL-1 β -mediated pathway.
- Marsh, C.B., Parker, J.M., Coggeshall, K.M., Wewers, M. D., (1997). Macrophage colony stimulating factor protects monocytes from apoptosis through a PTK- and PI-3-K-mediated pathway. Journal of Investigative Medicine 45(7): 302A.
- Fahy, R.J., Winnard, A.V., Liao, Z., Marsh, C.B., Wewers, M. D., (1997). Effect of caspase inhibitors on monocyte apoptosis. Journal of Investigative Medicine 45(7): 298A.
- Ralston DR, Marsh, C.B., Lowe, M.P., Wewers, M.D., (1996). Antineutrophil cytoplasmic antibodies induce proteinase-3-expressing monocytes to release IL-8. American Journal of Respiratory and Critical Care Medicine 153:A287.
- Marsh, C.B., Anderson, C.L., Wewers, M.D., (1996). Monocyte IL-8 is directly induced by Fc γ RI and indirectly by a soluble Fc γ RIII-stimulated lymphocyte factor. American Journal of Respiratory and Critical Care Medicine 153:A415.
- Knoell, D.L., Marsh, C.B., Wewers, M.D., (1996). Delivery of the type II interleukin-1 receptor cDNA inhibits interleukin-8 production in human fibroblasts. FASEB J 10:A1331.
- Marsh, C.B., Wewers, M. D. Tan LC, Rovin, B.H., (1996). PBMC and monocytes release MCP-1 in response to Fc γ R cross-linking. 1996. FASEB J. 10:A1343.
- Rovin, B.H., Tan, L.C., Wewers, M.D. Marsh CB., (1996). Leukocyte Fc γ receptor (Fc γ R) cross-linking induces monocyte MCP-1: a model for immune complex (IC)-mediated monocyte recruitment. Journal of the American Society of Nephrology 7:A1718.
- Knoell, D.L., Pierson, J.F., Pathak, D., Allen, J.A., Marsh, C.B. (1996). Pharmacist Interventions in a comprehensive asthma clinic. American Journal of Health-Systems Pharmacist 31:P-556R.
- Marsh, C.B., Gadek JE, Wewers, M.D., (1995). Monocyte Fc γ receptor III regulates IL-8. American Journal of Respiratory and Critical Care Medicine 264A.
- Marsh, C.B., Anderson CL, Gadek JE, Wewers, M.D., (1995). Lymphocyte Fc γ R Cross- linking induces a factor that induces IL-8 in monocytes. Cytokine. 620.
- Marsh, C.B., Wewers, M. D. (1994). Maturation changes Fc γ receptor-mediated IL-1 β responses. American Journal of Respiratory and Critical Care Medicine A1099.
- Marsh, C.B., Anderson, C.L., Wewers, M.D., (1994). Fc γ RII Cross-linking induces interleukin-1 receptor antagonist. The Journal of Physiology
- Marsh, C.B., Wewers, M.D., (1994). Human Fc γ receptor II (Fc γ RII) regulates interleukin-1 receptor antagonist (IL-1ra) production. Clinical Research 42:397A.
- Marsh, C.B., Wewers, M. D. (1995). Blood leukocyte interleukin-8 (IL-8) production. FASEB J. 9:A246.
- Marsh, C.B., Wewers, M. D. (1993). The effect of cytokines on IL-1 receptor antagonist release. American Review of Respiratory Diseases 147: 231A.

- Marsh, C.B., Wewers, M.D. (1993). Immobilized interleukin-1 α induces interleukin-1 receptor antagonist but not interleukin-1 β . *Clinical Research* 41:372A.
- Marsh, C.B., Wewers, M.D. (1993). Fc γ receptor (Fc γ R) Cross linking with LPS or heat killed staph aureus (HKSA) causes divergence of IL-1 α and IL -1ra production. *Clinical Research* 41:688A.
- Allen, J.N., Marsh, C.B., Moore, S.A., Wewers, M.D. (1993). Surfactant and plasma exert immunosuppressive effects on alveolar macrophage cytokine production. *Clinical Research* 41:689A.
- Marsh, C.B., Wewers, M.D. (1992). Interleukin-1 α induced interleukin-1 α and tumor necrosis factor- α and inhibition by interleukin-1 receptor antagonist. *American Review of Respiratory Diseases* 145:270A.
- Marsh, C.B., Wewers, M.D. (1992). Interleukin-1 receptor antagonist inhibits lipopolysaccharide induced monocyte interleukin-1 α and tumor necrosis factor- α production. *Clinical Research* 40:327A.
- 8 additional abstracts in 2004.
15 additional abstracts in 2005.
22 additional abstracts in 2006.
25 additional abstracts in 2007.
18 additional abstracts in 2008.
20 additional abstracts in 2009.
18 additional abstracts in 2010.
14 additional abstracts in 2011.
12 additional abstracts in 2012.
10 additional abstracts in 2013.
4 additional abstracts in 2014.

Other

- Marsh, C. B. (2018). *Thrive Global Articles*. <https://www.thriveglobal.com/authors/12737-clay-b-marsh>
- Gabbe, S. G., Lockwood, C. J., Marsh, C. B. (2012). *Commentary: a ray of hope for medical school research funding*. (11th ed., vol. 87, pp. 1464-5). *Academic medicine: journal of the Association of American Medical Colleges*.
- Payne, P. R., Marsh, C. B. (2012). *Towards a "4I" approach to personalized healthcare*. (1st ed., vol. 1, pp. 14). *Clinical and translational medicine*.
- Kitzmiller, J. P., Embi, P. J., Manickam, K., Sweet, K. M., Phelps, M. A., Jackson, R. D., Marsh, C. B., Sadee, W. (2012). *Program in pharmacogenomics at the Ohio State University Medical Center*. (7th ed., vol. 13, pp. 751-6). *Pharmacogenomics*.
- Bringardner, B. D., Baran, C. P., Eubank, T. D., Marsh, C. B. (2008). *The role of inflammation in the pathogenesis of idiopathic pulmonary fibrosis* (2nd ed., vol. 10, pp. 287-301). *ANTIOXIDANTS & REDOX SIGNALING*.
- Magalang, U. J., Rajappan, R., Hunter, M. G., Kutala, V. K., Kuppusamy, P., Wewers, M. D., Marsh, C. B., Parinandi, N. L. (2006). *Adiponectin inhibits superoxide generation by human neutrophils*. (11-12 ed., vol. 8, pp. 2179-86). *Antioxidants & redox signaling*.
- Marsh, C. B. (2001). *OSU Medical Center Asthma Guidelines*.

