CURRICULUM VITAE

PERSONAL DATA

Upal Roy, PhD
Assistant Professor
Department of Health and Biomedical Sciences
University of Texas Rio Grande Valley
College of Health Affairs
One West University Blvd.
Brownsville Texas 78520
Office: BRHP 2.115
Office: (956) 882-5731
Email: upal.roy@utrgv.edu

EDUCATION AND TRAINING:

Degree	Year	Institution	Field
B.S.	1997	Dr. B.A Marathwada University, India	Microbiology, Zoology, Chemistry
M.S.	1999	Dr. B.A Marathwada University, India	Microbiology
Ph.D.	2005	Goa University, India	Microbiology

PROFESSIONAL EXPERIENCE:

2017- Assistant Professor (Tenure Track), University of Texas Rio Grande Valley. Brownsville, TX

2017: Adjunct Assistant Professor (Biology), James Madison University, Harrisonburg, VA

2016 - 2017: Research Scientist II, Biosciences Division, SRI International, Harrisonburg, VA

2012 -2016: Assistant Professor (Research track), (Immunology), Herbert Wertheim College of Medicine, Florida International University (FIU), Miami, Florida.

2009 - 2012: Senior Research Associate, (Pharmacology and Experimental Neuroscience), University of Nebraska Medical Center, Omaha, Nebraska

2006 - 2009: Post-Doctoral Fellow (Pharmacology) Tulane University Health Sciences Center, New Orleans, Louisiana

PROFESSIONAL ACTIVITIES:

Membership in Professional Societies

2005-present American Society for Pharmacology and Experimental Therapeutics
2006- present American Society for Microbiology
2007- present American Society for Virology

2010-present	Society on Neuroimmune Pharmacology (SNIP).
2011-present	Sigma Xi

National and International Review Panels:

2009	Reviewer in ASPET Division for Neuropharmacology (Experimental Biology 2009).
2013	Grant Reviewer- Miami Center for AIDS Research (CFAR)
2013	Reviewer for 2013 Sigma Xi Student Research Showcase
2014 -15	Interview Panel member of Medical student selection committee at College of Medicine, Florida International University
2015	Reviewer of Conrad Foundation Challenge honors
2015	Reviewer for 2015 Sigma Xi Student Research Showcase
2015	Grant Reviewer – Medical Research Councils United Kingdom, (RCUK)
2015-16	Interview Panel member of Medical student selection committee at College of Medicine, Florida International University
2016	Grant Reviewer – Nebraska's Institutional Developmental Awards Networks of Biomedical Research Excellence (INBRE), Nebraska
2016 (07/21- 22)	Grant Reviewer – NIH study section - NeuroAIDS and other End-organ Diseases Study Section [NAED]
2018	Grant Reviewer – NIH Special Emphasis Panel (SEP)- ZAI1 SM-A (J1)- Next-Generation Biologics for Sustained HIV Remission
2018	Judge Travel Award for the 2018 Annual Biomedical Research Conference for Minority Students (ABRCMS), November 14 - 17, Indianapolis, Indiana
2019	Grant Reviewer – NIH Special Emphasis Panel ZDA1 IXR-Q (21)- Modeling HIV Neuropathology Using Microglia from Human iPSC and Cerebral Organoids.

Invited Seminars & Presentations:

2008 (April)	Abstract selected for oral presentation at Experimental Biology Meeting, San Diego
2008(September)	Ragon Institute of MGH, MIT and Harvard, Boston
2009 (February)	Tulane University, New Orleans
2013 (June)	Florida International University, Miami, Florida
2014(November)	National Institute of Technology-Durgapur, India
2015(July)	Drug Discovery and Therapy World Congress 2015, Boston
2016 (February)	Barry University, Miami, Florida
2016 (October)	Grousbeck Gene Therapy Center, Harvard Medical School
2019 (August)	Government college of Arts, Science and Commerce, Khandola, Goa, India

Teaching Activity:

Microbiology	Introduction to Microbes, Medical Microbiology
Medical Pharmacology	Antiretroviral drugs (part-1 & 2)
Nanomedicine	Polymeric nanoparticles and their applications in nanomedicine
Nanomedicine	Nanoparticle and device based drug delivery
Biology	Biology of AIDS

Teaching methods used:

Peer Instruction, Active learning, Online teaching, Problem-based learning, Just in Time Teaching (JiTT), & Tool based teaching techniques.

Learning management system used:

Blackboard, Canvas, D2L, Iclicker, Tegrity, & LearnSmart

HONORS AND AWARDS:

1997-98	National Merit Scholarship, Government of India
1999-02	Junior and Senior Research Fellowship, DOD, Government of India
2002-04	Senior Research Fellowship, CSIR, Government of India
2004-05	Post-Doctoral Fellowship, DBT, and Government of India.
2007	Travel award for the young scientist in FASEB meeting, 2007 at Washington DC.
2008	Best poster award at "Multidrug resistance and ABC transporters" conference in Baltimore.
2009	Best poster award at"20th Annual Research Day" on Tulane University, New Orleans.
2011	Travel award for young Scientist in Society on Neuroimmune Pharmacology meeting, Florida.
2014	Young Investigator Scholarship in International Conference on Retroviruses and Opportunistic Infections (CROI), 2014 Boston.
2016	Recognized as an outstanding employee for commitment to the team and work (Spot award 2016)
2017	Received travel award from UTRGV to attend SNIP at Chicago, April. 2018.
2018	Received a partial scholarship for attending Short Course on the Genetics of Addiction in Jackson Laboratory, Bar Harbor, Maine, September 16-21, 2018.
2019	Received a full scholarship for attending NIH sponsored grant writing workshop hosted by University of Kentucky on March 11-13, 2019.
2019	Received a full scholarship for attending NIH sponsored workshop on HIV and Aging on April 11-12, 2019, Emory University, Atlanta.

