Curriculum Vitae for Rakesh P. Patel, Ph.D
University of Alabama at Birmingham
School of Medicine Faculty

PERSONAL INFORMATION

Name: Rakesh P. Patel Ph.D.
DOB: 14th Aug 1972 (London, England)
Citizenship: US (since 2012)
Foreign Languages: Gujarati
Home Address: 5048 Lake Crest Circle
Birmingham, AL 35226

RANK/TITLE: Professor and Interim Vice Chair for Research

Department: Department of Pathology (Molecular and Cellular Division)
University of Alabama at Birmingham
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Birmingham, AL 35294
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E-mail: rakeshpatel@uabmc.edu

EDUCATION:

Institution	Degree	Year
Department of Biological Sciences, University of Essex, Colchester, Essex, England.	B.Sc. with Honors	1990-1993
Department of Biological Sciences, University of Essex, Colchester, Essex, England.	Ph.D.	1993-1996

POSTDOCTORAL TRAINING:

Department of Pathology, University of Alabama at Birmingham, Birmingham, Alabama, USA (1997-1999 with Dr Darley-Usmar)

ACADEMIC and RESEARCH APPOINTMENTS:

Year	Title	Institution
1999-2001	Research Instructor	Department of Pathology, Molecular and Cellular, Division, University of Alabama at Birmingham
2001-2002	Research Assistant Professor	Department of Pathology, Molecular and Cellular, Division, University of Alabama at Birmingham
2002-2005	Assistant Professor	Department of Pathology, Molecular and Cellular, Division, University of Alabama at Birmingham
2005-2010	Associate Professor	Department of Pathology, Molecular and Cellular, Division, University of Alabama at Birmingham
2010-current	Professor	Department of Pathology, Molecular and Cellular,

		Division, University of Alabama at Birmingham
2017-current	Vice Chair for Research (interim)	Department of Pathology, University of Alabama at Birmingham
2005-current	Secondary Appointment	Department of Environmental Health Sciences, University of Alabama at Birmingham
2007-current	Secondary Appointment	Department of Anesthesiology, University of Alabama at Birmingham
2017-current	Secondary Appointment	Department of Surgery, University of Alabama at Birmingham

Year	Title	Institution
2007-2008	Assistant Director	Molecular and Cellular Pathology Graduate Program, Department of Pathology, University of Alabama at Birmingham
2008-2015	Director	Molecular and Cellular Pathology Graduate Program, Department of Pathology, University of Alabama at Birmingham
2011-2015	Director	HHMI UAB Howard Hughes Med to Grad Program
2011-2016	Co-Director	Graduate Biomedical Sciences Program: Pathobiology and Molecular Medicine Theme, University of Alabama at Birmingham
2012-current	Director	Certificate Program in Translational and Molecular Sciences, University of Alabama at Birmingham
2015-current	Director	NIGMS T32 UAB Translational and Molecular Sciences Program

Year	Title	Institution
2002-2010	Member	Purdue-UAB Botanical Center for Age-related diseases
2007-current	Member	Pulmonary Injury and Repair Center, UAB
2007-current	Member	Comprehensive Cancer Center, UAB
2010-current	Member	Nephrology Research and Training Center, UAB
2012-current	Member	Center for Clinical and Translational Science, UAB
2002-current	Senior Scientist	Center for Free Radical Biology, UAB
2011-current	Senior Scientist	Center for Exercise Medicine, UAB
2012-current	Senior Scientist	Comprehensive Center for Healthy Aging, UAB
2011-current	Senior Scientist	Nutrition and Obesity Research Center, UAB
2010-current	Senior Scientist	Comprehensive Cardiovascular Center, UAB
2011-current	Senior Scientist	Comprehensive Diabetes Center, UAB
2015-current	Director	UAB Center for Free Radical Biology (CFRB)

AWARDS/HONORS:

1993 David Whytock Memorial Prize (for highest graduating score in Department of Biochemistry, University of Essex, England)

1993-1996 Joint funding for CASE studentship (Ph.D) from ESPRC and Wellcome Pharmaceuticals, United Kingdom

1999-2002 Parker B. Francis Foundation Award

2010 -2011: Leadership and Dedication Award from Molecular and Cellular Pathology Graduate Students

2016: Elected as a Fellow of the Society for Redox Biology and Medicine

2016: Recipient of the Society for Redox Biology and Medicine (SfRBM) Mentoring Excellence Award

PROFESSIONAL SOCIETIES / MEMBERSHIPS:

1993-1997 Biochemical Society

1995-Present International Society for Free Radical Research.

1995-Present Society of Free Radical Biology and Medicine (USA); currently Society for Redox Biology and Medicine

2002-Present American Physiological Society

2003-Present Biochemical Society

2005-2011 American Society of Hematology

2010-2012 Society for Glycobiology 2012 Member of American Thoracic Society

2012-current Member of the American Society of Biochemistry and Molecular Biology

COUNCILS AND COMMITTEES:

International

Grant reviewer:

2004-2005 Grant reviewer for EMF trust, UK.
2009 Czech Science Foundation
2013 Heinrich-Heine-University Düsseldorf
2014 Gordon Research Conferences-New GRC proposal
2015 The Dunhill Medical Trust, UK
2016 EPSRC, UK

National

2004-2008 Member of council for the Society of Free Radical Biology and Medicine

Grant reviewer:

2001, 2006 Grant reviewer for National Science Foundation

2002 NIH-NHLBI Special Emphasis Panel/Study Section for Minority based Research Grants

2003 NIH-NHLBI Special Emphasis Panel/Study Section for Minority based Research Grants

2004 NIEHS Special Emphasis Panel (RFA-03-010)

2004-2007 American Heart Association, South Eastern Affiliate, Committee 3B study section

2006 NIH VCMB Ad hoc study section member

2007 NIH Program Project Grant review panel member (NHLBI-HLBP) review panel member

2008 NIH Program Project Grant review panel member (NHLBI-HLBP) review panel member

2009 NIH (NHLBI) Program Project Grant review panel member

2009 NIH (NHLBI) Ad hoc reviewer minority training grants

2010 NIH (NHLBI) K99 Grant Reviewer

2012 NIH (NHLBI) Reviewer on Special Emphasis Panel/Scientific Review Group 2013/01 ZHL1 CSR-C (F1): Excellence in Hemoglobinopathies Research Award (U54).

2012-2014: ADA. Reviewer for American Diabetes Association

2013 NIH (NHLBI) Reviewer on Special Emphasis Panel for PPG application "Serious hazards of transfusion and cellular therapies: Mechanisms and Intervention"

2013 NIH (NHLBI) Reviewer for NIH PHS-2013-1 SBIR Phase 1 topic 74 "Improving Safety and Efficacy of Red Blood Cell Products in Transfusion"

2013 NIH (NCAAM) Education Review Panel 2014 NIH (NHLBI) Reviewer on Special Emphasis Panel for PPG application "Serious hazards of transfusion and cellular therapies: Mechanisms and Intervention"

2015 NIH (NIAID) Reviewer on Topic 32 Removing Cells from Small Amounts of Blood SBIR

2015 NIH (NHLBI) SBIR Phase 2 topic 74 "Improving Safety and Efficacy of Red Blood Cell Products in Transfusion"

2015, 2016 NIH AICS Study Section (Ad hoc)

2016 NIH ZRG1 "Molecular Profiles and Biomarkers of Food and Nutrient Intake"

2017 NIH SBIR Phase IIB R44 Review Panel (SEP)

UNIVERSITY ACTIVITIES:

Steering and Advisory committees:

2007-2010:	Human Subjects Research Committee, Department of Anesthesiology, UAB
2008-current:	Steering Committee, Pulmonary Injury and Repair Center
2010-current:	Steering Committee, Center for Free Radical Biology and Medicine
2011-2014:	Steering Committee, CCTS Training Academy Planning committee
2011-2016:	GBS Faculty review Committee, UAB
2012-current:	Steering Committee, Comprehensive Cardiovascular Center, UAB
2012-2015:	AMC21 Research Strategic Plan: Graduate and Postdoctoral Education Initiatives

2014-2016: GBS Program Directors Steering committee
2015-2016: School of Medicine Research Space Allocation Policy Committee
2015-current: Director, UAB Center for Free Radical Biology
2015-current: UAB I3 (Inflammation, Infection and Immunity) steering committee
2016-current: UAB Medical Scientist Training Program (MSTP) Advisory Committee
2016-current: I3 scholar committee
2017-current: UAB SOM Master Plan for Space: Wet Lab / Core / ARP committee
2017-current: Co-Chair Purchasing and Procurement Evaluation committee, Center of Council Directors.
2017-current: GBS Curriculum Assessment Committee

Search committees:

2007 Search Committee for Assistant/Associate Professor Department of Anesthesiology, University of Alabama at Birmingham

2007 Search Committee for Assistant/Associate Professor Department of Environmental Health Sciences, University of Alabama at Birmingham

2013 Search Committee for Director of Student Engagement

2017 Search Committee for Assistant / Associate / Professor of Pathology, Division of Laboratory Medicine- Clinical Chemistry

2017 Chair, Search Committee for Assistant Professor, Department of Pathology, University of Alabama at Birmingham

2017-2018 Search Committee for Chair, Department of Anesthesiology, University of Alabama at Birmingham

Other (Grant reviewer)

2003-2005: Pilot grant reviewer for Cell Adhesion and Matrix Research Center

2004-2005, 2007: Pilot Grant reviewer for Alzheimers Center

2012, 2015, 2016: Grant reviewer for CCTS pilot applications

2012, 2015, 2016: Grant reviewer for KPRI-Department of Pediatrics, UAB.