Presentations Given

International

- Pittsburgh International Lung Conference, Pittsburgh, PA, (October 2011).
- American Thoracic Society International meeting, Toronto, (May 2008).
- Wound Healing International Meeting, San Diego, CA, (April 2008).
- American Thoracic Society International Conference, "The role of CSF-1 in lung repair and remodeling. Symposium on lung defense," San Diego, CA. (May 2005).
- Co-Chair and featured speaker, minisymposium, ATS International Conference, "Macrophages: Eat to live and live to eat," (May 2002).
- Organizer and speaker, ATS International Conference, "Biology of alveolar macrophages," (May 2001).
- American Thoracic Society International Meeting, "The role of reactive nitrogen species in M-CSF-induced monocyte survival," Toronto, CA, (May 2000).
- FASEB International Conference, "The role of oxidants in monocyte survival," Washington, D.C., (April 1999).
- ATS International Meeting, American Thoracic Society Symposium on Apoptosis, "Molecular pathways of monocyte survival and apoptosis," San Diego, CA. (April 1999).
- American Thoracic Society International Meeting, "MCSF protects monocytes from apoptosis through a PI 3-K- and oxidant-mediated Pathway," Chicago, IL. (1998).
- American Thoracic Society International Meeting, "Monocyte Fc γ R cross-linking protects monocytes from apoptosis," San Francisco, CA, (1997).
- American Thoracic Society International Meeting, "Antineutrophil cytoplasmic antibodies induce proteinase-3-expressing monocytes to release IL-8," New Orleans, LA. (1996).
- American Thoracic Society International Meeting, "Monocyte IL-8 is directly induced by Fc γ RI and indirectly by a soluble Fc γ RIII-stimulated lymphocyte factor," New Orleans, LA. (1996).
- International Cytokine Society Meeting, "Lymphocyte Fc γ receptor cross-linking induces a factor that stimulates monocyte IL-8 release," Harrogate, UK. (September 1995).
- American Thoracic Society International Meeting, "Monocyte Fc γ RIII cross-linking induces IL-8 release," Seattle, WA, (May 1995).
- Experimental Biology International Meeting, "Blood leukocyte interleukin-8 production," Atlanta, GA, (April 1995).
- American Thoracic Society International Conference, "The effect of cytokines on IL-1 receptor antagonist release," Boston, MA, (May 1993).
- American Thoracic Society International Conference, "Interleukin-1 α induced interleukin-1 α and tumor necrosis factor- α and inhibition by interleukin-1 receptor antagonist," American Thoracic Society, Miami, FL. (May 1992).

National

Expert for interviews, SIRIUS XM radio, Washington Post, USA Today, CNN, The Hill, Politico
Fortune Magazine Brainstorm Health Conference, Expert Speaker, San Francisco, CA. (2018).

Columbus State University Science, Technology, Engineering, Mathematics and Congress
Neurological Surgeons, National Meeting, San Francisco, CA, (October 2013).

Society of Neuromodulation, national meeting, Las Vegas, NV, (June 2013).

American Humane Association Conference, New York, New York, (April 2013).

Molecular Med Tri-Con, Point of Care Diagnostics, San Francisco, California, (February 2013).

Medicine Club, Columbus, Ohio, (January 2013).

Society of Marketing Professional Services Conference, The Convergence of Retail and Healthcare,
Columbus, (January 2013).

16th Annual North American Neuromodulation Society, Las Vegas, Nevada, (December 2012).

University of West Virginia, Tuckwiller Memorial Alumni Seminar, Morgantown, West Virginia,
(October 2012).

University of Virginia Medical Grand Rounds, Charlottesville, Virginia, (September 2012).

TechColumbus Innovations Officers Meeting, Columbus, Ohio, (June 2012).

Conference on Personalized Health Care for Women and Children, Salt Lake City, (May 2012).

Society of Marketing Professional Services Conference, The Convergence of Retail and Healthcare,
Columbus, (May 2012).

2nd Annual Personalized HealthCare Summit, Cleveland Clinic Foundation, Cleveland, Ohio, (May
2012).

Grand Rounds, Nancy Middleton Smith Memorial Lecture, Louisville University Health Science
Center, Kentucky, (March 2012).

Annual Health Care Forecast Conference, University of California, Irvine California, (February
2012).

Library Directors' Summit, Columbus Metropolitan Library, Columbus, Ohio, (December 2011).

Kiwanis Club, Personalized Health Care. Columbus, Ohio, (November 2011).

BioOhio Annual Conference, Personalized Medicine. Columbus, Ohio, (October 2011).

1st Annual Personalized Healthcare Summit, Cleveland Clinic Foundation, Cleveland, Ohio,
(September 2011).

Joseph Wealth Management Group, Personalized Health Care, (July 2011).

Consumer Genetics Conference, Clinical Inflection: Genome-Guided Care; Potential of P4 Medicine.
Boston, MA, (June 2011).

10th Annual ISB Symposium, P4 Systems Medicine. Institute for Systems Biology, Seattle,
Washington, (May 2011).

- Research Institute Seminar, Nationwide Children's Hospital, (May 2011).
- AOA Lecture, West Virginia University, Networks – From Genes to Facebook, (March 2011).
- Personalized Medicine World Conference, Games in Health Care and Wellness, Silicon Valley, CA. (January 2011).
- Southern Medical Association Annual Meeting, personalized medicine presentation, (November 2010)
- Association of American Cancer Institute's Directors; personalized medicine presentation, National Meeting, Chicago, IL. (2010).
- University of Utah, Program in Personalized Health Care, (August 2010).
- RTI Personalized Health Care Conference, North Carolina, (June 2010).
- Annual Meeting of the Center for Integrated Biomedical Informatics, "Transforming health care through systems medicine," University of Michigan, , (April 2010).
- Systems tools applied to medicine, Indiana University, (April 2010).
- Moderator, CITIH conference, "Health care reform and IT in personalized medicine," (November 2009).
- Systems Biology and the study of health and disease, University of Pittsburgh, (October 2009).
- Moderator and host, Second Annual National Conference on Personalized Medicine, (October 2009).
- Co-Leader, Health Care Delivery Community, Utah National Summit on Personalized Healthcare. (October 2009).
- Internal Medicine Grand Rounds, "Novel insights into pulmonary fibrosis using systems approaches," Vanderbilt University. (May 2009).
- Moderator and host, First Annual National Conference on Personalized Health Care, (October 2008).
- Battelle/Institute for Systems Biology, Seattle, WA, (June 2008).
- Sarnoff Annual Conference, Washington D.C., (April 2008).
- Pulmonary and Critical Care Grand Rounds, "New insights from the lab to the clinic: Pulmonary Fibrosis unplugged," University of Cincinnati, (January 2008).
- Tradeline Conference Series, Envisioning the 21st Century Academic Medical Center, San Diego, CA, (December 2007).
- Systems Biology and Personalized Health Care, Institute for Systems Biology, Seattle, WA, (2007).
- Re-educating tissue macrophages in fibrotic lung disease, University of Pennsylvania, Environmental Health Center, (2007).
- "New Concepts Affecting Lung Inflammation, Repair and Remodeling," MetroHealth System, Case Western Reserve, Cleveland, Ohio, (January 26, 2007)

Personalized Medicine, ACP Ohio Chapter Annual Meeting, Hyatt Regency, Columbus, Ohio, (October 20, 2006).

