

CURRICULUM VITAE

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10/25/2022

1. Name: John Donald Roback, MD PhD

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4. Citizenship: USA

5. Current Titles and Affiliations:

a. Academic Appointments:

i. Primary Appointment: Professor of Pathology and Laboratory Medicine (tenured); Emory University School of Medicine; Atlanta, GA (2016 - present)

ii. Adjunct Appointment: Adjunct Professor in the Department of Health Sciences PhD program within the College of Health Sciences at Rush University (Chicago, IL; 7/1/2020 – 6/30/2021)

b. Clinical Appointments:

Medical Director, Emory University Hospital Blood Bank, Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2009 - present)

Director, Center for Transfusion and Cellular Therapies; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2009 - present)

Director, Division of Clinical Pathology; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2014 - present)

Medical Director, Emory Medical Laboratories, Emory Healthcare; Atlanta, GA (2017 – present)

Clinical Privileges: EUH, EUHM, EUOSH, ESJH, EJCH, EDH, CHOA, Grady

c. Other Administrative Appointments:

Vice Chair, Division of Clinical Pathology; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2014 - present)

Executive Vice Chair, Clinical Operations; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2020 – present)

6. Previous Academic and Professional Appointments:

Assistant Professor, Transfusion Medicine; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (1999 – 2005)

Associate Professor of Pathology and Laboratory Medicine (tenured); Emory University School of Medicine; Atlanta, GA (2005 - 2016)

Medical Director, Medical Technologist Training Program; Department of Pathology and Laboratory Medicine, Emory University School of Medicine; Atlanta, GA (2007 - 2017)

7. Previous Administrative and/or Clinical Appointments:

Assistant Director, Emory University Hospital Blood Bank; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (1999 – 2001)

Associate Director, Emory University Hospital Blood Bank; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2001 – 2009)

Associate Program Director, CDC-Kenya Visiting Scholars Program in Transfusion Medicine; Transfusion Medicine Program; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2002 – 2010).

Associate Director, Center for Transfusion and Cellular Therapies; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2003 – 2009)

Director (*Interim*), Grady Memorial Hospital Blood Bank; Atlanta, GA (2003)

Interim Vice Chair and Director of the Division of Clinical Pathology; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2012 – 2014)

Facility Director, Stem Cell Processing Laboratory, Emory University Hospital; Atlanta, GA (2005 - 2017)

Medical Director, Blood Bank, Emory University Orthopaedic and Spine Hospital; Atlanta, GA (2008 – 2016)

Interim Executive Vice Chair, Clinical Operations; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2018 – 2020)

8. Licensure/Boards:

State of Georgia Medical License (1996 - present)

State of Florida Medical License (2012 - 2019)

NPI number: 1376591388

9. Specialty Boards:

Diplomate, American Board of Pathology in Clinical Pathology (2001 - present)

Diplomate, American Board of Pathology in Blood Banking and Transfusion Medicine (2002 - present)

10. Education:

1980 - 1984: B.A. Biophysics
The Johns Hopkins University, Baltimore, MD

1984 – 1994: Ph.D. Experimental Pathology: 1992
The University of Chicago, Chicago, IL
Supervisor: Bruce H. Wainer, M.D. Ph.D.
Thesis: Neurotrophin and neurotrophin receptor expression in neurons and glia from the developing brain

M.D. 1994
The University of Chicago, Chicago, IL

11. Postgraduate Training:

1994: Post-doctoral Research Fellow
Supervisor: Bruce H. Wainer, M.D. Ph.D.
The Albert Einstein College of Medicine, Bronx, NY

- 1994 – 1996: Anatomic Pathology Resident
 Program Director: J.J. Steinberg, M.D.
 The Albert Einstein College of Medicine, Bronx, NY
- 1996 – 1998: Clinical Pathology Resident
 Chairman: James L. Madara, M.D.
 Emory University School of Medicine, Atlanta, GA
- 1997 – 1998: Chief Resident, Clinical Pathology
 Chairman: James L. Madara, M.D.
 Emory University School of Medicine, Atlanta, GA
- 1998 – 1999: Clinical Fellow, Blood Banking and Transfusion Medicine
 Program Director: Christopher D. Hillyer, M.D.
 Emory University School of Medicine, Atlanta, GA

12. Continuing Professional Development Activities:

- Participant, EM-ProLEAD (the Emory Medicine Professional Leadership and Enrichment Development Program); Atlanta, GA 2015
- Pathology Leadership Program (Association of Pathology Chairs); Boston, MA 2019
- Emory Academic Leadership Program (ALP); Atlanta, GA 2019 - 2020

13. Committee Memberships:

a. National and International:

- Member, Board of Trustees, National Blood Foundation (2002 - 2006)
- Member, Executive Committee, Board of Trustees, National Blood Foundation (2002 - 2006)
- Member, Transfusion-Transmitted Diseases Committee, American Association of Blood Banks (2003 - 2005)
- Member, Steering Committee, Retroviral Epidemiology Donor Study II (REDS-II), NIH/NHLBI-funded national cooperative research group (2004 – 2009).
- Member, Clinical Transfusion Medicine Committee, American Association of Blood Banks (2005 - 2008)
- Liaison from Transfusion Transmitted Diseases Committee to the Blood Bank/Transfusion Service Program Unit, American Association of Blood Banks (2005 - 2006)
- Co-Chairman, NIH/NHLBI Global Blood Safety and Availability Strategic Planning Committee (2005 – 2006)
- Chairman, Clinical Transfusion Medicine Committee, American Association of Blood Banks (2006 - 2008)
- Chairman, Clinical Guidelines Subcommittee of the Clinical Transfusion Medicine Committee, American Association of Blood Banks (2006 - 2008)
- Member, Nominating Committee, American Association of Blood Banks (2008 - 2010)
- Member, American Red Cross Blood Services Medical Advisory Council (2011 – present)
- Member, Data Monitoring Committee, “*An assessment of the safety and pharmacokinetics of ascending doses of SANGUINATE™ in healthy volunteers (Protocol SKL-SANG-001)*”, a clinical trial to assess the safety and efficacy of a novel artificial blood substitute (2013)

Member (appointed AABB representative), Centers for Disease Control and Prevention (CDC), Division of Laboratory Science and Standards (DLSS), Laboratory Medicine Best Practices (LMBP) Expert Panel, “*Red Blood Cell Transfusion Utilization*”, a systematic review and analysis of evidence-based best practices in blood transfusion (2013 – 2014).

Member, CDC National Healthcare Safety Network (NHSN) Hemovigilance Subject Matter Expert Workgroup (2014 - 2017)

Member, RBC Transfusion Working Group and Plasma Transfusion Working Group, 2015 NIH/NHLBI State of the Science Meeting in Transfusion Medicine (2014-2015)

Co-Lead, “*What’s In The Bag*” Subgroup of the RBC Transfusion Working Group, 2015 NIH/NHLBI State of the Science Meeting in Transfusion Medicine (2014-2015)

Member, Clinical Transfusion Medicine Committee, American Association of Blood Banks (2014 - present)

Member, NHLBI Clinical Trials Data and Safety Monitoring Board (DSMB; 2020 – present)

b. Institutional:

Member, Transfusion Subcommittee of the Medical Practices Committee, Emory University Hospital (1999 - 2002)

Member, Joint Transfusion Subcommittee of the Medical Practices Committees, Emory University Hospital, Emory University Hospital-Midtown, Wesley Woods Geriatric Hospital, Emory University Orthopedic and Spine Hospital (2002 - present)

Member, Pathobiology of Disease Conference Steering Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2003 - present)

Leader, Blood Bank Automation Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2003 - 2005)

Emory University Blood Drive Coordinator, Emory University School of Medicine (2006 – 2008)

Member, Laboratory Operations Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2007 – present)

Member, Laboratory Strategic Planning Team, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2011 – 2014)

Member, ACLPS Meeting Planning Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2011 – 2013)

Member, Executive Leadership Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2012 – present)

Member, Departmental Promotions Committee, Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2012 – present)

Chair, Joint Transfusion Subcommittee of the Medical Practices Committees, Emory University Hospital, Emory University Hospital-Midtown, Wesley Woods Geriatric Hospital, Emory University Orthopedic and Spine Hospital (2013 - 2019)

Member, EUH Medical Executive Committee (2013 - present)

Member, EUH Medical Practice Committee (2013 - present)

Member and MD Champion, Emory Healthcare Value Acceleration Project Design Team (2014)

Member, Bone Marrow Transplantation Strategic Planning Group (2014 – 2015)

- Member, Laboratory Implementation Team (2014 – present)
- Member, Ancillary Partners Subcommittee of the Main OR Committee (2015 – present)
- Member, Physician Retirement Program Task Force (2016)
- Member, RAS Improvement Working Group (2017)
- Member, Laboratory Clinical Steering Committee (2017 – present)
- Member, EHC Budget Working Group, Equipment Functional Review Team (2017 – present)

14. Peer Review Activities:

a. Grants:

i. National and International:

- Member, Research and Development Program Grants Review Panel, Canadian Blood Services (2000)
- Member, Grants Review Panel, National Blood Foundation (2001 - 2006)
- Member, NIH/NHLBI Scientific Review Group ZHL1 CSR-B S1 (RFA-01-016, Innovative Research Grant Program) (2002)
- Co-Chair, Grants Review Panel, National Blood Foundation (2002)
- Chair, Grants Review Panel, National Blood Foundation (2003 - 2006)
- Member, NIH/NHLBI Scientific Review Group ZRG1 HEME-E (SBIR/STTR applications) (2003 – 2005; participant in 5 review sessions)
- Member, NIH/NHLBI Scientific Review Group ZHL1 CSR-C F1 1 (Research and Dissemination Projects; R18s) (2004)
- Member, NIH/NHLBI Scientific Review Group ZCA1 SRRB-E 01 R (Centers for Medical Countermeasures against Radiation) (2005)
- Member, NIH/NHLBI, Special Emphasis Panel Review Group ZRG1-HEME-C, Review of Bioengineering Partnership Research Projects (2005)
- Member, NIH/NHLBI, Special Emphasis Panel Review Group ZHL1 CSR-R, Review of Patient Oriented Research (K23, K24, K25) Career Enhancement Awards (2008)
- Member, NIH/NHLBI, Clinical Hematology Review Group; VH-E 90S meeting (2009)
- Member, NIH/NHLBI, Special Emphasis Panel Review Group ZHL1 CSR-G, F2-1, Review of investigator-initiated R01 clinical trials studies (2012)
- Member, NIH/NHLBI, REDS-III RBC-omics External Review Panel (2012 – present)
- Member, NIH/NHLBI, Special Emphasis Panel Review Group for RFA-HL-14-004/Ancillary Studies in Clinical Trials (R01) (2013)
- Member, NIH/NHLBI Review Group ZRG1 VH-F (55) R: PAR13-025 and PAR13-026: Selected Topics in Transfusion Medicine (2014-15)
- Member, Canadian Blood Services Intramural Grant Competition Review Panel (2014-2015)
- Member, NIH/NHLBI Review Group ZHL1 CSR-1 (F1): Developing Improved Assessments of Tissue Oxygenation (2014)
- Member, Icelandic Research Fund Grant Review Committee (2014)

Chair and Member, NIH/NHLBI Review Group ZRG1 VH-F (55)R, Selected Topics in Transfusion Medicine (2015)

Standing Member, NHLBI Program Projects Review Committee (2015 - 2019)

Chair, NHLBI Heart, Lung, and Blood Program Project Review (HLBP) Committee (2017 - 2019)

ii. Institutional:

Member, HIP-ACTS-CHOA Seed Grants Review Committee, Emory Healthcare Innovation Program, Emory University (2012, 2014)

b. Manuscripts:

Transfusion (1999 - present)

American Journal of Pathology (2000)

Journal of Molecular Diagnostics (American Journal of Pathology, Part B) (2000)

