

CURRICULUM VITAE

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Date of Birth: November 17, 1961

Place of Birth: Spartanburg, South Carolina

Education:

1980-84 B.S. Duke University
1984-88 M.D. University of Virginia School of Medicine

Postdoctoral Training:

1988-89 Intern in Internal Medicine, Johns Hopkins Hospital, Baltimore
1989-91 Resident in Internal Medicine, Johns Hopkins Hospital, Baltimore
1991-92 Clinical Fellow, Infectious Diseases Division, Massachusetts General Hospital, Boston, MA
1992-95 Research Fellow, Infectious Diseases Divisions, Massachusetts General Hospital, Boston, MA

Licensure and Certification:

1991 Massachusetts License of Registration (inactive)
1991 Diplomate, American Board of Internal Medicine
1994 Diplomate, American Board of Internal Medicine,
Infectious Disease Subspecialty, Recertification 2008
1995 Pennsylvania License Registration (inactive)
1998 Colorado License Registration (active)

Academic Appointments:

1991-95 Research Fellow in Medicine, Harvard University
1995 Instructor in Medicine, Harvard Medical School
1995-97 Research Associate in Medicine, University of Pittsburgh School of Medicine
1997 Instructor in Medicine, Division of Infectious Diseases, University of Pittsburgh School of Medicine (Primary)
1997 Research Associate, Infectious Diseases and Microbiology, University of Pittsburgh Graduate School of Public Health (Secondary)
1997-98 Assistant Professor of Medicine, University of Pittsburgh School of Medicine
1998-03 Assistant Professor of Medicine, jointly appointed in Divisions of Infectious Diseases and Clinical Immunology, University of Colorado School of Medicine
2000-03 Assistant Professor, Department of Immunology, University of Colorado

2003-	School of Medicine and National Jewish Medical Research Center Associate Professor of Medicine and Immunology, University of Colorado School of Medicine and National Jewish Medical Research Center
7/2011-	Professor of Medicine with tenure, University of Colorado at Denver and Health Sciences Center

Hospital Appointments:

1991-95	Clinical Fellow, Massachusetts General Hospital
1995-98	Staff Physician, University of Pittsburgh Medical Center
1998-	Staff Physician, University of Colorado Health Sciences Center

Awards and Honors:

1981-83	Dean's List and Class Honors, Duke University
1983	Nominated for Junior Marshall
1983	Phi Beta Kappa, Early Selection, Duke University
1984	Summa cum laude, Duke University
1987	Junior Selection to Alpha Omega Alpha, University of Virginia
1988	Janet M. Glasgow Memorial Award of the American Medical Women's Association
1988	Scholarship Award, Graduating Class of 1988, University of Virginia School of Medicine
1994-96	Infectious Diseases Society of America Roche Laboratories Post Doctoral Award in Virology
1997	Infectious Diseases Society of America Ortho Pharmaceutical Corporation and McNeil Pharmaceutical Young Investigator Award in Infectious Diseases

Memberships, Offices, Committee Assignments in Professional Societies:

1987-88	President of Alpha Chapter, AOA
1989-91	American Medical Association
1992-	American College of Physicians
1992-	Infectious Diseases Society of America
1993-	American Association for the Advancement of Science
1996-97	Member of the Pittsburgh Cancer Institute, Biologic Therapeutics Program
1997-98	Primary Faculty of SHARP Program (Support for HIV/AIDS Research at Pitt)
1997-98	Chair, Seminar Committee, Infectious Diseases and Microbiology Division (Univ. of Pittsburgh)
1998-	Member of the Colorado AIDS Clinical Trials Group (ACTG)
2000-	American Association of Immunologists
2000-	Member of the Therapeutic Immunology Subcommittee (TISC) and the Therapeutic Vaccine Working Group of the ACTG
2001	Committee for Ionizing Radiation, UCHSC
2001	Medical Scientist Training Program (MSTP) Internal Review Committee
2001	Member of the Scientific Advisory Committee of the Adult General Clinical Research Center (GCRC) at UCHSC
2002-	Member of the Immunology Graduate Program and Retreat Committees
2001-03	Member of the Immunology Research Agenda Committee (IRAC) of the ACTG
2003	Member of MSTP Admissions Committee
2003-05	External advisor for the University of Pittsburgh Program Project grant entitled "Dendritic Cell-Based Immunotherapy for HIV Infection."
2004-06	Vice Chair of the Translational Research and Drug Development

