

Curriculum Vitae

Deborah Persaud

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Education and Training

York College, New York	B.S.	1981	Chemistry, Undergraduate
New York University School of Medicine	M.D.	1985	Medicine, Medical Student
Babies Hospital, New York	Residency	1985	Pediatrics Postdoctoral
Babies Hospital, New York	Chief Residency	1988	Pediatrics Chief Resident
New York University School of Medicine	Fellow	1990	Infectious Diseases Postdoctoral

Professional Experience

Positions and Employment

1985-1988 Medical Residency, Pediatrics, Babies Hospital/Columbia Presbyterian Medical Center
1988-1989 Chief Residency, Pediatrics, Babies Hospital/Columbia Presbyterian Medical Center
1989-1990 Assistant Attending in Clinical Pediatrics, Harlem Hospital
1990-1992 Fellow, Pediatric Infectious Diseases, New York University School of Medicine.
1992-1994 Aaron Diamond Post Doctoral Research Fellow, New York University School of Medicine
1994-1995 Assistant Professor of Clinical Pediatrics, New York University School of Medicine
1995-1996 Visiting Lecturer, Moi University, Eldoret, Kenya

1997-2004 Assistant Professor of Pediatrics, Johns Hopkins University School of Medicine
2005- Associate Professor of Pediatrics, Johns Hopkins University School of Medicine

Other Experience and Professional Memberships

2000- Pediatric AIDS Clinical Trials Group, Virology Core Committee
2001- Pediatric AIDS Clinical Trials Group, Vaccine Subcommittee
2001- Pediatric AIDS Clinical Trials Group, Immunology Subcommittee
2006- International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT) Laboratory Committee

Professional Activities

NIH study section, AIDS Drug Development and Therapeutics; November, 2006
Foundation Grant review: Doris Duke Charitable Foundation, and AMFAR (2006, 2007)
NIH Bench-to-bedside: November, 2006, 2008
International Maternal Pediatric Adolescent AIDS Clinical Trials Group (IMPAACT)
Subspecialty Laboratory
Program Director, Pediatric Infectious Diseases Fellowship

Society Memberships

Infectious Diseases Society of America
Pediatric Infectious Diseases Society
Society for Pediatric Research

Honors

1981 Summa Cum Laude, York College

Research Activities

B. Selected peer-reviewed publications. (in chronological order)

1. Aronson JE, McSherry G, Hoyt L, Boland M, Oleske J, Connor E, **Persaud D**, Borkowsky W, Krasinski K, Bakshi S, Pitt J. Varicella does not appear to be a cofactor for human immunodeficiency virus infection in children. *Ped Inf Dis J* 1992;11:1004-8.
2. **Persaud D**, Chandwani S, Rigaud M, Leibovitz E, Kaul A, Lawrence R, Pollack H, DiJohn D, Krasinski K, Borkowsky W. Delayed recognition of human immunodeficiency virus infection in preadolescent children. **Pediatr** 1992;80:688-91.