"The role of mononuclear phagocytes health and disease," Cleveland Clinic Foundation, (June 2005).

"The role of monocytes and M-CSF in lung fibrosis: a new paradigm of endothelial cell injury," University of South Alabama, (May 2004).

"The biological regulation of SHIP in monocyte activation with M-CSF." DukeUniversity, (April 2002).

"Life and Death Decisions: How the monocyte can cause human disease," University of Iowa. (August 2000).

43rd Annual Tom Petty Lung Conference, "Monocyte survival factors induce monocyte survival and induce the secretion of factors that activate latent TGF- β The role of reactive oxygen species and Erk," Aspen, CO, (June 2000).

Midwest AFMR Meeting, "The role of Akt in monocyte survival," Chicago, IL. (September 1999).

Organizer and moderator, Research symposium, Midwest Section, AFMR, Chicago, IL (September 1999).

1st Johnnie Walker Murphy Symposium on Interstitial Lung Disease, "The role of monocyte survival in the genesis of IPF," El Dorado, AR, (1999).

Midwest section, AFMR Meeting, "Molecular mechanisms of monocyte survival," Chicago, IL. (1998).

American College of Clinical Pharmacology, National Meeting, "Basic Mechanisms of Inflammation," Cincinnati, OH. (November 1998).

American Federation for Medical Research Meeting, "Macrophage colony stimulating factor protects monocytes from apoptosis through a PTK and PI-3-K-mediated pathway." Chicago, IL, (1997).

American Federation for Clinical Research Midwest Meeting, "Human Fc γ receptor II (Fc γ RII) regulates interleukin-1 receptor antagonist (IL-1ra) production," Chicago, IL, (September 1994).

American Society of Physiology National Meeting, "Fc γ RII cross-linking induces interleukin-1 receptor antagonist," Yale University. (March 1994).

American Federation for Clinical Research Midwest Meeting, "Fc γ receptor (Fc γ R) Cross linking with LPS or heat killed staph aureus (HKSA) causes divergence of IL-1 β and IL-1ra production." Chicago, IL, (November 1993).

Sunrise session at the American Thoracic Society International Conference, "The use of adjuvant therapies for the treatment of bronchogenic lung cancer," American Thoracic Society, Miami, FL. (May 1992).

American Federation for Clinical Research National Meeting, "Interleukin-1 receptor antagonist inhibits lipopolysaccharide-induced monocyte interleukin-1 γ and tumor necrosis factor- γ production," American Federation for Clinical Research, Baltimore, MD. (April 1992).

Local/State

Expert interviewee, multiple local media television, print and on-line media sources

Op-Ed Articles, Charleston Gazette

Health Ambassadors, (April, November 2013).

P4 Scholars Group, (June 2013).

OSU Leadership Academy, OSU, (April 2013).

OSU Lunch Brunch, OSU, (February 2013).

2nd Annual Health and Wellness Luncheon, OSU Council of Graduate Students, OSU. (December 2012).

OSU Association of YMCA Retirees, OSU, (September 2012).

Aspen Institute, OSU Wexner Medical Center, OSU, (August 2012).

OSU Center for Enterprise and Technology Institute Industry Day, OSU, (June 2012).

Winter College, OSU, Naples, Florida, (February 2012).

OSUMC Patient Advisory Council, (January 2012).

OSU STAR Program, "Stress and Resilience," OSU, (October 2011).

Moderator and host, Third Annual National Conference on Personalized Health Care, OSU, (October 2011).

P4 Scholars Group, (July 2011).

Town hall meetings for research mission plan, (November 2010).

Ohio Prescription Collaborative Annual Meeting, (October 2010).

Regenerative Medicine Cell-Based Therapies Retreat, Mohican State Park, OSU WHC, (September 2010).

OSU Service Board, Personalized Medicine, (2010).

Strategic planning for research, OSU Medical Center, (2010).

CCTS and Fischer Business College Transforming Health Care Workshop, (August 2010).

Academic Leader Development and Seminars, Faculty Mentoring Panel, OSU OHRC, (May 2010).

Current Concepts in Respiratory Care, (April 2010).

Strategic planning for the Center for Personalized Healthcare, (December 2008, February 2009, May 2009).

Town hall meetings for clinical translational research, (2009).

Personalized health care update, leadership retreat, (September 2008).

Davis Heart and Lung Research Institute, Research in Progress, (August 2008).

BioPharma in Ohio III, Fighting Chronic Disease with Innovation: Panel Participant, (May 2008).

CITIH Conferences: Advances in Health Care through Data Analytics (2008).

Wound Care and Hyperbaric Update: Wound Care and The ICU, (April 2008).

Overview of Pulmonary Medicine, (2007).

Systems Biology and Critical Care Medicine, (2007).

Personalized Health Care in Primary Care OSU MedNet 21, Webcast Series, (November 2007).

Veterinary Biosciences Graduate Program, "Leadership in Building Your Laboratory," (2007).

DHLRI Research Retreat, "Location, Location, Location: The Role of the Environment in Macrophage function," (April 25, 2007).

Klassen Research Day, Sepsis, The Ohio State University, (June 9, 2006).

Davis HLRI Grant Review Course, "How to get a K grant," (March 2006).

Davis HLRI Grant Review Course, "Pearls in writing NIH grants," (November 2005).

Pathology Grand Rounds, "The role of M-CSF in human health and disease," (March 2005).

IGBP seminar series, "M-CSF as a modulator of lung injury and repair," (March 2005).

Dept of Molecular Virology, Immunology and Human Genetics, "Adaptive immunity and immunological memory," (February 2005).

HLRI conference, "New paradigms in pulmonary fibrosis," (July 2004).

Grand Rounds, Update on pulmonary embolus, Pulmonary and Critical Care Update, (February 2003).

Update on asthma, Medical Therapeutics course, (March 2003).

IGBP Featured Research Talk, The role of SHIP in the regulation of monocyte activation, Ohio State University, (October 2002).

Internal Medicine Grand Rounds, "Pulmonary Fibrosis: The Clinic Meets the Lab," (September 2002).

International Wound Healing and Oxygen Treatment. The role of ROS in monocyte survival, (September 2002).

Update on asthma, Medical Therapeutics course, (March 2002).

Pulmonary and Critical Care Update CME course, "Update on pulmonary embolism," (February 2002).

