06-29-23

CURRICULUM VITAE
BHARAT RAMRATNAM, M.D.

BUSINESS ADDRESS

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EDUCATION

Undergraduate	Brown University, Chemistry, A.B., 1986
Medical School	Brown University, M.D., 1993

POSTGRADUATE TRAINING

Residency	Warren Alpert Medical School, Brown University. Intern, Junior & Senior Resident (Miriam Hospital) in Internal Medicine, 1993-1996
Residency	Warren Alpert Medical School, Brown University Chief Resident Physician (Miriam Hospital), 1996-1997
Fellowship	The Rockefeller University, New York, New York Clinical Scholar 1997-1999
Fellowship	Aaron Diamond AIDS Research Center, The Rockefeller University New York, New York Post-Doctoral Fellow (Laboratory of David D. Ho, M.D.) 1997-2001

POSTGRADUATE HONORS AND AWARDS

1994 and 1995	American College of Physicians Finalist, Abstract Competition, Rhode Island Chapter
1994	American Federation for Clinical Research Trainee Investigator Award for Excellence in Clinical Research
1994-1997	American Federation for Clinical Research Trainee Investigator Award for Excellence in Clinical Research
1996	American College of Physicians Finalist, Abstract Competition, Rhode Island Chapter
2000-2002	Daland Fellowship in Clinical Investigation The American Philosophical Society
2000-2005	National Institutes of Health, Career Development Award
2001-2006	Clinical Scientist Development Award Doris Duke Charitable Foundation
2002	Charles Culpepper Biomedical Pilot Initiative Rockefeller Brothers Fund
2003	Junior Physician Scientist Award American Federation for Medical Research
2005	Independent Investigator Award, COBRE Center for Cancer Research Development, RIH
2006	Bruce Selya Award for Research Excellence, Rhode Island Hospital, Providence, Rhode Island
2007	Dean's Teaching Excellence Award, Warren Alpert Medical School of Brown University

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

06/30/01-present	Rhode Island Medical License #MD09094

Board Certification in Internal Medicine
American Board of Internal Medicine
(ID#173404)
(Expiration 12/2027)

ACADEMIC APPOINTMENTS

1996-1997	Instructor in Medicine Warren Alpert Medical School, Brown University, Providence, Rhode Island
2001-2007	Assistant Professor of Medicine Warren Alpert Medical School, Brown University, Providence, Rhode Island
2007-2023	Associate Professor of Medicine, Warren Alpert Medical School, Brown University, Providence, Rhode Island
2023-	Professor of Medicine Warren Alpert Medical School, Brown University, Providence, Rhode Island

HOSPITAL/ DEPARTMENTAL APPOINTMENTS

1999-2001	Associate Physician The Rockefeller University Hospital New York, New York
2001-present	Attending Physician Immunology Service, Division of Infectious Diseases Rhode Island Hospital and The Miriam Hospital Providence, Rhode Island
2011-2013	Member, Institutional Animal Care and Use Committee, Lifespan Hospital System
2012-2020	Director, COBRE Center for Cancer Research Development, Rhode Island Hospital, Lifespan Hospital System

2015-2018	Member, Board of Directors, Brown Medicine
2015-2016	Director, Office of Research Integration, Department of Medicine, Alpert Medical School of Brown University
2015-present	Director, Clinical Research Center, Lifespan Hospital System
2016-present	Vice Chair of Research, Department of Medicine, Alpert Medical School of Brown University
2018-present	Chief Science Officer, Lifespan Hospital System
2018-present	Co-Chair, Research Advisory Committee (RAC), Lifespan Hospital System
2018-present	Associate Chair, Lifespan Research Conflicts of Interest Committee
2019-present	Chair, Brown Medicine Privacy Board, Alpert Medical School of Brown University
2019-present	Chair, RIH IRB 1&2, Lifespan Hospital System
2020-present	Director, COVID Specimen Biobank, Lifespan Hospital System
2023-	Interim Vice President of Research, Lifespan Hospital System
2023-	Chief Science Officer, Brown Innovation and Research Collaboration for Health (BIRCH), Brown University,

OTHER APPOINTMENTS:

Scientific Review Committees

2003-present: Ad hoc reviewer of investigator-initiated grants for:

- Medical Research Council of South Africa (2005)

- NIH Microbicide Innovation Program (2006)
- NIH ADDT study section (2006,2007)
- Lifespan/Brown/Tufts CFAR pilot project applications (2005-present)
- Gene therapy programs, The Netherlands (2003-present)
- Health Research Board, Ireland (2007-present)
- NIH ZAI1-TP-M-J1: Cooperative Research Partnerships for Biodefense (2007)
- NIH ZAI1-TP-M-J2: Cooperative Research Partnerships for Biodefense (2007)
- NIH ZAL1 TJP-AJ11: HIV Vaccine Research and Design (HIVRAD) Program Review (2007-present)
- NIH ZAI1 MMT-M J2: Cooperative Research Partnership for Biodefense and Emerging Infectious Diseases SEP4 (2008)
- NIH ZAI1-RRS-A-J1; Special Emphasis Panel, Mechanisms and Prevention of sexual transmission of HIV/SIV (2010)
- NIH Special Emphasis Panel: Martin Delaney Collaboratory (2011)
- NIHZAI1-RB-A-J1; Special Emphasis Panel: Beyond HAART: Innovative Therapies to Control HIV-1 (2011)
- NIH Special Emphasis Panel: ZAI1-M-RWM NIAID Loan Repayment Program (2012)
- NIH Limited Competition - Women's Interagency HIV Study (WIHS-V) (U01) (2012)
- NIH ZRG1 AARR-K(04); Special Emphasis Panel (2012)
- Reviewer, ZAI1 BP-A (S1) Leadership Group for a Clinical Research Network on HIV/ AIDS & HIV-associated Infections in Pediatric & Maternal Populations (2013)

- Reviewer, ADDTAIDS Discovery and Development of Therapeutics Study Section (2013, 2014)
- Reviewer, ZRG1 ADDT-K (02) M (2013)
- Reviewer, ZAI1 MM-M (S1) 1
- Loan Repayment Program (LRP) (2013)
- Reviewer, ZAI1 BP-A (S1) 1
- Leadership Group for a Clinical Research Network on HIV/ AIDS & HIV-associated Infections in Pediatric & Maternal Populations (2013)
- 05 ZDA1 JXR-G (13) R Extracellular Vesicles in HIV/AIDS and Substance Abuse (R01, R21) (2015)
- ZRG1 EMS A (41) Tulane National Primate Research Center Review (2022)

2004	Reviewer, World Health Organization Guidelines for HIV Diagnosis and Monitoring of Antiretroviral Therapy
2000-present	Referee for *Lancet*, *Journal of Infectious Diseases*, *Nucleic Acids Research*, *Journal of AIDS*, *Molecular Therapy, PLoS journals, Exp Hematology*
2012	Reviewer, AIDS Vaccine 2012
2015-2022	Permanent Member, NIH HIV Immunopathogenesis and Vaccine Development Study Section (HIVD)

UNIVERSITY COMMITTEES: Centers/programs/taskforces (all affiliated with Brown University unless otherwise noted)**

Year	Center/Program Committee
1998-2000	Member, **Rockefeller University GCRC IRB, NY, NY
2005-	Associate Member, Pathobiology Graduate Program
2005-2017	Member, Executive Committee, Lifespan/Brown/Tufts Center for AIDS Research