3. **Persaud D**, Bangaru B, Greco MA, Nachman S, Mittal K, Krasinski K, Borkowsky W, Kaul A. Cholestatic Hepatitis in children infected with the human immunodeficiency virus. **Ped Inf Dis J** 1993;12:492-8.
4. Rigaud M, Pollack H, Leibovitz E, Kim M, **Persaud D**, Kaul A, Lawrence R, John DD, Borkowsky W, Krasinski K. Efficacy of primary chemoprophylaxis against *Pneumocystis carinii* pneumonia during the first year of life in infants infected with human immunodeficiency virus type I. **J Pediatr** 1994;125:476-80.
5. Leibovitz E, Pollack H, Rigaud M, Kaul A, **Persaud D**, Gallo L, Papellas J, Krasinski K, Borkowsky W. Polymerase chain reaction is more sensitive than standard cytologic stains in detecting *Pneumocystis carinii* in bronchoalveolar lavages from human immunodeficiency virus type 1-infected infants and children with pneumonia. **Pediatr Infect Dis J** 1995;14(8):714-6.
6. **Persaud D**, Munoz JL, Tarsis S, Parks E, Parks W. Time course and cytokine dependence of human T-cell lymphotropic virus type I T-lymphocyte transformation as revealed by a microtiter infectivity assay. **J Virol** 1995;69:6297-6303.
7. Tarsis SL, Yu Ming-Tsung, Parks ES, **Persaud D**, Munoz JL, Parks WP. Human T-lymphocyte transformation with the human T-cell lymphotropic virus type 2. **J Virol** 1998;72:280-297.
8. Blankson J, **Persaud D**, Siliciano RF. Latent reservoirs for HIV-1. **Curr Opin Infect Dis** 1999;12(1):5-11.
9. **Persaud D**, Pierson T, Ruff CT, Finzi D, Chadwick K, Margolick J, Ruff A, Hutton N, Ray S, Siliciano RF. A stable latent reservoir for HIV-1 in children. **J Clin Invest** 2000;105 (7):995-1003.
10. Hermankova M, Ray, SC, Powell-Davis M, Ingersoll R, D'Aquila RT, Quinn TC, Siliciano JD, Siliciano RF, **Persaud, D**. HIV-1 drug resistance profiles in children and adults with viral load < 50 copies/ml receiving combination therapy. **J Am Med Assoc** 2001;286:196-207.
11. Blankson JN, **Persaud D**, Siliciano RF. The challenge of viral reservoirs in HIV-1 infection. **Annu Rev Med** 2002;53:557-93. Review.
12. Ruff C, Ray S, Kwon P, Zinn R, Pendleton A, Hutton N, Ashworth R, Gange S, Quinn TC, Siliciano RF, **Persaud D**. Persistence of wild-type and lack of temporal structure in the latent reservoir for human immunodeficiency virus type 1 in pediatric patients with extensive antiretroviral exposure. **J Virol** 2002; 76:9481-9492.
13. **Persaud D**, Zhou Y, Siliciano JM, Siliciano RF. HIV-1 latency: A problem with no easy answers. **J Virol** 2003;77:16591665.
14. **Persaud D**, Gallant JE. Report from San Francisco: The 11th Conference on Retroviruses and Opportunistic Infections (CROI). The tenacity of NNRTI drug resistance. **Hopkins HIV Rep** 2004 Mar;16(2):1, 5, 15

15. Zhang H, Zhou Y, Alcock C, Kieffer T, Monie D, Siliciano J, Li Quan, Pham P, Cofrancesco J, **Persaud D**, Siliciano RF. A novel single-cell level phenotypic assay for residual drug susceptibility and reduced replication capacity of drug-resistant HIV-1. **J Virol** 2004;78:1718-1729.
16. Kieffer T, Finucane M, Nettles R, Quinn TC, Broman KW, Ray S, **Persaud D**, Siliciano RF. Genotypic analysis of HIV-1 drug resistance at the limits of detection: Virus production without evolution in treated adults with <50 copies/ml of plasma HIV-1 RNA. **J Infect Dis** 2004;189:1452-1465.
17. **Persaud D**, Siberry GK, Ahonkhai A, Kajdas A, Monie D, Hutton N, Watson D, Quinn TC, Ray SC, and Siliciano RF. Continued production of drug-sensitive HIV-1 in children with undetectable viral loads on combination antiretroviral therapy. **J Virol** 2004;78:968-979
18. Nettles RE, Kieffer TL, Simmons RP, Cofrancesco J Jr, Moore RD, Gallant JE, **Persaud D**, Siliciano RF. Genotypic resistance in HIV-1-infected patients with persistently detectable low-level viremia while receiving highly active antiretroviral therapy. **Clin Infect Dis** 2004;39(7):1030-7
19. Monie D, Simmons RP, Nettles RE, Kieffer TL, Zhou Y, Zhang H, Karmon S, Ingersoll R, Chadwick K, Zhang H, Margolick JB, Quinn TC, Ray SC, Wind-Rotolo M, Miller M, **Persaud D**, Siliciano RF. A novel assay allows genotyping of the latent reservoir for human immunodeficiency virus type 1 in the resting CD4+ T cells of viremic patients. **J Virol** 2005;79:5185-5202
20. Nettles RE, Kieffer TL, Kwon P, Monie D, Han Y, Parsons T, Cofrancesco J Jr, Gallant JE, Quinn TC, Jackson B, Flexner C, Carson K, Ray S, **Persaud D**, Siliciano RF. Intermittent HIV-1 viremia (Blips) and drug resistance in patients receiving HAART. **J Am Med Assoc** 2005;293:817-829
21. Bailey JR, Sedaghat AR. Kieffer T, Brennan T, Lee P, Wind-Rotolo M, Haggerty CM, Kamireddi AR, Liu Y, Lee J, **Persaud D**, Gallant JE, Cofrancesco J, Quinn TC, Wilke CO, Ray SC, Siliciano JD, Nettles RE, Siliciano RF. Residual human immunodeficiency virus Type 1 viremia in some patients on antiretroviral therapy is dominated by a small number of invariant clones rarely found in circulating CD4+ T cells. **J Virol** 2006;80(13):6441-57
22. Ziemniak C, George-Agwu A, Moss WJ, Ray SC, **Persaud D**. A sensitive genotyping assay for detection of drug resistance mutations in reverse transcriptase of HIV-1 subtypes B and C in samples stored as dried blood spots or frozen RNA extracts. **J Virol Methods** 2006;136(1-2):238-47
23. **Persaud D**. *Latent HIV-1 Reservoirs in Children: Considerations for Therapy. Curr Opin Infect Dis*, 2006. March
24. **Persaud D**, Ray SC, Kajdas J, Ahonkhai A, Siberry GK, Ferguson K, Ziemniak C, Quinn TC, Casazza JP, Zeichner S, Gange SJ, Watson DC. Slow Human Immunodeficiency Virus Type 1 Evolution in Viral Reservoirs in Infants Treated with Effective Antiretroviral Therapy. **AIDS Res Hum Retroviruses** 2007;23(3):381-90.