	Committee of the ACTG
2004-	Advisory Board Member, Zimbabwe AIDS Treatment Assistance (ZATA) Project
2006	Co-Director of the Developmental Core, Colorado Center for AIDS Research
2007-09	Chair of the Translational Research and Drug Development Committee of the ACTG
2007-12	Invited to serve on the NIH NIAID AIDS Research Review Committee (RCC) as standing member
2007-	Member of the advisory board for the UCHSC K12 Clinical Oncology Research Program.
2007-10	Director of the Clinical Investigation Core, Colorado Center for AIDS Research
2007	Member of the Infectious Diseases Division Executive Committee, UCHSC
2008	Organizing committee member for the Translational Immunology Seminar series (joint UCDHSC-NJMRC)
2009-	Member of the Board of Directors, Mucosal and Vaccine Research Center Colorado (MAVRC)
2009	Member of the Anal Health Working Group, Infectious Diseases Group Practice, UC Denver
2009-	Vice chair of the Immune Activation Focus Group of the ACTG
2009-	Member, Mucosal Immunology Society
2010	Steering Committee Member, 2010 Colorado Vaccine Summit
2010-	Member, Dept. of Immunology Steering Committee on Graduate Training
2010-13	Member of the Medical Scientist Training Program Admissions Committee
2010-	Member, American Association of Immunologists
2010-11	Member, Institutional Biosafety Committee, UC Denver
2010-11	Member, International Society for Dendritic Cell and Vaccine Science
2011-	Member of Inflammation and End Organ Disease Transformative Science Group (ITSG) of the ACTG
2011	Member of the Department of Medicine Mentoring Task Force
2011-	Co-chair of the Institutional Biosafety Committee, UC Denver
2011-	Member of PhD Shadowing Program Committee, Dept. of Immunology
2012-	Member of HIV Eradication (Cure) TSG of the ACTG and Invited to serve on Therapeutic Vaccination Focus Group of the Cure TSG
2012 -	Member of the Steering Committee for the HIV Training Grant, ID division
2013-	Member, Infectious Diseases Division Incentive Plan Committee
2013 -	Member, University Scientific Ethics Committee
2013-14	Leadership for Innovative Team Science (LITeS) Program, Colorado Clinical and Translational Sciences Institute (CCTSI)
2014 -	Member of the Council of Graduate Educators, University of Colorado
2014 -	Director, pre-K mentoring program; Co-director KL2 program (CCTSI)
2015-	Vice Chair for Faculty Advancement, Department of Medicine, University of Colorado
2015 -	Selected to the NIAID/NIH Advisory Council
2016-	Committee Member for Doris Duke Fund to Retain Clinical Scholars

Teaching and Mentoring Activities:

1988	Clinical Skills Tutorials as Service of AOA
1996-98	Facilitator for Problem-Based Learning Courses, <i>Host Defenses</i> and <i>Molecular Pathogenesis of Infectious Diseases</i> , University of Pittsburgh School of Medicine
1997	Primary Faculty Lecturer for IDM 2003 course: Host Response to Microbial Infections, Graduate School of Public Health

1997 Instructor for *Integrated Case Studies*, University of Pittsburgh School of Medicine

1998-present Graduate Thesis/Post-graduate Research Committee Member for:

- Yue Chen, Department of Infectious Diseases and Microbiology, Graduate School of Public Health, University of Pittsburgh, PhD received 1999.
- Winston Chamberlain, MSTP student, UCHSC, PhD received 2000.
- Larissa Thackray, Department of Microbiology, UCHSC, initiated 2001.
- Carl Gelhaus, Department of Immunology, UCHSC initiated 2001.
- Jeff Colbert, Department of Immunology, UCHSC/NJMRC initiated 2002.
- Christine Meadows, UCHSC Dept. of Microbiology, initiated 2002.
- Lindsay Edwards, MSTP student, Dept. of Immunology, 2007 to 2011.
- Elisabeth Bowers, Department of Microbiology, 2007 to 2013.
- Richard Sullivan, Department of Immunology, 2009 to 2012.
- Kristine Erlandson, fellow in Infectious Diseases, HIV training grant, 2009 to 2011.
- Amy Stone, Department of Immunology, 2010 to 2013.
- Claire Gustafson, Department of Immunology, 2011 to 14.
- Kristin Shotts, graduate student in Department of Immunology, clinical preceptor and committee member, 2013 – present.
- Mastoreh Chamanian and Brodie Miles (postdoctoral fellows), HIV training grant committee member, 2013-14.
- Kristine Erlandson (faculty in I.D. division), Clinical Sciences Master's program committee member, 2013-15.
- Mike Harper, MSTP student (Immunology), 2014 – 2015.
- Eric Cross, MSTP student (Dept. of Immunology), clinical preceptor for Foundations of Doctoring and thesis committee member, 2014- present.
- Kristi Kuhn, M.D. (faculty in GI division), scientific mentoring committee, 2015 – present
- Michael Kriss, M.D. (faculty in GI division), scientific mentoring committee, GI T32 mentoring committee, 2015-16.
- William Crisler, graduate student in Immunology, thesis committee member 2016 to present.

1999-present Comprehensive Exam Committee Member for:

- Sean Bennett, MSTP student, UCHSC, exam in 1999.
- Dalya Rosner, UCHSC Dept. of Immunology graduate student, exam in 2000.
- Joe Delli, UCHSC Dept. of Immunology graduate student, exam in 2001.
- Christina Meadows, UCHSC Dept. of Microbiology, exam 2001, re-exam 2002.
- Elisabeth Bowers, UCHSC Dept. of Microbiology, exam 12/2006.
- *On comprehensive exam committee for Immunology, May 2013

1999-present Primary Research Mentor for:

- Andrew Stubbs, postdoctoral fellow with PhD in molecular genetics from the Liverpool School of Tropical Medicine, UK, 1999 to 2002, Project title: "Recombinant yeast-based vaccines for HIV-1".
- Brent Palmer, previous postdoctoral fellow with PhD in immunology from Colorado State University, 1999 to 2005, Project title: "Mechanisms of HIV-specific T helper cell dysfunction".