Immunohematology (2003, 2005)

Blood (2004 - present)

New England Journal of Medicine (2004, 2007)

Vox Sanguinous (2007 – present)

Anesthesia & Analgesia (2012)

Cochrane Collaborative Group (2012)

PLOS ONE (2013 – present)

Critical Care Medicine (2014)

American Journal of Transplantation (2015)

c. Conference Abstracts:

i. National and International:

Member, Annual Meeting Abstracts Review Panel, American Association of Blood Banks (2000 - 2014)

Member, Annual Meeting Abstracts Review Panel, American Society for Hematology Annual Meeting (2004 - 2005)

Coordinating Reviewer, Basic Science and Clinical Practice in Blood Transfusion, Annual Meeting Abstracts Review Panel, American Society for Hematology Annual Meeting (2005)

15. Consultantships:

UnitedPharma, Duluth, GA (MacoPharma US; CLIA 11D1052845) (2006 – 2016)

Transfusion & Transplantation Technologies LLC (3Ti), Atlanta, GA (CLIA 11D1054838) (2008 – 2016)

OctaPharma Plasma, Inc., Clarkston, GA (11D0716397) (2009 - 2014)

RF Dynamics, Ltd., Israel (2009 – 2010)

Castle Medical, Inc., Smyrna, GA (CLIA 11D2017949) (2010 – 2018)

Cambium Medical Technologies, LLC, Atlanta, GA (2012 – present)

CSL Plasma, Inc., Decatur, GA (CLIA 11D2064762) (2013 – 2021)

Anderson, Murphy, Hopkins (Little Rock, AR); legal consultation on medical malpractice case (2013-2014)

Smith, Haughey, Rice, and Roegge (Grand Rapids, MI); legal consultation on medical malpractice case (2016-2017)

Huff, Powell, Bailey (Atlanta, GA); legal consultation on medical malpractice case (2016 – 2018)

Calderhead, Lockemeyer, and Peschke (Loveland, OH); legal consultation on medical malpractice case (2019 – 2021)

BioMet, Warsaw Indiana (2014 – 2018)

Secure Transfusion Services (2019 – present)

Huff, Powell, Bailey (Atlanta, GA); legal consultation on medical malpractice case (2019 – 2021)

16. Editorships and Editorial Boards:

Editorial Board: Transfusion (Journal of the American Association of Blood Banks; AABB); 2004 – 2019.

Guest Editor: The National Blood Foundation: 20 Years of Innovative Research in Transfusion Science (special supplement to Transfusion; August 2005 issue)

Editor in Chief: AABB Technical Manual, 16th-17th Editions (primary technical and resource publication for the AABB); 2005 - 2010

Editorial Board: Transfusion Medicine Reviews; 2013 – present

Journal Club Editor: Transfusion Medicine Reviews; 2022 – present

17. Honors and Awards:

National Merit Scholar (1980)

Phi Beta Kappa (1984)

Graduation with General and Departmental Honors (1984)

National Blood Foundation Scholar (2000)

New Enterprise Award 2001 (1st place out of 70 entries)

Golden Apple Teaching Award: Best Teacher in Clinical Pathology; Department of Pathology and Laboratory Medicine, Emory University School of Medicine (2002-2003)

National Blood Foundation Hall of Fame (2005)

8th Annual Southeastern BIO Investor Forum (SEBIO) 2006. First place in the Early-Stage Company “Shoot-Out” competition (3Ti, and principals John Roback and Chris Hillyer selected from approximately 60 entries).

2014 Emory Office of Technology Transfer (OTT) Licensing Deal of the Year: Cambium Medical Technologies (Ian Copland, PhD; Jacques Galipeau, MD; John D. Roback, MD PhD; and Edmund K. Waller, MD PhD), *Human Platelet Lysate for Ocular Therapies*.

2016 Emory Pathology Faculty Mentorship Award

2017 AABB President’s Award

2021 Emory Office of Technology Transfer (OTT) Innovation of the Year (Mehul Suthar, PhD; Jens Wrammert, PhD; John D. Roback, MD PhD; Rafi Ahmed, PhD), *Serological Test for SARS-CoV-2*.

2022 Emory Office of Technology Transfer (OTT) Startup Company of the Year (Edmund K Waller, MD PhD, and John D. Roback, MD PhD), *Cambium Medical Technologies*.

18. Society Memberships:

American Association of Blood Banks (1997 - present)

American Society for Hematology (1998 - present)

19. Organization of Conferences:

a. National and International:

i. Administrative Positions:

Abstracts Reviewer; American Association of Blood Banks Annual Meeting (2000 - 2014)

Chair; Grants Review Panel, National Blood Foundation; charged with selecting speakers for named educational lectures and awards (Landsteiner Award Lecture, Dale Smith Award) and National Blood Foundation Grants Recipient Symposium at American Association of Blood Banks Annual Meeting (2003 - 2006)

Abstracts Reviewer; American Society for Hematology Annual Meeting (2004 - 2006)

ii. Sessions as Chair:

Chair, "WBCs and Platelets"; American Association of Blood Banks Annual Meeting, 2000.

Chair, "Disease Syndromes"; 8th International Cytomegalovirus Workshop, 2001.

Co-Chair, "Cell Biology IV: Lymphocytes"; American Association of Blood Banks Annual Meeting, 2002.

Chair, "National Blood Foundation Scholars Research Symposium"; American Association of Blood Banks Annual Meeting, (2002 - 2006)

Chair, "Expert Consensus Conference: Prevention of Transfusion-Transmitted CMV"; American Society for Hematology, San Diego CA, December 5, 2003.

Co-Chair, "Cell Therapies"; American Association of Blood Banks Annual Meeting, 2004.

Chair, "Transfusion Medicine II"; American Society for Hematology Annual Meeting, 2004.

Chair, "Cell Therapies II"; American Association of Blood Banks Annual Meeting, 2005.

Chair, "Evidence-Based Guidelines for Plasma Transfusion"; American Association of Blood Banks Annual Meeting, 2008

Chair, "Cell Therapies"; American Association of Blood Banks Annual Meeting, 2009.

Chair, "Blood Transfusion Guidelines"; American Association of Blood Banks Annual Meeting, 2010.

Co-Chair, "Cellular Therapy"; American Association of Blood Banks Annual Meeting, 2011.

Co-Chair, "Transplantation and Cell Processing"; American Association of Blood Banks Annual Meeting, 2012.

Director and Moderator, “The RBC Storage Lesion: Vascular Other Physiologic Effects Following Transfusion of Stored Blood”; American Association of Blood Banks Annual Meeting, 2012.

Chair and Moderator, “Cellular Therapies”; American Association of Blood Banks Annual Meeting, 2013.

20. Clinical Services Contributions:

Transfusion Medicine Attending, Emory University Hospital; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (1999 - present)

- During my first 10 years on faculty, I attended on the EUH Blood Bank, Transfusion Medicine, and Hemapheresis services 4 months/year (1999 - 2009)
- From 2009 – 2017, I expanded my clinical role, attending 5-6 months/year on these services, while also concurrently attending on the transfusion medicine service at Emory University Hospital-Midtown.
- Since 2017, with the appointment of additional faculty, my total coverage of this service is about 4 months/year.

Assistant Director, Emory University Hospital Blood Bank; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (1999 - 2001)

Attending, Clinical Immunology Laboratory, Department of Pathology and Laboratory Medicine, Emory University Hospital, Atlanta, GA (2000 – present)

- I attend on the Clinical Immunology service 1-3 days/month.

Associate Director, Emory University Hospital Blood Bank; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2001 - 2009)

Director (*Interim*), Grady Memorial Hospital Blood Bank; Atlanta, GA (2003)

Director, Hematopoietic Stem Cell Processing Laboratory; Department of Pathology and Laboratory Medicine; Emory University School of Medicine; Atlanta, GA (2004 - 2017)

- I led the implementation of new infectious disease testing methods to reduce costs, reduce turn-around-times, and improve regulatory compliance, saving \$4800 annually.
- I implemented a method to transition a cumbersome paper process for pre-transplant verification of stem cell product quality and compliance to a computer method that now places a summary report in PowerChart for later review.
- I worked, in collaboration with Drs. Jacques Galipeau and Ned Waller, to expand the Hematopoietic Stem Cell Processing Laboratory to include a state-of-the art cGMP laboratory (EPIC: Emory Personalized Immunotherapy Center) to support novel first-in-human cell therapy trials for patients at Emory and surrounding institutions.
- I participated as part of a committee to design the new hemapheresis and cell therapy facility (including expanded cGMP clean room) in the EUH Tower

Medical Director, Emory University Hospital Blood Bank; Atlanta, GA (2009 – present)

- In my position as Medical Director, I chaired (until early 2018) the Joint Transfusion Subcommittee of the Medical Practices Committees for Emory University Hospital, Emory University Hospital-Midtown, Wesley Woods Geriatric Hospital, and Emory University Orthopedic and Spine Hospital.
- I also serve as a member of the Laboratory Operations Committee, and the Bone Marrow Transplantation Strategic Planning Group.
- In 2012, I led efforts to expand blood bank consultative activities, including placing consult reports in PowerChart that help to improve patient care. We also instituted billing for these services, providing professional revenues of \$18,500 annually.

- In 2014, I worked in collaboration with Laboratory and Hospital Administration to renegotiate the American Red Cross Blood Services Contract, reducing purchasing costs for blood products by \$1,192,000 annually.
- In 2014, as the Physician Champion for the Laboratory Value Acceleration Team, I proposed and gained approval for a project to manage the platelet inventory for Emory Healthcare as a single entity, rather than continuing to have individual hospital manage their inventories separately. After 4 months, platelet wastage has decreased significantly (eg, by ~80% at EUHM), and the initiative is on-track to realize costs savings of \$750,000 annually.
- In 2014, I led efforts to implement a hemapheresis consult service. Attendings, residents and fellows on our service now round on all hemapheresis inpatients and outpatients, more actively consult on treatment decisions with ordering physicians, and write regular consult notes in PowerChart. We also bill for this service, providing professional revenues by ~\$300,000 annually.

21. Formal Teaching:

a. Medical Student Teaching:

Medical School Pathology course (Pathology 616):

Spleen and Lymph Nodes: 2000 – 2007; 2 contact hours/year.