25. **Persaud D**, Palumbo P, Ziemniak C, Chen J, Ray SC, Hughes M, Havens P, Purswani M, Gaur AH, Chadwick EG, and the Pediatric AIDS Clinical Trials Group P1030 Team. Early Archiving and Predominance of Non-nucleoside Reverse Transcriptase Inhibitor-Resistant HIV-1 Among Recently Infected U.S.-Born Infants. **J Infect Dis** 2007;195(10):1402-10.

Non-peer reviewed articles

1. **Persaud D**, Moss WJ, Munoz JL. Serious eye infections in children. *Pediatric Annals* 1993;22:379-383
2. Blankson J, **Persaud D**, Siliciano RF. Latent Reservoirs for HIV-1. *Curr Opin in Infect Dis* 1999;12:5-11
3. Blankson J, Persaud D, Siliciano RF. Challenge of Viral Reservoirs. *Ann. Rev. Med.* 2002;53:557-93
4. **Persaud D**, Zhou Y, Siliciano RF. HIV-1 latency: A problem with no easy answers. **J. Virol** 2003; 77:1659-1665
5. **Persaud, D.** Latent HIV-1 Reservoirs in Children: Considerations for Therapy. *Current Opinion in HIV/AIDS*, 2006. *March*

Book Chapters

1. Moss W, **Persaud D**. Acquired Immunodeficiency Syndrome (AIDS) and Human Immunodeficiency (HIV) Infection. In Hoekelman RN, editor: *Primary Pediatric Care*, ed 6. Maryland, 2006, Mosby. In press
2. **Persaud D**, Siliciano R. *Viral Pathogenesis*. 2000

Ongoing Research Support

RO1 AI 0553312 Persaud (PI) 7/2003-12/2007

HIV-1 Drug Resistance During HAART in HIV-1 Infected Adolescents

This research proposal deals with the study of the evolution of drug resistance during novel treatment strategies proposed for HIV-1 infected adolescents.

Role: Principal Investigator

Scientist Award #14-05 Persaud (PI)

1/1/05-12/31/09

Elizabeth Glaser Pediatric AIDS Foundation Scientist Award

Early Therapy and Drug Resistant HIV in Children

The goal of this project is to measure the impact of early exposure to antiretroviral therapies on the development and persistence of drug resistant HIV-1 in infected children in the U.S. and Ethiopia, using ultra-sensitive techniques.

Role: Principal Investigator

RO1 AI 062446

Persaud (PI)

7/2006-6/30/09

HIV Vaccines' Effect on Latent Reservoirs

This research proposal deals with the study of the impact of several HIV-1 therapeutic vaccines on residual HIV-1 infection in young adults on effective antiretroviral therapy.

UO1 AI27565

Persaud (Investigator) 7/2007-6/30/2014

This research proposal deals with providing subspecialty laboratory support for the International Maternal Pediatric Adolescent AIDS Clinical Trials Network

Role: Principal Investigator

RO1 HD057784

Persaud (PI)

9/2007-6/2011

HIV-1 Chemoprophylaxis and Archived Drug Resistance in Infants

The goal of this proposal is to define the extent of archiving of nevirapine-resistant HIV-1 in subtype C infected African infants receiving single-dose nevirapine for chemoprophylaxis, and its relevance for treatment responses on nevirapine-based HAART for children living in resource-constrained countries.