- Michelle Barron, previous M.D. fellow in Infectious Diseases, Department of Medicine, UCHSC, 2000 to 2003, Project title: “Role of dendritic cells in T cell reconstitution following highly active antiretroviral therapy in HIV infection”.
- Eli Boritz, completed combined M.D./Ph.D. degree at UC Denver. Performed his PhD thesis work in my lab from September 2000-2004, Project title: “Breadth and specificity of the clonal HIV-specific T helper cell response”.
- Samuel Pan, previous UCHSC Dept of Immunology Ph.D. candidate. Thesis work performed 2001-2002, Project title: “Antigen processing of yeast-expressed antigens”.
- John Koeppel, previous M.D. fellow in Infectious Diseases. Research project from July, 2002-2004, Project title: “Immune escape from CD4 detection by HIV.”
- Katie Robertson, previous M.D. fellow in Infectious Diseases. Research initiated July 2004 and completed 2005, Project title: “HIV-associated blood dendritic cell defects”.
- Phil Kuo, previous M.D. fellow in Allergy and Clinical Immunology. Research initiated in July 2005 with projected completion 2006. Project title: “Immunologic control of viral setpoint in drug resistant HIV infection”.
- Rawleigh Howe, previous M.D. fellow in Infectious Diseases, had also received a PhD in Immunology from Washington University, research from 2006-2008, Project title: “Role of HIV-specific CD4+CD8+ co-expressing T cells in HIV-1 pathogenesis”.
- Stephanie Dillon – current Assistant Research professor, received her PhD in Immunology in New Zealand, postdoctoral training with Dr. Bali Pulendran at Emory University, research here initiated 12/2005, promoted to instructor in 2007 and to Assit. Research Professor in 2014, Project title: “Interactions between HIV-1 and human blood dendritic cells”.
- Jennifer Manuzak –Ph.D. candidate in Dept. of Immunology, thesis project started 7/2009, project title: “Impact of HIV-1 on Intestinal Dendritic Cell Responses to Commensal Gut Flora.” PhD obtained in June 2013.
- Kevin Rufner, M.D. –fellow in the Division of Gastroenterology, research project 7/2010-7/2012, project title: “Immunologic Function and Interactions of Human Intestinal Epithelial Cells and Lamina Propria Dendritic Cells in Human Immunodeficiency Virus Infection.”
- Uriel Alejandro López Lemus – previously a graduate student obtaining his Ph.D. at the Universidad De Colima, Colima, Mexico. He performed research in my laboratory from January through March of 2011 as part of the Exchange Visitor Program. The title of his project was “Commensal Bacteria-reactive T Lymphocytes and Natural Killer Cell Responses in HIV-1 Infection.”
- Amanda Leone –a postdoctoral fellow in my laboratory from 2012-2014,

her research project entitled “Mechanisms of Depletion of Intestinal CD4 Cells” was supported by the HIV Training grant in the I.D. Division.

-Jon Kibbie – MD/PhD candidate in MSTP and Immunology programs, 2015 to present. Research project entitled “Immunomodulatory effects of the short chain fatty acid butyrate during HIV-1 infection in the gut.”

-Jay Lieu – M.D./PhD fellow in the Division of Infectious Diseases, 2015 to present, project entitled “Investigations of the effect of aging and HIV on the gut microbiome.”

- Thien Le – medical student at UCD, am serving as advisor for his Mentored Scholarly Activity project, 2015 to present.

- Alyson Yoder – postdoctoral fellow with PhD in Molecular Virology, 2015 to present, project entitled “Gene signatures of HIV-infected and exposed gut CD4 T cells”.

2000-present Instructor for *Core Immunology course (Immunology 7662)* and *Special Topics in Immunology Course* for graduate students in the Department of Immunology, NJMRC/UCHSC

2002-present Instructor for *Microbiology 6000* and *Pathophysiology of Infectious Diseases* courses for medical students

Clinical Activities:

1997-98 Attending, inpatient and outpatient Infectious Diseases consult service, University of Pittsburgh Medical Center
6/2002 Attending, inpatient General Medicine service, UCHSC
1998-present Attending, inpatient Infectious Diseases consult service, UCHSC
2001-present Attending, Infectious Diseases Group Practice outpatient clinic, UCHSC
2009 Member of the Anal Health Working Group to develop an Anal Cancer Screening program for the Infectious Disease Group Practice clinic.
2012- present Clinical mentor for MSTP (foundations of doctoring) and graduate students in CCTSI predoctoral fellowship programs – including Jennifer Manuzak, Kristin Shotts, and Eric Cross.

Clinical Research Activities:

2001 Randomized Phase I/II Evaluation of Immunization With Highly Conserved HIV-1 Derived Peptides and Influenza Matrix Peptide in HIV-1-infected Subjects on Highly Active Antiretroviral Therapy (HAART) Using Autologous Dendritic Cells Derived from Adherent Monocytic Precursors. Role: Co-principal investigator. Site: University of Pittsburgh Medical Center. Funding: NIH.

2002 A Single Center Phase I Safety and Immunogenicity Study of the Epimmune HIV-1 CTL Epitope-based DNA Vaccine (EP-HIV-1090) for Immunotherapy of HIV-1-infected Individuals Receiving Highly Active Antiretroviral Therapy (HAART). Role: Co-Chair. Site: UCHSC. Funding: NIH.

2002 A Phase I/II Study to Evaluate the Safety and Immunogenicity of the Subcutaneous Administration of MVA-mBN32 Epitope-based HIV-1 Vaccine in HIV-1-infected Subjects.

Role: Principal Investigator. Funding: ACTG/NIH

2002-present Site PI for therapeutic vaccination studies (Merck, Wyeth, Pharmexa-Epimmune), novel antiretroviral drug studies (Panacos, Progenics), and completed ACTG studies (A5232, A5212, 5248, 5256).

Ongoing/Developing/Completed Multi-center Clinical Protocols:

ACTG 5262: *A Pilot Efficacy and Safety Trial of Raltegravir Plus Darunavir/Ritonavir for Treatment-Naive HIV-1-Infected Subjects.* Completed. Role: Protocol Immunologist.