2005-2009	Member, Steering Committee, COBRE Center for Stem Cell Biology, **Roger Williams Medical Center, Providence, Rhode Island
2009-2013	Member, External Advisory Committee for Microbicide Center Grant (NIHU19AI082623), **University of Pittsburgh, Pittsburgh, PA
2010-2021	Member, Internal Advisory Committee, Center for Alcohol and HIV, Brown School of Public Health
2013-present	Member, External Advisory Committee, RI INBRE Network
2013-present	Member, Internal Advisory Committee, Cardio-Pulmonary Vascular COBRE, Ocean State Research Institute, Providence, RI
2014-present	Member, Rhode Island COBRE/INBRE Symposium Sub-Committee
2014-present	Member, Advance CTR Internal Advisory Committee and Steering Committees, Brown University
2015-present	Member, George Research Fund Allocation Committee, Rhode Island Hospital
2016-present	Chair, Bray Fellowship Awards (in metabolism, endocrinology)
2018-present	Member, Internal Advisory Committee, COBRE Center for Antimicrobial Resistance and Therapeutic Discovery, Brown University, Providence, RI
2019-present	Chair, Selection Committee, Academic Assessment Grants Program, Brown Physicians Inc, Providence, RI
2020-present	Director, COVID-19 Biobank
2020-present	IRB Collaborative Research Engagement Group and IRB Task Force, Rhode Island Hospital
2020-present	Member, Brown/Lifespan/Care New England Research Alignment Taskforce
2022-present	Member, Opioid Research and Intervention Funding Committee, Rhode Island Hospital, Providence, RI
2022-present	Member, Internal Advisory Committee, Injury Prevention COBRE

UNIVERSITY COMMITTEES: Faculty Searches

Year	Search	Role
2021	Director, Division of Gastroenterology, Associate Professor or Professor of Medicine	Chair
2021	Program Director, Internal Medicine Residency, Associate Professor or Professor of Medicine	Member
2019	Associate Chief of Staff, Medicine Service, Providence VA, Associate Professor of Medicine or Professor of Medicine	Member
2019	Director of Cardiovascular Research, Associate Professor or Professor of Medicine, Division of Cardiology	Member
2019	Health Services Researcher, Associate Professor or Professor of Medicine, Division of General Internal Medicine	Member
2016	Clinician/Investigator, General Internal Medicine, Assistant Professor or Associate Professor of Medicine	Member

BOARD MEMBERSHIP

2023- New England Medical Innovation Center, Providence, RI

MEMBERSHIP IN SOCIETIES

September, 1997-present Diplomat, American Board of Internal Medicine

January, 2012 American Academy of HIV-1 Medicine

ORIGINAL PUBLICATIONS IN PEER-REVIEWED JOURNALS

1. **Ramratnam B,** Gollerkeri A, Schiffman FJ, Rintels P, Flanigan TP. Management of persistent B19 parvovirus infection in AIDS. *Br J Haematol* 91: 90-2, 1995. PMID: 7577659

2. **Ramratnam B,** Gollerkeri A, Martens P, Schiffman FJ, Parameswaran J. A study of cross coverage calls. *J Gen Intern Med* 11: 89, 1996. PMID: 8667101

3. Flanigan, TP, **Ramratnam B,** Graeber C, Hellinger J, Smith D, Wheeler D, Hawley, P, Heath-Chiozzi M, Ward D, Brummitt C, Turner J. Prospective trial of paramomycin for cryptosporidiosis in AIDS. *Amer J Med* 100: 370-2, 1996. PMID: 8629685

4. **Ramratnam B,** Parameswaran J, Elliot B, Newstein M, Schiffman FJ, Rich JD, Flanigan TP. Short course dexamethasone for thrombocytopenia in AIDS. *Amer J Med* 100: 117-8, 1996. PMID: 8579076

5. **Ramratnam B,** Kelly G, Mega A, Schiffman FJ. Determinants of case selection at morning report. *J Gen Intern Med* 12: 263-6, 1996. PMID: 9159694

6. Rich JD, **Ramratnam B,** Flanigan TP. Triple combination antiretroviral prophylaxis of needle stick exposure to HIV. *Infect Control Hosp Epidemiol* 18: 161, 1997. PMID: 9090541

7. Grube H, **Ramratnam B,** Flanigan TP. Resolution of AIDS associated cryptosporidiosis after treatment with indinavir. *Amer J Gastroen* 92: 726, 1997. PMID: 9128352

8. Rich JD, **Ramratnam B,** Chiang B, Tashima K. Management of indinavir associated nephrolithiasis. *J Urology* 158: 2228, 1997. PMID: 9366351

9. **Ramratnam B,** Tsoulfas G, Parikh A, Vigilante K, Flanigan TP. Former prisoners' views on mandatory HIV testing in prison. *J Correctional Health Care* 4: 155-64, 1997.

10. Ahmed A, Aggarwal M, Chiu R, **Ramratnam B,** Rinaldi M, Flanigan TP. A fatal case of Rhodotorula meningitis in AIDS. *Med Health RI* 81: 22-3, 1998. PMID: 9473937

11. Larsson M, Jin X, **Ramratnam B,** Ogg GS, Engelmayer J, Demoitie MA, McMichael AJ, Cox WI, Steinman RM, Nixon D, Bhardwaj N. A recombinant vaccinia virus based ELISPOT assay detects high frequencies of pol-specific CD8+ cells in HIV-1 positive individuals. *AIDS* 13: 767-7, 1999. PMID: 10357375

12. Zhang L, **Ramratnam B,** Tenner-Racz K, He Y, Vesanen M, Lewin S, Talal A, Racz P, Perelson AS, Korber BT, Markowitz M, Ho DD. Quantifying residual HIV-1 replication in patients receiving combination antiretroviral therapy. *N Engl J Med* 340: 1605-13, 1999. PMID: 10341272

13. **Ramratnam B,** Bonhoeffer S, Binley J, Hurley A, Zhang L, Mittler JE, Markowitz M, Moore JP, Perelson AS, Ho DD. Rapid production and clearance of HIV-1 and hepatitis C virus particles in infected individuals as defined by large volume plasma aphaeresis. *Lancet* 354: 1782-5, 1999. PMID: 10577640

14. **Ramratnam B,** Mittler JE, Zhang L, Boden D, Hurley A, Fang F, Macken CA, Perelson AS, Markowitz M, Ho DD. The decay of the latent reservoir of replication-competent HIV-1 is inversely correlated with the extent of residual viral replication during prolonged antiretroviral therapy. *Nat Med* 6: 82-85, 2000. PMID: 10613829

15. Zhang L, Chung C, Hu BS, He T, Guo Y, Kim AJ, Skulsky E, Jin X, Hurley A, **Ramratnam B,** Markowitz M, Ho DD. Genetic characterization of rebounding HIV-1 after cessation of highly active antiretroviral therapy. *J Clin Invest* 106: 839-45, 2000. PMID: 11018071

16. Mohri H, Perelson AS, Tung K, Ribeiro R, **Ramratnam B,** Markowitz M, Kost R, Hurley A, Weinburger L, Cesar D, Hellerstein MK, Ho DD. Increased turnover of T lymphocytes in HIV-1 infection and its reduction by antiretroviral therapy. *J Exp Med*194*:*1277-87, 2001. PMID: 11696593