2013-current: Grant reviewer for Comprehensive Cardiovascular Center, UAB

2015 Internal review committee, School of Medicine, UAB for K99/R00 grant proposal for Dr Ravinder Boddu

2016 Grant reviewer for the Cystic Fibrosis Center

2016 Panel Member, UAB CCTS Grants Review Panel for Dr Curtis

2016 Panel Member, UAB CCTS Panels Done Quickly/ Nascent Panel Project

2016 Grant reviewer for SOM 2nd RO1 grant initiative

2016 Internal reviewer for SOM for UAB Superfund EPA grant application

2017 Internal reviewer for UAB DOM-Pulmonary PPG application on Lung fibrosis mechanisms

2017 Internal reviewer for UAB SOM- second RO1 pilot grant application

Other (faculty mentoring):

2009-2010: Mentor in Health Disparities Research Training Award Program (HDRTP) for Dr Asemu (Tuskegee University)

2012-2015: Faculty Mentoring committee for Dr Aimee Landar (Pathology)

2013-current: Faculty mentoring committee for Eric Judd (Medicine-Nephrology)

2014-current: Faculty Mentoring committee for Dr Rajasekaran Soorappan (Pathology)

2014-current: Faculty Mentoring committee for Dr Adam Wende (Pathology)

Medical Education

2009-2010: MEC Assessment Subcommittee member

2014-2015: Participant in Pre-Med 1st STEP (Science Training Enrichment Program) with a focus on increasing URM matriculation from undergraduate into medical school.

Graduate Training and Education

2002-2004 Judge Graduate Student Research Day

2002-2007 Course Master, Integrative Biomedical Sciences 700 (IBS 700)

2002-2007 Integrated Biomedical Sciences steering committee

2006-current: Training Grant Faculty for T32 HL007918-11 Training Program in Cardiovascular Pathophysiology

2008-2012 Graduate Biomedical Science Core Curriculum Steering committee

2008-2016 Graduate Biomedical Science, Pathobiology and Molecular Medicine Theme Steering Committee and Recruitment Committee

2008-current Director, Molecular and Cellular Pathology Graduate Program

2010-current: Training Grant Faculty for T32 Nephrology Research and Training

2011-2012 HHMI International Fellowship review committee

2011-2016 Co-Director, Pathobiology and Molecular Medicine graduate theme, GBS.

2011-2015 Director, HHMI UAB Med to Grad Program

2012-2014 Co-Director of GBS 704 course (Introduction to Experimental Medicine-Methods and Analysis)

2013-current: Training Grant Faculty for T32 Exercise Medicine

2013-current: Training Grant Faculty for T32 Nutrition and Obesity Research

2015	PhD student fellowship application reviewer for CMBD T32
2015- current	Director, NIGMS T32 in Translational and Molecular Sciences
2015	PhD student fellowship application reviewer for Lung disease T32
2017-current:	Training Grant Faculty for T32 in Lung Disease

Post-doctoral Education / Training

2004-current:	Training Grant Faculty for T32 HL07457 Mechanisms of Hypertension and Cardiovascular Disease (postdoctoral fellowships)
2013:	Support Faculty for T32 (NHLBI) UAB Statistical Genetics Post-doctoral Research Program
2014	Judge, 8th Annual UAB Post doc Research Day

Graduate Student Dissertation Committees

Masters (total 4)

2007-2009	Member of the MSc thesis committee for Amit Yadav, Department of Environmental Health Sciences, UAB
2007-2009	Member of the MSc thesis committee for Meenakshi Kushwaha, Department of Biomedical Engineering, UAB
2010-2011	Member of the MSc thesis committee for Chase Vaughan, Department of Pathology, UAB
2011-2014	Member of the MSc thesis committee for Stephen Babitz, Department of Pathology, UAB

PhD (total 39)

1999-2002	Member of the graduate school committee for Mutay Aslan, Department of Anesthesiology, UAB
2001-2003	Member of the graduate school committee for Valerie Meyers, Department of Pathology, UAB
2001-2003	Member of the graduate school committee for Sruti Shiva Department of Pathology, UAB
2002-2005	Member of the graduate school committee for Cliff Toleman, Department of Cell Biology, UAB
2003-2005	Member of the graduate school committee for Laila Abou-Agag, Department of Nutrition, UAB
2004-2008	Member of the graduate school committee for Joo Yeun Oh, Department of Pathology, UAB

2004-2007	Member of the graduate school committee for Hyeonju Yeo, Department of Pathology, UAB
2004-2010	Member of graduate school committee for Jessica Guitierez, Department of Physiology, UAB
2004-2006	Member of the graduate school committee for Zhen Yang, Department of Pathology, UAB
2005-2008	Member of the graduate school committee for Shannon Eliuk, Department of Pharmacology, UAB
2005-2008	Member of the graduate school committee for Tracy D'Allesandro, Department of Pharmacology, UAB
2005-2006	Member of the MSc thesis committee for Thanh Huynh, Department of Engineering, UAB
2005-2006	Member of the MSc thesis committee for Jeff Koentizer, Department of Biology, UAB
2006-2009	Member of the graduate school committee for Nai-Lin Cheng, Department of Physiology, UAB
2006-2013	Member of the graduate school committee for Melissa Roden, Department of Pathology, UAB (did not complete)
2006-2009	Member of the graduate school committee for Marcienne Wright, Department of Biochemistry and Molecular Genetics, UAB
2007-2011	Member of the graduate school committee for Ashlee Higdon, Department of Pathology, UAB
2008-2012	Member of the graduate school committee for Asaf Stein, Environmental Health Sciences, UAB
2009-2012	Member of the graduate school committee for Colin Reilly, Department of Pathology, UAB
2009-2012	Member of the graduate school committee for Ryan Corrick, Department of Pathology, UAB
2010-2014	Member of the graduate school committee for James Londino, Department of Cell Biology, UAB
2010-2013	Member of the graduate school committee for Thomas Peavy, Department of Neurobiology, UAB
2011-2014	Member of the graduate school committee for Niroop Kaza, Department of Pathology, UAB

2012-2017	Member of the graduate school committee for Suean Fontenard, Biochemistry and Structural Biology Theme, UAB
2012-2015	Member of the graduate school committee for Matthew Schultz, Physiology and Biophysics graduate program, UAB
2012-2015	Member of the graduate school committee for Matthew Dodson, Cell and Molecular Development theme, UAB
2012-2015	Member of the graduate school committee for Stephanie Wall, Department of Pathology, UAB
2012-2016	Member of the graduate school committee for Dennis Steverson, Department of Pathology, UAB
2013-2016	Member of the graduate school committee for Christopher Graham, Cancer Biology Theme, Graduate Biomedical Sciences, UAB
2014-2017	Member of the graduate school committee for Brady Spencer, Pathobiology and Molecular Medicine Theme, Graduate Biomedical Sciences, UAB
2015-current	Member of the graduate school committee for Andrew Holdbrooks, Pathobiology and Molecular Medicine Theme, Graduate Biomedical Sciences, UAB
2015-current	Member of the graduate school committee for James Lambert, Biochemistry and Structural Biology Theme, Graduate Biomedical Sciences, UAB
2015-current	Member of the graduate school committee for Morgan Locy, Pathobiology and Molecular Medicine Theme, Graduate Biomedical Sciences, UAB
2016-current	Member of the graduate school committee for Jeremie Lever, Pathobiology and Molecular Medicine Theme, Graduate Biomedical Sciences, UAB
2017-2017	Member of the graduate school committee for Sarah Bowhay, Biochemistry, Structural and Stem Cell Biology Theme, Graduate Biomedical Sciences, UAB (Student left program)

2017-current Member of the graduate school committee for Jacelyn Peabody, Pathobiology and Molecular Medicine Theme, Graduate Biomedical Sciences, UAB

2018-current Member and Chair of the graduate school committee for Jessie Barra, Immunology Theme, Graduate Biomedical Sciences, UAB

2018-current Member of the graduate school committee for Wayne Howse, Cancer Biology Theme, Graduate Biomedical Sciences, UAB

External Examiner:

2010-2012 Member of the graduate school committee for Tim Flewelen, Medical College of Wisconsin

2013 Opponent for PhD student Signe Helbo, Institute of Bioscience, Aarhus University, Denmark

2014 - 2015 Member of the graduate school committee for Jesica Jones, Loma Linda University, CA

2017 External examiner for PhD student Luciana Da Silveira, Department of Laboratory Medicine and Pathology Graduate Program, University of Alberta, Canada

TEACHING EXPERIENCE:

Course Director

2002-2008 Course Master, Integrative Biomedical Sciences Program (IBS 700), University of Alabama at Birmingham (1st semester block for 1st graduate students)
2012-current: Director of the Translational and Molecular Sciences Certificate Program
2012-current: Course Director: HMG 707 (Vocabulary in Clinical Research)
2012-2016: Course Director: HMG 705 (Drug Discovery)
2017: Course Director: TMS714 and TMS724 (Modelling Human disease)

Teaching

Graduate students

1999-present "Protein structure and function: Biochemistry of Hemoglobin" in Biological Chemistry and Cellular course, for first year graduate students in the Integrative Biomedical Sciences Program, and then Graduate Biomedical Sciences core curriculum (GBS 707) University of Alabama at Birmingham (1 lecture, 2h)

2000-2004 "PAT 700: Biology of Disease" to second year graduate students, University of Alabama at Birmingham. Lecture Title: Inflammation: Role of leukocyte-endothelial cell interactions. (1 lecture, 2h)

2001 "Glycolysis" module as part of the Biological Chemistry and Cellular Physiology course for first year graduate students in the Integrative Biomedical Sciences Program, University of Alabama at Birmingham (1 lecture, 2h).