ACTG 5258: *A Phase II, Double Blind, Randomized, Exploratory Study of Chloroquine for Reducing HIV-Associated Immune Activation.* Completed. Role: Co-investigator.

ACTG 5286: *A Pilot Study of Rifaximin as a Modulator of Gut Microbial Translocation and Systemic Immune Activation in HIV-Infected Individuals with Incomplete CD4+ T-cell Recovery on Antiretroviral Therapy.* Completed. Role: Co-Chair.

ACTG 5281: *A Phase I Randomized, Partially Double-Blind, Placebo-Controlled, Dose-Escalation Study to Evaluate the Safety and Immunogenicity of a Cytokine Enhanced HIV-1 Multi-Antigen pDNA Vaccine Delivered Intramuscularly (IM) or IM in Combination with In Vivo Electroporation (IM/EP) in HIV-1 Infected Adults Receiving HAART.* Completed. Role: Co-Vice chair.

ACTG 5303: *An Exploratory Randomized Trial to Determine the Bone, Renal, Central Nervous System and Immunological Effects of a Tenofovir-sparing, Maraviroc-containing Antiretroviral Regimen in Treatment-Naïve Patients infected with R5-tropic HIV-1.* Completed. Role: Co-investigator.

ACTG 5296: *Sevelamer for Reducing Endotoxemia and Immune Activation: A Proof of Concept Study.* Completed. Role: Co-vice chair.

ACTG DACS 266: *Changes in CD28 expression on CD4 and CD8 cells after antiretroviral treatment initiation.* Analysis completed, manuscript published. Role: Co-investigator.

HVTN 505: *Phase 2, randomized, placebo-controlled trial to evaluate the safety and effect on post-HIV acquisition viremia of a multiclade HIV-1 DNA plasmid vaccine followed by a multiclade HIV-1 recombinant adenoviral vector vaccine in HIV-uninfected, adenovirus type 5 neutralizing antibody negative, circumcised men and transgender women, who have sex with men.* Open to enrollment. Role: Site Co-investigator.

ACTG NWCS 329: *Activation, Inflammation and Non-HIV Related Events in Antiretroviral Treated and Suppressed HIV+ Persons.* Manuscript Published. Role: Co-investigator.

ACTG 5323S: *The Functional Status, Inflammation, and Health Trajectories among Aging HIV-Infected Adults.* Ongoing. Role: Co-investigator.

ACTG PR 708: *Safety, Tolerability, and Effects of Probiotic VSL#3 on Gut Microbiome and Immune Activation Markers in HIV-1 Infected Subjects on Suppressed Antiretroviral Therapy: A Pilot Study.* In development. Role: Vice-chair.

Invited Presentations (Selected):

“Novel Therapeutic Vaccines for HIV-1 Infection”
Invited Speaker, Immune Mechanisms and HIV Disease Pathogenesis
Meeting, Cleveland OH, May 2002

“Yeast-based Vaccines for HIV-1 Infection”
Infectious Diseases Colloquium
Colorado State University, 4/2004

“EP HIV-1090: A Novel Therapeutic Vaccine for HIV-1 Infection”
Infectious Diseases Grand Rounds, UC Denver, February 2005

“Therapeutic Vaccines for HIV: A Bench-to-Bedside Experience”
Allergy Grand Rounds
National Jewish Medical Center, 5/2005

“A Phase I Safety and Immunogenicity Study of the Epimmune HIV-1 CTL
Epitope-based DNA Vaccine for Immunotherapy of HIV-1 Infected
Individuals Receiving HAART”
AIDS Vaccine 2005 Meeting
Montreal, Canada; September 2005

“Highlights from CROI 2006”
AIDS Education and Training Center
Annual Spring Clinical HIV Update, 2/2006

“Update on HIV Vaccines”
Colorado Women’s Health Advocacy Coalition
Women and HIV Prevention Forum, March 2006

“HIV-associated Dendritic Cell Dysfunction”
Human Immunology Group (HIG) Seminar, UC Denver, April 2006

“Therapeutic Vaccination against HIV-1”
Invited speaker for HIV Community Advisory Board, October 2006

“HIV Vaccines as Therapy”
HIV Symposium, Interscience Conference on Antimicrobial Agents and
Chemotherapy (ICAAC) meeting, San Francisco, CA, September 2006

“Dendritic Cells in HIV-1 Infection: Lessons learned, Questions raised”
Clinical Immunology Seminar, UC Denver, December 2007

“Update on HIV Vaccines: Outwitting a clever virus”
Invited speaker, Medical Grand Rounds, University of California at San
Diego, May 2007

Moderator for session at Conference on Retroviruses and Opportunistic
Infections (CROI) 2008, Los Angeles, CA, Feb. 25-28.
Session: “Primary HIV Infection, Early Treatment, and Immune-based
Therapies for Chronic Infection.”

“Update on HIV Vaccines”
Invited speaker for HIV Community Advisory Board (CAB), January 2008

“Vaccine Update from CROI”,
Invited speaker, Annual Spring Clinical HIV-1 Update, Denver, CO

3/12/2008

Moderator for session on “Aging and Inflammation” at national AIDS Clinical Trials Group (ACTG) meeting in December 2008.

“HIV in the Gut: A role for microbial translocation in HIV pathogenesis,” Gastroenterology Grand Rounds, UC Denver, 3/13/2009

Moderator for session at 16th Conference on Retroviruses and Opportunistic Infections (CROI) 2009, Montreal Canada, Feb. 8-11, “Recent Developments in Vaccines and Immune-based Therapies”

Moderator for session entitled “Antiretroviral therapy: Immune response, and inflammation” at national AIDS Clinical Trials Group (ACTG) Scientific Retreat, March 2009.