Laboratory Evaluation of the Anemic Patient: 2000 – 2003; 2 contact hours/year

Introduction to Lymphomas: 2001, 2003 – 2007; 2 contact hours/year

Medical Student Clinical Laboratory Experience (MSCLE): 2013 – present; 8 contact hours/year

b. Graduate Programs:

i. Residency Programs:

Clinical Pathology Core Curriculum Didactic Lectures:

Introduction to Blood Banking and Transfusion Medicine: 1998 – present; 1 contact hour every 2 years

Component Therapy I (Platelets): 1998 – present; 1 contact hour every 2 years

Transfusion Reactions: 2000 – present; 1 contact hour every 2 years

Transfusion Medicine Rotation Lectures for Junior Residents:

Transfusion Medicine: The Basics: 2000 – present; 30 contact hours/quarter = 120 contact hours/year delivered as part of Transfusion Medicine rotation for Pathology residents

Transfusion Medicine Review Lecture for Senior Residents:

Transfusion Medicine: A Comprehensive Review: 2003 – 2009, 2011, 2013; 4 contact hours/year (delivered at request of senior residents preparing for board exams)

Transfusion Medicine Journal Club: 2 hours/year

Clinical Pathology Faculty Unknown Lecture: 0.5 hours/year

ii. Fellowship Programs:

Advanced Transfusion Medicine for Clinical Fellows:

Comprehensive Transfusion Medicine: Beyond the Basics: 2001 – 2009; 10 contact hours/year (this course, designed to prepare clinical fellows for the Clinical

Pathology Board Examinations and Transfusion Medicine Subspecialty Examinations, has been combined into residency training curriculum)

ii. Master's and PhD Programs:

Concepts in Immunology (IBS 542)

Congenital Immunodeficiencies: 1998-2001; 2 contact hours/year

c. Other Categories:

Medical Technologist Training Program:

Introduction to Blood Banking and Transfusion Medicine: 2008 – present; 3 contact hours/year

Fundamentals of Immunology and Complement: 2008 – 2015; 1.5 contact hours/year

Basic Molecular Biology for Blood Banking: 2008 – 2015; 1.5 contact hours/year

Donor Selection, Screening, and Blood Collection: 2008 – 2015; 3 contact hours/year

Blood Component Preparation I: 2008 – 2015; 3 contact hours/year

Blood Component Preparation II: 2008 – 2015; 3 contact hours/year

Designing and Conducting Medical Research: 2009 – 2010; 1 contact hour/year

Blood Bank Didactic Review: 2008 – present; 1 contact hour/year

Blood Bank Clinical Review: 2008 – present; 1 contact hour/year

Update for Practicing Community Pathologists (CME course organized by Department of Pathology, Emory University School of Medicine):

Case Studies in Transfusion Medicine: 2003 – 2006; 0.5 contact hours/year

Emory PACE continuing education program for laboratory staff:

Clinical Practice Guidelines for Blood Transfusion. 2013; 1 contact hour/year

22. Supervisory Teaching:

a. Post-Doctoral Fellows Mentored and Co-Mentored:

Karen S. Roush, MD; clinical fellow; AABB Fenwal Scholarship Award Recipient: 2000-2001 (mentored with Dr. Christopher Hillyer); currently in private practice in Texas

Levan Lezhava, MD; research fellow: 2001-2006; in private practice in Georgia

Mohammad S. Hossain, PhD; research fellow: 2001 – 2007 (mentored with Dr. Ned Waller); currently an Instructor at Emory University

Violet Alexandria (Lexy) Kelley, MD; clinical fellow: 2001-2002 (mentored with Dr. Christopher Hillyer); current position unknown

Gretchen S. Johns, MD; clinical fellow: 2001-2002 (mentored with Dr. Christopher Hillyer); currently Assistant Professor of Pathology and Laboratory Medicine, The Mayo Clinic (Florida)

Stephen L. Sgan, MD; clinical fellow: 2001-2002 (mentored with Dr. Christopher Hillyer); currently in private practice in Florida

Cassandra D. Josephson, MD; clinical fellow: 2002-2003 (mentored with Dr. Christopher Hillyer); currently a Professor of Pathology and Laboratory Medicine, and Pediatrics, in the Emory University School of Medicine

Leon Su, MD; clinical fellow: 2004-2006 (mentored with Dr. Christopher Hillyer); currently in private practice in Arizona

Liz Culler, MD; clinical fellow: 2004-2006 (mentored with Dr. Christopher Hillyer); currently in private practice in Tennessee

Shealynn Harris, MD; clinical fellow: 2004-2005 (mentored with Dr. Christopher Hillyer); currently in private practice in Georgia

Chelsea Sheppard, MD; clinical fellow: 2006-2007 (mentored with Dr. Christopher Hillyer); currently in private practice in Virginia

Jeanne Hendrickson, MD; clinical and research fellow: 2005-2008 (mentored with Dr. James Zimring); currently an Associate Professor of Pathology and Laboratory Medicine in the Yale University School of Medicine

Lawrence Benjamin Fialkow, DO; clinical fellow: 2008-2009 (mentored with Dr. Christopher Hillyer); currently in private practice in New York

Ayaz Rahman, MD; research fellow: 2008-2010 (mentored with Dr. Arshed Quyyumi); currently in private practice in Georgia

Anne Winkler, MD; clinical fellow: 2010-2011 (mentored with Dr. Cassandra Josephson); currently Medical and Scientific Affairs Director for Instrumentation Laboratory, Inc.

- Mentor (no compensation): NIH Loan Repayment Grant (PI: A. Winkler). 2014-2016.

Robert Neuman, MD; research fellow: 2011-2013 (mentored with Dr. Arshed Quyyumi); in private practice in Georgia

Sean Stowell, MD PhD; clinical/research fellow: 2012-2013 (designated Mentor on NIH Loan-Repayment grant, NBF grant, and Burroughs-Wellcome grant): Associate Professor of Pathology and Laboratory Medicine (tenured, effective September 2019), Emory University School of Medicine

- Mentor (no compensation): NIH Loan Repayment Grant (PI: S. Stowell). 2014-2017.
- Co-Investigator/Mentor (no compensation): American Society for Hematology: Transfusion induced tolerance: an investigation of immunological mechanisms (PI: S. Stowell). \$50,000 direct costs, 2014 – 2016.
- Co-Investigator/Mentor (no compensation): Burroughs Wellcome Fund: Elucidating mechanisms of innate immunity against molecular mimicry (PI: S. Stowell). \$700,000 direct costs, 2014 – 2019.

Gizem Tumer, MD; clinical and research fellow: 2012-2014 (mentored with Dr. Cassandra Josephson); Assistant Professor of Pathology, University of Minnesota School of Medicine

Salim Hayek, MD; research fellow: 2013-2015 (mentored with Dr. Arshed Quyyumi); currently completing training

Robert Sheppard Nickel, MD; clinical fellow: 2014-2015 (mentored with Dr. Cassandra Josephson); Assistant Professor of Pathology and Pediatrics at the Children's National Medical Center

b. Residency Program:

Resident supervision and teaching on EUH Clinical Blood Bank rotation (4 months per year; 1999-present).

Supervised pathologists from Kenya in learning the basics of Transfusion Medicine as the Associate Program Director, CDC-Kenya Visiting Scholars Program in Transfusion Medicine: Margaret Oduor, MD (2002); Samson Obure, MD (2002); Efesper Asseri Nkya, MD (2004); Wilson

Kiptoo Sugut, MD (2004); Njau Mungai Mbugua, MD (2004); Mbuuko Ng'ali, MD (2009); Dorothy Gicuku Njeru, MD (2009); Charles Muturi, MD (2009); Peter Kimenyi, MD (2009).

Research supervisor for Harold Clifford Sullivan, MD (2013-2014): Awarded an ASH Mentored Research Award.

c. Ph.D. Thesis Committees:

Kimberly M. Anderson, PhD; Immunology and Molecular Pathogenesis Program (2005-2007), Emory University School of Medicine

Maxime Desmarests, PhD; Immunology and Molecular Pathogenesis Program (2007-2011), Emory University School of Medicine

Kasia Darlak, PhD; Immunology and Molecular Pathogenesis Program (2008-2013), Emory University School of Medicine

Mojibade Hassan; Immunology and Molecular Pathogenesis Program (2015-2018), Emory University School of Medicine

d. Medical and Undergraduate Students:

Michele Manahan (1998-1999)

Einsley-Marie Janowski (1999-2000)

Candace L. Perry (1999-2000)

Adeline Ashmore (2000-2002)

Shazad Wada (2000-2001)

Erick Long (2001-2002)

Steven Tepper (2001-2002)

Jenny Larson (2002)

Hannah Rappaport (2002)

Catherine Jordan (2002-2004)

Elisabeth Hesse (2004)

Kevin Seitz, BA; Emory Master's of Science in Clinical Research (MSCR) trainee: 2014-2016 (designated Mentor)

- Designated Mentor (no compensation): NIH-funded Emory Master of Science in Clinical Research (MSCR), TL1TR000456; Trainee: K. Seitz. \$75,000 direct costs, 2014 – 2016.

23. Lectureships, Seminar Invitations, Visiting Professorships:

a. National and International:

Cerus Corporation (Concord, CA): Adoptive Antiviral Immunotherapy Using Amotosalen-Treated T-Cells (2003).

Blood Centers of the Pacific (San Francisco, CA): Detection of CMV DNA in peripheral blood and cord blood components (2003).

University of California at San Francisco, Department of Pathology: Adoptive antiviral immunotherapy using MHC-mismatched T-cells in mice (2003).

NIH/NHLBI Adverse Effects of Blood Storage Working Group (Bethesda, MD): In vitro effects of stored RBCs on vascular function (2010).

- American Red Cross Medical Advisory Committee (Washington, DC): Complications of blood supply logistics due to reduced RBC storage time (2011).
- NIH/NHLBI Adverse Effects of Blood Storage Working Group (Bethesda, MD): Transfusion of stored RBCs adversely affects vascular physiology after transfusion in hospitalized patients and healthy volunteers (2012).
- Advisory Committee on Blood and Tissue Safety and Availability (ACBTSA); HHS/OASH/NIH (Rockville, MD): Metabolic Changes in RBC During Storage (2012).
- Visiting Professor, St. Jude's Children's Research Hospital, Department of Pathology (Memphis, TN): Evidence-based clinical practice guidelines for blood transfusion (2013).
- American Red Cross Medical Advisory Committee (Washington, DC); Invited Speaker: Transfusion Support for Patients Infected with Ebola Virus (2014).
- NIH/NHLBI Workshop: Towards Minimally-invasive or Non-invasive Approaches to Assess Tissue Oxygenation Pre- and Post-Transfusion (Bethesda, MD). Invited Speaker: Metabolomics for Studying RBCs and Tissue Perfusion (2019).

b. Regional:

- Atlanta Regional Update for Practicing Pathologists (sponsored by Emory University School of Medicine, Department of Pathology and Laboratory Medicine): Case studies in Transfusion Medicine. (2003).
- Atlanta Regional Update for Practicing Pathologists (sponsored by Emory University School of Medicine, Department of Pathology and Laboratory Medicine): Problems in Transfusion Medicine. (2004).

c. Institutional:

- Emory University School of Medicine, Department of Pathology and Laboratory Medicine: Murine Models of CMV Disease and Treatment (2000).
- Emory University School of Medicine, Winship Cancer Institute: Adoptive Antiviral Immunotherapy in a Murine Allogeneic BMT Model (2002).
- Emory University School of Medicine, Division of Infectious Diseases: Adoptive Immunotherapy for Lethal CMV Infection (2003)
- Emory University Orthopaedic and Spine Hospital: Transfusion Decision Making for Orthopaedic Surgery (2009).
- Emory University Division of Cardiology; Clinical Cardiology Research Conference: Stored blood and adverse effects of transfusion: a possible role for nitric oxide (2010).
- Emory University School of Medicine, Department of Anesthesiology, Faculty Conference: Implementation and Troubleshooting of a Massive Transfusion Protocol (2013)
- Emory University School of Medicine, Winship Cancer Institute, Bone Marrow Transplantation Quality Improvement Meeting: Uses and Implications of Infectious Disease Testing in Bone Marrow Donors (2014)
- Emory University Orthopaedic and Spine Hospital, Morbidity and Mortality Conference: Transfusion-Related Acute Lung Injury (TRALI) and Other Adverse Effects of Blood Transfusion (2014)
- Emory University School of Medicine, Winship Cancer Institute, Grand Rounds: Biological and Clinical Effects of Pre-Transfusion RBC Storage (8 October, 2014)
- Emory University School of Medicine, Cardiovascular Biology Seminar Series: Vascular function after transfusion: Pathobiologic effects of RBC storage (2 November, 2015)

Emory University School of Medicine, Department of Anesthesiology, Grand Rounds: Platelet Transfusions: Important Changes on the Horizon (19 January, 2017)

24. Invitations to National/International, Regional, and Institutional Conferences:

a. National and International:

- American Association of Blood Banks Annual Meeting; Invited National Blood Foundation Scholar Lectureship: Cytomegalovirus in Transfusion Medicine: Animal Models for Clinical Problems (2000).
- CMV2001, 8th International Cytomegalovirus Workshop; Invited Speaker: CMV in Blood Donors (2001)
- American Association of Blood Banks Annual Meeting; Invited Symposium Presentation: Cell Biology IV: Therapeutic Use of Lymphocytes in Transfusion Medicine (2002).
- American Society for Hematology Annual Meeting (San Diego, CA); Chairman and invited Speaker: Expert Consensus Conference: Prevention of Transfusion-Transmitted CMV: Inactivation of CMV in Platelet Components by Helinx Technology (2003).
- Clinical Cytometry Society Annual Meeting (Long Beach, CA); Invited Speaker: Pretransfusion Immunohematology Testing by Capillary Cytometry. (2004).
- European Bone Marrow Transplant Society Annual Meeting (Prague, Czech Republic); Invited Speaker: Strategies to Reduce the Risk of Transfusion Associated CMV and GvHD (2005).
- International Society of Blood Transfusion, 15th Regional Congress Europe (Athens, Greece); Invited Speaker: Immunofluorescence Cytometry for Immunohematology Testing (2005).
- European Plasma Fractionation Association & Paul Ehrlich Institute 12th NAT workshop (Bethesda, MD); Invited Speaker: NAT Screening for Cell-Associated Viruses (2005).
- CMV2005, 10th International Cytomegalovirus Workshop; Invited Speaker: Transfusion-Transmitted CMV Infections: Current Approaches to Prevention (2005)
- American Photobiology Society (Puerto Rico), 33rd meeting; Invited Speaker: Vaccination with Killed but Metabolically Active *Listeria monocytogenes* (2006).
- American Society for Hematology Annual Meeting (Orlando, FL); Invited Speaker: Vaccine-Enhanced Donor Lymphocyte Infusion (veDLI) (2006).
- National Institutes of Health, 10th Annual NIH SBIR/STTR Conference (Atlanta, GA); Invited Speaker: Application/Submission Tales from the Trenches (2008).
- American Association of Blood Banks Annual Meeting (Montreal, Canada); Invited Speaker: Pathogen Inactivation Technologies (2008).
- American Association of Blood Banks (AABB) Annual Meeting (Baltimore, MD); Session Chair and Invited Speaker: Evidence-Based Guidelines for Transfusion and Apheresis (2010).
- American Society for Hematology Annual Meeting (San Diego, CA); Invited Speaker: Vascular Effects of the Red Cell Storage Lesion (2011).
- Infusion Nurses Society Annual Meeting (Louisville, KY); Invited Speaker: Evidence-Based Guidelines for Plasma and Red Cell Transfusion (2011).
- Blood Management University International Webinar; Invited Speaker: Clinical Investigations of the RBC Storage Lesion and Associated Adverse Effects in Transfusion Recipients (2012).

American Association of Blood Banks Annual Meeting (Boston, MA); Invited Speaker: What Constitutes a CMV-Safe Blood Unit? (2012).

American Association of Blood Banks Annual Meeting (Boston, MA); Session Chair and Invited Speaker: The RBC Storage Lesion: Vascular and Other Physiologic Effects Following Transfusion of Stored Blood (2012).

Scripps Cancer Center's 32nd Annual Conference: Clinical Hematology and Oncology 2012 (San Diego, CA); Invited Speaker: Adverse Consequences of Stored Blood (2012).

Annual Meeting of the NIH Common Fund Metabolomics Program (Ann Arbor, MI): Metabolomics of Stored Red Blood Cells Prior to Transfusion: Reproducible, Donor-Specific Alterations in Numerous Metabolites (2013).

American Association of Blood Banks Annual Meeting, Industry Workshop (Philadelphia, PA); Workshop Director and Invited Speaker: When RBC Quality Matters: Reducing the Impact of Storage Lesion Effects (2014).

American Association of Blood Banks Annual Meeting (Philadelphia, PA); Invited Speaker: Stump the Hemovigilance Experts (2014).

American Association of Blood Banks Annual Meeting (Philadelphia, PA); Invited Speaker, National Blood Foundation Symposium: Biological and Clinical Effects of Pre-Transfusion RBC Storage (2014).

American Association of Blood Banks Annual Meeting (Anaheim, CA); Invited Speaker: Revenge of the Hemovigilance Experts (2015).

American Association of Blood Banks Annual Meeting (Anaheim, CA); Invited Speaker: RAP Session: Changes in RBCs During Pre-Transfusion Storage (2015).

American Association of Blood Banks Annual Meeting (Anaheim, CA); Invited Speaker: Multicenter Evaluation of the Grifols Erytra (2015).

b. Regional:

Eighth Annual Southeastern BIO Investor Forum (Atlanta, GA). Completely Automated Pretransfusion Testing using the 3Ti AEGIS (2006). *First-prize among approximately 60 entries.*

Hemostasis, Bleeding and Therapeutic Approaches III (Atlanta, GA); Invited Speaker: Development of Evidence-Based Plasma Transfusion Guidelines (2009)

Hemostasis, Bleeding and Therapeutic Approaches; New Therapies and New Paradigms IV (Atlanta, GA); Invited Speaker: Red Blood Cell Storage and Implications (2010)

Southeast Region Association of Blood Banks (Atlanta, GA): Development of Evidence-Based Guidelines for Plasma Transfusion (2010).

Southeast Region Association of Blood Banks (Atlanta, GA): The RBC Storage Lesion: Is It Clinically Significant? (2011).

25. Abstract Presentations at National/International, Regional, and Institutional Conferences (*presenter):

a. National and International:

***Roback, J.D.**, Wainer, B.H., and Large, T.H. (oral presentation) The expression of nerve growth factor protein in the developing hippocampus in reaggregate culture. Society for Neuroscience Annual Meeting. 1988.

***Roback, J.D.**, Large, T.H., Otten, U., and Wainer, B.H. (oral presentation) Studies on the expression of NGF mRNA and protein in the developing hippocampus *in vitro*. Society for Neuroscience Annual Meeting. 1989.

- ***Roback, J.D.**, Downen, M., Lee, H.J., Zucker, J., Large, T.H., Otten, U., and Wainer, B.H. (oral presentation) NGF and NGF receptor expression in primary reaggregate cultures derived from the embryonic mouse septum. Society for Neuroscience Annual Meeting. 1990.
- *Zucker, J.D., Jones, M.V., Harrison, N.L., Lee, H.J., **Roback, J.D.**, and Wainer, B.H. (oral presentation) Characterization of bi-laminar cultures from E16 rat septum. Society for Neuroscience Annual Meeting. 1990.
- *Burke, M.A., **Roback, J.D.**, Wainer, B.H., and Kordower, J.H. (oral presentation) NGF levels, cholinergic septal neurons, and septal cytoskeletal markers are preserved following excitotoxic lesions of the hippocampus. Society for Neuroscience Annual Meeting. 1991.
- *Mudd, L., Downen, M., **Roback, J.D.**, Zucker, J., Wert, M., Wainer, B., and Palfrey, H.C. (oral presentation) Nerve growth factor signal transduction in rat septal neurons grown in bilaminar culture. Society for Neuroscience Annual Meeting. 1991.
- ***Roback, J.D.**, Marsh, H.N., Downen, M., Palfrey, H.C., and Wainer, B.H. (oral presentation) BDNF receptors (TrkB) and signal transduction in primary cultures of rat cortical astrocytes. Society for Neuroscience Annual Meeting. 1993.
- ***Roback, J.D.**, Guy, C., Fried, M., and Duncan, A. (oral presentation) Novel serum markers for veno-occlusive disease of the liver after bone marrow transplantation. International Society for Thrombosis and Hemostasis Annual Meeting. 1997.
- *Duncan, A., **Roback, J.D.**, Barclay, S., and Hillyer, C.D. (poster presentation) High prevalence of platelet specific alloantibodies in liver disease patients with antiphospholipid antibodies. International Society for Thrombosis and Hemostasis Annual Meeting. 1997.
- ***Roback, J.D.**, Trainor, L., Levy, J., Kreger, S., Gordon, R., Duncan, A., and Hillyer, C.D. (oral presentation) Significant disseminated intravascular coagulopathy (DIC) with secondary fibrinolysis identified during orthotopic liver transplantation (OLT). American Association of Blood Banks Annual Meeting. 1997.
- ***Roback, J.D.**, Buccolo, L., and Hillyer, C.D. (poster presentation) Effects of filtration and gamma-irradiation on cytomegalovirus (CMV) infectivity and replication: Development of a rhesus macaque transfusion model. American Society for Hematology Annual Meeting. 1997.
- ***Roback, J.D.**, Bray, R.A., and Hillyer, C.D. (oral presentation) Quantitation of CMV-associated leukocyte (WBC) subsets in red blood cell (RBC) units with leukoreduction (LR) and storage. American Association of Blood Banks Annual Meeting. 1998.
- *Bucur, S.Z., Gillespie, T.W., **Roback, J.D.**, Lee, M.E., Adams, J.W., Bray, R.A., Villinger, F., Winton, E.F., Novembre, F., Ansari, A.A., Hillyer, C.D. (oral presentation) Hematopoietic response to rhGET administration during early versus late stage SIV infected rhesus macaques. 16th Annual Symposium on Nonhuman Primate Models of AIDS. 1998.
- ***Roback, J.D.**, Bray, R.A., and Hillyer, C.D. (poster presentation) Changes in markers of CMV-infectivity with filter leukoreduction (LR) of red cells. American Society for Hematology Annual Meeting. 1998.
- ***Roback, J.D.**, He, J., Janowski, E.-M., Perry, C.L., and Hillyer, C.D. (oral presentation; Plenary Session) Transfusion-transmitted cytomegalovirus infection (TT-CMV): Influence of leukoreduction (LR) and allogeneic interactions in a murine model. American Association of Blood Banks Annual Meeting. 1999.
- *Grindon, A.J., Harris, S.L., **Roback, J.D.**, Allen, M.B., and Hillyer, C.D. (poster presentation) Low patient risk from market withdrawn (MW) blood components. American Association of Blood Banks Annual Meeting. 1999.