17. Ortiz GM, Hu J, Goldwitz JA, Chandwani R, Larsson M, Bonhoeffer S, **Ramratnam, B,** Zhang L, Markowitz M, Nixon DF. Residual viral replication during antiretroviral therapy boosts human immunodeficiency virus type 1-specific CD8+ T-cell responses in subjects treated early after infection. *J Virol* 76: 411-5, 2002. PMID: 11739706

18. Simon V, Vanderhoeven J, Hurley A, **Ramratnam B,** Louie M, Dawson K, Parkin N, Boden D, Markowitz M. Evolving patterns of HIV-1 resistance to antiretroviral agents in newly infected individuals. *AIDS* 11: 1511-9, 2002. PMID: 12131189

19. Markowitz M, Jin X, Hurley A, Simon V, **Ramratnam B**, Louie M, Deschenes GR, Ramanathan M Jr, Barsoum S, Vanderhoeven J, He T, Chung C, Murray J, Perelson AS, Zhang L, Ho DD. Discontinuation of antiretroviral therapy commenced early during the course of human immunodeficiency virus type 1 infection, with or without adjunctive vaccination. *J Infect Dis.* 2002 Sep 1;186(5):634-43. Epub 2002 Aug 9. PMID: 12195350

20. Boden D, Pusch O, Lee F, Tucker L, Shank PR, **Ramratnam B**. Promoter choice affects the potency of HIV-1 specific RNA interference. *Nucleic Acids Research* 31*:* 5033-8, 2003. PMID: 12930953

21. Boden D, Pusch O, Lee F, Tucker L, Shank P, **Ramratnam B.** Nucleotide sequence homology requirements of HIV-1 specific shRNA. *Nucleic Acids Research* 31: 6444-9, 2003. PMID: 14602902

22. Boden D, Pusch O, Lee F, Tucker L, **Ramratnam B**. HIV-1 escape from RNA interference. *Journal of Virology* 77: 11531-11535, 2003. PMID: 14557638

23. Pusch O, Boden D, Silbermann R, Lee F, Tucker L, **Ramratnam B**. Efficient gene transfer of HIV-1 specific short hairpin RNA into human lymphocytic cells using recombinant adeno-associated virus (rAAV) vectors. *Molecular Therapy* 9: 396-402, 2004*.* PMID: 15006606

24. **Ramratnam B**, Ribeoro R, He T, Chung C, Simon V, Vanderhoeven J, Hurley A, Zhang L, Perelson AS, Ho DD, Markowitz M. Intensification of antiretroviral therapy accelerates the decay of the HIV-1 latent reservoir and decreases but does not eliminate ongoing virus replication. *JAIDS* 35: 33-7, 2004. PMID: 14707789

25. Pusch O, Boden D, Silbermann R, Lee F, Tucker L, **Ramratnam B.** Enhanced gene silencing of HIV-1 specific siRNA using microRNA designed hairpins. *Nucleic Acids Research* 32: 1154-58, 2004*.* PMID: 14966264

26. Newstein M, Losikoff P, Caliendo A, Ingersoll J, Kurpewski J, Hanley D, Cerezo J, **Ramratnam B**, Cu-Uvin S. Prevalence and persistence of nonnucleoside reverse transcriptase inhibitor mutations in the female genital tract. *J Acquir Immune Defic Syndr* 38: 364-6, 2005. PMID: 1573545

27. Balakrishnan P, Kumarasamy N, Solomon S, Vidya S, Kantor R, Mayer K, Newstein M, Thyagarajan SP, Katzenstein D, **Ramratnam B.** HIV-1 genotypic variation in an antiretroviral treatment naïve population in South India. *AIDS Res Hum Retroviruses* 21: 301-5, 2005. PMID: 15943572

28. Pusch O, Boden D, Hannify S, Lee F, Tucker L, Wells JM, Boyd MR, **Ramratnam B,** Biongineering Lactic Acid Bacteria to secrete the virucide cyanovirin. *J Acquir Immune Defic Syndr.* 40: 512-20, 2005. PMID: 16284525

29. Zhang Y, Cristafaro P, Silbermann R, Pusch O, Monfils P, Hovanesian V, Boden D, Resnick M, Moss SF, **Ramratnam B.** Engineering mucosal RNAi *in vivo*. *Molecular Therapy.* 14(3):336-42, 2006. PMID: 16766229

30. Pusch O., Kalyanaraman R., Tucker L.D., Wells J.M., **Ramratnam B,** Boden D. An anti-HIV microbicide engineered in commensal bacteria:secretion of HIV-1 fusion inhibitors by lactobacilli. *AIDS* 20: 1917-1922, 2006. PMID: 16988512

31. Galen B., Cheshenko N., Tuyama A., **Ramratnam B ,** Herold B.C. Access to nectin favors HSV infection at the apical surface of polarized human epithelial cells. *J of Virology* 80: 12209-18, 2006. PMID: 17005657

32. Boden D., Pusch O., **Ramratnam B,** Overcoming HIV-1 resistance to RNA interference. *Frontiers in Bioscience.* 12: 3104-16, 2007. PMID: 17485285

33. Tang X., Gao J.S., Guan Y.J., McLane K.E., Yuan Z,L., **Ramratnam B,** Chin Y.E. Acetylation- Dependent Signal Transduction for Type I Interferon Receptor. *Cell* 13: 93-105, 2007. PMID: 17923090

34. Pellish RS, Nasir A, **Ramratnam B**, Moss SF. Review article: RNA interference-potential therapeutic applications for the gastroentelogist. *Aliment Pharmacol Ther* 27(9): 715-23, 2008. PMID: 18248657

35. Vidya M, Saravanan S, Uma S, Kumarasamy N, Sunil SS, Kantor R, Katzenstein D, **Ramratnam B**, Mayer KH, Sunini S, Balakrishnan P. Genotypic HIV type-1 drug resistance among patients with immunological failure to first-line antiretroviral therapy in south India. *Antivir Ther* 14(7): 1005-9, 2009. PMID: 19918105

36. Zhang Y, Gao JS, Tang X, Tucker LD, Quesenberry P, Rigoutsos I, **Ramratnam B**. MicroRNA 125a and its regulation of the p53 tumor suppressor gene. *FEBS Lett* 583(22): 3725-30, 2009. PMID: 19818772

37. Saravanan S, Vinya M, Balakrishnan P, Kumarasamy N, Solomon SS, Solomon S, Kantor R, Katzenstein D, **Ramratnam B**, Mayer KH. Evaluation of two human immunodeficiency virus-1 genotypic systems: ViroSeq 2.0 and an in-house method. *J Virol Methods* 159(2): 211-6, 2009. PMID: 19490976

38. Tang X, Zhang Y, Tucker L, **Ramratnam B**. Phosphorylation of the RNase III enzyme Drosha at Serine300 or Serine302 is required for its nuclear localization. *Nucleic Acids Res* 38(19):6610-9, 2010. PMID: 20554852

39. Song GJ, Zhang Y, Li M, Tucker LD, Machan JT, Quesenberry P, Rigoutsos I, **Ramratnam B**. Atypical transcription of microRNA gene fragments. *Nucleic Acids Res* 38(9): 2775-87, 2010. PMID: 20097657

40. Aliotta JM, Pereira M, Johnson KW, de Paz N, Dooner MS, Puente N, Ayala C, Brilliant K. Berz D, Lee D, **Ramratnam B**, McMillan PN, Hixson DC, Josic D, Quesenberry PJ. Microvesicle entry into marrow cells mediates tissue-

specific changes in mRNA by direct delivery of mRNA and induction of transcription. *Exp Hematol* 38(3): 233-45, 2010. PMID: 20079801