“HIV in the Gut: Defining Cellular Interactions that Drive HIV-1 Pathogenesis.” Invited speaker at UC Denver Mucosal Inflammation Program Research-in-Progress Seminar, October 2009.

Session moderator and presenter at national AIDS Clinical Trials Group (ACTG) meeting June 19, 2010 (Washington, DC), talk entitled “Adventures in Therapeutic Immunization: A View of the Forest, not just the Trees”

Session moderator on “Microbiome and Immunity” and presenter of talk entitled “Role of Commensal Bacteria in HIV-1 Pathogenesis” at the 11th Annual Colorado Immunology Conference, September 2010

Visiting professor lecture at Rush Medical Center May 18th, 2011, entitled “Role of Commensal Bacteria in HIV Mucosal Pathogenesis.”

Speaker at national ACTG Scientific Retreat at both Cure TSG and Inflammation TSG scientific sessions, March 2012, talk entitled: “CROI Update: Is There Hope for Therapeutic Vaccines?”

Speaker at HIV Community Advisory Board meeting, talk entitled “Therapeutic Vaccination for HIV Infection: Is there a role in the Cure Agenda?”, May 25, 2012, Denver, CO.

Invited speaker at meeting on Aging and HIV infection, talk entitled: “Mucosal Inflammation: A Role for Intestinal Epithelial Cell Damage and Microbial Translocation.” October 28, 2012. Rush University, Chicago, IL.

Infectious Diseases Grand Rounds, UCD, talk entitled: “How HIV Guts the Immune System: A Tale of Death and Inflammation”, October 2013.

Invited speaker for 1st International Workshop on Microbiome in HIV: Pathogenesis, Prevention, and Treatment. April 7-8, 2015. Bethesda. MD.

Invited speaker for 12th World Congress on Inflammation. August 8-12, 2015. Boston, MA.

Invited speaker for ID Week, October 7-11, 2015, San Diego, CA.

Invited speaker for 6th International Workshop on HIV & Aging, October 5-6, 2015 in Washington DC.

Invited to run session on HIV and the Microbiome for the ACTG Retreat in Boston, MA, February 2016

Invited speaker for the University of Washington Center for AIDS Research (CFAR) program for October 2016: "HIV and the Microbiome"

- Review Committees:**
- National Institute of Allergy and Infectious Diseases,
National Institutes of Health
Integrated Preclinical/Clinical AIDS Vaccine Development Program
Review Committee 6/2001

 - National Institute of Allergy and Infectious Diseases,
National Institutes of Health
Comprehensive International Program for Research on AIDS (CIPRA)
Review Committee 6/2002, 2/2003

 - National Institute of Allergy and Infectious Diseases,
National Institutes of Health
HIV Vaccine Research and Design Program
Review committee 3/2006

 - National Institute of Allergy and Infectious Diseases,
National Institutes of Health
Integrated Preclinical/Clinical AIDS Vaccine Development Program
Review committee 11/2006

 - National Institute of Allergy and Infectious Diseases,
National Institutes of Health
AIDS Research Review Committee (RCC) Study Section
Standing Member: 11/2007-11/2012

 - Member of NIAID AIDS Research Advisory Committee
Standing member: 11/2015 to present

Journal Reviewer: The journal *AIDS*, *Journal of Immunology*, *Blood*, *Journal of Virology*, *Journal of Infectious Diseases*, *Nature Biotechnology*, *AIDS Research and Human Retroviruses*, *Journal of Leukocyte Biology*, *Journal of Clinical Immunology*, *PLoS Pathogens*, *PLoS ONE*, *Clinical Infectious Diseases*.

Advisory Boards:

- Advisor for Pharmexa-Epimmune, Bavarian-Nordic, Vical, Tanox
- Member of Organizing Committee for International Microbiome Workshop 2016

Data Safety Monitoring Boards:

- 1) Chair, DSMB for Bavarian-Nordic Phase I Therapeutic Vaccine Trial (HIV-MAG-001);
- 2) Chair, DSMB for L. Shapiro AAT Clinical Trial;
- 3) Safety monitor for P. Anderson Tenofovir study; Blood spot study.
- 4) DSMB member, Argos Therapeutics AGS-004-003 therapeutic vaccine protocol.

Major Research Interests:

1. Cellular immune response to HIV-1 and correlates of immune protection in early and

- chronic HIV-1 infection.
2. Development of novel prophylactic and therapeutic vaccines for HIV-1 infection
 3. Immune reconstitution of HIV-1 infection
 4. Interactions between HIV-1 and dendritic cells
 5. Dendritic cell, T cell, and epithelial cell interactions in HIV-infected gut-associated lymphoid tissue (GALT)
 6. HIV, aging, microbiome and mucosal immune function
 7. Mechanisms of HIV-associated death in intestinal T cells
 8. Role of Interferons in HIV pathogenesis

Extramural Research Support:

ACTIVE

Ongoing Research Support

R01 AI108404 Wilson (PI) 5/31/13 to 5/30/18
 Mechanisms of HIV-associated gut T cell Depletion.
 The goal of this project is to determine the host, microbial and virological determinants governing killing of gut CD4+ T cells by R5-tropic HIV-1.
 Role: Principal Investigator

R01 AI118983 Barker and Wilson (PIs) 6/15/2015 to 2/29/2020
 Switch from homeostatic to inflammatory cytokines by NK/ILC in HIV-infected gut.
 The goal of the project is to determine the impact of HIV-1 infection on gut natural killer /innate lymphoid cells.
 Role: Co- Principal Investigator

R56 AI116271 Santiago and Wilson (PIs) 04/16/2015 to 03/31/2016
 HIV-Associated Interferon Effector Mechanisms in the GALT.
 The goal of this project is to investigate the mechanism(s) underlying the protective and pathological role of IFN-alpha in mucosal HIV-1infection.
 Role: Co-Principal Investigator.