Internal Medicine Grand Rounds. "Discussant unknown case of SLE/anti-phospholipid antibody syndrome," (November 2001).

Veterinary Biosciences Seminar Series, "The role of monocytes in regulating fibrosis in the lung: implications for treatment of IPF," (September 2001).

Internal Medicine Grand Rounds, "Monocyte survival in heart and lung disease: too much of a good thing," (May 2001).

Heart and Lung Research Institute, "Regulation of monocyte survival by nitric oxide," (March 2001).

Update on asthma, Medical Therapeutics Course, (March 2001)

Molecular Therapeutics Group – Life and death decisions of monocytes – implications for cancer and inflammation, (March 2001).

Update on Pulmonary Fibrosis, Pulmonary and Critical Care Update CME course, (February 2001).

Immunology conference, New paradigms for the activation of TGF, (November 2001).

"Details of intracellular mechanisms of monocyte survival and differentiation." Department of Physiology and Cellular Biology, Ohio State University. (October/2000).

Landacre Dinner Presentation, "Life and death of the monocyte and impact on human disease." Ohio State University, (September 2000).

Molecular Virology, Immunology and Human Genetics seminar, "The biochemical details of monocyte survival and differentiation: Roles in health and disease," Ohio State University, (August 2000).

Internal Medicine Grand Rounds, "Academic Medicine: road to the future" (combined presentation with Mike Grever and Karla Zadnik). (August 2000).

Internal Medicine Grand Rounds, Update on idiopathic pulmonary fibrosis (combined presentation with Dr James Allen). (July 2000).

Update on community-acquired pneumonias. Pulmonary and Critical Care Review Course, Columbus, OH, (February 2000).

Immunology Conference, "Life, Death and Differentiation of monocytes." Ohio State University. (October 2000).

Landacre Dinner Presentation, "Life and death of the monocyte and impact on human disease," Ohio State University, Columbus, OH. (September 2000).

Internal Medicine Grand Rounds, "Academic Medicine: road to the future," Ohio State University, Columbus, OH. (August 2000).

Molecular Virology, Immunology and Human Genetics Seminar, "The biochemical details of monocyte survival and differentiation: Roles in health and disease," Ohio State University, Columbus, OH. (August 2000).

Grand Rounds, "Update on idiopathic pulmonary fibrosis," Ohio State University, Columbus, OH. (July 2000).

"Pulmonary and Critical Care Review Course: Update on community-acquired pneumonias," Columbus, OH. (February 2000).

"Monocyte survival and human diseases: the next Akt," Ohio State University, Columbus, OH. (1999).

"Update on new practices in the treatment of patients with asthma," Ohio State University East, Columbus, OH. (1999).

Pulmonary and Critical Care Review Course: Update on interstitial lung disease, Columbus, OH. (February 1999).

Update on interstitial lung disease, Pulmonary and Critical Care Review Course, Columbus, OH, (February 1999).

Monocyte survival and human diseases: the next Akt. Internal Medicine Grand Rounds, Columbus, OH, (1999).

Update on new practices in the treatment of patients with asthma, Grand Rounds, Ohio State University East, (1999).

Internal Medicine Grand Rounds, "Apoptosis: Good News or Bad?" Ohio State University, Columbus, OH. (1998).

"Pulmonary and Critical Care Review Course: Update on pulmonary thromboembolic disease," Columbus, OH. (February 1998).

Contracts, Grants and Sponsored Research

Contract

Marsh, C. B. (PI), "Center of Excellence for Mobile Sensor Data to Knowledge (MD2K)," Sponsored by Ohio State University, Other, \$4,269.00. (March 1, 2015 - May 31, 2015).

Grant

Marsh, C. B. (PI), "The Role of Epigenetics and miRNAs in IPF," Sponsored by US DHHS-NIH-National Heart, Lung, & Blood Institute, Federal, \$515,185.22. (August 1, 2015 - July 31, 2017).

Marsh, C. B. (PI), 1R01HL109481-01A1, "The role of epigenetics and miRNAs in IPF," Sponsored by NIH, \$250,000 direct/yr. (September 25, 2012 – July 31, 2016)

Marsh, C. B. (PI), R01HL102464, "The role of the miR-17-92 microRNA cluster in the pathogenesis of IPF," Sponsored by NHLBI, \$250,000 direct/yr- NCE, (May 1, 2010 – April 30, 2014)

Marsh, C. B. (PI), R01HL067176, "Intracellular Pathways of Monocyte Survival," This project investigates signaling pathways that modulate monocyte survival, Sponsored by, NIH/NHLBI, \$250,000 direct/yr – NCE

Marsh, C. B. (PI), Supplement 1R01HL109481-01A1 (Ware trainee), Training supplement (\$450,000 total)

Marsh, C. B. (PI), 5R01HL67176-04, "NFkB: An Akt target and regulator of monocyte survival," Sponsored by NHLBI, \$225K/yr direct.

Marsh, C. B. (PI), 5R01HL066108-04, A new paradigm for fibrosis: Monocyte activation of TGF. Intracellular Pathways Regulating Monocyte Survival, Sponsored by NHLBI. \$205K/yr directs. This project investigates signaling pathways that modulate monocyte survival, Sponsored by NHLBI, \$250,000/yr directs. (November 2002 – March 2007).

Pathogenesis of IPF Johnnie Walker Murphy Career Investigator Award, National ALA.

Pathogenesis of IPF. Kelly Clark Memorial Fund, ALA of Oho.

Marsh, C. B. (PI), R01HL63800, Intracellular Pathways Regulating Monocyte Survival, Sponsored by NIH/NHLBI (July 1, 2000 – June 30, 2006).

Marsh, C. B. (PI), R01HL67176, NF-kB as an Akt target and regulator of monocyte survival.

NIH/NHLBI (June 1, 2001 – May 30, 2006).

Wewers (PI), 1 T32 HL07946, Sponsored by NIH/NHLBI. Direct costs: \$157,215/year (July 1, 2000 – June 30, 2005).

Marsh, C. B. (PI), 3MO1RR00034, Sponsored by NIH/GCRC, \$587,040 total direct. Withdrawn with funding of second RO-1. (July 1, 1997 – June 30, 2002).

Ferrari (PI), BRTT Cardiovascular Research Grant.

Crouser (PI), The role of mitochondria in monocyte survival, Ohio Regional American Heart Association \$70,000 total. (1999 – 2001).

Marsh, C. B. (PI), Bremer Foundation, \$50,000 total. (November 1, 1997 – June 30, 1999).

Marsh, C. B. (PI), Ohio State Univ. Seed Grant, \$20,000 total (July 1, 1996 – June 30, 1998).

Marsh, C. B. (PI), Parker B. Francis Families, \$108,000 total. (July 1, 1995 – June 30, 1998).