41. Li M, Aliotta JM, Asara JM, Wu Q, Dooner MS, Tucker LD, Wells A, Quesenberry PJ, **Ramratnam B**. Intercellular transfer of proteins as identified by stable isotope labeling of amino acids in cell culture. *J Biol Chem* 285(9): 6285-97, 2010. PMID: 20026604

42. Cole AM, Patton DL, Rohan LC, Cole AL, Cosgrove-Sweeney Y, Rogers NA, Ratner D, Sassi AB, Lackman-Smith C, Tarwater P, **Ramratnam B**, Ruchala P, Lehrer RI, Waring AJ, Gupta P. The formulated microbicide RC-101 was safe and antivirally active following intravaginal application in pigtailed macaques. *PLoS One*. 2010 Nov 29;5(11):e15111. PMID: 21124745

43. Gao JS, Zhang Y, Tang X, Tucker LD, Tarwater PM, Quesenberry P, Rigoutsos I, **Ramratnam B**. The Evi1,microRNA-143,K-Ras axis in colon cancer. *FEBS Lett* 585(4):693-9, 2011. PMID: 21276449

44. Tang X, Li M, Tucker L, **Ramratnam B**. Glycogen Synthase Kinase 3 Beta (GSK3β) Phosphorylates the RNAase III Enzyme Drosha at S300 and S302. *Plos ONE* 6(6):e20391, 2011. PMID: 21674040

45. Del Tatto M, Ng T, Aliotta JM, Colvin GA, Dooner MS, Berz D, Dooner GJ, Papa EF, Hixson DC, **Ramratnam B**, Aswad BI, Sears EH, Reagan J, Quesenberry PJ. Marrow cell genetic phenotype change induced by human lung cancer cells. *Exp Hematol.* 2011 Nov;39(11):1072-80. PMID: 21864488

46. Li M, Patton DL, Cosgrove-Sweeney Y, Ratner D, Rohan LC, Cole AM, Tarwater PM, Gupta P, **Ramratnam B**. Incorporation of the HIV-1 microbicide cyanovirin-N in a food product. *J Acquir Immune Defic Syndr.* 2011 Dec 1;58(4):379-84. PMID: 21926631

47. Gupta P, Ratner D, Ding M, Patterson B, Rohan L, Reinhart T, Ayyavoo V, Huang X, Patton D, **Ramratnam B**, Cole A. Retrocyclin RC-101 blocks HIV-1 transmission across cervical mucosa in an Organ Culture. *J AIDS – Basic Science.* 60(5):455-61*,* 2012. PMID: 22592582

48. Li M, Aliotta JM, Asara JM, Tucker L, Quesenberry PJ, Lally M, **Ramratnam B**. Quantitative proteomic analysis of exosomes from HIV-1 infected lymphocytic cells. *Proteomics*. 12(13):2203-11*,* 2012. PMID: 22807456

49. Aliotta JM, Pereira M, Amaral A, Dooner MS, Sears EH, Brilliant K, **Ramratnam B**, Hixson DC, Quesenberry PJ. Stable Cell Fate Changes in Marrow Cells Induced by Lung-Derived Microvesicles. *Journal of Extracellular Vesicles*. 1:18163, 2012. PMID: 24009878

50. Campbell TB, Smeaton LM, Kumarasamy N, Flanigan T, Klingman KL, Firnhaber C, Grinsztejn B, Hosseinipour MC, Kumwenda J, Lalloo U, Riviere C, Sanchez J, Melo M, Supparatpinyo K, Tripathy S, Martinez AI, Nair A, Walawander A, Moran L, Chen Y, Snowden W, Rooney JF, Uy J, Schooley RT, De Gruttola V, Hakim JG, PEARLS study team of the ACTG, Swann E, Barnett RL, Brizz B, Delph Y, Gettinger N, Mitsuyasu RT, Eshleman S, Safren S, Fiscus SA, Andrade A, Haas DW, Amod F, Berthaud V, Bollinger RC, Bryson Y, Celentano D, Chilongozi D, Cohen M, Collier AC, Currier JS, Cu-Uvin S, Eron J, Flexner C, Gallant JE, Gulick RM, Hammer SM, Hoffman I, Kazembe P, Kumwenda N, Lama JR, Lawrence J, Maponga C, Martinson F, Mayer K, Nielsen K, Pendame RB, **Ramratnam B**, Sanne I, Severe P, Sirisanthana T, Solomon S, Tabet S, Taha T, van der Horst C, Wanke C, Gormley J, Marcus CJ, Putnam B, Ntshele S, Loeliger E, Pappa KA, Webb N, Shugarts DL, Winters MA, Descallar RS, Steele J, Wulfsohn M, Said F, Chen Y, Martin JC, Bischofberger N, Cheng A, Jaffe H, Sharma J, Poongulali S, Cardoso SW, Faria DL, Berendes S, Burke K, Mngqibisa R, Kanyama C, Kayoyo V, Samaneka WP, Chisada A, Faesen S, Chariyalertsak S, Santos B, Lira RA, Joglekar AA, La Rosa A, Infante R, Jain M, Petersen T, Godbole S, Dhayarkar S, Feinberg J, Baer J, Pollard RB, Asmuth D, Gangakhedkar RR, Gaikwad A, Ray MG, Basler C, Para MF, Watson KJ, Taiwo B, McGregor D, Balfour HH, Mullan B, Kim GY, Klebert MK, Cox GM, Silberman M, Mildvan D, Revuelta M, Tashima KT, Patterson H, Geiseler PJ, Santos B, Daar ES, Lopez R, Frarey L, Currin D, Haas DH, Bailey VL, Tebas P, Zifchak L, Noel-Connor J, Torres M, Sha BE, Fritsche JM, Cespedes M, Forcht J, O'Brien WA, Mogridge C, Hurley C, Corales R, Palmer M, Adams M, Luque A, Lopez-Detres L, Stroberg T. Efficacy and safety of three antiretroviral regimens for initial treatment of HIV-1: a randomized clinical trial in diverse multinational settings. *PLoS Med.* 9(8):e1001290, 2012. PMID: 22936892

51. Quesenberry PJ, Dooner MS, Goldberg LR, Aliotta JM, Pereira M, Amaral A, Del Tatto MM, Hixson DC, **Ramratnam B.** A new stem cell biology: the continuum and microvesicles. *Trans Am Clin Climatol Assoc.* 123:152-66, 2012. PMID: 23303982

52. Gupta P, Lacksmith-Smith C, Snyder B, Ratner D, Rohan L, Patton D, **Ramratnam B**, Cole A. Antiviral Activity of Retrocyclin RC-101, a Candidate Microbicide Against Cell-Associated HIV-1. *AIDS Research & Human Retrovirus.* 29(2):391-6, 2013. PMID: 22924614

53. Fiscus SA, Cu-Uvin S, Eshete AT, Hughes MD, Bao Y, Hosseinipour M, Grinsztejn B, Badal-Faesen S, Dragavon J, Coombs RW, Braun K, Moran L, Hakim J, Flanigan T, Kumarasamy N, Campbell TB, A5185s Team, Klingman KL, Nair A, Walawander A, Smeaton LM, De Gruttola V, Martinez AI, Swann E, Barnett RL, Brizz B, Delph Y, Gettinger N, Mitsuyasu RT, Eshleman S,