R21 AI112418 Santiago (PI) 08/25/2014 to 07/31/2016
 Immunological impact of Tetherin retrovirus restriction.
 The goal of this project is to determine the role of Tetherin in retrovirus-specific CD4+ and CD8+ T cell responses.
 Role: Co-investigator.

UM1 AI069432 Benson (PI) 12/01/13 to 11/30/20
 Source:NIH/NIAID
 California-Colorado-Chennai-Durban (CD4) Collaborative Clinical Trials Unit (CTU)
 This is a program project grant that supports AIDS clinical trials at the University of Colorado.
 Role: Co-investigator

COMPLETED

R01 DK088663 (Wilson, PI)
 Source: NIDDK
 Mechanisms of HIV-associated Disruption of Intestinal Homeostasis.
 Role: Principal Investigator
 Award period: 07/01/2010 to 06/30/2015

UCD Proteomics Pilot Award (C.C. Wilson, S. Dillon, Co-PIs)

Source: UCD Proteomics Core

Pilot study to identify proteomic signatures, using SOMAscan technologies, which correlate with an inflammaging phenotype in HIV-infected subjects.

Award period: 02/02/2015 to 05/01/2015

K24 AI074343 (C. Wilson, PI)

Source: NIAID

Interface of Innate and Adaptive Immunity in HIV-1 Infection

Role: Principal Investigator

Total Award Period: 12/1/07-11/30/12

K24 AI074343 (C. Wilson)

Source: NIH/NIAID

Interface of Innate and Adaptive Immunity of HIV-1 Infection (ARRA Supplement)

Total Award Period: 09/22/09-08/31/11

R01 AI065275 (C. Wilson, PI)

Source: NIH/NIAID

HIV-related blood dendritic cell dysfunction

Role: Principal Investigator

Total Award Period: 06/15/06-05/31/10 (in no cost extension period)

P01 AI055356 (Connick)

Source: NIH/NIAID

Immunopathogenesis of Acute HIV-1 Infection

Role: Project Leader for Project 3 entitled "Role of HIV-1-specific Cellular Immune Responses in Mediating Virologic Control in Early HIV-1 Infection."

Total Award Period: 04/30/03-03/31/08

P01 AI48238 PAR-97-080 (R. Chesnut, Program P.I.)

Source: NIH/NIAID

Immunogenicity of DR-supermotif helper epitopes in HIV.

Role: Principal Investigator of Project 3 of Program

Project entitled "Epitope-based DNA Vaccines for AIDS Therapy"

Total Award Period: 8/15/2000-6/30/2005

R21 AI54192

Source: NIH/NIAID, Innovation Grant Program for AIDS Vaccine Research

Interactions between recombinant yeast and blood DCs

Role: Principal Investigator

Total Award Period: 2/15/03-1/31/05

P01 AI43664 PAR-97-080 P01 (Rinaldo, PI)

Role: Principal Investigator, Project 4

Source: NIH/NIAID

Novel HIV Therapies P01, Program Project entitled Antigen Delivery for Adjuvant HIV Immunotherapy

Project 4: Dendritic Cell Therapy for HIV-1: Use of Cytokines to Enhance T Cell Function.

Total Award Period: 9/30/98- 8/31/03

KO8AI01459-01 (Wilson, PI)

Dendritic Cell-Dependent Immunity to HIV-1

Source: NIH/NIAID

Role: Principal Investigator

Total Award Period: 4/1/97-3/31/02

Original Publications:

1. Taylor RP, Edberg JC, Kujala GA, Sloman AJ, **Wilson CC**, Cronin ME. The Interaction of Antibody/DNA Immune Complexes with Complement: Influence of Antibody Class and DNA Conformation. *Arthritis and Rheumatism* 1987; 30:176-185.
2. Hutchinson CM, **Wilson CC**, Reichart CA, Marsiglia VC, Zenilman JM, Hook EW. CD4 Lymphocyte Concentrations in Patients with Newly Identified HIV Infection Attending STD Clinics: Potential Impact on Publicly Funded Health Care Resources. *JAMA* 1991; 266 (2): 253-256.
3. **Wilson CC**, Wong JT, Girard DD, Merrill DP, Dyan M, An DD, Kalams SA, Johnson RP, Hirsch MS, D'Aquila RT, Walker BD. Ex-vivo Expansion of CD4+ T Lymphocytes from Human Immunodeficiency Virus Type-1 Infected Persons in the Presence of Combination Antiretroviral Agents. *J Infect Dis* 1995;172:88-96.
4. **Wilson CC**, Kalams SA, Wilkes BM, Ruhl DJ, Gao F, Hahn BH, Hanson IC, Luzuriaga K, Wolinsky S, Koup R, Buchbinder SP, Johnson RP, Walker BD. Overlapping Epitopes in Human Immunodeficiency Virus Type 1 gp120 Presented by HLA A, B, and C Molecules: Effects of Viral Variation on Cytotoxic T-Lymphocyte Recognition. *J Virol* 1997;71:1256-1264.
5. **Wilson CC**, Tueting T, Ma D, Haluszczak C, Lotze M, and Storkus WJ. Activation of Dendritic Cells by Surrogate T cell Interactions Leads to Enhanced Costimulation, Secretion of Th1-associated Cytokines, and CTL Inductive Capacity. *Advances in Experimental Medicine & Biology* 1997; 417:335-43.
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Books:

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5. Encyclopedia of AIDS, by Springer Publishers, edited by Thomas Hope, Douglas D. Richman and Mario Stevenson. Lead author on two chapters on The Gut as a Reservoir for HIV (and SIV), in press 2016.