Completed

T99049A Persaud (PI) 7/1/99-6/30/05 (Completed)
Doris Duke Charitable Foundation
Cellular Reservoirs for HIV-1 infection

The project deals with characterizing the dynamics of the resting CD4+ T cell latent reservoir in children with perinatally acquired infection. (Completed)

Role: Principal Investigator

PG51177 Persaud (PI) 2/1/01-1/31/03 (Completed)
Elizabeth Glaser Pediatric AIDS Foundation
Residual HIV During Potent Antiretroviral Therapy

This project deals with characterizing the genetic nature of residual HIV-1 replication in children treated with suppressive HAART.

Role: Principal Investigator

R01 AI51178 Siliciano (PI) 1/1/02-12/31/06 (Completed)
NIH/NIAID
Significance of low-level viremia in adult patients on HAART

The goal of this project is to understand the nature of low-level viremia that is present in patients on HAART.

Role: Co-Investigator

U01 AI27565 Ruff (PI) 9/30/88-2/28/07 (Completed)
NIH/NIAID
Pediatric AIDS Clinical Trials Group

This project deals with the identification and study of novel treatment for HIV-1 infection in children and adolescents.

Role: Co-Investigator

Pending

Educational Activities

Teaching at JHU:

Classroom Instruction

3rd year Medical Students Infectious Disease Seminar Series: 2002-present

Pediatric Faculty Research Seminar. March 1999. (Host: Dr. Andrea Ruff)

Summer Institute, Bloomberg School of Public Health, July 2002, July 2003.
HIV-1 Pathogenesis, July 2004. July 2006, July 2007

Winter Institute, Bloomberg School of Public Health, January 2004.
Perinatal HIV-1 Infection, January 2005

Clinical instruction

Inpatient Attending Physician
(Pediatric Infectious Disease Service 6 weeks each year, 1997-present)

Preceptor to postdoctoral fellows, residents and medical students on the
Pediatric Infectious Disease Service (1997-present)

CME instruction

Pediatric Trends: HIV-Update (April 2000, April 2003, April 2005)
Annual Allergy and Immunology Course series: Triumphs and Challenges
in Pediatric HIV-Infection (May 2000;Host: Dr. Robert Wood)
Moderator: 12th Conference on Retroviruses and Opportunistic Infections
(CROI); Viral and Cellular Determinants of Pathogenesis
Silver Lectureship: Children's Hospital of Philadelphia 9 January 2006: Host
Dr. Steven Douglas

Editorial Activities

Journal Reviews

Journal American Medical Association
Nature Reviews of Immunology
Journal of Infectious Diseases
Nature Medicine
Journal of Immunological Methods
AIDS Research and Human Retroviruses

Clinical Activities

Certification

- Medical, Licensure, Maryland Board of Physicians 1997-present, ID# D0051309
- Boards: Diplomate of the American Board of Pediatrics (1988)-Active
- Specialty Boards: Pediatric Infectious Diseases (1995)- Active

Organizational Activities

Professional Societies

American Society of Microbiology
Pediatric Infectious Diseases Society
Society for Pediatric Research

Other Experience and Professional Memberships

2000- Pediatric AIDS Clinical Trials Group, Virology Core Committee
2001- Pediatric AIDS Clinical Trials Group, Vaccine Subcommittee
2001- Pediatric AIDS Clinical Trials Group, Immunology Subcommittee

Invited Speaker.

1. National Institutes of Health, Pediatric AIDS Branch (March **1998**).
 - a. *Latent Reservoirs for HIV-1 in Children treated with HAART.*
(Host: Dr. Steven Zeichner)
2. Pediatric AIDS Trials Group semi-annual meeting (July **1999**).
 - a. Pediatric Virology Scientific Session. Title: Latent Reservoirs for HIV-1 in children. In: *Virologic Studies of the Suppressed State: Where have we been and Where are we going?*
(Host: Dr. Paul Palumbo)
3. Child Health Research Center Symposium (October **1999**).
 - a. Latent Reservoirs for HIV-1 in children.
(Host: Dr. William Guggino)
4. Stanley Scientific Symposia on Endogenous Retroviruses: (November **1999**).
 - a. *Latent HIV-1 Infection in Children.*
(Host: Dr. Robert Yolken)
5. Eudowood Foundation Department of Pediatrics Annual Meeting (March 20, **2000**)
 - a. *Latency and HIV-1 infection in Children*
(Host: Dr. Robert Yolken)
6. Department of Medicine, HIV Immunology Series (2000). Guest Attendee:
Dr. Gary Nable of the NIH