2001 "Carbohydrate Chemistry" module as part of the Biological Chemistry and Cellular Physiology course for first year graduate students in the Integrative Biomedical Sciences Program, University of Alabama at Birmingham (1 lecture, 2h).

2001-2002 "Models for Inflammation: NO and free radical related diseases" for In Vivo Models for Biomedical Research course, for first year graduate students in the Integrative Biomedical Sciences Program-III. University of Alabama at Birmingham (1 lecture, 2h).

2002-2010 "Enzyme kinetics and Enzyme function and regulation" module as part of the Biological Chemistry and Cellular Physiology course for first year graduate students in the Integrative Biomedical Sciences Program, University of Alabama at Birmingham (3 lectures, total 6h)

2003-present PAT 701 Molecular Basis of Disease to second year graduate students, University of Alabama at Birmingham. Lecture Title: Role of Endothelial Responses to Injury and Inflammation (1 lecture, 2h)

2007-current: Teaching Free Radicals in Health and Disease (ENH 783): Ischemia Reperfusion injury to second year graduate students, University of Alabama at Birmingham (1 lecture, 2h)

2010-current: "Enzyme kinetics and Enzyme function and regulation" in Graduate Biomedical Sciences core curriculum (GBS 707) for first year graduate students, University of Alabama at Birmingham. (2 lectures, total 4hr).

2010-2011: "Introduction to Molecular Medicine: Oxidative stress, Cardiovascular disease and Anti-oxidant Therapy" (GBS 704) for first year graduate students, University of Alabama at Birmingham. (1 lecture, total 2hr).

2014, 2016: Teaching "New advances in nitric oxide biology in cardiovascular disease" (GBS 758, 1 lecture, 1h)

2016-current: Teaching "Redox Signaling" (GBS 709, 1 lecture, 1 discussion class, 4h total)

2016: Teaching in "Mastering the Art of Reproducible Science" Course and the "Reproducibility issues relate to preclinical testing and failures in clinical studies" module. (GBS 746, 4 lectures, discussion classes, approximately14h)

Residents

2010: Teaching Anesthesiology residents, Free Radicals and Inflammation (1hr per lecture)

2013: Teaching Pulmonary medicine residents, Free Radicals and Inflammation (1hr per lecture)

MENTORING

Undergraduate Science and Technology Honor students

June 2016-June 2017 Alexandria Nichols, BS Biology UAB

Graduate (PhD) students

1999-2002: Brenda Boersma, PhD (graduated 2002) Co-mentor with Dr Barnes and Dr Darley-Usmar)
Current Position: Employee
National Cancer Institute

November 2002-July 2004 Jack H. Crawford Ph.D, (graduated July 2004).
Current Position: Associate Professor,
Department of Anesthesiology
University of Alabama at Birmingham

August 2004-October 2007 T. Scott Isbell, PhD (graduated Dec 2007).
Current Position: Assistant Professor, Saint Louis University, MO

August 2006-June 2010 Dario Vitturi, PhD (Graduated June 2010)
Current Position: Research Instructor, University of Pittsburgh

October 2010 – June 2013 David W Scott, PhD (Graduated March 2013)
Current Position: Principal Scientist, Spyryx Biosciences, North Carolina, USA

Sep 2009 – May 2014 Ryan Stapley, PhD (Graduated May 2014)
Current Position: Lecturer, Montana State University

June 2016-current Kellie regal, PhD- PBMM theme

Postdoctoral Fellows

2003-2004	Cate Fenster, PhD Current Position: Assistant Professor, Dept of Biology, College of Wooster
Oct 2002-Oct 2006	Balu K Chacko, PhD Current Position: Research Instructor, University of Alabama at Birmingham
Jan 2009- Jan 2011	Andrey Samal MD Current Position: Internal Medicine Physician, Baptist Health Care Systems, Alabama.
Aug 2010-Dec 2012	Bessy Thrash, PhD Current Position: Unknown
Jan 2011-Aug 2012	Yanping Liu, PhD Current Position: Research Associate, UAB
May 2013- Apr 2015:	Matthew Vallejo, PhD Current Position: Postdoctoral Fellow, Department of Psyhciatry, UAB
Oct 2013-2015:	Joo-Yeun Oh, PhD Current Position: Research Associate, Department of Pathology, UAB
Feb 2016-current:	Khandakar Ahmed, PhD
Jan 2017-Dec 2017:	Chae Y Bae, PhD Current Position: Researcher (Biology team), NOUL Inc. South Korea
Feb 2017-current:	Kiyoung Kim, PhD

Residents / Fellows mentoring

2014-2016	Jennifer Hamm, MD Fellow, Pediatric Hematology-Oncology University of Alabama at Birmingham
2015-2016 (co-mentor with Dr Gaggar)	Gregory Payne, MD Chief Fellow, Cardiovascular Medicine University of Alabama at Birmingham

2016-current (Co-mentor with Dr Lal)	Sam Gentle, MD Fellow, Pediatrics-Neonatalogy University of Alabama at Birmingham
2017-current	Rindi Ulrich, MD Fellow, Surgery-Trauma University of Alabama at Birmingham

Faculty mentoring

2012-2015: Faculty Mentoring committee for Dr Aimee Landar (Pathology)

2013-2015: Promotion and Tenure evaluation committee.

2014-current: Faculty Mentoring committee for Dr Rajasekaran Soorappan (Pathology)

2014-current: Faculty Mentoring committee for Dr Adam Wende (Pathology)

2017-current: Faculty Mentoring committee for Dr Vikram Saini (Microbiology)

2017-current: Faculty Mentoring committee and K-grant mentor for Dr Allison Jones, (Nursing)

Department of Pathology Activities:

2003-current: Molecular and Cellular Pathology IRB Review committee

2003-current: Molecular and Cellular Graduate Program steering committee

2003-2004: Molecular and Cellular Graduate Program Website Subcommittee

2007-2009: Molecular and Cellular Pathology Division representative on Departmental Faculty Advisory Committee

2007-2008: Assistant Director, Molecular and Cellular Pathology Graduate Program

2008-current: Director, Molecular and Cellular Pathology Graduate Program

2012-2015: Organized, Chair of Pathology Trainee Research Day

2012-2015: Faculty Mentoring committee for Dr Aimee Landar (Pathology)

2013-2015: Promotion and Tenure evaluation committee.

2014-current: Faculty Mentoring committee for Dr Rajasekaran Soorappan (Pathology)

2014-current: Faculty Mentoring committee for Dr Adam Wende (Pathology)

2016-current: Research advisory committee.