- ***Roback, J.D.**, Hillyer, C.D., Drew, W.L., Luka, J., Mocarski, E.S., Soderberg-Naucler, C., Woxenius, S., Busch, M.P. (oral presentation) Comparison of 7 PCR assays for detection of cytomegalovirus (CMV) DNA in PBMCs of blood donors: Results of a blinded multicenter study. American Society for Hematology Annual Meeting. 1999.
- ***Roback, J.D.**, Hillyer, C.D., Mittelstaedt, S., Waller, E.K. (oral presentation) Increased CMV-related mortality in allogeneic versus syngeneic bone marrow transplantation: Development of a murine model. American Association of Blood Banks Annual Meeting. 2000.
- ***Roback, J.D.**, Drew, W.L., Laycock, M., Todd, D., Hillyer, C.D., Busch, M.P. (oral presentation) Cytomegalovirus (CMV) DNA is detected infrequently in healthy US blood donors: results of a multicenter trial. American Association of Blood Banks Annual Meeting. 2000.
- ***Roback, J.D.**, Mittelstaedt, S., Hillyer, C.D., Waller, E.K. (oral presentation) Adoptive Immunotherapy with fludarabine-treated cytomegalovirus primed donor splenocytes following MHC mis-matched allogeneic bone marrow transplantation. American Society for Hematology Annual Meeting. 2000.
- ***Roback, J.D.**, Gorechlad, J.W., Alexander, S.A., Hillyer, C.D., Waller, E.K. (poster presentation) CMV organ loads in a mouse model of lethal CMV infection following bone marrow transplantation: Allo- versus auto-transplant and adoptive immunotherapy with allogeneic T-cells. American Association of Blood Banks Annual Meeting. 2001.
- *Roush, K.S., Hillyer, K.L., Barclay, S., Kelley, V.A., Duncan, A., **Roback, J.D.**, Hillyer, C.D. (oral presentation) vWF-cleaving metalloprotease (MP) activity: comparison of fresh frozen plasma (FFP), cryosupernatant (CS), and solvent detergent treated plasma (SDP). American Association of Blood Banks Annual Meeting. 2001.
- ***Roback, J.D.**, Gorechlad, J.W., Alexander, S.A., Jaye, D., Mittelstaedt, S., Hillyer, C.D., Waller, E.K. (poster presentation) Adoptive immunotherapy using polyclonal allogeneic T-cells with limited GvHD activity protect against lethal post-BMT CMV infections. American Society for Hematology Annual Meeting. 2001.
- *Hillyer, K.L., Kelley, V.A., Roush, K.S., Long, E.L., Barclay, S.B., Duncan, A., **Roback, J.D.**, Hillyer, C.D. (poster presentation) von Willebrand Factor-cleaving protease (vWF-CP) activity in S-59-treated donor plasma. American Society for Hematology Annual Meeting. 2001.
- ***Roback, J.D.**, Lezhava, L., Hossain, M.S., Waller, E.K., Hillyer, C.D. (oral presentation; Plenary Session) Optimized psoralen-mediated DNA crosslinking of CD8⁺ T-lymphocytes preserves IFN- γ production while blocking cell proliferation: Implications for adoptive immunotherapy. American Association of Blood Banks Annual Meeting. 2002.
- ***Roback, J.D.**, Kelley, L., Saakadze, N., Gillespie, T., Hillyer, C.D. (oral presentation; Plenary Session) Kinetics of peripheral blood murine cytomegalovirus (MCMV) viremia following infection: Implications for a mouse model of transfusion-transmitted CMV (TT-CMV). American Association of Blood Banks Annual Meeting. 2002.
- *Sgan, S.L., Gillespie, T.W., Caliendo, A.M., **Roback, J.D.**, Lane, T.A., Hillyer, C.D. (oral presentation) Predictive value of nucleic acid testing for cytomegalovirus in maternal donors of umbilical cord blood stem cell components by serostatus. American Association of Blood Banks Annual Meeting. 2002.
- *Sgan, S.L., Gillespie, T.W., **Roback, J.D.**, Caliendo, A.M., Kurtzberg, J., Hillyer, C.D. (oral presentation) Nucleic acid testing for cytomegalovirus in umbilical cord blood plasma and stem cell components. American Association of Blood Banks Annual Meeting. 2002.

- ***Roback, J.D.**, Gillespie, T.W., Kelley, V., Saakadze, N., Hillyer, C.D. (oral presentation) Transfusion-transmitted CMV infection in a mouse model: High load of latent virus required for transmission. American Society for Hematology Annual Meeting. 2002.
- *Hillyer, K.L., Rapaport, H.J., **Roback, J.D.**, Ritchie, J.C., Hillyer, C.D. (poster presentation) Pre-filtration oxygenation abrogates the leukoreduction filtration lesion in hemoglobin AS whole blood units. American Society for Hematology Annual Meeting. 2002.
- *Hossain, M.S., Schnell, F.J., **Roback, J.D.**, Waller, E.K. (oral presentation) Polarization towards Th1 anti-mCMV immune responses following depletion of CD11b+ cells from mouse bone marrow. American Society for Hematology Annual Meeting. 2002.
- *Kurtzberg, J., Issitt, L., Waters-Pick, B., DeOliveira, D., Newman, J., Caliendo, A.M., **Roback, J.D.**, Hillyer, C.D. (oral presentation) Nucleic acid testing (NAT) by PCR for cytomegalovirus (CMV) in umbilical cord blood (UCB) offers a superior detection method for CMV viremia when compared to screening of maternal serum for antibodies to CMV. 9th International Society for Cellular Therapy Annual Meeting. 2003.
- *Dumont, L.J., Jones, J.F., Weinberg, A., **Roback, J.D.**, Hillyer, C.D., Ambrusco, D.R. (oral presentation) Seasonal allergen exposure and switch to T helper cell type 2 profile may be associated with cytomegalovirus reactivation. American Association of Blood Banks Annual Meeting. 2003.
- ***Roback, J.D.**, Barclay, S., Christey, P., Hillyer, C.D. (oral presentation) Accurate blood typing in an automatable capillary cytometry format. American Association of Blood Banks Annual Meeting. 2003.
- *Hillyer, C.D., **Roback, J.D.**, Hillyer, K.L., Page, P.L. (oral presentation) Analysis of white particulate matter in red blood cell units. American Association of Blood Banks Annual Meeting. 2003.
- ***Roback, J.D.**, Hossain, M.S., Lezhava, L., Talib, S., Hearst, J.E., Waller, E.K., Hillyer, C.D. (oral presentation) Long-term functional persistence of amotosalen-treated T-cells after adoptive transfer. American Association of Blood Banks Annual Meeting. 2003.
- *Zimring, J., **Roback, J.D.** (oral presentation) In vitro generation of CD8+ veto cells: Implications for tolerance in allogeneic hematopoietic stem cell transplants. American Association of Blood Banks Annual Meeting. 2003.
- *Hillyer, C.D., **Roback, J.D.**, Saakadze, N., Lezhava, L., Hillyer, W.M., Maiers, T., Newman, J.L. (oral presentation) Transfusion-transmitted cytomegalovirus (CMV) infection: Elucidation of role of dose of monocytes in a murine model. American Society for Hematology Annual Meeting. 2003.
- *Hossain, M.S., **Roback, J.D.**, Lezhava, L., Hearst, J.E., Talib, S., Waller, E.K. (poster presentation) Adoptive transfer of amotosalen treated donor T-cells leads to the polyclonal expansion of anti-CMV memory T-cells without GvHD after allogeneic bone marrow transplantation. American Society for Hematology Annual Meeting. 2003.
- *Jordan, C.T., Zimring, J.C., Chadwick, T., Hearst, J.E., Talib, S., Hillyer, C.D., **Roback, J.D.** (poster presentation) Amotosalen treatment of donor T-cells prior to BMT prevents GvHD without inhibiting anti-viral immunity via differential effects on naïve and effector T-cells. American Society for Hematology Annual Meeting. 2003.
- *Jordan, C.T., Saakadze, N., Newman, J.L., Lezhava, L., Maiers, T., Hillyer, W.M., **Roback, J.D.**, Hillyer, C.D. (poster presentation) Photochemical treatment of platelet concentrates with amotosalen hydrochloride and ultraviolet A light inactivates free and latent cytomegalovirus

- (CMV) in a murine transfusion model. American Society for Hematology Annual Meeting. 2003.
- *Hossain, M.S., Lezhava, L., Waller, E.K., **Roback, J.D.** (oral presentation) Prophylactic amotosalen-treated splenocytes effectively prevent lethality from delayed murine CMV challenge in allogeneic BMT recipients. American Association of Blood Banks Annual Meeting. 2004).
 - ***Roback, J.D.**, Barclay, S., Hillyer, C.D. (oral presentation) Automated high-throughput quantitation of residual WBCs in filtered components by capillary cytometry. American Association of Blood Banks Annual Meeting. 2004.
 - *Zimring, J.C., Chadwick, T.E., Hillyer, C.D., **Roback, J.D.** (oral presentation) Inflammatory mediators do not inhibit tolerance induction by veto based cellular immunotherapy. American Association of Blood Banks Annual Meeting. 2004.
 - *Hossain, M.S., **Roback, J.D.**, Waller, E.K. (poster presentation) MCMV infection lowers the threshold for the development of clinical GvHD after allogeneic bone marrow transplantation. American Society for Hematology Annual Meeting. 2004.
 - ***Roback, J.D.**, Lezhava, L., Hesse, E., Hillyer, C.D., Luckett, W., Dubensky, T.W., Giedlin, M. (oral presentation) Immunization with live-attenuated *Listeria* encoding CMV antigen induces extensive expansion of CMV-specific CD8+ T-cells following HSCT: An alternative to adoptive antiviral immunotherapy. American Society for Hematology Annual Meeting. 2004.
 - *Jordan, C.T., Zimring, J.C., **Roback, J.D.** (poster presentation) Effects of amotosalen hydrochloride and ultraviolet A light on CD4 and CD8 cells. American Society for Hematology Annual Meeting. 2004.
 - *Zimring J.C., Hair G., Anderson K.M., Hillyer C.D., **Roback J.D.** (oral presentation) Use of antigen-crosslinked red blood cells as a vaccine to promote crosspriming of foreign antigen into the MHC class I pathway. International Society for Cellular Therapy Annual Meeting. 2005.
 - *Zimring J.C., Hair G.A., Anderson K.M., Hillyer C.D., **Roback J.D.** (oral presentation) Use of red blood cells as a vaccine vector to induce humoral and cellular immunity. American Association of Blood Banks Annual Meeting. 2005.
 - ***Roback J.D.**, Dubensky T.W., Hillyer C.D., Giedlin M.A. (oral presentation) Vaccination-Enhanced DLI (veDLI): An alternative to adoptive immunotherapy. American Association of Blood Banks Annual Meeting. 2005.
 - *Su L.L., **Roback J.D.**, Maier T.T., Saakadze N., Newman J.L., Hillyer C.D. (oral presentation) Kinetics of recipient transfusion-transmitted cytomegalovirus infection in a murine model. American Association of Blood Banks Annual Meeting. 2005.
 - *Hendrickson J.E., Chadwick T.E., **Roback J.D.**, Hillyer C.D., Zimring J.C. (oral presentation) Host inflammation increases alloimmunization to transfused red blood cells. American Society for Hematology Annual Meeting. 2005.
 - *Zimring J.C., Hair G.A., Chadwick T.E., Desphande S.S., Anderson K.M., Hillyer C.D., **Roback J.D.** (oral presentation) Non-hemolytic antibody induced loss of RBC antigen during transfusion of crossmatch incompatible blood. American Society for Hematology Annual Meeting. 2005.
 - Culler E., Barclay S.B., Bray R.A., Gebel H.M., Hillyer C.D., ***Roback J.D.** (poster presentation) A fully-automated screening method for anti-HLA antibodies: Implications for screening plasma donations to prevent transfusion-related acute lung injury (TRALI). American Society for Hematology Annual Meeting. 2005.
 - ***Roback J.D.**, Lezhava L.J., Luckett W., Dubensky T.W., Hillyer C.D., Giedlin M. (oral presentation) Live-attenuated and novel non-replicating *Listeria* vaccines encoding CMV antigen produce