Marsh, C. B. (PI), American Lung Association of Ohio, \$50,000 total. (July 1, 1994 – June 30, 1998).

Marsh, C. B. (PI), American Lung Association Fellowship Award, \$104,000 total. (1991 – 1993).

Marsh, C. B. (PI), National Institutes of Health National Research Service Award, HL08590, 199294, \$70,000 total.

Marsh, C. B. (PI), Ohio State University Davis Award, \$18,000. (July 1, 1994).

Co-I Grant

Glaser, R (PI); Marsh, C.B., (Co-I), R01 A1084898 “Stress effects on virus protein induced inflammation and sickness behavior,” The goal of this project is to determine if herpes virus proteins have the ability to induce immune dysregulation, Sponsored by NIH/NIAID. (April 15, 2010 – March 31, 2015)

Onate, JA (PI); Marsh, C.B., (Co-I), H92222-11-C-0021 “Naval special warfare combatant crewmen peak health and performance sustainment model,” The goal of this project is to evaluate the sustainment of SWCC operators’ peak health and performance pre- and post-deployment by evaluating markers of performance throughout their training-deployment cycle to create a personalized performance sustainment model to maintain optimal operational readiness, Molecular Mechanisms of Lung Inflammation, Sponsored by US Special Operations Command. (September 13, 2011 – March 31, 2014)

Jackson R.D. (PI), Marsh, C.B. (Director of Pilot Study), UL1RR025755-01, Clinical and Translational Science Award, NCCR, \$6,826,137 total/yr. (May 19, 2008 – April 30, 2013).

Khrastov (PI); Marsh, C.B., (Co-I), R21 CA132068, “Spin Probes in Semi-permeable Membranes, Sponsored by NCI, \$225/yr directs. (January 9, 2008 – December 31, 2009)

Flavahan (PI); Marsh, C.B., (Co-I), R01HL080119, “Alpha2C adrenergic receptors and cutaneous microcirculation,” Sponsored by NIH/NHLBI, \$250,000 direct/yr. (February 1, 2005 – January 31, 2010).

Strauch (PI); Marsh, C.B., (Co-I), P01 HL70294, “Mechanisms of chronic pathobiology in allografts”, Sponsored by, NIH/NIAID, \$140,600 direct/yr., Project 2: “Macrophage production and activation of TGF-B by IgG,” \$220,000 direct/yr. (no cost extension), (September 30, 2001 – August 31,

2006)

Sanfilippo (PI); Marsh, C.B., (Co-I), 5M01RR000034, General Clinical Research Center (GCRC)., Sponsored by NIH/NCRR, \$32,255,854 (to date). (July 1, 1992 – June 30, 2006).

Wewers (PI); Marsh, C.B., (Co-I), Monocytes, Fc-gamma receptors and vascular sclerosis. 1P01A1-40150-1, Sponsored by NIH/NIAID & NHLBI.

Mentor

Tim Eubank, PhD, K99/R00, The role of tumor-associated macrophages in the tumor microenvironment, Sponsored by NCI

Anuj Goyal, AHA Association Fellowship Award, AHA, 0%, \$105,000. (July 1, 2000 – June 30, 2003).

Aaron Kirkpatrick, Stanley Sarnoff Foundation, 0%. (July 1, 2000 – June 30, 2002).

Christine Roos, AHA Fellowship Award, 07/01/00-06/30/01, 0%. AHA, \$35,000. (July 1, 2000 – June 30, 2001).

Tim Eubank, PhD, NIH T32 grant, \$42,000/yr.

Chris Baran, PhD, NIH T32 grant, NIH T32 grant, \$42,000/yr.

Ryan Roberts, PhD, Dept of Defense, M-CSF blocking strategies to prevent tumor progression and metastasis in breast cancers.

Melissa Hunter, PhD, Parker B Francis Fellowship, The role of Ets2 transcription factors in pulmonary fibrosis.

Karen Wood, MD, ALA, Alloimmunity and lung disease after bone marrow transplantation (Co-Mentor).

Karen Wood, MD, K08, Lung Alloimmunity after bone marrow transplantation.

James O'Brien, MD, K23, The obese critical ill; Process and outcome disparities (Co-Mentor).

Patrick Nana-Sinkam, MD, K08, Mechanisms of genomics in lung cancer.

Gregory Lam, Stanley Sarnoff Fellowship, 0%, \$23,000. (July 1, 2000 – June 30, 2001).

Patents granted

PCT/US09/057432- Diagnostic, prognostic and therapeutic uses of miRs in adaptive and/or disease pathways (9/18/09) Published 8/4/11)

PCT/US10/021166 – Ets-2 biomarkers for fibrotic diseases and uses thereafter (1/16/09)

PCT/US08/076109 – MicroRNA expression in human peripheral blood microvesicles (9/12/08)

PCT/US08/084821 – MicroRNA profiling in lung cancer (11/26/08)

Licenses Purchased

Caris Life Technologies – PCT/US08/076109 – MicroRNA expression in human peripheral blood microvesicles (9/12/08)

Partnerships

P44U (co-founder) – neural network company focused on creating prediction models and providing interventions to lower health care with Dr Leroy Hood, MD, PhD, founder of Institute for Systems Biology, Seattle, WV

GE Healthcare – Design Thinking with leadership from GE Healthcare, Milwaukee, WI

Overview of Research Laboratory – From OSU

Our laboratory focuses on uncovering underlying molecular and genetic mechanisms of health and disease. We have focused on three primary areas:

- 1) Epigenetic regulation of health, focusing on microRNA, methylation events and histone regulation of critical cellular processes, like stem-cell function and aging, with application to aging, organ fibrosis, sepsis and cancer.
- 2) Tissue microenvironment, focusing on the role and regulation of the host immune system focusing on macrophages as key regulatory and sensing cells in health and disease. Application areas are cancer, sepsis and fibrotic organ disease.
- 3) Complex systems approaches, including bioinformatics and systems biology to attempt to define algorithms and datasets that can allow us to define a hierarchical map leading to foundational elements of health and disease. This is a mixed clinical phenotype:genotype assessment of leveraging data from individuals and adding insights from evolutionary biology to serve as a both data-driven and hypothesis-driven approach. For example, we are interested in elements conserved in oxygen regulation (HIFs); non-coding RNAs that target epigenetic machinery (DNMTs, HDACs) and regulation of foundational events like aging. This work is grounded in the belief that complexity we perceive is created by interactions of foundational and few elements that when interact in various combinations lead to emergent properties we observe in health and disease.

Overview of IDEA (Innovation, DEsign, Application) Studio in Healthcare and Design In the IDEA Studio, we are focused on creating value innovation (less cost, higher quality) in healthcare. As part of our goal, we envision healthcare as we would like to see it: affordable, accessible, convenient, precise, cost-effective and promoting health, instead of rescue from failure. In addition, we are trying to create new revenue streams for program development.