2017: Chair, Search Committee for Assistant Professor, Department of Pathology, University of Alabama at Birmingham

EDITORIAL RESPONSIBILITIES / BOARD MEMBERSHIPS:

2000-present	Editorial board of Free Radical Biology and Medicine
2012- 2015	Associate Editor, American Journal of Physiology, Lung Cellular and Molecular Physiology
2014- current	Reviews Editor, Nitric Oxide Journal
2015-current	Consulting Editor, American Journal of Physiology, Lung Cellular and Molecular Physiology
2016-current	Editorial Board, American Journal of Pathology

Reviewer for research articles in:

- Acta Physiologica Scandinavia
- American Journal of Clinical Nutrition
- American Journal of Medical Science
- American Journal of Pathology
- American Journal of Physiology (Heart and circulatory physiology)
- American Journal of Physiology (Lung Cell and Molecular Physiology)
- American Journal of Respiratory Cell and Molecular Biology
- Anesthesia and Analgesia
- Antioxidants and Redox Signaling
- Atherosclerosis
- Biochemical Pharmacology
- Biochimica et Biophysica Acta
- Biochemical and Biophysical Research Communications
- Biomaterials
- Blood
- British Journal of Cancer
- British Journal of Pharmacology
- Canadian Journal of Physiology and Pharmacology
- Carcinogenesis
- Cardiovascular Research
- Circulation
- Circulation Research
- Comparative Biochemistry and Physiology
- European Journal of Biochemistry
- Food and Chemical Toxicology
- Free Radical Research
- Free Radical Biology and Medicine
- Journal of American Chemical Society

- Journal of Applied Physiology
- Journal of Biological Chemistry
- Journal of Endocrinological Investigation
- Journal of Experimental Medicine
- Journal of Laboratory and Clinical Medicine
- Journal of Lipid Research
- Journal of Membrane Biology
- Journal of Molecular and Cellular Cardiology
- Journal of Neurochemistry
- Journal of Nutrition
- Journal of Physiology
- Journal of Pharmacology and Experimental Therapeutics
- Kidney International
- Lipids
- Matrix Biology
- Microvascular Research
- Molecular Cancer Therapeutics
- Nature Neurology
- Nitric Oxide Journal
- Nutrition
- Pediatric Research
- Physiology
- PLoS One
- Proceedings of the National Academy of Sciences
- Redox Biology
- Scientific Reports
- Toxicology

PROFESSIONAL CONSULTANTSHIPS:

2004 Consultant with SensorMedics Corporation (Viasys)
2013 Theravasc, USA
2015 New Health Sciences, USA
2015 Hemocue, USA

MAJOR RESEARCH INTERESTS:

We incorporate basic science and translational studies in pursuit of our research interests which are to understand redox related mechanisms regulating inflammation in various pathogenic states and how these are integrated to environmental stresses. We have two primary areas of focus i) understanding the molecular basis of nitric oxide and nitrite interactions with different organs and red blood cells and how these impact upon biological processes associated with blood flow regulation and pulmonary function during hypoxia, inflammation (associated with Sepsis, trauma, transfusion, transplantation or in response to inhaled (environmental) irritants) and ii) understanding how post-translational modification of proteins by carbohydrates control endothelial cell function and immune cell trafficking to regulate inflammatory responses. We employ an integrative approach utilizing biochemical, molecular, cell

culture and pre-clinical models to develop and test hypotheses and use the insights gained from studies design and conduct translational / clinical studies to test promising therapeutics.

Patents:

1. Treatment of Specific Cardiovascular conditions with Nitrite.
   Co-inventor : RP Patel
   Patent no. 207155

2. Sodium Nitrite Regulation of arteriogenesis and Angiogenesis
   Co-inventor : RP Patel
   Patent no. 209208

3. New Application based on PCT/US2013/057573. U.S. Serial Number 14/422,871; filed 20 February 2015. Title: *Anti-Complement Therapy Compositions and Methods* Co-inventor: RP Patel

GRANT SUPPORT:

Current:

T32 GM109780 (PI, Patel) 07/01/15 – 06/30/20 0.01CM
NIH/NIGMS $100,644
UAB Predoctoral Training Grant in Translational and Molecular Sciences
This is T32 training grant application for graduate students interested in Translation research training.

U01 ES023759 (PI, Patel) 09/18/13 – 06/30/18 2.4CM
NIH/NIEHS $697,357
Nitrite Dependent Protection Against Cl2 Gas Toxicity Role of Chlorinated Lipids
The major goals are to evaluate the chlorinated lipids as novel effectors of acute lung injury and test nitrite as a post chlorine gas exposure therapeutic to improve survival and limit inflammatory lung injury.

New Health Sciences, MA (PI, Patel) 09/11/15 – 09/10/17 0.025CM (NCE)
$45,900
Research Agreement with New Health Sciences and UAB
This grant investigates how anaerobic blood storage may protect RBC from storage dependent damage

SBIR Phase IIB (NHLBI) with New Health Sciences, MA (Role: Sub-contract PI)
NIH/NHLBI 4/1/16 - 3/31/19 1.2 CM
Brief description of project goal: Assessing RBC quality in aerobic vs anaerobic storage

U01ES026458 (PI, Matalon) 08/15/15 – 06/30/20 0.6 CM
NIH-NIEHS $546,593
Bromine Inhalation Induced Lung Injury: Novel Mechanisms and Treatment Strategies

R01HL125391(PI, Jun) 01/15/15 – 12/31/19 0.6CM
NIH/NHLBI $252,238
Prohealing Multifunctional Endothelium Nanomatrix Coated Stent.
In this project the potential for NO-coated stents to prevent endothelial inflammation will be explored.

RO1H128694 (PI, Kim) 04/01/16 – 03/31/20 0.3CM
NIH/NHLBI $250,000
Saturated Fatty Acid-induced Autophagy in Vascular Endothelium
In the project the role of fatty acids to induce endothelial dysfunction will be explored.

PENDING

RO1 (Multi PI: Patel and Pittet) 07/01/18 – 08/31/21 1.8CM
NIGMS $367,049
Stored RBC Toxicity in Trauma-Hemorrhage
The major goal of this project is to determine the effects and associated mechanisms of RBC storage and adverse effects in the setting of massive transfusion
Overlap: None

NIH U54 (Matalon PI, Patel, Co-PI's) 07/01/17 – 08/31/22 3.6CM
Project 4 (PI, Patel) $375,000
Oral microbiome and Br gas toxicity
The major goal of this project is to determine how halogen gas toxicity affects, and is regulated by the oral nitrate-reducing microbiome.

NIH 1R01XX (Jinraj, PI; Patel Sub PI) 09/01/16 – 08/31/21 0.6CM
University of Puerto Rico/NIH $46,454
Oral Microbiome, Nitric Oxide Metabolism, and Oral and Cardiometabolic Health.
The major goal of this project is to determine if salivary and circulating nitrite and nitrate associate with cardiometabolic disease and oral health in Puerto Ricans.

AHA Innovation Award (PI: Patel) 7/1/18 – 6-30-20
The oral nitrate-reducing microbiome and cardiovascular disease susceptibility

NIH R21 (Patel and Dluhy Co-PIs) 7/1/18 – 6-30-20
Using Raman Spectroscopy to Evaluate the RBC storage lesion

Past:
<u>NIH funded</u> (as PI or multi-PI)

NIH-R01 HL70146 (PI: RP Patel) 04/02-03/07
"Role of S-nitrosohemoglobin in sepsis"
This grant investigated the role of hemoglobin and s-nitrosohemoglobin in the pathogenesis of sepsis

NIEHS R03 ES1504-02 R.P. Patel (PI) 09/01 – 08/03
"Anti-atherogenic effects of soy-isoflavones"

This grant investigates the effects of chlorinated and nitrated isoflavones on ox-LDL induced monocyte-endothelial cell interactions.

NIH / NHLBI (PI: RP Patel) 2/22/10 – 11/30/2013 (NCE 11/30/2014)
"Role of hemoglobin b93cys residue in nitric oxide bioactivity"
This study evaluates the role of the hemoglobin b93cys residue to modulate vascular and pulmonary function during hypoxia and inflammation

NHLBI, RO195468 (Multi PI: Patel, Weinberg and Barnum) 9/18/09 – 7/31/2013 (NCE 7/31/2014)
"RBC age and potentiation of transfusion related pathology in trauma patients"
This study evaluates the mechanisms associated with RBC aging and transfusion-related pathology (also referred to as the RBC lesion)

NIEHS, U54 ES17218 (PI Patel, Project 3; U54 PI Matalon) 9/1/2008 – 5/31/2011 (NCE until 5/31/2012)
"Nitrite dependent protection against chlorine induced injury to the cardio-pulmonary system"
This project will determine effects of chlorine gas inhalation in mediating injury to the systemic vasculature and test nitrite-based therapy to attenuate pulmonary and systemic vascular injury

<u>NIH funded</u> (as Co-inv)

NIH/ODS (P50 AT-00477)
Purdue-UAB Botanical Center Grant (PI Connie M. Weaver,) 09/00-06/05
Project 4 S. Barnes (PI), R. Patel (Co-Investigator)
"Polyphenols and inflammatory disease"
Determine the kinetics of the reactions between polyphenols and pro-inflammatory oxidants. The polyphenols will be those used by investigators in projects 1-3, i.e., soy, red clover and kudzu isoflavones, grape flavonoids and proanthocynanidins, and tea catechins

NIH R01 67930 (P.I. C. Roger White, Patel, RP Co-Investigator) est 8/01-7/05
"Myeloperoxidase and NO Signaling in the Vasculature"
In this proposal the contribution of MPO and HOCl in endothelial dysfunction and reduced NO bioactivity under inflammatory conditions will be defined. The effect of chlorinated products of L-arginine on endothelium dependent relaxation will be characterized in-vivo and in-vitro

NIH DK60658 (PI: J. Murphy-Ullrich, RP Co-Inv) 02/0/02-01/31/2006
"Diabetic cardiomyopathy: TGF-beta activation and fibrosis"
The goals of this project are to understand the mechanisms of TGF-beta activation by cardiac fibroblasts under hypertensive and diabetic-hypertensive conditions. This will be accomplished by investigating the role of TSP in TGF-beta activation in vitro in cardiac fibroblasts cultured with angiotensin II and/or glucose and in rodent models of type I diabetes and hypertension