Safren S, Andrade A, Haas DW, Amod F, Berthaud V, Bollinger RC, Bryson Y, Celentano D, Chilongozi D, Cohen M, Collier AC, Currier JS, Eron J, Firnhaber C, Flexner C, Gallant JE, Gulick RM, Hammer SM, Hoffman I, Kazembe P, Kumwenda J, Kumwenda N, Lama JR, Lawrence J, Maponga C, Martinson F, Mayer K, Nielsen K, Pendame RB, **Ramratnam B**, Rooney JF, Sanchez J, Sanne I, Schooley RT, Snowden W, Solomon S, Tabet S, Taha T, Uy J, van der Horst C, Wanke C, Gormley J, Marcus CJ, Putnam B, Ntshele S, Loeliger E, Pappa KA, Webb N, Shugarts DL, Winters MA, Descallar RS, Sharma J, Poongulali S, Cardoso SW, Faria DL, Berendes S, Burke K, Kanyama C, Kayoyo V, Samaneka WP, Chisada A, Santos B, La Rosa A, Infante R, Balfour HH, Mullan B, Kim GY, Klebert MK, Mildvan D, Revuelta M, Jan Geiseler P, Santos B, Daar ES, Lopez R, Frarey L, Currin D, Haas DH, Bailey VL, Tebas P, Zifchak L, Sha BE, Fritsche JM. Changes in HIV-1 subtypes B and C genital tract RNA in women and men after initiation of antiretroviral therapy. *Clin Infect Dis.* 57(2):290-7, 2013. PMID: 23532477

54. Tang X, Wen S, Zheng D, Tucker L, Cao L, Pantazatos D, Moss S, **Ramratnam B.** Acetylation of Drosha on the N-terminus Inhibits its Degradation by Ubiquitination. *PLoS ONE.* 29;8(8):e72503, 2013. PMID: 24009686

55. Tang X, Zheng D, Hu P, Zeng Z, Li M, Tucker L, Monahan R, Resnick M, Liu M, **Ramratnam B.** Glycogen Synthase Kinase 3 beta inhibits microRNA-183-96-182 cluster via the beta-Catenin/TCF/LEF1 pathway in gastric cancer cells. *Nucleic Acids Research.* 2014 Mar;42(5):2988-98. PMID: 24335145

56. Li M, **Ramratnam B.** Characterizing the HIV-1 secrotome. HIV Protocols, 3rd Edition

57. Londin E, Loher P, Telonis AG, Quann K, Clark P, Jing Y, Hatzimichael E, Kirino Y, Honda S, Lally M, **Ramratnam B**, Comstock CES, Knudsen KE, Gomella L, Spaeth GL, Hark L, Katz LJ, Witkiewicz A, Rostami A, Jimenez SA, Hollingsworth MA, Yeh JJ, Shaw CA, McKenzie SE, Bray P, Nelson PT, Zupo S, Roosbroeck KV, Keating MJ, Calin GA, Yeo C, Jimbo M, Cozzitorto J, Brody JR, Delgrosso K, Mattick JS, Fortina P, Rigoutsos I. Analysis of 13 cell types reveals evidence for the expression of numerous novel primate- and tissue-specific microRNAs. *Proc Natl Acad Sci U S A.* 2015 Mar 10;112(10):E1106-15. PMID: 25713380

58. Li M, **Ramratnam B**. Proteomic Characterization of Exosomes from HIV-1-Infected Cells. *Methods Mol Biol.* 2016;1354:311-26. PMID: 26714721

59. Ahsan N, Rao RS, Gruppuso PA, **Ramratnam B**, Salomon AR. Targeted proteomics: Current status and future perspectives for quantification of food allergens. *J Proteomics.* 2016 Jun 30;143:15-23 PMID: 27113134

60. Sankapal S, Gupta P, Ratner D, Ding M, Shen C, Sanyal A, Stolz D, Cu-Uvin S, **Ramratnam B**, Chen Y. HIV Exposure to the Epithelia in Ectocervical and Colon Tissues Induces Inflammatory Cytokines Without Tight Junction Disruption. *AIDS Res Hum Retroviruses.* 2016 Oct/Nov;32(10-11):1054-1066. PMID: 27153934

61. Monnig MA, Kahler CW, Cioe PA, Tucker L, Monti PM, Mayer KH, **Ramratnam B**. Alcohol use predicts elevation in inflammatory marker soluble CD14 in men living with HIV. *AIDS Care.* 2016 Nov;28(11):1434-40. PMID: 27242060

62. Hughes BL, Dutt R, Raker C, Barthelemy M, Rossoll RM, **Ramratnam B**, Wira CR, Cu-Uvin S. The impact of pregnancy on anti-HIV activity of cervicovaginal secretions. *Am J Obstet Gynecol*. 2016 Dec;215(6):748.e1-748.e12. PMID: 27393267

63. Li M, Tucker LD, Asara JM, Cheruiyot CK, Lu H, Wu ZJ, Newstein MC, Dooner MS, Friedman J, Lally MA, **Ramratnam B**. Stem-loop binding protein is a multifaceted cellular regulator of HIV-1 replication. *J Clin Invest*. 2016 Aug 1;126(8):3117-29. PMID: 27454292

64. Mao G, **Ramratnam B**. The Clinical Research Landscape in Rhode Island. *R I Med J* (2013). 2017 Jan 6;100(1):42-46. PMID: 28060965

65. Jamwal R, Topletz AR, **Ramratnam B**, Akhlaghi F; Ultra-performance Liquid Chromatography Tandem Mass-Spectrometry (UPLC-MS/MS) for Simple and Simultaneous Quantification of Cannabinoids, THC, CBD, 11-OH THC and THC-COOH, in Human Plasma. *J Chromatogr B Analyt Technol Biomed Life Sci*. 2017 Mar 24;1048:10-18. PMID: 28192758

66. Cheruiyot C, Pataki Z, Williams R, **Ramratnam B**, Li M. SILAC Based Proteomic Characterization of Exosomes from HIV-1 Infected Cells. *J Vis Exp*. 2017 Mar 3;(121). PMID: 28287540

67. Li M; Lee K; Hsu M; Nau G; Mylonakis E; **Ramratnam B;** Lactobacillus-derived extracellular vesicles enhance host immune responses against vancomycin-resistant enterococci. *BMC Microbiol*. 2017 Mar 14;17(1):66 PMID: 28288575

68. Mao G, **Ramratnam B**. National Institutes of Health Funding in Rhode Island. *R I Med J* (2013). 2017 Jul 5;100(7):22-26. PMID: 28686236

69. Monnig, M.A., Kahler, C.W., Cioe, P.A., Monti, P.M., Mayer, K.H., Pantalone, D.W., Cohen, R.A., & **Ramratnam B**. Markers of microbial translocation and immune activation predict cognitive processing speed in heavy-drinking men living with HIV. *Microorganisms*. 2017 Sep 21;5(4) PMID: 28934108

70. Tang X, Lu H, Dooner M, Chapman S, Quesenberry PJ, **Ramratnam B**. Exosomal Tat protein activates latent HIV-1 in primary, resting CD4+ T lymphocytes. JCI Insight. 2018 Apr 5;3(7). PMID: 29618654