The focus of the IDEA Studio is internal and external.

- 1) Internal – we are working with the Technology Commercialization Office to create critical verticals to assist in expertise and reputation for OSUWMC and COM to create companies and licensing revenue. We are leveraging the Technology Review Board made up of venture capitalists, entrepreneurs, and innovators to assist us to identify the best IP and best opportunities existing at OSUWMC.
- 2) External – We have focused on four programs:
 - i. Design-thinking expertise. In the presence of multiple channels for information via the Internet and the need for navigation of these many choices to a more uptakable few, we have collaborated with an industry leader, GE Healthcare to create capabilities in design thinking for healthcare. Our goal is to deploy existing tools used in industry and other commercial sectors to creating choice architecture around healthcare decisions and add the emotional and human element to these solutions.
 - ii. Partnership with highly selected entrepreneurs and small businesses to transform community health. Our focus here is to bend the community around the person to facilitate making living well seem normal. Our scalable approach to this issue is to use an integrated mobile application-based platform to nudge the behavior and offerings of businesses to transform community offerings and use the platform to navigate to these choices.

1. As part of both internal and external systems, we are focused at developing rapid cycle innovation as outlined by Eric Ries (<http://theleanstartup.com/principles>) and add design elements to this approach to connect the emotional tie to the concept as well as rapid prototyping and delivery to customers.
 - a. Innovator platform at OSUWMC
 - i. This is a goal to offer entry to our committed investments (people, buildings, patients) to carefully selected entrepreneurs and small businesses to iterate their best ideas and products to our patients. This will leverage our expertise and create a value-seeking platform to bring talent to OSUWMC and to create additional revenue streams from our fixed investments.
 - b. Service-oriented clinical trials capability in a kind of CRO approach that will also leverage fixed investments and expertise around pre-clinical and phase I-III clinical trials for use by companies and organizations to move ideas to patients and from animals to phase 2A or 2B to value and reduce risk for licensing or investment from pharma or VC.
 - i. A second initiative we are moving forward is a
- iii. Deliver P4 (predictive, preventive, personalized and participatory) Care. We are actively collaborating with Dr Leroy Hood, MD, PHD and President of the Institute for Systems Biology in Seattle on creating P4 medicine. This program marries high tech with high touch and uses systems biology to define critical elements in complex systems to focus and support.
 1. Current projects:
 - a. Patient-centered medical home for transitioning individuals with autism and developmental disability
 - b. Healthy New Albany
 - c. Rural health in St Clairsville, OH
 - iv. Commercialization
 1. We are working with selected venture capitalists and entrepreneurs to determine key vertical areas of expertise around our goal of leveraging our internal IP and creating distribution channels to facilitate delivery of these technologies with carefully selected partners.

Overview of Complex Systems Work

I am also very engaged by the potential to apply complex systems work to the architecture of healthcare systems of the future. We have collaborations with world leaders in a variety of fields ranging from deep science, to information technology/bioinformatics to game design to anthropology to designers to experts in medicine including Leroy Hood, MD, PhD (<http://www.systemsbiology.org>); Dave Snowden (<http://cognitive-edge.com>); Ann Pendleton-Jullian, PhD (<http://fourplusone.wordpress.com>); Alan Mills, MD (www.soa.org/files/.../research-complexity-report.pdf); Elizabeth Sanders, PhD (<https://design.osu.edu/people/sanders-phd>); Randy Avent, PhD (http://uncserves.northcarolina.edu/people/randy_avent); and David Galas, PhD (<http://www.pnri.org/research-programs/galas-lab/>).

This team gives us the opportunity to create a kind of “Moneyball” approach to the design and delivery of healthcare for the future. This framework is to understand the most critical issues of the desired system and work to make sure that these elements are appropriately available, insulated, monitored and iterated as we get input from consumers.

This work leverages work in network biology that has been spearheaded by Barabasi and also by Christakis that used this architecture to explore the role of social networks in health. We have begun to realize this in our early design work. Understanding the architecture (both people, structure and function) can allow us to invest selectively in the highest yield and create a more robust and resilient system that is less likely to fracture with stress. Moreover, this kind of value analysis coupled with pilot testing will enable us to compete intelligently in the future, as the foundational value proposition of AMCs is deeply challenged.

We also speculate that as in other networks, complex systems like AMCs are inherently more fragile and susceptible to being destabilized easily (by removing the wrong people, reducing redundancy and by creating additional navigational complexity for workflow). These are solvable, but because of the information inputs creating noise, there is need for a focused, analytical engine that simplifies visualization of the data for the user (need to see patterns of data that are hidden by noise). Moreover, we need to think like other commercial companies, in that what would we want in healthcare for us and our families.

We believe that the only way to save money in healthcare is to have healthier people (in CMS data, the top 1% of expensive patients cost about 24% of the total cost, while the bottom 50% costs only 3.5% of the total). More people in the bottom 50% is beneficial for all. There is a need for disruptive solutions on access, cost, precision, reimbursement, and ecosystem design (focus of P4 medicine concept).

Studying these and other potential foundational solutions will allow us to model the future, look at opportunities for value innovation and direct strategies towards medicine of the future.

SERVICE

Professional Service

International

Guest Speaker, Oman Medical College. (January 7, 2017 - January 17, 2017).

Guest Speaker, Oman Medical College. (January 8, 2016 - January 15, 2016).

Co-Chair, Speaker Lung Injury Mini-symposium, ATS International meeting, (2009).

Co-Chair, Lung injury mini-symposium, ATS International Meeting, (2008).

Apoptosis Symposium Organizer and Speaker, American Thoracic Society International Meeting, San Diego, California. (1999).

Co-Chair, FASEB International Meeting, Washington, DC. (1999).

National

Member, Planning Committee, Sarnoff Scientific Board. (2002-2005).

Member, Sarnoff Scientific Endowment for Cardiovascular Sciences Board. (2001-2005).

Committee Member, Long Range Planning Committee, AAI Assembly, American Thoracic Society, (2000-2001).

Ad-Hoc Reviewer, American Journal of Physiology. (1999 - 2015).

Ad-Hoc Reviewer, American Journal of Respiratory Cell and Molecular Biology. (1999 – 2015).

Ad-Hoc Reviewer, Journal of Immunology. (1999 - 2015).

Editor, Associate Editor, Journal of Investigative Medicine. (1999 - 2015).

Panelist, Frontier Brain Health, Dana Point, California. (March 19, 2018).

Guest Speaker, South By Southwest (SXSW) Conference, University of Texas, Austin, Texas. (March 12, 2018).