NIH RO1 (PI- Dr CR White, RP Patel, CO-inv) 12/2004-10/2008
HDL and Vascular Injury in Type 2 Diabetes

This grant investigates the effects of HDL peptide mimetics on reversing vascular dysfunction in Diabetes

NIH-DK056804 (P.I. M Fallon, RP Patel- Co-inv)) 12/2004-11/2008
"Mediators of Pulmonary Vasodilatation in Liver Disease"
This grant investigates the role of ET-1 and NO in modulating leukocyte interactions with endothelium during liver injury and pulmonary vasodilation

NHLBI RO1 (PI Matalon, RP Patel Co-inv) 12/2006-11/2008
Nitric oxide modulation of CFTR Expression and Function
This grant investigates the effects of NO in modulating CFTR function

NIH. RO1 HL092857-02 (PI Bailey, Co-inv Patel) 08/01/2008-07/31/12
"Mitochondrial Mechanisms of Hydrogen Sulfide Induced Suspended Animation"
In this proposal, the mechanisms of hydrogen sulfide signaling will be assessed in this proposal

NIH. RO1 (PI Landar, Co-inv, Patel) 2/28/10 – 2/28/2015
"The role of mitochondrial protein thiol modification in endothelial dysfunction"
In this proposal, the role of mitochondrial protein thiols in regulating endothelial function and nitric oxide signaling will be assessed
Overlap: None

T32GM008111-28S1 (PI Yoder) 07/01/15 – 06/30/16 0.3CM
NIH/NIGMS $70,122
Mastering the Art of Reproducible Science

R21ES026829 (PI, Matalon) 09/30/15 – 08/31/17 0.6 CM
NIH $238,750
Mechanisms and Countermeasures of Halogen-Induced Injury to Pregnant Mice
This grant investigates how bromine toxicity mechanisms are different in pregnancy compared to non-pregnancy including vascular dysfunction

***American Heart Association funded*:**

American Heart Association-Southeast Affiliate Beginning Grant in aid (Patel, RP, PI)
07/2000-06/2002
Role of S-nitrosohemoglobin in heme-dependent modulation of Nitric Oxide signaling pathways in the vascular endothelium

American Heart Association-Southeast Affiliate Grant in aid (Patel, RP, PI)
6/1/06-5/31/08
Modulation of hypoxic vasodilation by red blood cells and nitrite

American Diabetes Association Funded

"Nitrite: A novel Donor Therapy to Promote Islet Transplantation"
Role: Co-Inv (PI- Dr S. Kelpke, UAB)
Supporting Agency: American Diabetes Association
Performance period: 1/1/08-12/31/09
Brief description of project goal: In this proposal, the feasibility of nitrite therapy to islet brain dead donors will be tested

Industry funded:

United SoyBean Board (PI RP Patel) 6/1/04-5/31/05
"Revealing the anti-inflammatory effects of isoflavones by blood flow"
This grant investigates the role of flow on the anti-adhesive effects of isoflavones

iNO Therapeutics RP Patel (PI) 9/1/05-8/31/07 (Phase 1 trial)
"The effects of inhaled nitric oxide on hepatic reperfusion injury in human liver transplantation"
This clinical study evaluated the efficacy of inhaled nitric oxide to prevent ischemia-reperfusion injury in liver transplantation patients

Aires Pharmaceuticals : PI: RP Patel 4/15/08 – 12/31/08
Effects of pH and Aires Formulation nitrite dependent vasodilation
This study evaluates the ability of novel nitrite formulations to stimulate vasodilation ex vivo

Ikaria (formerly iNO Therapeutics) PI Patel 4/1/08-3/31/12 (NCE until 1/31/2013)
"Inhaled Nitric oxide and human liver transplantation (Multi center Phase 2 trial)"
This grant will determine if inhaled Nitric oxide administered to liver transplant recipients during transplantation can prevent ischemia-reperfusion/inflammatory injury.

Theravasc LLC: PI: RP Patel 4/1/10 – 4/1/11
Nitrite and Nitrate measurements in PAD patients treated with nitrite therapy

Collaborative Agreement with Rythrx Therapeutics, LLC PI: Patel 10/1/13 - 9/30/14
Brief description of project goal: Evaluate therapies for RBC storage lesion

Heart Biotech Holdings, LLC (PI, Matalon) 09/08/15 – 09/07/16
Testing the Efficacy of Hydrogel-based Nanoparticles, Encapsulating Nitrite and Nitric Oxide in the Treatment of Acute Lung Injury and Pulmonary Hypertension

Educational / Training Grants
Howard Hughes Institute-UAB Med to Grad Program PI: Patel 5/1/11 - 3/31/14 (NCE 3/31/15)
Brief description of project goal: Program Director

Howard Hughes Institute: Supplement PIs Patel and Anderson 5/1/13 - 3/31/14
Develop website and server data base for teaching of translational pathology by flipped classroom approaches

Internal / Pilot Funded:

UAB Cell Adhesion and Matrix Research Center Grant June, 2000- May, 2001
PI; Rakesh P. Patel
"Modulation of Monocyte-endothelial cell interactions by Hemoglobin and Nitric Oxide"

Purdue-UAB Botanical Center Pilot Grant. 07/01/01-06/31/03
Patel, Rakesh P (PI)
Modulation of monocyte-endothelial cell interactions by polyphenols.

Purdue-UAB Botanical Center Pilot Grant. 4/1/08 – 3/31/09
Patel, Rakesh P (PI)
Isoflavone dependent modulation of the vascular glycocalyx

Other:
Parker B. Francis Foundation Fellowship. Patel, RP (PI)
07/01/99-06/30/02.

Conferences/Symposia Organized.

31st March- 4th April, 2001 "Interplay between Nitric Oxide and Hemoglobin: Current Concepts" American Physiological Society cross sectional symposium, Experimental Biology Meeting 2001, Orlando, FL, USA

Sept 2005. Organizing committee for "Role of Nitrite in Physiology, Pathophysiology and Therapeutics Meeting"
National Institutes of Health

Nov 2006: "Redox Modulation of Angiogenesis and Vascular Development" Society for Free Radical Biology Meeting 2006, Denver USA. Symposium organized by Dr Chris Kevil and Dr Rakesh Patel

Sept 2007. Organizing committee for "Second International Role of Nitrite in Physiology and Pathophysiology and Therapeutics Meeting"
National Institutes of Health

Nov 2007: Co-organizer and Chair for "Sunrise Free Radical School". Society for Free Radical Biology Meeting 2007, Washington DC USA.

Nov 2008: Co-organizer and Chair for "Sunrise Free Radical School". Society for Free Radical Biology Meeting 2008, Indianapolis USA

Jun 2009. Organizing committee for "Third International Role of Nitrite in Physiology and Pathophysiology and Therapeutics Meeting"

Karolinska Institute, Sweden

Jun 2011. Organizing committee for "Fourth International Nitrite Pathophysiology and Therapy 2011 Conference" Emory University, Atlanta, USA

Jun 2013. Organizing committee for "Fifth International Nitrite Pathophysiology and Therapy 2013 Conference" Pittsburgh, USA

Feb 2014: Vice Chair, Gordon Conference on Oxygen Radicals, Ventura, CA

June 2014: Organizer and Co-Chair for Sixth International meeting on Nitrite and Nitrate Pathophysiology and Therapy in combination with the 8th International Conference on the Biology, Chemistry and Therapeutic Application of Nitric oxide, Cleveland, USA

2014: International advisory board member for Society for Free Radical Research International Meeting, Kyoto 2014

2016: Chair for Gordon Research Conference on Oxygen Radicals (elected in 2012)

2016: Scientific Advisory Board, 9th International Conference on the Biology, Chemistry, and Therapeutic Applications of Nitric Oxide (NO2016), Sendai, Japan.

2017: Chair, UAB CFRB- SfRBM Regional Redox Biology Symposium, Birmingham, AL.

2018: Organizing (program) committee for Society for Redox Biology and Medicine annual meeting 2018.

2018: Co-chair for SfRBM pre-meeting workshop "Oxidative Stress and Signaling: Methods, Mechanisms and Therapeutics"

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MANUSCRIPTS (Total, 206)
Original article, 132
Review articles, 34
Method articles, 8
Conference Proceedings, 7
Editorials and Perspectives, 8
Book Chapters, 11

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Citations = 11388 (Scopus); 15,667 (Google Scholar) as of May 2017.