Meeting Abstracts (selected):

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- 2016 *Proteomic Profiles Associated with an Inflammaging Phenotype During HIV-1 Infection*. Stephanie M. Dillon, Eric J. Lee, Brian Vestal, Tzu L. Phang, Michael G. Edwards, **Cara C. Wilson**. CROI 2016. Boston, MA
- 2016 *Enhanced Replication of Transmitted/Founder HIV-1 in Gut CD4 T cells*. Lee EJ, Guo K, Harper M, Dillon S, McCarter M, Barrett B, Iyer S, Hahn B, **Wilson C**, Santiago M. CROI 2016. Boston, MA
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- 2015 *The short chain fatty acid butyrate reduces HIV-1 and pathobiont-associated increases in intestinal myeloid dendritic cell and T cell activation*. Stephanie Dillon, Jon Kibbie, Eric Lee, Charles Robertson, Daniel N. Frank, Martin McCarter, **Cara C. Wilson**. 1st International Workshop on Microbiome in HIV. April 2015. Bethesda, MD.
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- 2013 *IFN- γ -producing Rectal γ/d T cells are Increased in Untreated HIV-1 Infection and Correlate with T Cell Activation and Microbial Translocation*. Stephanie Dillon^{1*}, Eric Lee¹, Gregory Austin, Zachary Dong, Kevin Rufner, Sara Gianella Weibel, Davey Smith, **Cara C. Wilson**. 20th Conference on Retroviruses and Opportunistic Infections. Atlanta, GA, March 2013.
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- 2012 *Elevated iFABP and Biomarkers of Microbial Translocation in HIV-Infected Subjects on Suppressive ART*. Kevin M. Rufner M.D. M.P.H., Eric E. Lee M.S., Zachary M. Dong B.A., Kristine M. Erlandson M.D., **Cara C. Wilson** M.D. HIV Vaccines Keystone Symposia, Keystone CO, March 2012.
- 2012 *Blood Natural Killer Cell IFN- γ Responses to Commensal Bacteria are Altered in HIV-1 Infection*. Stephanie Dillon, Eric Lee, Julia Bramante, Edward Barker, **Cara C. Wilson**. HIV Vaccines Keystone Symposia, Keystone CO, March 2012.
- 2011 *Commensal Escherichia coli Bacteria Enhance HIV-1 Replication and Infection of IL-17-producing CD4 T cells in Human Intestinal Lamina Propria Mononuclear Cell Cultures*. Stephanie Dillon, Lisa Rogers, Jennifer Manuzak, Martin McCarter & **Cara Wilson**. 18th Conference on Retroviruses and Opportunistic Infections, Boston, MA. 2011.
- 2011 *HIV Infection Alters the Peripheral Blood Cytokine Response to Innate Stimulation with Escherichia coli and TLR7/8 Ligand*. Jennifer Manuzak, Stephanie Dillon, **Cara Wilson**. 18th Conference on Retroviruses and Opportunistic Infections, Boston, MA. 2011.
- 2010 *Blood Myeloid Dendritic Cells from HIV-1-infected Individuals Display a Pro-apoptotic Profile That Increases With Disease Progression*. Stephanie Dillon, Laura Friedlander, Lisa Rogers, Amie Meditz, Joy Folkvord, Elizabeth Connick, Martin McCarter, **Cara Wilson**. Poster at 17th Conference on Retroviruses and Opportunistic Infections, San Francisco, CA, USA.
- 2010 *Dysfunction of HIV-Specific CD4+ T Cells is Associated with Elevated Concurrent Expression of Multiple Inhibitory Receptors*. Afework Gizaw, Michelle D'Souza, Roland Marcus, Elizabeth Kelly-McKnight, **Cara Wilson**, Ramesh Akkina, Andrew P. Fontenot, Brent E. Palmer. Poster at 17th Conference on Retroviruses and Opportunistic Infections, San Francisco, CA, USA.