Panelist, Appalachian Addiction & Prescription Drug Abuse Conference, "Changing Culture of Society through Education of Early Career Physicians", Charleston, West Virginia. (October 20, 2017).

Guest Speaker, National Forum for Heart Disease and Stroke Prevention, Washington, D.C. (October 18, 2017).

Panelist, The Future of Chronic Care Summit, Washington, D.C. (July 18, 2017).

Keynote Speaker, Federal Reserve Conference, Charleston, West Virginia. (November 30, 2016).

Attendee, Meeting, White House Invitation to the Academic Medical Centers of Excellence in Addiction Medicine: A National Symposium, Washington, D.C. (October 25, 2016).

Attendee, Meeting, Defense & Veterans Center for Integrative Pain Management (DVCIPM), Rockville, Maryland. (September 26, 2016).

Board of Advisors, Caris Life Sciences SAB, Phoenix, Arizona. (September 23, 2016 - September 24, 2016).

Panelist, FDA Commissioner's Round-table on the Opioid Epidemic, Charleston, West Virginia. (August 9, 2016).

Conference-Related, Global Brain Health and Performance Summit, Columbus, Ohio. (May 11, 2016 - May 13, 2016).

Remarks/Attendee, WVCTSI External Advisory Board, Morgantown, West Virginia. (April 5, 2016).

Board of Advisors, Caris Life Sciences SAB, Phoenix, Arizona. (April 1, 2016 - April 3, 2016).

Attendee, Meeting, Samuelli Institute Meeting, Alexandria, Virginia. (March 9, 2016).

Board of Advisors, Caris Life Sciences SAB, Phoenix, Arizona. (December 4, 2015 - December 6, 2015).

Guest Speaker, P4 Research!Louisville, Louisville, Kentucky. (October 29, 2015 - October 30, 2015).

Attendee, Meeting, Mobile Sensor Data-to-Knowledge (MD2K) Annual Meeting, Memphis, Tennessee. (September 15, 2015 - September 16, 2015).

Board of Advisors, Caris Life Sciences SAB, Phoenix, Arizona. (February 21, 2015 - February 22, 2015).

Member, Editorial Board, Drug Discovery Today: Disease Mechanisms Member, Research. (2012).

Advocacy Committee, American Thoracic Society, (2012 – 2013).

Member, IPF Workshop, NHLBI, 2012 Board Member, Personalized Medicine Coalition, (2010 - 2013).

National Institutes of Health, Genetics in Lung Disease grant review, NHLBI/LIRR, (2011).

National Institutes of Health, Lung Injury Repair Study Section, (2011).

Scientific Advisory Committee, Member, GSK, (2011).

Member, Sarnoff Board and Development Committee, (2009).

Association of Academic Health Centers, Executive Leaderships Group of Vice Presidents for Research. (2009).

NIH RC1 grant review, LIRR, (2009).

NIH RC2 grant review, NHLBI, (2009).

Member, Executive Committee, National Summit on Personalized Health Care, State of UT, (2009).

Co-Leader, Health Care Delivery, National Summit on Personalized Health Care, UT, (2009).

National Institutes of Health/NHLBI RC1 and RC2 grant reviews, (2009).

National Institutes of Health/NHLBI RC3 grant review, (2009).

Director, National Conference on Personalized Health Care, Ohio State University, (2008).

Member, CTSA Public Private Partnerships, (2008).

Member, Governance Committee, Sarnoff Cardiovascular Research Foundation, (2008 – 2009).

Chair, Governance Committee, Sarnoff Foundation for Cardiovascular Sciences, (2008 – 2009).

Member, Battelle Biology and Health Sciences Initiative, External Advisory Board, (2007 – 2008).

Member, External Advisory Board, Battelle Biology and Health Science Initiative, (2007 – 2008).

Chair, Board of Directors, Sarnoff Cardiovascular Research Foundation, July 1, (2007 – 2008).

British Lung Award, Reviewer, (2007).

Glaxo-Wellcome Grant Review, (2007).

Chair, Scientific Board, Sarnoff Endowment for Cardiovascular Sciences, (2006 – 2007).

National Institute of Allergy and Infectious Disease, CORT review, (2006).

Chair Elect, Sarnoff Endowment for Cardiovascular Sciences Scientific Board, (2005-2006).

National Institutes of Health, Lung Biology and Pathology A Study Section, Ad hoc, LBPA NIH, (2002); ad hoc PO1 study section. (2004, 2005, 2006).

Member, Research Advocacy Group, ATS, (2004 – 2006).

Ad-Hoc Reviewer, National Institutes of Health, Lung Biology and Pathology A Study Section. (2002 - 2006).

Member, LBPA Study Section, Lung injury, repair and remodeling section, (2003-2005).

Committee Chair, All Planning Committee, American Thoracic Society. (2002 - 2004).

Organizer and Speaker, Macrophage Biology Seminar, International American Thoracic Society, San Francisco, California. (May 2001).

Organizing Committee, AFMR/CSCR Midwest Meeting, (1999-2000).

Officer, President/Elect/Past, Midwest Section, American Federation for Medical Research. (1999 - 2000).

Speaker, National Medical Scientist student Forum, The Ohio State University, Columbus, Ohio. (May 2000).

Chairperson, American Thoracic Society, AAI Assembly. (1999).

Officer, President/Elect/Past, Midwest Section, American Federation for Medical Research. (1998 - 1999).

Featured Speaker, American College of Clinical Pharmacology National Meeting, Cincinnati, Ohio. (1998).

Moderator and Speaker, Midwest Section Meeting, AFMR, Chicago, Illinois. (1998).

Member, National Council, AFMR. (1998).

Counselor, American Federation for Medical Research. (1997 - 1998).

State

Attendee/Awardee, The State Journal Business Awards Ceremony, Charleston, West Virginia. (June 12, 2018).

Speaker, Children's Health Policy Summit, Morgantown, West Virginia. (September 7, 2017).

Keynote Speaker, WV Healthcare Association Annual Convention, Waterfront Hotel, Morgantown, WV. (May 8, 2017).

Speaker, BioSummit, "Entrepreneurship Creates Healthy Communities," Waterfront Hotel, Morgantown, WV. (April 25, 2017).

Speaker/Participant, Governor Justice Transition Team Meetings, Charleston Civic Center, Charleston, WV. (December 15, 2016).

Speaker, WVSMA Welcome Luncheon, Greenbrier, White Sulphur Springs, WV. (August 24-27, 2016).

Keynote Speaker, Boy Scouts of America, Lakeview Resort, Morgantown, WV. (May 5, 2016)

Keynote Speaker, WV Diabetes Symposium and Workshop, Waterfront Hotel, Morgantown, WV.

(May 4, 2016)

Speaker, Independent Physicians Association Annual Meeting, Wheeling, WV. (October 20, 2015)

Speaker, Wellness Council of WV Annual Conference, Waterfront Hotel, Morgantown, WV (October 8, 2015).