Original research articles:

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2. Gabr, I., **Patel, R.P.**, Symons, M.C.R. and Wilson, M.T. (1995) Novel Reactions of Nitric Oxide in Biological Systems J.Chem. Soc. Chem. Commun. 915-916

3. Svistunenko, D.A., **Patel, R.P.**, Wilson, M.T. (1996) An EPR Investigation of Human Methaemoglobin Oxidation by Hydrogen Peroxide: Methods to Quantify all Paramagnetic Species Observed in the Reaction. Free Rad. Res. 24, 269-280

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157. JH Crawford, BK Chacko, CJ Kevil, **RP Patel** (2004) The Red Blood cell and Vascular Function in Health and Disease. Antiox. Redox Signal 6, 992-999

158. DB Kim-Shapiro, MT Gladwin, **RP Patel**, N Hogg (2005) The reaction of nitrite and haemoglobin: the role of nitrite in hemoglobin mediated hypoxic vasodilation. J Inorg. Biochem. 99, 237

159. Mark T. Gladwin, Harold Raat, Sruti Shiva, Cameron Dezfulian, Neil Hogg, Daniel B. Kim-Shapiro, and **Rakesh P. Patel** (2006) Nitric oxide as a vascular endocrine nitric oxide

reservoir that contributes to hypoxic signaling, cytoprotection and vasodilatation. Am J Physiol. 291, H2026

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161. Christopher G Kevil and **Rakesh P Patel** (2008) Preserving Vessel Function During Ischemic Disease: New Possibilities of Inorganic Nitrite Therapy Journal Expert Review of Cardiovascular Therapy. 6(9), p1175-9

162. Andrey Samal, Jaideep Honavar, C. Roger White, **Rakesh P Patel** (2010) Potential for Chlorine gas injury in the extra-pulmonary vasculature. Proceedings of the American Thoracic Society. 7: 290 PMID: 20601634

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165. **Rakesh P Patel** and Stephen Barnes (2010). Isoflavones and PPAR signaling: A critical target in cardiovascular, metastatic, and metabolic disease. PPAR Research. 85(4): 661 PMCID: 3061262

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168. Benjamin Y. Owusu, Ryan Stapley and **Rakesh P Patel** (2012) Nitric oxide formation versus scavenging: The Red Blood cell balancing act. J. Physiol. 590, 4993-5000 PMCID: PMC3497558

169. DW Scott and **RP Patel** (2013) Endothelial heterogeneity and adhesion molecules N-glycosylation: implications in leukocyte trafficking in inflammation Glycobiology 23(6): 622

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**Co-senior authors*

172. A. Nichols, KA Ahmed, **RP Patel** (2016) Yes to "NO" host flora symbiosis. The Biochemist 38, 5, 18-21

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Method Chapters

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181. Xinjun Teng, T. Scott Isbell, Jack H. Crawford, Jeffrey R. Koenitzer, Jack R Lancaster Jr, Jeannette E. Doeller, David W. Kraus and **Rakesh P. Patel** (2007) Novel Method for

Measuring S-Nitrosothiols using Hydrogen Sulfide. Methods in Enzymology. Vol. 441, Chapter 9, p. 161-170.

Conference Proceedings

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Administration's Public Workshop on New Red Blood Cell Product Regulatory Science (2017) Transfusion. In Press

Commentaries, Editorials and Perspectives

190. Jack H. Crawford, C. Roger White and **Rakesh P. Patel** (2003) S-nitrosohemoglobin: An Allosteric Controversy. Blood 102, 410-411

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195. David W. Scott and **Rakesh P. Patel** (2013) Targetting endothelial adhesion molecule mRNA to control inflammation: novel insights into potential anti-inflammatory effects of IL-19 AJP-Cell. 305(3):C253-4

196. Kim-Shapiro DB and **Patel RP** (2016) Compartmentalization is Key in limiting nitric oxide scavenging by cell-free hemoglobin. Am J Respir Crit Care Med 193 (10) 1072 PMCID: PMC4872670

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Book Chapters

198. **Rakesh P. Patel**, Trudy Cornwell and Victor Darley-Usmar (1999) The Biochemistry of Nitric Oxide and Peroxynitrite: implications for mitochondrial Function in Mitochondria, Oxidants and Aging, (Eds: E. cadenas and L. Packer). Marcel Dekker Inc p39-55.

199. **RP. Patel**, J.McAndrew, N.Purcell, M.C Maland, H.Jo, CR.White and VM. Darley-Usmar (1999) Oxidative Tissue Injury, Nitric Oxide and Atherosclerosis The

Haemodynamic effects of Nitric Oxide Chapter 18. 396-416 . Eds. R. Mathie & T. Griffith, Imperial College Press.

200. Victor M. Darley-Usmar, **Rakesh P. Patel**, Valerie B. O'Donnel, Bruce A. Freeman (2000) Antioxidant Actions of Nitric Oxide (pp265-276) in Nitric Oxide Biology and Pathobiology, Ed. L.J. Ignarro. Academic Press

201. S Barnes, H Kim, J Xu, B Boersma, **R Patel**, M Kirk, VM Darley-Usmar (2000) Mechanisms for Isoflavanoids in Cancer Chemoprevention in Adv. Exp. Med. & Res.

202. BJ Boersma, S Barnes, **RP Patel**, M Kirk, D Muccio, VM Darley-Usmar (2001) Bromination, Chlorination and Nitration of Isoflavonoids in Free Radicals in Food Chemistry, Nutrition and Health. 251-261, 2002

203. Barnes, S., D'Alessandro, T., Kirk, M.C., **Patel, R.P.**, Boersma, B.J., and Darley-Usmar, V.M. The importance of *in vivo* metabolism of polyphenols and their biological actions. In: "Phytochemicals – mechanisms of action", Mesin, M.S., Bidlack, W.R., Davies, A.J., Lewis, D.S., Rudolph, R.K., CRC Press, Boca Raton, pp 51-59, 2003.

204. John D Lang Jr, Ian C Davis, **Rakesh P Patel**, Sadis Matalon. Fishmans Pulmonary Diseases and Disorders, 4th edition. McGraw-Hill Companies

205. Dario Vitturi, David M. Kryzwanski, Edward M. Postlethwait, **Rakesh P. Patel**. Nitric oxide regulation in Redox Signaling (2009). In Redox Signaling and regulation in Biology and Medicine. Wiley-VCH. Editors: Jacob and Winyard

206. Ryan Stapley, Dario A Vitturi, **Rakesh P Patel** (2011). Biochemistry of Red Blood Cell Storage in Chemistry and Biochemistry of Oxygen Therapeutics: From Transfusion to Artificial Blood. Eds A Mozzarelli and S Bettati (Wiley Publishers). 231-238

207. JH Crawford, JD Lang, **RP Patel** (2015) Inhaled Nitric oxide Therapy for Extra-pulmonary inflammation. Future Science OA in special issue of "Developments and therapeutic applications of nitric oxide releasing materials" Ed Friedman

208. **Rakesh P. Patel**, Shuai Yuan and Christopher Kevil (2017) S-nitrosothiols and Nitric oxide biology in Nitric Oxide Biology and Pathobiology, 3rd Edition. Ed. L.J. Ignarro. Academic Press.

ORAL PRESENTATIONS (Total 106)

Scientific papers presented at national and international meetings

1. S-nitrosation of Hemoglobin: Effects on Oxygen delivery and Antioxidant Properties'
   5th Annual Meeting of The Oxygen Society, Nov 19-23, 1998, The Capital Hilton, Washington, D.C., U.S.A.

2. NO-haemoglobin Interactions
   The Inorganic Biochemistry Discussion Group, Jan 5th-6th, 2000, Kings College London, Guys Campus, London, England.

3. Modulatory effects of heme oxidation state on vasodilatory effects of S-nitrosohemoglobin
   7th Annual Meeting of The Oxygen Society, Nov 16-20, 2000, Paradise Point Resort, San Diego, U.S.A

4. Modulatory effects of heme oxygenation state on SNOHb vasoactivity.
   Gordon Research Conference on the Biochemistry of Nitric Oxide 2001, Ventura, California, U.S.A

5. Redox Regulation of NO biochemistry by Hemoglobin
   Oxygen Club of California 2001, Santa Barbara, California, USA

6. Effects on Vascular NO-signaling by S-Nitrosohemoglobin
   Symposium: Interplay between Nitric Oxide and Hemoglobin: Current Concepts.Experimental Biology 2001, Orlando April 2001

7. Reactions between nitric oxide and hemoglobin: Physiologic, pathologic and therapeutic implications.
   2nd International Conference of the Society for Free Radical Research-Africa, University of Mauritius, Mauritius, July 2001

8. Anti-inflammatory effects of soy-isoflavones: Inhibition of leukocyte-endothelial cell interactions
   8th annual meeting of the Oxygen Society, Nov15-19, Research Triangle Park, NC, USA

9. Modulation of Inflammatory Response by Soy-Isoflavones
   Experimental Biology 2002 in Atherosclerosis-Free Radical Defenses II
   April 2002

10. Methods to assess Metalloprotein oxidation mechanisms
    Pre-meeting Workshop-9th annual Oxygen Society, Nov 20-24, San Antonio, TX, USA

11. Role of S-nitrosohemoglobin in the vascular dysfunction associated with Sepsis
    Biochemical Society Meeting July 2003

University of Essex, UK

12. Red Blood Cell and Nitrite in Acute Inflammation: Implications for the pathogenesis of Sepsis
1st annual Nitrite Tie Club Meeting
Department of Critical Care Medicine, National Institutes of Health, March 2004

13. Vasoactivity of nitrite and erythrocytes support a novel mechanism of hypoxic vasodilation
International NO meeting
Nara, Japan May 2004