- 2010 *Coagulation and inflammation biomarkers correlate with disease progression in SIV infections.* Ivona Pandrea, **Cara Wilson**, Ruy Ribeiro, Cristian Apetrei, Alan Landay, Russell Tracy. Poster at 17th Conference on Retroviruses and Opportunistic Infections, San Francisco, CA, USA.
- 2010 *The presence of commensal bacteria enhances HIV-1 infection of human lamina propria T cells.* Stephanie Dillon, Martin McCarter, **Cara C. Wilson**. Poster at 10th Annual Colorado Immunology Conference, Glenwood Springs, CO, USA.
- 2010 *Coagulation and Inflammation Biomarkers Predict Disease Progression in SIV-infected Nonhuman Primates.* Ivona Pandrea, **Cara Wilson**, Ruy Ribeiro, Cristian Apetrei, Alan Landay, Russell Tracy. Selected for oral presentation, 28th Annual Symposium on Nonhuman Primate Models, October 19-22, 2010, New Orleans, Louisiana.
- 2010 *Pro-inflammatory Blood Myeloid Dendritic Cell Cytokine Responses to Commensal Enteric Bacteria are Regulated by IL-10.* Jennifer Manuzak, Stephanie Dillon, Lisa Rogers, Toni Schwarz, Miriam Estin, **Cara Wilson**. Poster at 10th Annual Colorado Immunology Conference, Glenwood Springs, CO, USA.
- 2009 *Stimulating human lamina propria CD1c⁺ dendritic cells through TLR7/8 alters intestinal immune homeostasis by inducing IL-23 production.* Stephanie Dillon, Lisa Rogers, Rawleigh Howe, Lydia Hostetler, Jonathan Buhrman, Martin McCarter, **Cara Wilson**. Poster at 9th Annual Colorado Immunology Conference, Estes Park, CO, USA.
- 2009 *The Regulatory IL-10 Response of Blood Myeloid Dendritic Cells to E. coli is Suppressed by Co-stimulation with a Viral TLR7/8 Ligand.* Jennifer Manuzak, Stephanie Dillon, Lisa Rogers, Toni Schwarz, Miriam Estin, **Cara Wilson**. Poster at 9th Annual Colorado Immunology Conference, Estes Park, CO, USA.
- 2008 *Phenotypic and Functional Characterization of Human Intestinal Dendritic Cells: Breaking Immune Tolerance Through TLR7/8 Signaling.* Stephanie Dillon, Lisa Rogers, Rawleigh Howe, Lydia Hostetler, Jonathan Buhrman, Ricardo Gonzalez, Martin McCarter, **Cara Wilson**. Poster at Denver Translational Immunology Symposium, Denver, CO, USA.
- 2008 *Activated Plasmacytoid and Myeloid Dendritic Cells Accumulate in Lymphoid Tissue during Asymptomatic, Chronic HIV-1 Infection.* Stephanie Dillon, Kathryn Robertson, Samuel Pan, Samantha MaWhinney, Amie Meditz, Joy Folkvord, Elizabeth Connick, Martin McCarter, **Cara Wilson**. Poster at 15th Conference on Retroviruses and Opportunistic Infections, Boston, MA, USA.
- 2007 *Polarized Production of IL-2 by HIV-1-specific CD8⁺ T Cells in Subjects with Acute and Recent HIV-1 Infection.* **Cara Wilson**, Stephanie Dillon, Rick Schlichtemeier, Jeri Forster, Samantha MaWhinney, Cornelieus Rietmeijer, Graham Ray, and Elizabeth Connick. Poster at 14th Conference on Retroviruses and Opportunistic Infections, Los Angeles, CA, USA.
- 2007 *PD-1 Expression on HIV-specific CD4⁺ T Cells is Driven by HIV Replication and is Associated with T-cell Dysfunction.* M D'Souza, A Fontenot, D Mack, S Dillon, A Meditz, **C Wilson**, E Connick, and B Palmer. Oral presentation at at 15th Conference on Retroviruses and Opportunistic Infections, Boston, MA, USA.
- 2007 *Phenotypic and Functional Characterization of HIV-1-specific CD4⁺CD8⁺ T Cells in Subjects with Primary HIV-1 Infection.* Rawleigh Howe, Stephanie Dillon, Jeri E. Forster, Rick Schlichtemeier, Cornelis Rietmeijer, Graham Ray, Samantha MaWhinney, Brent Palmer, Elizabeth Connick, and **Cara Wilson**. Poster at 14th Conference on Retroviruses and Opportunistic Infections, Los Angeles, CA, USA.

- 2006 *CD4+ T cell targeting of HIV-1 peptide sequences present in vivo during chronic, progressive HIV-1 disease.* Eli Boritz, Eric L. Rapaport, Thomas Campbell, John R. Koeppe, and **Cara C. Wilson**. Poster at 13th Conference on Retroviruses and Opportunistic Infections, Denver, CO USA.
- 2006 *Dendritic Cell-HIV Peptide Therapeutic Vaccination Is Safe and Immunogenic in HIV-infected Subjects with Virologic Suppression.* Connolly NC, Rinaldo CR, Whiteside TL, **Wilson CC**, Kondragunta, V, Riddler SA. Poster at 13th Conference on Retroviruses and Opportunistic Infections, Denver, CO USA.
- 2006 *Dendritic Cell Dysfunction During HIV-1 Infection.* Stephanie Dillon, Kathryn Robertson, Samuel Pan, Samantha MaWhinney, Amie Meditz, Joy Folkvord, Elizabeth Connick, Martin McCarter, **Cara Wilson**. Poster at 7th Annual Colorado Immunology Conference, Breckenridge, CO, USA.
- 2005 *Immunogenicity of a multi-Epitope-Based DNA Vaccine in HIV-1-Infected Subjects Receiving Potent Antiretroviral Therapy (ART).* **Cara Wilson**, B. Livingston, S. MaWhinney, R. Schooley, J. Forster, M. Anders, N. Blyveis, M. Newman, and C.A. Benson. Poster at 12th Conference on Retroviruses and Opportunistic Infections, Boston, MA.
- 2005 *Functional and phenotypic characterization of CD4+ CD57+ T cells and their association with HIV-1-induced T cell dysfunction.* Brent E. Palmer, Naomi Blyveis, and **Cara C. Wilson**. Keystone Symposia on HIV Pathogenesis, Banff, Alberta Canada.
- 2005 *A Phase I Safety and Immunogenicity Study of the Epimmune HIV-1 CTL Epitope-based DNA Vaccine for Immunotherapy of HIV-1 Infected Individuals Receiving HAART.* B.D. Livingston, C.A. Benson, S. MaWhinney, R. Schooley, J. Forster, M. Anders, N. Blyveis, M. Newman, and ***Cara Wilson**. Oral presentation at AIDS Vaccine 2005 International Conference, Montreal, Canada.