- persistent functional antiviral immunity. American Society for Hematology Annual Meeting. 2005.
- *Hendrickson, J.E., Chadwick, T.E., **Roback, J.D.**, Hillyer, C.D., and Zimring, J.C. (oral presentation) Mechanisms by which recipient inflammation enhances alloimmunization to red blood cell antigens. American Association of Blood Banks Annual Meeting. 2006.
 - *Zimring, J.C., **Roback, J.D.**, Schirmer, D.A., Spitalnik, S.L. and Hillyer, C.D. (oral presentation) Non-hemolytic antigen-loss during transfusion of crossmatch incompatible blood requires simultaneous binding of multiple antibodies. American Association of Blood Banks Annual Meeting. 2006.
 - ***Roback, J.D.**, Barclay, S., Olsson, M.L., Hillyer, C.D., and Stassinopoulos, A. (poster presentation) Automated detection of low-level A-antigen on red blood cells. American Association of Blood Banks Annual Meeting. 2006.
 - *Hossain, M.S., **Roback, J.D.**, and Waller, E.K. (poster presentation) Host and donor immune responses contribute to anti-viral effects of amotosalen-treated donor lymphocytes following early post-transplant CMV infection. American Society for Hematology Annual Meeting. 2006.
 - *Zimring, J.C., Spitalnik, S.L., Schirmer, D.A., Parkos, C., **Roback, J.D.**, and Hillyer, C.D. (poster presentation) Non-hemolytic antigen-loss during transfusion of crossmatch incompatible blood requires cooperative binding of multiple antibodies recognizing different epitopes. American Society for Hematology Annual Meeting. 2006.
 - *Hendrickson, J.E., **Roback, J.D.**, Hillyer, C.D., and Zimring, J.C. (oral presentation) Recipient inflammation that increases alloimmunization also enhances consumption of transfused RBCs by dendritic cells. American Society for Hematology Annual Meeting. 2006.
 - ***Roback J.D.**, Isola, H., Lin, L., and Cazenave, J.-P. (poster presentation) Inactivation of infectious CMV in platelet products: comparison of INTERCEPT Blood System TM and leukofiltration. American Society for Hematology Annual Meeting. 2007.
 - *Hendrickson, J.E., **Roback, J.D.**, Hillyer, C.D., and Zimring, J.C. (oral presentation) An intact spleen is required for alloimmunization to transfused red blood cells due to intrasplenic activation of CD4+ T cells. American Society for Hematology Annual Meeting. 2007.
 - *Hossain, M.S., **Roback, J.D.**, Pollack, B.P., Jaye, D.L., and Waller, E.K. (oral presentation) Chronic GvHD decreases anti-CMV immune responses in allogeneic BMT: defect in T-cell homing. The 2007 BMT Tandem Meetings.
 - *Hossain, M.S., Hillyer, C.D., Gewirtz, A., Waller, E.K. and **Roback, J.D.** (oral presentation) Therapeutic use of flagellin to prevent graft versus host disease and improve viral immunity following allogeneic transplant. American Association of Blood Banks Annual Meeting. 2008.
 - *Kakaiya, R., Triulzi, D., **Roback, J.D.**, Fang, J., Tu, Y., Kleinman, S., Busch, M., Gottschall, J.L., Rios, J.A., Hillyer, C.D., Glynn, S., and Schreiber, G. (oral presentation) Characteristics of cytomegalovirus (CMV) antibody positive volunteer blood donors. American Association of Blood Banks Annual Meeting. 2008.
 - Hossain, M.S., Gewirtz, A.T., Waller, E.K., Hillyer, C.D., and **Roback, J.D.*** (oral presentation) Therapeutic Use of Flagellin to Prevent Graft-vs-Host Disease and Improve Viral Immunity Following Allogeneic Transplant. American Association of Blood Banks Annual Meeting. 2008.
 - *Hossain, M.S., Gewirtz, A.T., **Roback, J.D.**, and Waller, E.K. (poster presentation) Flagellin, a TLR5 Agonist, down-regulates CD62L on donor T cells and limits GvHD in allogeneic hematopoietic stem cell transplantation. American Society for Hematology Annual Meeting. 112. 2008.

- *Hossain, M.S., Gewirtz, A.T., Hillyer, C.D., Waller, E.K., and **Roback, J.D.** (oral presentation) Flagellin, a TLR5 agonist, facilitates production of foxp3+CD4+CD25+ regulatory T cells to maintain balanced immune reconstitution in allogeneic BMT without GvHD. American Society of Bone Marrow Transplantation (ASBMT) 2009 Annual Meeting.
- *Onyeagocha, C., Hossain, M.S., **Roback, J.D.**, and Gewirtz, A.T. (oral presentation) Latent cytomegalovirus (CMV) infection exacerbates severity of experimental dextran sodium sulfate (DSS) colitis. FASEB 2009 Annual Meeting on Experimental Biology. 2009.
- *Norris, P.J., Carrick, D.M., Kleinman, S., Pandey, S., Lee, J.H., Vorhaben, R., **Roback, J.D.**, Chance, S., Lebedeva, M., Busch, M.P. (oral presentation) Comparison of assays to detect HLA antibodies. American Association of Blood Banks Annual Meeting. 2009.
- *Hossain, M.S., Gewirtz, A.T., **Roback, J.D.**, and Waller, E.K. (poster presentation) Prophylactic use of flagellin: A novel method to boost immune reconstitution in allogeneic HSCT recipients with limited GvHD. American Society for Hematology Annual Meeting. 2009.
- El-Ali, A., Newman, J.L., Shaz, B., Sutliff, R., and ***Roback, J.D.** (oral presentation) Length of RBC storage directly correlates with progressive impairment of endothelium-dependent arterial relaxation. American Association of Blood Banks Annual Meeting. 2010.
- *Shaz, B., Johnson, H., Hillyer, C.D., and **Roback, J.D.** (poster presentation) Improvements in transfusion medicine rotation for pathology residents. American Association of Blood Banks Annual Meeting. 2010.
- Alexander El-Ali, James L. Newman, Sulaiman Karatela, Roy Sutliff, and ***Roback, J.D.** (oral presentation) Red Blood Cells Stored for Increasing Periods Produce Progressive Impairments in NO-mediated Vasodilation. American Association of Blood Banks Annual Meeting. 2011.
- ***Roback, J.D.** Sulaiman Karatela, Kurt M. Bohren, Robert P. Mohny, and James L. Newman. (oral presentation) RBC Storage Produces Alterations in Hundreds of Metabolic Parameters. American Association of Blood Banks Annual Meeting. 2011.
- *Cassandra Josephson, Angela Caliendo, Michael Hinkes, Kirk A. Easley, M. Frempong, N. Shenvi, K. Grier, T. Matzick, Christopher D. Hillyer, and **Roback, J.D.** (oral presentation) Reactivation of replication competent cytomegalovirus (CMV) from CMV seropositive (CMV-SP) maternal breast milk and infection of low birth weight infants (LBWIs \leq 1500g): Preliminary results of a birth cohort transfusion-transmitted CMV study. American Association of Blood Banks Annual Meeting. 2011.
- Marta Castillejo, **Roback, J.D.**, Michael Hinkes, J. Moore, A. Knezevic, Kirk A. Easley, J. Skvarich, L. Click, Natia Saakadze and *Cassandra Josephson. (oral presentation) Necrotizing enterocolitis (NEC) in low birth weight infants (LBWIs < 1500g): Preliminary results correlating age of red blood cells (RBC), timing of transfusions, and anemia in a prospective birth cohort study. American Association of Blood Banks Annual Meeting. 2011.
- *Adelbert B. James, Cassandra Josephson, Marta Castillejo, and **Roback, J.D.** (poster presentation) Demographic differences among Hispanic blood donors. American Association of Blood Banks Annual Meeting. 2011.
- *Michael Mazzeffi, Alexandra Franco, Matthias Grube, William Stein IV, Anne Winkler, **Roback, J.D.**, and Jerrold Levy. (poster presentation) An examination of the off label use of recombinant factor VIIa in cardiac surgical patients. Society of Cardiovascular Anesthesiologists Annual Meeting. 2011.
- Dumont, Larry J., Zimring, James C, and ***Roback, J.D.** (oral presentation; Plenary Session) Correlation of RBC metabolomic changes during storage with RBC survival after transfusion in

- human autologous donor/recipients. American Association of Blood Banks Annual Meeting. 2012.
- *Dumont, LJ, Herschel, L, **Roback, JD**, Zimring, JC, and Gray, AD. (oral presentation) Changes in the metabolic profiles of stored RBC following treatment with Rejuvesol solution. American Association of Blood Banks Annual Meeting. 2012.
 - *James, AB, Josephson, C., Schreiber GB, and **Roback, JD**. (poster presentation) Correlates of non-metropolitan Atlanta blood donors in Georgia. American Association of Blood Banks Annual Meeting. 2012.
 - *Patel, RM, Easley, KA, **Roback, JD**, Hinkes, MT, Knezevic, A., Castillejo, M., Skvarich, J., Click, L., Grier, K., and Josephson, C. (oral presentation) Red blood cell (RBC) storage age, irradiation storage days, and timing of RBC transfusion are potential risk factors for the development of necrotizing enterocolitis in very low birth weight infants: Preliminary results from a prospective birth cohort study. American Association of Blood Banks Annual Meeting. 2012.
 - *Zimring, J.C., Smith, N.H., Stowell, S.R., Francis, R.O., Hod, E.A., Spitalnik, S.L., Hendrickson, J.E., **Roback, JD**, and Dumont, L.J. (oral presentation) Donor variability in RBC storage from genetically distinct mouse strains: The role of oxidative stress and metabolic variability in RBC storage. American Association of Blood Banks Annual Meeting. 2012.
 - *Patel, RM, **Roback, JD**, Hinkes, MT, Wu, B, Castillejo, M., Skvarich, J., Click, L., Grier, K., Easley, K.A., and Josephson, C. (oral presentation) Early hematologic parameters in very low birthweight infants and risk of intraventricular hemorrhage. American Association of Blood Banks Annual Meeting. 2012.
 - *Patel, RM, Easley, K.A., **Roback, JD**, Hinkes, MT, Knezevic, A., Castillejo, M., Skvarich, J., Keene, S., Click, L., Grier, K., and Josephson, C. (oral presentation) Red blood cell (RBC) irradiation storage time, storage age, and anemia are potential risk factors for necrotizing enterocolitis in very low birth weight (VLBW) infants. Pediatric Academic Society Annual Meeting. 2013.
 - *Neuman, RB, Menon, V, Karatela, S, Sher, S, Newman, J, Ashraf, K, Binongo, J, **Roback, JD**, and Quyyumi, AA. (oral presentation) Endothelial dysfunction precipitated by transfusion of storage-aged but not fresh red blood cells. American College of Cardiology Annual Meeting. (2013)
 - *Neuman, RB, Polhemus, D, Karatela, S, Sher, S, Newman, J, Binongo, J, Quyyumi, A, **Roback, JD**, Lefer, DJ. (oral presentation) Decreased nitrite and endothelial dysfunction precipitated by transfusion of storage-aged but not fresh red blood cells. Nitrite Society Annual Meeting. 2013.
 - *Ashraf, K., Smith, G., Sher, S., Neuman, R., **Roback, JD**, and Quyyumi, A. (oral presentation) Endothelial function is not affected by fresh or storage-aged autologous blood transfusions in healthy individuals. American Heart Association Annual Meeting. 2013.
- Dumont, LJ, Newman, JL, Karatela, S, Zimring, JC and ***Roback, JD**. (oral presentation) Metabolomics of Stored Red Blood Cells Prior to Transfusion: Reproducible, Donor-Specific Alterations in Numerous Metabolites. Annual Meeting of the NIH Common Fund Metabolomics Program. 2013.
- *Neuman, RB, **Roback, JD** and Quyyumi, A. (oral presentation) Hospitalized patients transfused with storage-aged (but not fresh) RBCs demonstrate impaired endothelial function and significant reductions in circulating nitrite levels. American Association of Blood Banks Annual Meeting. 2013.
- Dumont, LJ, Newman, JL, Karatela, S, Zimring, JC and ***Roback, JD**. (oral presentation) Donor-specific red blood cell (RBC) fingerprints: Metabolomic analysis identifies a subset of RBC biomarkers with storage kinetics that diverge between donors and which persist on subsequent donation. American Association of Blood Banks Annual Meeting. 2013.

- *Swaroop, Y, Zimring, JC, **Roback, JD**, and Dumont, LJ. (poster presentation) Correlation between red blood cell survival and cytochrome P450 IA2 enzyme activity. American Society for Hematology Annual Meeting. 2013.
- *Patel, RM, Knezevic, A, Hinkes, MT, **Roback, JD**, Easley, KA, and Josephson, C. (oral presentation) Association between cumulative iron exposure and bronchopulmonary dysplasia in very low birth weight infants. American Association of Blood Banks Annual Meeting. 2014.
- ***Roback, JD**, Barclay, S, Moulds, JM, and Denomme, GA. (poster presentation) Efficiency of Grifols' Erytra walk-away analyzer for pretransfusion testing. American Association of Blood Banks Annual Meeting. 2014.