14. Red blood cells, Hypoxia and Nitric oxide constitute a functional system for modulating blood flow in health and disease
Korean Society for Free Radical Research
Kyung Hee University
Seoul, Korea
December 2004

15. Red cells couple nitrite reduction to nitric oxide and hypoxic vasodilatation at the hemoglobin P50.
Role of Nitrite in Physiology, Pathophysiology and Therapeutics Meeting
National Institutes of Health
September 2005

16. Role of nitrite as a biological and therapeutic source for NO during hypoxia: Activation by the red cell
62nd Harden Conference on NO: a radical in control. The biological diversity of nitric oxide metabolism and signaling
EMBO Symposium, Cirencester, UK

17. Pre-emptive use of Inhaled NO in human liver transplantation
J. Erik Jonsson Woods Hole Center of the National Academy of Sciences, Cape Cod, MA
iNO Therapy Scientific Advisory Board Meeting
Sep 2006

18. Molecular Mechanisms Regulating RBC dependent hypoxic vasodilation: Role of ATP, S-nitrosohemoglobin and nitrite reduction
Society for Experimental Biology, Annual Meeting
Glasgow, Scotland
April 2007

19. Elucidating the relative roles of Nitrite, ATP and SNO-Hb in mediating Red cell dependent hypoxic vasodilation using the β93cys knockout mouse.
Second International Role of Nitrite in Physiology and Pathophysiology and Therapeutics Meeting

National Institutes of Health
Sep 2007

20. Nitrite versus SNO-hemoglobin in the regulation of Vascular Tone
15th Gordon Research Conference on Oxygen Radicals
Feb 2008, Ventura, CA, USA

21. Nitrite Biology and Therapy: Role of Hypoxia and Red cells
March 20th 2008
Special Symposium: Chemical Biology of Endocrine NO Transport in Blood
Department of Medicine and Pharmacology & Chemical Biology
University of Pittsburgh

22. Cell-free hemoglobins with and without NO donors in an aortic ring model
May, 2008
Naval Medical Research Center
Bethesda, MD

23. Nitrite and Blood Flow
Aug, 2008
European Microcirculatory Society
Budapest, Hungary

24. "Chlorine induced Vascular Injury"
Pre-Conference Symposium: Countermeasures against injury from inhaled Chlorine
CounterAct Network
Omni Shoreham Hotel, Washington DC
April 13th, 2009

25. "Nitrite-dependent protection against Chlorine induced injury to the cardio-pulmonary system"
CounterAct Network Annual Meeting: Pulmonary section
Omni Shoreham Hotel, Washington DC
April 14th, 2009

26. Regulation of Vascular Nitrite Metabolism by RBC and hemoglobins
Third International Role of Nitrite in Physiology and Pathophysiology and Therapeutics Meeting
Karolinska Institute, Sweden
June 2009

27. Unravelling the roles of ATP, SNOHb, and Nitrite in red cell dependent regulation of nitric oxide signaling: implications for HBOC-therapeutics
International Society for Blood Substitutes Meeting
Parma, Italy

August 2009

28. Nitrite-dependent protection against Chlorine induced injury to the cardio-pulmonary system"
CounterAct Network Annual Meeting: Pulmonary section
Marks Intercontinental Hotel, San Francisco
June 22nd, 2010

29. Role of NO as a modulator and nitrite as a therapeutic target for Chlorine gas toxicity 6th International Conference on the Biology, Chemistry and Therapeutic Applications of Nitric oxide
Kyoto International Conference Center, Japan
June 2010

30. From NO to Nitrite and Nitrate…and Back Again: Roles in Mammalian Biology.
Free Radical School, Society for Free Radical Biology Annual Meeting 2010
Orlando, Fl
Nov 2010

31. Effects of administration modality on nitrite therapeutics: example of lung injury after Cl2 gas exposure
Fourth International Role of Nitrite in Physiology and Pathophysiology and Therapeutics Meeting
Emory University, Atlanta, USA
May 2011

32. Insights into the role of nitrite as a mediator of nitric oxide signaling across the physiologic oxygen spectrum
84th International Meeting of the Japanese Biochemical Society
Kyoto, Japan
September 2011

33. Sweet and Sticky sugars: Novel targets for reactive species / antioxidants in inflammation
17th Gordon Research Conference on Oxygen Radicals
Feb 2012, Ventura, CA, USA

34. From NO to Nitrite and Nitrate….and Back Again: Novel Insights into NO-homeostasis and Therapeutics
2012 American Society for Photobiology Meeting
June 2012, Montreal, Canada

35. The Nitrate-Nitrite-Nitric oxide axis: Some thoughts, perspectives and challenges
Fifth International Meeting on the Role of Nitrite and Nitrate in Physiology, Pathophysiology and Therapeutics
May 2013, Pittsburgh, USA

36. Age of Blood does Matter for Resuscitation after Severe Trauma: Role of compromised NO-bioactivity
International Anesthesia Research Society
May 2013, San Diego, USA

37. The role of endothelial Glycosylation in inflammatory processes
Glycoimmunobiology Symposium, 2013
University of Alabama at Birmingham,
November 2013. Birmingham Alabama

38. Beyond the lungs: Extrapulmonary observations of NO Signaling Pathway Modulation
The Emerging Science of Nitric Oxide- The lungs and beyond in critical care
Society of Critical Care Anesthesiology Annual Meeting
Montreal, Canada May 2014

39. Nitrite-dependent protection against chlorine gas toxicity: role for chlorinated fatty acids"
7th CounterAct Network Annual Meeting: Pulmonary section
Denver, Colorado
June, 2014

40. The role of iNO in solid organ transplantation
World Transplant Congress
San Francisco, July 2014

41. Endothelial N-glycans: Potential targets for diabetic inflammation
3rd annual symposium of the Comprehensive Cardiovascular Center: Frontiers in Diabetes-related cardiovascular disease
Renaissance Birmingham, Ross Bridge Golf Resort and Spa
Oct 3rd 2014

42. Nitrite-dependent protection against chlorine gas toxicity: role for chlorinated fatty acids"
9th CounterAct Network Annual Meeting: Pulmonary section
New York Academy of Sciences, New York City
June 15th, 2015

43. Nitrite-dependent protection against chlorine gas toxicity: role for chlorinated fatty acids"
10th CounterAct Network Annual Meeting: Pulmonary section
UC-Davis, Davis California
June, 2016

44. Role of Nitric oxide and free heme in mediating RBC transfusion toxicity
FDA-NIH Public Workshop: Pre-Clinical Evaluation of Red Blood Cells for Transfusion
Bethesda, MA

Oct 2016

45. From discovery of the nitrite-nitrate-nitric oxide pathway to current perspectives and future Directions
APS / ASN sponsored symposium at Experimental Biology: From Cancer-causing villain to health-promoting hero: Taking a U-turn on dietary nitrite and nitrate
Chicago, IL
Apr 2017

46. Nitrite-dependent protection against chlorine gas toxicity: role for chlorinated fatty acids"
11th CounterAct Network Annual Meeting: Pulmonary section
Boston, MA
June, 2017

47. There is Blood in the water: how heme is wreaking havoc in disease
Society for Redox Biology and Medicine trainee sponsored Webinar
July 2017- available at http://sfrbm.org/

Scientific papers presented at local meetings

48. 'Pro-Oxidant effects of Heme Proteins
Department of Hypertension and Medicine, University of Alabama at Birmingham, October 1997

49. Modulation of NO signaling in the vasculature by S-nitrosohemoglobin
1st Annual Emory/Alabama ROS Retreat, Dec 9-10, 1999, Emory Conference Hotel, Atlanta, USA

50. Free Radicals, Nutrition and Exercise: Potential mechanisms for protection against cardiovascular disease.
UAB Clinical Nutrition Research Center
March 7, 2000

51. Hemoglobin and Nitric Oxide: Current Concepts. Department of Pathology, University of Alabama at Birmingham, March 2001

52. Isoflavones and atherosclerosis: Anti-oxidant and anti-inflammatory properties
Purdue-UAB Botanical Symposium
University of Alabama at Birmingham, Apr 18th, 2002-05-02

53. Working with Lipoproteins
Workshop in Molecular Approaches and Techniques in Cardiovascular Research
University of Alabama at Birmingham, Jan 2003

54. Endothlelial cell adhesion molecules and redox cell signaling: implications for vascular

inflammation
Cell Adhesion and Matrix Research Center Retreat
University of Alabama at Birmingham, April 2003

55. Modulation of endothelial responses to flow by isoflavones: Inhibition of the inflammatory response. Purdue-UAB Botanical Center Seminar Series. December 2003

56. Orchestrating the vascular functions of Nitric oxide: Role of the Red blood cell and Nitrite
Department of Pathology
University of Alabama at Birmingham April 2004

57. Linking Oxygen transport to Blood Flow: A novel function for Hemoglobin as an allosterically regulated Nitrite reductase.
Department of Biology
University of Alabama at Birmingham
March 2005