71. Kahler CW, Pantalone DW, Mastroleo NR, Liu T, Bove G, **Ramratnam B**, Monti PM, Mayer KH. Motivational interviewing with personalized feedback to reduce alcohol use in HIV-infected men who have sex with men: A randomized controlled trial. *J Consult Clin Psychol.* 2018 Aug;86(8):645-656. PMID: 30035581

72. Cheng Y, Pereira M, Raukar N, Reagan JL, Queseneberry M, Goldberg L, Borgovan T, LaFrance WC Jr, Dooner M, Deregibus M, Camussi G, **Ramratnam B**, Quesenberry P. Potential biomarkers to detect traumatic brain injury by the profiling of salivary extracellular vesicles. *J Cell Physiol*. 2019 Jan 15. PMID: 30644102

73. Monnig MA, Cohen R, **Ramratnam B**, McAdams M, Tashima K, Monti PM. HIV Infection, HCV Co-Infection, and Alcohol Use: Associations with Microbial Translocation and Immune Activation. *Alcohol Clin Exp Res*. 2019 Mar 25. PMID: 30908642

74. Monnig MA, Cohen R, **Ramratnam B**, McAdams M, Tashima K, Monti PM. HIV Infection, HCV Co-Infection, and Alcohol Use: Associations with Microbial Translocation and Immune Activation. Alcohol Clin Exp Res. 2019 Mar 25. PMID: 30908642

75. Lu H, Tang X, Sibley M, Coburn J, Rao SP, Ahsan N, **Ramratnam B.** Impact of exosomal HIV-1 Tat expression on the human cellular proteome. Oncotarget. 2019 Sept 24. PMID: 31608139

76. Cheng Y, Pereira M, Raukar N, Reagan JL, Queseneberry M, Goldberg L, Borgovan T, LaFrance Jr WC, Dooner M, Deregibus M, Camussi G, **Ramratnam B**, Quesenberry P. Inflammation-related gene expression profiles of salivary extracellular vesicles in patients with head trauma. Neural Regeneration Research. Neural Regen Res. 2019 Oct 18. PMID: 31638091

77. Tasker C, Pizutelli V, Lo Y, **Ramratnam B**, Roche NE, Chang TL. Depot medroxyprogesterone acetate administration increases cervical CCR5+CD4+ T cells and induces immunosuppressive milieu at the cervicovaginal mucosa. AIDS. 2020 Apr 1;34(5):729-735. doi: 10.1097/QAD.0000000000002475.

78. Byrd K B, Beckwith C G, Garland J M, Johnson J E, Aung S, Cu-Uvin S, Farmakiotis D, Flanigan T, Gillani F S, Macias-Gil R, Mileno M, **Ramratnam B**, Rybak N R, Sanchez M, Tashima K, Mylonakis E, Kantor R. SARS-CoV-2 and HIV coinfection: clinical experience from Rhode Island, United States. J Int AIDS Soc. 2020 Jul 1. PMID: 32657527

79. Tang X, Lu H, **Ramratnam B.** Neurotoxicity of HIV-1 Tat is attributed to its penetrating property. Sci Rep 2020 Aug 19;10(1):14002. doi: 10.1038/s41598-020-70950-x.

80. Hooten N N, Yáñez-Mó , DeRita R, Russell A, Quesenberry P, **Ramratnam B**, Robbins P D, Di Vizio D, Wen S, Witwe K Wr, Languino L R. Hitting the Bullseye: Are extracellular vesicles on target? Journal of Extracellular Vesicles. 2020 Nov 29. DOI 10.1002/jev2.12032.

81. Ahsan N, Prasad Rao S, Wilson R S, Punyamurtula U, Salvato F, Petersen M, Kabir Ahmed M, Abid R M, Verburgt J C, Kihara D, Yang Z, Fornelli L, Foster B S, **Ramratnam R.** Mass spectrometry-based proteomic platforms for better understanding of SARS-CoV-2 induced pathogenesis and potential diagnostic approaches. Proteomics 2021 Apr 16;e2000279. doi: 10.1002/pmic.202000279.

OTHER PEER-REVIEWED PUBLICATIONS

1. **Ramratnam B,** T.P. Flanigan T.P. Cryptosporidiosis in persons with HIV infection *Postgrad Med J* 73: 713 – 716, 1997 PMID: 9519184

2. **Ramratnam B**, Parameswaran J, Flynn M, Flanigan TP. A practical approach to managing diarrhea in the HIV-infected person. Gastrointestinal manifestations of HIV infection. *AIDS Reader* 7-14, 1997.

3. Boden D, Pusch O, **Ramratnam B.** HIV-1 specific RNA interference. *Curr Opinion Mol Therapeutics* 6: 373-80, 2004. PMID: 1546859

4. Cristafaro P, **Ramratnam B.** RNAi tackles a sexually transmitted disease. *Nature Biotechnology* 24(1): 48-9, 2006. PMID: 16404395

BOOKS AND BOOK CHAPTERS

1. **Ramratnam B**, Flanigan TP, Hoxie JA. Hematologic Manifestations of AIDS (Chapter) Hematologic pathophysiology. F.J. Schiffman, Ed. J.B. Lippincott Co., Philadelphia, PA, 1996.

2. **Ramratnam B**, Markowitz M. Antiretroviral treatment in HIV infected individuals. (Chapter) Infection Highlights, MH Wilcox, Ed. Health Press,Oxford UK,1997.

3. Valdez, H, **Ramratnam B**, Flanigan TP, Lederman MM. Host-directed and Immune-based Therapies for Human Immunodeficiency Virus Infection.

(Chapter). Immune Modulating Agents. Kresina TF, Ed. Marcel Dekker, Inc. New York, NY,1998.

4. **Ramratnam B**, Markowitz M. Kinetics of Human Immunodeficiency Virus Type 1Replication and Therapy. (Chapter) Antiretroviral Therapy. De Clerq E, Ed. ASM Press, Washington, D.C., 2001.

5. **Ramratnam B**, Wing E.J. Host Defenses Against Infection in Andreoli and Carpenter's Cecil Essentials of Medicine. 9th Edition, 2014

INVITED PRESENTATIONS

Local:

November 2007	"Small RNA in health and disease," Bruce M. Selya Lecture, Rhode Island Hospital, Providence, Rhode Island
June 2010	"A holistic approach to Cancer," Partnership to reduce cancer in Rhode Island, Warwick, Rhode Island
July 2011	"Virology and Pathogenesis: Why do HIV-infected people get AIDS," AIDS 101, Brown University, Providence, Rhode Island
September 2018	"Test, Treat, Transactivate" LTB CFAR 20th anniversary celebration, Brown University, Providence, RI.
September 2012	"Reverse Proteomics in the Clinic," Pathology Research Seminar, Lifespan/Rhode Island Hospital, Brown University, Providence, Rhode Island

National:

March 2003	"Antiviral RNAi," Clinical Research 2003, American Federation for Medical Research, Baltimore, Maryland
November 2003	"HIV-1 specific RNAi," Massachusetts General Hospital, Boston, Massachusetts
September 2004	"RNA interference," Rockefeller University, New York
June 2005	"Engineering RNA interference *in vivo,"* Controlled Release Society, Miami, Florida

September 2005	"Microbicidal potential of RNAi," University of Pittsburgh, Pittsburgh, Pennsylvania
October 2005	"Antiviral RNAi", Alnylam Pharmaceuticals, Cambridge, Massachusetts
April 2006	"siRNA microbicides," Mt. Sinai Medical Center, New York, New York
May 2011	"How Drosha Gets Into the Nucleus," Thomas Jefferson University, Philadelphia, Pennsylvania
May 2012	"SLBP1 and HIV-1 pathogenesis," Louisiana State University, New Orleans, Louisiana
May 2019	"EV Based Strategies to Reactivate Latent HIV-1." ISEV Workshop, Sidney Kimmel Cancer Center, Thomas Jefferson University, Philadelphia, PA.
July 2022	Engineering EVs to Reverse HIV Latency, Extracellular Vesicles, Gordon Research Conference, Sunday River, ME.