26. Research Focus:

My laboratory's focus is basic, translational, and clinical investigations to improve the safety and efficacy of blood transfusion. Specifically, we seek to: reduce CMV transmission by transfusion/transplantation; develop novel methods to improve speed and accuracy of blood testing; and improve methods for storing blood units prior to transfusion.

27. Patents:

a. Issued:

- European Patent Appl. No. 01903454.5/1252522 "Immunological Assay System and Method"; Date Granted: April 26, 2006. Patent validated in UK, France, Germany, Italy, Spain. Inventors: John D. Roback and Christopher D. Hillyer.
 - U.S. Utility Patent No. 7,189,357: "Immunological Assay System and Method"; Issue Date: March 13, 2007; Inventors: John D. Roback and Christopher D. Hillyer.
 - U.S. Utility Patent No. 7,425,309, Continuation-in-Part, "Immunological assay system and method"; Issue Date: September 16, 2008; Inventors: John D. Roback and Christopher D. Hillyer.
 - U.S. Utility Patent No. 7,713,708, Continuation-in-Part, "Immunological assay system and method"; Issue Date: May 11, 2010; Inventors: John D. Roback and Christopher D. Hillyer.
- >> *The 4 patents listed above are the subject of a Licensing and Technology Development Agreement between Millipore-Merck and 3Ti, to fund remaining development, clinical studies, and commercialization of the AEGIS Immunohematology Platform; agreement signed 19 November, 2012*
- U.S. Patent No. 0206699, "Methods for the treatment of graft-versus-host disease"; Issue Date: August 25, 2011; Inventors: Mohammad S. Hossain, Andrew T. Gewirtz, John D. Roback, and Edmund K. Waller.
 - European Patent No. 2349291 "Methods for the treatment of graft-versus-host disease"; Issue Date: December 5, 2012; Inventors: Mohammad S. Hossain, Andrew T. Gewirtz, John D. Roback, and Edmund K. Waller.
 - U.S. Patent No. 8,486,408, "Methods for the treatment of graft-versus-host disease"; Issue Date: July 16, 2013; Inventors: Mohammad S. Hossain, Andrew T. Gewirtz, John D. Roback, and Edmund K. Waller.

Australian Patent (application No. 2009298122) “Agonists of toll-like receptor 5 for the treatment of graft-versus-host disease”; Issue Date: April 15, 2015; Inventors: Mohammad S. Hossain, Andrew T. Gewirtz, John D. Roback, and Edmund K. Waller.

b. Pending:

None.

28. Grant Support:

a. Active Support:

i. Federally funded:

Co-PI (20% effort): National Institutes of Health, R01 HL138656: Engineering iPSC-RBCs for Transfusion. \$1,840,662 direct costs. 2017 –2022.

Co-PI (5% effort): National Institutes of Health, R01 HL138656-S1: Supplement to Engineering iPSC-RBCs for Transfusion. \$191,100 direct costs. 2020 –2022.

PI (no compensation): National Institutes of Health, T32 HL069769-11: Training grant in Transfusion Medicine. \$725,725 direct costs, 2019 – 2024.

Co-Investigator (10% effort): NIH/NIBIB RADx program. 2020-2021. This contract funds members of the ELIAD laboratory and other Emory faculty and staff to evaluate and validate novel tests to detect SARS-CoV-2 RNA and antigens.

Co-Investigator (10% effort): NIH/NCI, 1 U54 CA260563-01: Immune regulation of COVID-19 infection in cancer and autoimmunity. \$6,375,000 direct costs, 2020 – 2025.

ii. Private Foundation funded:

PI (5% effort): Marcus Foundation Grant to Implement and Expand Access to Serology Testing. 2020-2022. \$3,000,000.

iii. Contracts:

PI (0.24 months): Centers for Disease Control and Prevention (CDC), 200-2012-51332: Freshly Drawn Blood and Blood Products. Cost-reimbursement contract, 2017- 2022.

b. Previous Support:

Trainee (100% effort): University of Chicago, NIH-Sponsored Predoctoral Multidisciplinary Medical Sciences Training Grant: 1990 – 1991.

Trainee (100% effort): NIMH Individual NRSA M.D./Ph.D. Fellowship: 1991 – 1994.

PI (10% effort): National Blood Foundation: The role of leukocytes in transfusion-transmitted cytomegalovirus (TT-CMV) infection: development of an animal model; \$30,000 direct costs; 1998 - 2000.

PI (5% effort): Subcontract for NIH/NHLBI-sponsored REDS blood sample repository: Prevalence of Cytomegalovirus (CMV; HHV-5) strains among REDS donors; \$12,350 direct costs: 2000.

PI (5% effort): The Resource Forum New Enterprise Award 2001 (to 3Ti): A novel device for rapid, completely automated blood compatibility testing. Cash and business services valued at \$65,000, 2001 – 2002.

PI (10% effort): Emory University Research Committee (URC): Modification of allogeneic lymphocytes for adoptive immunotherapy. \$30,000 direct costs, 2001.

- PI (10% effort): Georgia Research Alliance/ATDC Faculty Research Commercialization Program: Novel devices for completely automated diagnostic blood bank testing. \$60,000 direct costs, 2000 – 2001.
- Co-Investigator (20% effort): National Institutes of Health, 1 RO1 HL63366-01A1: Transfusion transmission of cell-associated infections (C. Hillyer, PI). \$600,000 direct costs, 2000 – 2005.
- PI (10% effort): Department of Defense, Defense Applied Research Projects Agency (DARPA): Rapid, Automated, Multi-Parameter Blood Testing. \$72,276 direct costs, 2001 – 2002.
- PI (10% effort): Winship Cancer Institute, American Cancer Society Institutional Seed Grant: Modification of allogeneic lymphocytes for adoptive immunotherapy. \$20,000 direct costs, 2001. *This award was funded, but declined, due to overlap with URC award.*
- Co-PI (5% effort): Holland Laboratory Biomedical Development Project, American Red Cross: Nucleic acid testing for cytomegalovirus to improve the quality of umbilical cord blood stem cell components for transplantation (C. Hillyer, Co-PI). \$75,000 annual direct costs, 2001-2003.
- PI (10% effort): National Institutes of Health Small Business Technology Transfer Program (STTR) Phase I Grant, 1 R41 HL-66751-01: Novel devices for rapid blood compatibility testing. \$100,000 direct costs, 2001 – 2002.
- Co-Investigator (1% effort): Centers for Disease Control (CDC), RFP 2001-N-00092: Acquisition of Blood and Products (C. Hillyer, PI). \$1,766,400 direct costs, 2001-2009.
- Co-Investigator (5% effort): National Institutes of Health, 1 R01 HL71112-01: PCR Testing for CMV in UCBSC (C. Hillyer, PI). \$200,000 direct costs, 2002 – 2004.
- Co-Investigator (2% effort): National Institutes of Health, U01 HL72248 01: Transfusion Medicine/Hemostasis Clinical Research Network (C. Josephson, PI). 2002-2014.
- PI (10% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase II grant, 1 R42 HL66754: Novel devices for rapid blood compatibility testing. \$500,000 direct costs, 2002 – 2005.
- PI (10% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase I grant, 1 R41 HL 073527 01A1: Rapid quantitation of residual WBCs in filtered blood. \$99,999 direct costs, 2003 – 2005.
- Co-investigator (8% effort): National Institutes of Health, 2 R01 CA074364-04A2: Separating antitumor & GvHD effect in allogeneic T-cells (E. Waller, PI). \$1,528,109 direct costs, 2003 – 2008.
- Co-Investigator (3% effort): National Institutes of Health Small Business Technology Transfer Program (STTR) Phase I Grant, 1 R41 HL 73493 01: Development of a laboratory test for TTP (C. Hillyer, PI). \$106,860 direct costs, 2003 – 2005.
- Co-Principal Investigator; and PI, Emory University component (10% effort): National Institutes of Health, HB-04-07: Retrovirus Epidemiology Donor Study II (REDS-II) (C. Hillyer, Program PI). \$1,334,337 direct costs, 2004 - 2009.
- Subproject PI, Emory University component (8% effort): Centers for Disease Control and Prevention, U62/CCU324043-01: Providing technical assistance support for the rapid strengthening of blood transfusion services in selected countries in Africa and the Caribbean under the President's Emergency Plan for AIDS Relief (K. Shoos Lipton, Program PI). \$12,500,000 direct costs, 2004-2009.

- Co-investigator (8% effort): National Institutes of Health, 1 R21 AI059987-01: Selective depletion of alloreactive T cells in BMT (J. Zimring, PI). \$300,000 direct costs, 2004 – 2006.
- PI (5% effort): Baxter Healthcare Corporation: Research Services Agreement. \$32,680 direct costs, 2005 – 2006.
- PI (10% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase I grant, 1 R41 HL086034: Automated high-throughput detection of anti-HLA antibodies to prevent TRALI. \$100,000 direct costs, 2006 – 2008.
- Co-investigator (5% effort): National Institutes of Health, 1 R21 HL086312-01: Alloimmunization to mHAs by RBC transfusion (J. Zimring, PI). \$275,000 direct costs, 2006 – 2008.
- PI (10% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase I grant, 1 R41 HL083719: Vaccine-enhanced DLI to prevent cancer recurrence after stem cell transplantation. \$100,000 direct costs, 2006 – 2008.
- PI (1% effort): Centers for Disease Control (CDC): Collection of leukoreduced blood for the examination of HHV-8. \$2,288 direct costs, 2006.
- PI (10% effort): Georgia Research Alliance, Industry Partnership Grant: Aegis device for HLA antibody testing. \$60,000 direct costs, 2007 – 2008.
- Co-investigator (no compensation): National Institutes of Health, Small Business Technology Transfer Program (SBIR) Phase II grant, 4 R42 HL076945: Amotosalen PCT of leukapheresis units for GvHD therapy (J.E. Hearst, PI). \$746,325 direct costs, 2007 – 2009.
- PI (10% effort; no salary support): Emory University Research Committee (URC): Vaccination-enhanced donor lymphocyte infusion (veDLI) after BMT. \$30,000 direct costs, 2007 – 2008.
- PI (no compensation): Georgia Research Alliance, VentureLab Phase III Grant (to 3Ti): Accelerated development of the Aegis blood analyzer. \$250,000 direct costs, 2007 – 2008.
- Co-investigator (5% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase I grant, 1 R41 HL092757: Development of an ABO-incompatibility Stop Device. \$132,391 direct costs, 2008 – 2009.
- Program Director (20% effort total): National Institutes of Health Program Project Grant, 1 P01 HL 086773-01: Mechanisms and interventions addressing serious hazards of transfusion and cellular therapies. \$7,839,560 direct costs. 2008 – 2013. *I was assigned as PI of this award after Dr. Hillyer left Emory.*
- Project 2 (Co-investigator): Prevention of transfusion transmitted CMV (TT-CMV) in low birth weight infants (LBWI; < 1250 grams) using CMV seronegative and leukoreduced transfusions. \$2,522,680 direct costs
 - Project 3 (Co-investigator): Modified donor lymphocyte infusion (mDLI) for rapid immune reconstitution. \$1,170,217 direct costs.
 - Administrative Core (PI): \$568,406 direct costs.
- PI (15% effort): Office of Naval Research: Rapid, automated, pre-transfusion testing: Type, crossmatch, and pathogen detection. \$530,000 total costs, 2008 – 2009.