58. Red cells and Nitric oxide: Current state of Play.
Department of Environmental and Health Sciences
University of Alabama at Birmingham
Dec 2005

59. Nitrite based therapeutics: novel mechanisms for delivering nitric oxide during ischemia
Department of Pathology
University of Alabama at Birmingham
Dec 2006

60. Controlling Leukocyte-trafficking: A novel Anti-inflammatory mechanism for isoflavones in vascular inflammatory disease
Purdue-UAB Botanical Symposium
Purdue University
Feb 2007

61. Nitrite-based Therapeutics: Novel Mechanisms for clinical delivery of NO in ischemic diseases
Anesthesiology Grand Rounds
University of Alabama at Birmingham
May 2007

62. Red cell mechanisms for regulating NO function in the vasculature: Separating Fact from Fiction
CFRB Seminar Series, UAB
Dec 2007

63. Nitric oxide based therapeutics and Vascular Inflammation

UAB Comprehensive Cancer Retreat Symposium entitled “Inflammation and Cancer”
Nov 2008

64. Nitrite-dependent protection against chlorine induced injury to the cardio-pulmonary system
External Advisory Committee for U54 Center of Excellence grant, CounterAct Network
UAB, March 2009

65. Nitrite stimulates NO-signaling during hypoxia: Physiologic and Therapeutic implications
Department of Pathology
University of Alabama at Birmingham
Sep 2009

66. “Sodium Nitrite Administration Mitigates Lung Injury After Chlorine Exposure in Rats: Effects of route administration”
Wake Forest Nitric Oxide symposium
Nemacolin, PA
May 2010

67. Regulation of vascular (atherogenic) inflammation by hypo-N-glycosylated epitopes
Comprehensive Cardiovascular Center
University of Alabama at Birmingham
June 2012

68. Role of hypoglycosylated N-linked Oligosaccharides in Vascular Inflammation and Atherogenesis
Department of Pathology
University of Alabama at Birmingham
Oct 2012

69. Sweet and Sticky Sugars: Novel mediators of atherogenic inflammation
Vascular Biology and Hypertension seminar series
University of Alabama at Birmingham
Oct 2013

70. Red Blood Cell Age and Inflammation: Are there any links?
Comprehensive Center for Healthy Aging and Center for Free Radical Biology
University of Alabama at Birmingham
Mar 2014

71. Can Red Blood Cell Age Potentiate Transfusion Toxicity
Department of Pediatrics
University of Alabama at Birmingham
Apr 2014

72. Role of endothelial N-glycan zip-codes in immune cell trafficking
Program in Immunology
University of Alabama at Birmingham
Sep 25th 2014

73. Harnessing the Nitrite-Nitric oxide axis for treating ischemic diseases
Department of Biomedical Engineering
University of Alabama at Birmingham
Nov 2014

74. Red but not dead: emerging functions for erythrocyte-derived mediators in inflammatory disease
Department of Pathology
University of Alabama at Birmingham
Jan 2015

75. Sweet and Sticky Sugars: Novel mediators of atherogenic inflammation
Cell, Molecular Biology and Development Department seminar series
University of Alabama at Birmingham
Mar 2017

Invited workshops and seminars at other Universities or Institutes

76. 'Formation of cholesterol oxidation products during oxidative modification of Low density lipoprotein'
Department of Pathology and Anaesthesiology, University of Alabama at Birmingham, November 1995

77. 'Dissecting the Mechanism of Copper Dependent Oxidation Of Lipids: Implications for Atherosclerosis'
Biophysics Research Institute, Medical College of Wisconsin, August 1997.

78. 'Nitrosohemoglobin'
Symposia on 'The Vascular Biology of Peroxynitrite and Free Radicals' at the Cardiovascular Research Center, Medical College of Wisconsin.
March 1998

79. Isoflavones and Atherosclerosis: Antioxidant and Antiinflammatory effects"
Botanical Center directors meeting, (ODS)- Bethesda, NIH, July 8-10 2002

80. From Hemoglobin to Mitochondria: modulation of oxygen metabolism by Nitric oxide" Critical Care Division, NIH, July 11th, 2002

81. Orchestrating the vascular functions of Nitric oxide: Role of the Red blood cell
Department of Physiology

Louisiana State University-Shreveport. December 2003

82. Red Blood Cells orchestrate the vascular functions of Nitric oxide in Health and Disease
Department of Pharmacology and Physiology
University of Rochester School of Medicine and Dentistry
Rochester, NY, October 2004

83. Novel Anti-Inflammatory Mechanisms for Dietary Isoflavones
Department of Pharmacology
Kyung Hee University
Seoul, Korea
December 2004

84. Novel Mechanism of Hypoxic Vasodilatation by the Nitrite Reductase Activity of Red Cells
Department of Pharmacology and Toxicology
University of Arkansas Medical Science Center
Little Rock, Arkansas
March 2005

85. Red blood cells, hypoxia and Nitrite constitute a functional system for modulating hemodynamic function in health and disease
Free Radical Research Center
Medical College of Wisconsin
Milwaukee, September 2005

86. Allosteric modulation of Blood Flow in Health and Disease: How erythrocytic hemoglobin links oxygen binding to Nitric oxide formation
Department of Molecular Medicine
Wake Forest University
Wake Forest, October 2005

87. Allosteric regulation of nitric oxide metabolism by Red Blood cells, Hypoxia and Nitrite
Department of Physiological and Pharmacological Sciences
St. Louis University
Feb 2006

88. Role of nitrite as a biological source for NO during hypoxia: Activation by the red cell
Department of Pharmacology
University of Pittsburgh
May 2006

89. Shifting roles of nitrite-RBC reactions in physiology, pathology and therapeutics.
Children's Hospital Oakland Research Institute Symposium on "Arginine and Nitric oxide Dysregulation In Vascular Health and Disease

June 2006

90. Nitrite Biology and Therapy: Role of Hypoxia and Red cells
Apr 16th, 2008
Discovery Series Lecture
Davis Heart & Lung Research Institute, Ohio State University

91. Hemoglobin based regulation of vascular nitric oxide function: Molecular Mechanisms and Biological Implications
Department of Pathology, LSUHSC, Shreveport
Aug 2008

92. Role of RBC – nitric oxide axis in the pathophysiology of inflammatory vascular disease
Albany Medical College
Division of Cardiovascular Sciences
May 2009

93. Role of RBC – nitric oxide axis in the pathophysiology of inflammatory pulmonary and vascular disease
University of Washington, Seattle
Department of Anesthesiology
Aug 2009

94. RBC Age and potentiation of transfusion related pathology in Trauma patients
NIH-NHLBI Working Group to optimize Blood products
Sep 2010

95. Harnessing the Nitrite-Nitric oxide axis for treating inhaled irritant induced cardio-pulmonary toxicity: the examples of chlorine gas
University of Cincinnati
Department of Environmental Health
Feb 2011

96. RBC Age and potentiation of transfusion related pathology in Trauma patients
NIH-NHLBI Working Group to optimize Blood products
Aug 2011

97. Nitrite and hypoxia dependent regulation of NO-signaling: potential role for nitration products
Kumamoto University, Japan
Sep 2011

98. What controls monocyte-endothelial interactions during inflammation? It's a 'sweet and sticky' situation
Center for Cardiovascular Research

St. Louis University
Jan 2012

99. RBC Age and potentiation of transfusion related pathology in Trauma patients
NIH-NHLBI Working Group to optimize Blood products
Aug 2012

100. Emerging mechanisms for controlling nitric oxide function in health and disease: Roles for hypoxia, nitrite and heme
Aarhus University, Denmark
Feb 2013

101. Emerging mechanisms for controlling nitric oxide function in health and disease: Roles for hypoxia, nitrite and heme
Department of Physiology, Virginia Commonwealth University
Mar 2013

102. Insights into the role of nitrite as a biological source for NO during hypoxia
The International Symposium in Food, Nutrition and Vascular Function
Tokushima University, Japan
Nov 2013

103. Endothelial N-glycans are novel effectors of vascular inflammation
Vascular Medicine Institute
University of Pittsburgh, PA
Dec 2013

104. Role of Collagen-derived matrikines in pulmonary endothelial leak during acute lung injury
1st annual Vanderbilt-UAB Pulmonary Research Summit.
Vanderbilt University, Nashville, TN
June, 2015

105. Role of N-glycans in Vascular endothelial inflammation
Department of Biochemistry
Medical College of Wisconsin
Milwaukee, Wisconsin
April 2016

106. Perspectives on implementing themes in graduate training.
Interdisciplinary Program in Biomedical Sciences Retreat
Medical College of Wisconsin
Milwaukee, Wisconsin
April 2016

107. The Nitrate-Nitrite-Nitric oxide Pathway: Role of Red Blood Cells and the Oral microbiome
Vanderbilt Vascular Biology Center
Vanderbilt University Medical Center
Nashville, TN
Jan 2018

108. Discussion Panelist at the NHLBI/NIEHS "Understanding the Combined Effects of Environmental Chemical and Non-Chemical Stressors: Atherosclerosis as a Model Workshop"
Research Triangle Park, NC
Apr 2018