7. Symposium; 8 th Conference on Retroviruses and Opportunistic Infections. February **2001**, Chicago, IL.
 - a. Maternal-Fetal Transmission of HIV-1: Implications for care of HIV-1 Infected women and children. HIV-1 Dynamics and Cellular Reservoirs in Children.
(Host: Dr. William Borkowsky)

8. 8 th Annual HIV Dynamics and Evolution Meeting. April **2001**. Paris
 - a. *HIV-1 in latent cellular reservoirs and plasma of infected individuals with <50 copies/ml of plasma HIV-1 RNA on combination antiretroviral therapy.*
(Host: Dr. Doug Richman)

9. 7 th European Conference of Experimental AIDS Research: Genoa Italy, June **2002**.
 - a. *HIV-1 Reservoirs During HAART.*
(Host, Fabrizio Manca, Lorenzo Moretta).

10. Symposium: Pediatric AIDS Clinical trials Group Semi-annual meeting. December **2002**.
 - a. *Nevirapine Resistance, Implications for maternal-infant health.*
(Host: Dr. Arlene Bardegas)

11. Center for AIDS Research, New York University Medical Center. December **2002**. *Residual HIV-1 During Effective HAART: Clinical Significance.*
(Host, Dr. Fred Valentine)

12. National Institutes of Health, Pediatric AIDS Branch. February **2003**. *Residual HIV-1 in Latent Reservoirs and Plasma During Effective HAART: Implications for therapy.* (Host, Steven Zeichner)

13. HIV Dynamics and Evolution 10th International Workshop. Lake Arrowhead, California. April **2003**. *Plasma viremia at <20 copies/ml is comprised of drug sensitive HIV-1 with wild-type protease despite up to 6-years of continuous HAART with Pi-containing regimens.*
(Host, Doug Richman and Simon Frost)

14. Focis Immunology Symposium (HIV Persistence). Paris, France. May **2003**, (Hosts, Kendall Smith and Pat Bucy)

15. 2003 Annual National Meeting Doris Duke Charitable Foundation Clinical Research Fellowship Program for Medical Students. Cold Spring Harbor, June **2003**. *How HIV Exploits Memory Cells.* (Hosts, Allyn Mark, and Elaine Gallin).

16. Molecular Microbiology and Immunology Weekly Seminar Series. September **2003**. Genetic Studies of HIV in Latent Reservoirs and Plasma During HAART: Insights into Viral Persistence. (Host, David Sullivan)

17. 2ND International Workshop on HIV Persistence During Therapy. French West Indies. December **2005** (Host, Alain Laffeullade)

18. The North Carolina Children's Aids Network (NCCAN) 8th annual educational conference at the Paul J. Rizzo Conference Center in Chapel Hill, NC. November, **2006** (Host, Ross Mckinney)

Recently Established Collaborations/Professional Accomplishments

1. **Adolescent Trials Network:** My laboratory is involved in conducting the genetic studies on latent viral reservoirs and plasma during novel therapeutic clinical trials proposed for HIV-1 infected adolescents in the U.S. (Research Agenda was recently funded by the NIH: RO1 to Deborah Persaud)

2. **Vaccine Research Institute/ National Cancer Institute at the NIH/Pediatric AIDS Clinical Trials Group:** Research proposal to evaluate the impact of therapeutic HIV-1 vaccines on residual HIV-1 infection in children and adolescents effectively treated with HAART. Two vaccine products are proposed for studies in infected children. One product is developed by the Vaccine Research Center at the NIH. My collaborators are: Dr. Richard Koup, and Dr. Steven Zeichner). The second vaccine product is produced by Therion and will be administered to children treated with HAART from infancy that lack humoral and cellular immune responses to HIV-1. This study will be done in collaboration with Dr. Katherine Luzuriaga at the **University of Massachusetts Medical School**. A Phase 1 safety study of the Therion vaccine will be performed through the HIV Vaccine Trials Network (HVTN) in infected adolescents. The studies of the impact of HIV-1 vaccines on latent viral reservoirs and residual viremia will be performed in my laboratory. A second RO1 will be awarded to fund the vaccine research agenda.

3. **Burroughs Wellcome Fund Clinical Scientist Awards in Translational Research. 2006 Finalist**

Grant Reviews

Doris Duke Charitable Foundation

ORACTA-grants; 2005

Clinical Scientist Award; 2006

AMFAR

2006: Post-doctoral fellowship grant

2007-Mathilde Krim Fellowships in Biomedical Research program