- Co-Investigator (1% effort): Caridian BCT Biotechnologies, LLC: The effects of the Mirasol treatment on murine CMV using in-vivo mouse models. \$54,408 direct costs, 2008 – 2009.
- PI (10% effort): National Institutes of Health, Small Business Technology Transfer Program (STTR) Phase II Competing Continuation grant, 9 R42 DK075266-04: Novel devices for rapid blood compatibility testing. \$557,339 direct costs, 2008 – 2013.
- PI (10% effort): National Institutes of Health, HB-04-07: Retrovirus Epidemiology Donor Study II (REDS-II). \$1,334,337 direct costs, 2009-2010. *I was assigned as PI of this award after Dr. Hillyer left Emory.*
- PI (25% effort): National Institutes of Health, R01 HL095479-01: Adverse effects of RBC transfusions: A unifying hypothesis. \$1,109,459 total costs. 2009 – 2014.
- PI (2% effort): Centers for Disease Control (CDC), RFP 2001-N-00092: Acquisition of Blood and Products. \$1,766,400 direct costs, 2009 - 2012. *I was assigned as PI of this award after Dr. Hillyer left Emory.*
- PI (no compensation): National Institutes of Health, T32 HL069769 01A2: Training grant in Transfusion Medicine. \$741,270 direct costs, 1 April, 2009 – 31 March, 2014. *I was assigned as PI of this award after Dr. Hillyer left Emory.*
- PI (5% effort): Grifols, Inc: DG003 – In Vitro Study of Diagnostic Grifols DG Reader for Reading and Interpreting the Test Results from Manual DG Gel 8 Cards. \$28,831 direct costs, 2011 – 2012.
- PI (5% effort): Grifols, Inc: DG001 – In Vitro Study of Diagnostic Grifols DG Gel 8 Card Reagents, Manual DG Gel 8 Equipment for ABO, Rh Grouping, Antigen Typing, Red Cell Antibody Detection, Identification, Direct Antiglobulin Tests and Compatibility Testing. \$27,872 direct costs, 2012.
- Licensing and Technology Development Agreement from Millipore-Merck to 3Ti, to complete development, clinical studies, and commercialization of the AEGIS Immunohematology Platform (development of this platform was supported by the STTR, ONR, DARPA, and other State of Georgia awards listed below; development also resulted in the patents listed above). \$500,000 initial tranche; agreement signed 19 November, 2012.
- PI (5% effort): National Institutes of Health, Metabolomics supplement to HL095479: Adverse effects of RBC transfusions: A unifying hypothesis – Supplementary metabolomics studies. \$87,473 direct costs. 2012– 2014.
- PI (5% effort on Roback IPA): Naval Medical Research Unit, Validation of Rapid Blood Typing Device, 2012 – 2013
 IPA – Roback: \$94,539 direct costs
 IPA – Barclay: \$112,841 direct costs
 IPA – Newman: \$9480 direct costs
- PI (5% effort): Clinical Site Agreement, Evaluation of Blood Typing Technology, Grifols, Inc – DG004; \$42,500 direct costs; 2013 – 2014
- PI (10% effort): National Institutes of Health Common Funds (University of Kentucky, NIH Resource Core for Stable Isotope Resolved Metabolomics): Dissecting metabolic fluxes in stored RBC units to improve transfusion outcomes. \$44,000 direct costs for services. 2014 – 2015.

- Co-Investigator (no compensation): National Blood Foundation: Physiologic effects of RBC storage in chronic transfusion recipients: vasoreactivity, exercise capacity, and oxygen consumption (R. Neuman, PI). \$75,000 direct costs, 2013 - 2015.
- Co-Investigator (no compensation): National Blood Foundation: Characterization of immunity and tolerance following RBC transfusion (PI: S. Stowell). \$75,000 direct costs, 2013 – 2015.
- Co-Investigator (5% effort): Emory + Children’s Pediatric Research Center, Children’s Healthcare of Atlanta, Children’s Center for Cardiovascular Biology Pilot Project: RBC sorting by microfluidic chip: Understanding biophysical changes in stored/irradiated RBCs (C. Josephson, PI). \$50,000 direct costs. 2014 – 2015.
- PI (5% effort): Clinical Site Agreement, Evaluation of Blood Typing Technology, Grifols, Inc – DG005; \$42,500 direct costs; 2013 – 2015
- PI (5% effort): Citra Labs, LLC, CL.PD.AP004. Rejuvesol® solution in vitro effectiveness for Phase II; nitric oxide-mediated vasodilation changes and RBC flow characteristics changes with rejuvenation and washing of fresh and stored RBCs; \$17,004 direct costs, 2014 – 2015.
- Co-Investigator (2% effort): Georgia State University / CDC. Complications associated with therapeutic blood transfusions (C. Josephson, PI). \$98,399 direct costs, 2014-15.
- Co-Investigator (1% effort): IRC NIAID Influenza Research Collaboration: Immune Plasma for Treatment of Influenza (J. Biegel, PI; J. Sevransky, Emory PI). \$20,000 direct costs (2014-2015)
- Co-Investigator (5% effort; no compensation): Emory Center for Pediatric Nanomedicine Pilot Project: The release and transfer of microparticle-encapsulated miRNAs from stored red blood cells (C. Searles, PI). \$50,000 direct costs. 2015-2016.
- PI (no compensation): Onyx Pharmaceuticals: Examination of a proteasome inhibitor as a novel approach to prevent and eliminate transfusion-associated alloimmunization. \$102,564 direct costs. 2015-2017.
- Co-PI (no compensation): Regenerative Engineering and Medicine Center (REM) -- “Georgia Partners in Regenerative Medicine” Seed Grant Program. Development of novel iPSC-RBCs engineered to tolerize recipients to alloantigens that complicate transfusion and other cell therapies (J.D. Roback and J. Dahlman, Co-PIs). \$75,000. 2016-2017
- PI (20% effort): National Institutes of Health, R01 HL095479-06: Adverse effects of RBC transfusions: A unifying hypothesis. \$2,825,003 direct costs. 2014 –2019.
- PI (0.6 months): National Institutes of Health, OT2HL152668: Microfluidic Technologies as Clinical Biomarker Platforms for Sickle Cell Gene Therapies. \$31,985 direct costs, 2019.
- Program Director (27% effort total): National Institutes of Health Program Project Grant, 2 P01 HL 086773-06A1: Mechanisms and interventions addressing serious hazards of transfusion and cellular therapies. \$7,158,722 direct costs. 2015 – 2020.
- Project 1 (PI; 20% effort): Identification and validation of biomarkers for RBC metabolic aging
 - Project 2 (Co-investigator; 2% effort): RBC Irradiation and Anemia Trigger Gut Injury in Preterm Infants
 - Administrative Core (PI; 5% effort)

PI (no funded effort): Pediatric Research Alliance Pilot Grant: IND-enabling pre-clinical validation of iPSC-RBC transfusions for patients with sickle cell disease. \$50,000. 9/1/2019 – 8/31/2020.

PI (0.12 months): Center for Disease Control and Prevention (CDC), 75D301-20-Q-71607: CDC Blood Draw Public Health Surveillance Project. \$354,391 direct costs, 2020.

29. Bibliography (h-index = 36):

a. Published and Accepted Research Articles in Refereed Journals:

1. **Roback, J.D.**, Large, T.H., Otten, U., and Wainer, B.H. (1990) Nerve growth factor expression in the developing hippocampus isolated *in vitro*. *Dev. Biol.* 137, 451-455.
2. Lee, H.J., Hammond, D.N., Large, T.H., **Roback, J.D.**, Sim, J.A., Brown, D.A., Otten, U.H., and Wainer, B.H. (1990) Neuronal properties and trophic activities of immortalized hippocampal cells from embryonic and young adult mice. *J. Neurosci.* 10, 1779-1787.
3. Eves, E.M., Tucker, M.S., **Roback, J.D.**, Downen, M., Rosner, M.R., and Wainer, B.H. (1992) Immortal rat hippocampal cell lines exhibit neuronal and glial lineages and neurotrophin gene expression. *Proc. Nat. Acad. Sci. (USA)*. 89, 4373-4377.
4. Kordower, J.H., Burke-Watson, M., **Roback, J.D.**, and Wainer, B.H. (1992) Stability of septohippocampal neurons following excitotoxic lesions of the rat hippocampus. *Exp. Neurol.* 117, 1-16.
5. **Roback, J.D.**, Diede, S.J., Downen, M., Lee, H.J., Kwon, J., Large, T.H., Otten, U., and Wainer, B.H. (1992) Expression of neurotrophins and the low-affinity NGF receptor in septal and hippocampal reaggregate cultures: local physiologic effects of NGF synthesized in the septal region. *Dev. Brain Res.* 70, 123-133.
6. Choi, H.K., Won, L., **Roback, J.D.**, Wainer, B.H., and Heller, A. (1992) Specific modulation of dopamine expression in neuronal hybrid cells by primary cells from different brain regions. *Proc. Nat. Acad. Sci. (USA)*. 89, 8943-8947.
7. Bleakman, D., **Roback, J.D.**, Wainer, B.H., Miller, R.J., and Harrison, N.L. (1993) Calcium homeostasis in rat septal neurons in tissue culture. *Brain Res.* 600, 257-267.
8. Downen, M., Mudd, L., **Roback, J.D.**, Palfrey, H.C., and Wainer, B.H. (1993) Early nerve growth factor-induced events in developing rat septal neurons. *Dev. Brain Res.* 74, 1-13.
9. **Roback, J.D.**, Marsh, H.N., Downen, M., Palfrey, H.C., and Wainer, B.H. (1995) BDNF-activated signal transduction in rat cortical glial cells. *Eur. J. Neurosci.* 7, 849-862.
10. Lee, M.E., Bucur, S.Z., Gillespie, T.W., Adams, J.W., Barker, A.T., Thomas, E.K., **Roback, J.D.**, and Hillyer, C.D. (2000) Recombinant human CD40 ligand inhibits simian immunodeficiency virus replication: A role for interleukin-16. *J. Med. Primatol.* 28, 190-194.
11. **Roback, J.D.**, Bray, R.A., and Hillyer, C.D. (2000) Longitudinal monitoring of leukocyte subsets in packed red blood cell units after filtration: Implications for transfusion-transmitted infections. *Transfusion* 40(5), 500-6.
12. Boss, V., **Roback, J.D.**, Young, A., Vogt, D., Roback, L.J., Vogt Weisenhorn, D.M., Medina-Flores, R., and Wainer, B.H. (2001) Nerve growth factor, but not epidermal growth factor, increases Fra-2 expression and alters Fra-2/JunD binding to AP-1 and CREB binding elements in pheochromocytoma (PC12) cells. *J. Neurosci.* 21(1), 18-26.
13. **Roback, J.D.**, Hillyer, C.D., Drew, W.L., Laycock, M.E., Luka, J., MocarSKI, E.S., Slobedman, B., Smith, J.W., Soderberg-Naucler, C., Todd, D., Woxenius, S., and Busch, M.P. (2001) Multicenter

- evaluation of PCR methodologies to detect cytomegalovirus (CMV) DNA in blood donors. *Transfusion* 41(10), 1249-1257.
14. **Roback, J.D.**, Drew, W.L., Laycock, M.E., Todd, D., Hillyer, C.D., and Busch, M.P. (2003) CMV DNA is rarely detected in healthy blood donors using validated PCR assays. *Transfusion* 43(3), 314-321.
 15. **Roback, J.D.**, Barclay, S., and Hillyer, C.D. (2003) An automatable format for accurate immunohematology testing by flow cytometry. *Transfusion* 43(7), 918-927.
 16. **Roback, J.D.**, Hossain, M.S., Lezhava, L., Gorechlad, J.W., Alexander, S.A., Jaye, D., Mittelstaedt, S., Talib, S., Hearst, J.E., Hillyer, C.D., and Waller, E.K. (2003) Allogeneic T-cells treated with amotosalen prevent lethal CMV disease without producing GvHD following BMT. *J. Immunol.* 171, 6023-6031.
 17. **Roback, J.D.**, Barclay, S., and Hillyer, C.D. (2004) Improved methodology for fluorescence cytometric immunohematology testing. *Transfusion.* 44(2), 187-196.
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- i. **Abstracts Accepted for National/International, Regional, and Institutional Conferences** (>125; available on request)