Speaker, Institute on Aging Conference, Lakeview Resort. (June 2, 2015)

Member, State of Ohio Medicaid/Medicare taskforce, Ohio. (2013).

Local

Institutional Advisory Committee, Davis Heart and Lung Research Institute, (2006 – 2015).

Member, Steering Committee, CTSA Grant (2007 – 2015).

Member, College of Medicine A P & T Committee. (2005 – 2015).

Member, College of Medicine Master Space Plan Steering Committee. (2005 – 2015).

Member, College of Medicine, Master Space Plan Executive Committee. (2005 – 2015).

Grant Review Committee, Davis Bremer, College of Medicine. (2004 – 2015).

Member, Center for Personalized Health Care Steering Committee, OSU COM. (2005 – 2015).

Deans Research Council, College of Medicine, (2002 - 2015).

Member, Intern Selection Committee, Department of Internal Medicine, Ohio State University Medical Center, (1999 – 2015).

Judge, Oral Presentations, Landacre Society for Medical Research, Ohio State University Medical Center, (1998 – 2015).

Search Committee, Integrative Chair, (2012 - 2013).

Search Committee, Emergency Medicine Chair, (2012 - 2013).

Member, Performance Accountability Review Group, (2012 - 2013).

Member, Medical Center Strategic Planning Team, (2012 - 2013).

Member, Value Based Clinical Integration Planning Group and Research, Education & Commercialization Workgroup, (2012 - 2015).

Member, Liaison Committee on Medical Education, (2012 - 2013).

Member, Tech-Columbus Working Group, (2011).

Member, Business Round Table, Fisher College, (2011).

Member, Health Plan Oversight Committee, (2010).

Member, Sports Medicine Internal Advisory Committee (2010).

Search Committee, Genetics Chair, (2010).

Member, InnOSU Committee (Fischer College), (2010).

Search Committee, Chair Pharmacology, COM. (2008 - 2010).

Search Committee, Chair Radiology, COM. (2008 - 2010).

Search Committee, Biomedical Informatics Chair, (2008-2010).

Member, Microscopy and Imaging Facility Executive Committee, (2010).

OSU Distinguished Scholar Award Committee. (1997-2010)

Member Basic Science Leaders Committee, (2009).

Member, College Executive Operations Committee, (2009).

Member, Health Sciences Deans Cluster, (2009).

Member, Medical Center Executive Cabinet, (2009).

Member, Medical Center Leadership Council, (2009).

Member, University Business Development Advisory Council, (2009).

Member Center for Comprehensive Knowledge Management Executive Committee, (2009).

Member, Biorepository and Biospecimen Resource Oversight Committee, (2009).

Member, Campus Chemical Institute Center Oversight Committee (2009).

Member, Integrated IT steering committee, (2009).

Search Committee, DHLRI Director, COM, (2008).

Search Committee, Chair Pharmacology, College of Medicine, (2007).

Member Steering Committee, Center for Personalized Health Care, (2007).

Member, Center for Personalized Health Care Executive Advisory Group, OSU COM, (2007).

Member, Council of Chairs, COM, (2007).

Member, Ad hoc Committee on Governance Rights for Clinical Faculty, The Ohio State University, (2007).

Member Executive Advisory Committee, Center for Personalized Health Care, (2007).

Member, Distinguished Scholar Selection Committee, The Ohio State University (2005 - 2007).

Chair, College of Medicine, Critical Care Strategic Plan Steering Committee (2006).

Search Committee, Klaussen Chair, Cardiothoracic Surgery, Dept of Surgery (2006).

Search Committee, Chair Pathology, College of Medicine and Public Health (2006).

Search Committee, Chair Anesthesiology, COMPH (2006).

Search Committee, Chair Orthopediac, COM (2006).

Programmatic Grant Review Committee, Davis Heart and Lung Research Institute, (2006).

Coordinator, Speaker Bureau, Heart and Lung Institute, (1997 - 2006).

Operating committee, MSP program, College of Medicine. (2002 – 2005).

Chair, Space Committee, DOIM, (2001 - 2005).

Evaluation of Self Insurance Program committee, OSUP, College of Medicine. (2002 - 2003).

Member, Medical Scientist Training Program Committee, (2000 - 2003).

Member, Credentials Committee, Ohio State University Medical Center, (1995 – 2003).

BRT Planning Committee Member, College of Medicine, (2002).

Salary Recovery Task Force, College of Medicine, (2002).

Chair, DMF task force on malpractice, (2002).

Featured speaker, White Coat ceremony for incoming medical students, (2002).

Faculty Advisor – Landacre student research society (2002).

Co-Chair, Search Committee, Director, Cardiology, (2001 - 2002).

Member, Mentorship Committee, Department of Internal Medicine, (2001).

Member, Outcomes Node, Biomedical Research Plan, OSUCMPH, (2001).

Organizer, Internal Medicine Fellows Research Day, (2001).

Executive Committee, Ohio Thoracic Society, (2000 – 2001).

Director, Development Committee, Ohio Thoracic Society, (2000 – 2001).

Member, Search Committee, Director, Heart and Lung Research Institute, (2000 – 2001).

Chair, Search Committee, Director, Infectious Diseases, (2000 – 2001).

Chair, Ethics Committee, Ohio State University Medical Center, Department of Internal Medicine, (1996 – 2001).

Member, Board of Directors OSU Internal Medicine, LLC, (2000).

Organizing committee, Ohio Thoracic Society Annual Conference, (1999 – 2000).

Member, Research Committee, Department of Internal Medicine, (1999).

Co-organizer, Department of Internal Medicine/Heart and Lung Institute, Fellows Research Day,

- (1999).
- Chair and Author for Asthma Practice Guideline, Ohio State University Medical Center, (1998).
- Member, Executive Committee for Quality Management, Ohio State University Medical Center, (1998).
- Organizer, HLI Journal Club, Heart and Lung Institute, (1997).
- Member and Chair, Distinguished Physician Committee, Ohio State University Medical Center, Department of Internal Medicine, Selection Committee, (1997).
- Member, Clinical Computing Committee Ohio State University Medical Center, (1995 – 1997).
- Member, Steering Committee and small group discussion leader, Decisions at the End of Life, Ohio State University Medical Center, (1996-1997).
- Quality Assurance Committee, Ohio State University Medical Center, Department of Internal Medicine, (1989 – 1996).
- Member, Ethics Taskforce, Ohio State University Medical Center, (1995).
- Member, Intern Recruitment Committee, Ohio State University Medical Center, Department of Internal Medicine, (1994).
- Member, Housestaff Evaluation Committee, Ohio State University Medical Center, Department of Internal Medicine, (1992).