International:

December 2006	"Antiviral RNAi," West Bengal University, Calcutta, India
February 2008	"Anti-HIV Gene Silencing," Microbicides 2008, New Delhi, India
January 2012	"Proteomic Correlates of HIV-1 Progression," YRG CARE, Chennai, India
January 2012	"HIV treatment as prevention-breakthrough of the year 2011," Chennai ART Symposium, Session Co-chair Chennai, India
February 2012	"The Ethics of Clinical Trials," National Ethics Symposium Phnom Penh School of Public Health and Ministry of Health, Cambodia

April 2012 "Reverse Proteomic Approaches in HIV-1 Research," Noguchi Institute, University of Ghana, Legon, Ghana

January 2014 "Histone metabolism and HIV-1 pathogenesis". YRG CARE, Chennai, India during International Science Symposium on HIV

GRANTS

Ongoing

1. 1R01AI14499 Ramratnam/Witwer (MPI) 3/05/2019-2/29/2024
   NIAID
   Next-generation extracellular vesicle biologics to target central nervous system reservoirs of HIV.
   Role: Co-PI

   This research will evaluate our laboratory's next-generation vesicle-based biologics in the SIV/macaque model.

Completed

1. 1U01DA045514 Coie/Tidey (Multiple PI) 5/01/2018-04/30/2020
   NICHD
   Health Effects of the Standardized Research E-Cigarette for Harm Reduction in Smokers with HIV
   Role: Multi-PI

   This research examined the acceptability of introducing electronic cigarettes (EC) to smokers with HIV, and whether EC affected smoking behaviors, improved cardiac and respiratory symptoms, and affected inflammatory biomarkers in PLWH.

2. 5P20GM103421 Ramratnam (PI) 9/30/2002-4/30/2020
   NIH
   COBRE Center for Cancer Research Development
   Role: PI

CCRD promoted the expansion of basic cancer research by creating a supportive research environment that facilitated the transition of promising scientists into independent investigators.

3. 5PO1AA019072 Monti (PI) 9/30/2010-6/31/2021
NIH/NIAAA
Alcohol and HIV: Bio behavioral Interactions and Intervention
Role: Co-Investigator. Director of Virology Core

   This project provided core laboratory services to investigators to assist in HIV and alcohol centered investigations.

4. 1U54GM115677 Padbury (PI) 7/01/2016-4/30/2021
NIH
Advance Clinical and Translational Research
Role: Co-Investigator, Director-Clinical Research Center

   This award created specialized clinical trials units and the ambulatory Clinical Research Center. I served as the PI of the Clinical Resources Core based at the Clinical Research Center.

5. 1K24HD080539 Ramratnam (PI) 4/01/2014-3/31/2019
NICHD
Studies in HIV-1 pathogenesis and transmission
Role: PI

   The award protected 50% of my time to allow mentoring of junior faculty in patient-oriented research.

6. 1RO1HD072693 Ramratnam/Cu-Uvin/Gupta (MPI) 4/01/2012-2/28/2018
NICHD
Reproductive Hormones and HIV-1 Acquisition
Role: MPI

   This R01 investigated the role of reproductive hormones on HIV-1 acquisition.

7. Culpeper Biomedical Pilot Initiative. Ramratnam (PI) 6/01/2002 – 5/1/2003
Engineering mucosal resistance to cryptosporidiosis
Role: PI

   This project determined the effect of defensins on cryptosporidial infection *in vitro*.

8. NIH K23AI01780-01 Ramratnam (PI) 4/01/2000–3/31/2005
   NIAID
   Novel Approaches to Target Latent Reservoirs of HIV-1
   Role: PI

   The goal of this project was to design immunologic and pharmacologic approaches to target latent reservoirs of HIV-1 in chronically infected patients who were receiving standard antiretroviral therapy.

9. American Philosophical Society Ramratnam (PI) 6/01/2001–5/31/2003
   Daland Fellowship in Clinical Investigation
   Role: PI

   This fellowship supported my advanced postdoctoral and junior faculty laboratory investigations.

10. Clinical Scientist Development Award, Ramratnam (PI) 7/01/2001–6/30/2005
    Doris Duke Charitable Foundation
    The Impact of Multidrug Resistant Proteins on HIV Treatment.
    Role: PI

    This project determined whether cells harboring multidrug proteins such as P-glycoprotein and multidrug resistant proteins 4/5 serve as reservoirs of HIV replication during HAART.

11. NIH1R21AI067074 Ramratnam (PI) 7/01/2005–6/30/2007
    Novel HIV-1 microbicides
    Role: PI

    We determined the efficacy of mucosal anti-CCR5 siRNA in preventing vaginal/rectal transmission of SIV in a macaque model.

12. NIH 1U19AI065430 Gupta (PI) 7/10/2005–6/30/2009
    CV-N Secreting Lactobacilli and Retrocyclin Microbicides.
    Role: Project 1 PI

    The goal of this cooperative agreement was to engineer lactobacilli (LAB) to secrete anti-HIV-1 compounds and to determine the *in vivo* mucosal retention kinetics of bioengineered LAB in pigtail macaques. We also quantified the kinetics of secretion of chosen antiviral compounds and their microbicidal potential in *ex vivo* vaginal/rectal virus challenge experiments.

13. NIH 1P20RR018757 Quesenberry (PI) 9/30/2003–6/30/2008
Using RNAi to Dissect Stem Cell Potential
Role: Project 3 PI

The goal of this proposal was to utilize RNA interference to systematically map the effect of transcription factor knockdown on the cellular fate of progenitor stem cells in a murine model.

14. United States Civilian Research and Development Foundation for the Independent States of the Former Soviet Union Ramratnam (PI) 7/01/2006–6/30/2007
Role: American PI

We mentored our Russian counterparts in the creation and testing of lentivector-mediated transduction of hematopoietic stem cells and expression of anti-HIV-1 shRNAs.

15. NIHU19AI072020-01 Ramratnam (PI) 9/30/2006-8/31/2010
siRNA microbicides
Role: PI

This was a multi-project grant that determined the efficacy of siRNA as a microbicide in animal models of HIV-1, HSV and HPV.

16. NIH R01AI58697 Ramratnam (PI) 8/15/2005–7/31/2010
Overcoming HIV-1 resistance to RNA interference
Role: PI

The goal of this project was to use a murine xenotransplant model of HIV-1 transmission and determine the efficacy of RNAi in preventing HIV-1 transmission.

17. 3P30AI042853-13S1 Carpenter (PI) 8/20/2010-7/31/2012
NIH/NIAID
Project to Explore the Proteomics of HIV
Role: Co-Investigator

The goal of this project was to explore the proteomics of HIV under the umbrella of the Center for AIDS Research.

18. 5UM1AI068618 Ramratnam (PI) 6/01/2011-5/31/2012
NIH/Fred Hutchinson
Cancer Research Center

Development of a Systems Biology Platform for the Assessment of Mucosal Innate and Adaptive Immunity
Role: Co-PI

The overall goal of this project was to conduct state-of-the-art laboratory-based clinical research and evaluation through the HIV Vaccine Trials Network that would lead to the development of a safe and efficacious HIV vaccine.

19. P20GM103468 Quesenberry (PI) 9/30/2009-6/30/2015
NIH/NCRR
Stem Cell Biology: New Directions in Clinical and Basic Research COBRE
Role: Core Director

The major goal of the project was to provide basic laboratory services and to mentor junior COBRE investigators in support of their stem cell biology centered basic science investigations.

20. 1R01HL103726 Quesenberry (PI) 4/01/2011–3/30/2016
NIH/NHLBI
Genetic information transfer to hematopoietic cells: Role of microvesicles
Role: Co-Investigator
The focus of this project was to determine if vesicles shed by lung cells are able to influence the identity of bone marrow cells that consume them to the point that they behave like lung cells.

21. 2P30AI042853 Carpenter (PI) 9/01/1998-6/30/2017
NIH/NIAID
Center for AIDS Research
Role: Retrovirology Core Co-Director

This project provided core laboratory services to investigators to assist in HIV-1 centered investigations.

22. 1UH2TR000880 Quesenberry (PI) 7/01/2013–6/30/2018
NIH/NIDDK
Regulation of renal and bone marrow injury by extracellular vesicle non-coding RNA
Role: Co-Investigator

The focus of this project was to characterize and identify the “healing” microRNA and engineer extracellular vesicles so that they can contain high levels of this microRNA. This was used to heal injured marrow and kidney in pre-clinical models.

UNIVERSITY TEACHING ROLES

2005, Medical Microbiology (BI0158), HIV-1/retrovirology section (one lecture)

2006, Integrated Medical Sciences I (BIO364); Section 1: Scientific Foundations of Medicine. DNA and RNA replication, protein synthesis (four lectures)

2007 – 2013: The Biology of AIDS; Peter Shank, Ph.D (course leader). Lecture on transmission and microbicide science.

2001 - 2013
Various lectures to medical students and undergraduates (BIOMED 158,364), Retrovirus, HIV and microbicides.

2007 - present
Division of Infectious Diseases, HIV-1 microbicides.

2001 - present
Primary laboratory mentor for undergraduate, medical, postdoctoral students, foreign trainees and junior faculty as represented in tabular form below

Laboratory Mentees (n=26)

Name of mentee	Years	Position in my laboratory	Project	Position after leaving laboratory
Wayne Chung	2002-2003	Undergraduate biology honors thesis candidate, Brown University	HIV-1 RNAi	Medical student, NYU Medical School, NY,NY
Rebecca Silbermann	2002-2003	Candidate for MMS, MD, Brown University	Mucosal RNAi	Resident in Medicine, University of Rochester, Rochester, NY
Daniel Boden, MD	2001-2004	Postdoctoral fellow	Antiviral RNAi	Research Scientist, Aaron Diamond AIDS Research Center, Rockefeller University, NY,NY
Oliver Pusch, Ph.D	2001-2004	Postdoctoral fellow	Bioengineering commensal bacteria	Assistant Professor, University of Vienna, Vienna, Austria

Ruth Connor, MD	2002-2005	Postdoctoral fellow	Breast milk transmission of HIV-1	Assistant Professor, Dartmouth University, Hanover, NH
Amanda Sun, MD, Ph.D	2003-2005	Postdoctoral fellow, Division of Hematology/Oncology	Stem cell biology	Assistant Professor, University of Louisiana, LA
Yingjie Zhang, MD, Ph.D	2004-2010	Postdoctoral fellow	Antiviral microRNA	Biotechnology Industry
Ming Li, Ph.D	2005-2017	Postdoctoral fellow/Assistant Prof (2012)	Microbicide design and delivery; HIV pathogenesis	Biotechnology Industry
Jinsong Gao, MD, Ph.D	2004-2010	Postdoctoral fellow	Stem cell biology	Research Scientist, Division of Surgical Research, RIH.
Amana Nasir, MD	2005-2007	Rotating Postdoctoral fellow, Division of Gastroenterology	Gene therapy/inflammation	Pediatric Gastroenterologist, Mercy Hospital, St Louis, MO
Michael Newstein, MD, Ph.D	2003-2005	Assistant Professor of Medicine (Research)	HBV	Attending Physician, Milford Regional Physician Group, Milford, MA
Patricia Cristofaro, MD	2003-2006	Assistant Professor of Medicine (Research)	HPV	Attending Physician, VAMC, Providence, RI
Troy Martin, MD	2002-2004	Rotating ID fellow	HIV-1 resistance, virus co-culture	Attending Physician, Swedish Medical Center, Seattle, WA
Booth Wainscoat, DO	2003-2004	Rotating ID fellow	HIV-1 co-culture	Attending Physician, Pediatric Associates of Norwalk & Darien PC, CT
E. Segubre. M.S.,Ph.D	2005-2006	Visiting foreign Fogarty trainee	HIV-1 Resistance	Director, Molecular Biology Laboratory, Research Institute

				for Tropical Medicine, Philippines.
R. Pellish, MD	2006-2007	Rotating Postdoctoral fellow, Division of Gastroenterology	Therapeutic utility of carbon nanotubules	Attending Gastroenterologist, Lahey Health, MA
Xiaoli Tang, Ph.D	2009-	Assistant Professor of Research (Medicine)	RNAi	Current research staff
Isabella Newman, MD	2012-2013	Undergraduate biology honors thesis candidate, Brown University	HIV-1 HDF	Resident Physician, Mount Sinai Beth Israel, NY, NY.
Huafei Lu, Ph.D	2013-	Postdoctoral fellow	HIV-1 pathogenesis	Current research staff
Xing Feng, Ph.D	2013-2015	Visiting Research Scientist	Drosha proteomics	Professor of Pharmacology, Medical School of Hunan Normal University, China
Ariel Topletz, Pharm. D	2013-2015	Rotating Postdoctoral fellow	Cannabinoids and HIV-1	Principal Clinical Pharmacologist, Seagen, Bothell, WA
Jianlin Zhou, Ph.D	2014-2015	Visiting Research Scientist	HIV-1 pathogenesis	Professor of Biology, Hunan Normal University, China
Mitchel Silby, Sc.M	2016-2019	Graduate student (M.S. in Biotechnology, Brown U) and postdoctoral fellow	HIV-1 Tat expression systems	Pre-Doctoral Intern, Psychological Associates of Warwick, RI
Robert Williams BA	2016-2017	Undergraduate biology honor thesis	HIV-1 Tat expression systems	Medical Student, Alpert Medical School, Providence, RI
Patrick Fazeli BA	2022-	Graduate student (M.S. in Biotechnology, Brown U) and postdoctoral fellow	CNS penetration of microvesicles	Current research staff

HOSPITAL TEACHING ROLES

Supervision of medical students, house staff and fellows on the Immunology Service, The Miriam Hospital, Providence, RI

Year	Number of weeks attended
2001-2002	12
2002-2003	16
2003-2004	8
2004-present	6-12

PATENTS

"Exosome Targeting Of CD4+ Receptor Expressing Cells"
US2021/0000895 A1. 01/07/21 *PENDING*

"Treating Human Immunodeficiency Virus Infections"
Patent No. US 9,522,943 B2. ISSUED 12/20/16