EDITORIAL ACTIVITIES:

Peer Review Activities (peer-reviewed journals): Multiple reviews for many of the journals listed below:

Current Microbiology
Marine Environmental Research
Journal of Environmental Management
Experimental Biology and Medicine
Current Drug Delivery
International Research Journal of Biotechnology
Molecular Neurobiology
PLOS one
World Journal of AIDS
Ecotoxicology
European Journal of Neurology
Advances in Microbiology
Journal of Antivirals & Antiretroviral
Current Cancer Drug Target
Virology Discovery
Journal of Pain Research

EDITORIAL BOARD MEMBER OF JOURNALS

American Journal of Virology
Virology Discovery

HOAJ Biology
Research Journal of Infectious Diseases
World Journal of AIDS
Journal of Human Virology & Retrovirology (Associate Editor)

RESEARCH INTEREST:

My laboratory is focused on HIV-1 infection, prevention, and therapeutics. Our research interest is to address the following questions, 1) What is the basic mechanism of HIV-1 drug resistance? 2) What are the molecular factors that influence HIV-1 related comorbidities as well as aging? 3) What are new therapeutic strategies to detect and improve treatment options for the complete elimination of HIV-1 from its reservoir organs (the brain, lymphoid tissues)?

One major area of our research is concentrated on the central nervous system (CNS). The brain is separated from the peripheral system through the Blood Brain Barrier (BBB). The lack of therapeutic drug entry to the brain supports low-level HIV-1 replication and associated complications called HIV-associated neurological disorder (HAND). The main reason of inefficient drug entry to the brain is due to the presence of ABC transporters (e.g. P-glycoprotein or P-gp and Multidrug resistance-associated proteins or MRPs) in the BBB. We are interested in assessing the role of P-gp and MRPs in drug entry through the BBB. We study the molecular mechanisms of these transporters with respect to their drug resistance in patients and also investigate the therapeutic alternatives to reduce the effect of P-gp and MRPs.

A second major focus of our research is the optimization of nanoformulated anti-HIV drug (nano drug) delivery to the HIV reservoir organs like the brain and gut-associated lymphoid tissues (GALT). This project has evolved to examine the potentials of targeted, non-targeted, macrophages mediated nano drug delivery to HIV-infected reservoir organs. In this study, we have characterized a series of nano drug through a set of *in-vitro* and *in vivo* (mouse, macaques) study. We have also characterized two different humanized mouse models (hu-PBL, CD34 mice) to monitor the long-term effect of nano drug on therapeutic efficacy and neurobehaviors.

Other areas of our research are to investigate potential biomarker for neurodegeneration. In this regard, we have investigated DJ1 protein as the marker for neuronal cells degeneration in the presence of HIV-1 and recreational drugs like cocaine. We are also interested in understanding the role of mesenchymal stem cells (MSCs) in HIV infection and studying other HIV-1 co-infections (HTLV-1/2 and *Mycobacterium tuberculosis*).

Our work is very multidisciplinary and collaborative. We use different techniques including molecular characterization of host gene and protein in response to disease, physical and chemical characterization of the nanodrug molecule, the toxicological and neurobehavioral effect of the drug *in vivo*. Finally, optimize a humanized mouse model to study drug metabolism and disease pathology. Our ultimate goal is to develop our basic science studies to be translational and therapeutically relevant.

Key Words: HIV-1 – HIV reservoirs - Nanomedicine – Drug delivery – Neurological disorders – Biomarker – Drug transporters – humanized mouse model – Macrophages-Mesenchymal stem cells- HIV Coinfection.

PUBLICATIONS H-index (Web of science) = 10 h-Index (Google Scholar) = 14

1. P Malhotra, P Haslett, B Sherry, D Shepp, P Barber, J Abshier, **U Roy**, and H Schmidtmayerova. Increased Plasma Levels of the TH2 chemokine CCL18 associated with low CD4+ T cell counts in HIV-1-infected Patients with a Suppressed Viral Load. ***Sci Rep. (Nature),*** 2019 Apr 12;9(1):5963.. (Corresponding author) PMID: 30979916
2. Gerlach SL, Chandra PK, **Upal Roy**, Gunasekera S, et al . The Membrane-Active Phytopeptide Cycloviolacin O2 Simultaneously Targets HIV-1-infected Cells and Infectious Viral Particles to Potentiate the Efficacy of Antiretroviral Drugs. Medicines (Basel). 2019 Feb 28;6(1). PMID: 30823453.

3. **Upal Roy**, Drozd V, *et al* (2018). Characterization of Nanodiamond based anti-HIV drug Delivery to the Brain. ***Sci Rep. (Nature),*** *2018* Jan 25;8(1):1603. doi: 10.1038/s41598-017-16703-9. PMID: 29371638. (Corresponding author)

4. A Kaushik, R.D. Jayant, R Nikkhah-Moshaie, V Bhardwaj , **Upal Roy**, Z Huang, A Ruiz, A Yndart, V Atluri, N El-Hage, K Khalili, M Nair. Magnetically guided central nervous system delivery and toxicity evaluation of magneto-electric nanocarriers. ***Sci Rep (Nature)***, 2016 May 4;6:25309.

5. **Upal Roy**, J Rodríguez, P Barber, J Neves, B Sarmento, M Nair. (2015). The Potential of HIV-1 Nanotherapeutics: from *in vitro* studies to clinical trials. ***Nanomedicine (London)***. 2015; 10(24):3597-609. (PMID: 26400459) (Corresponding author)

6. **Upal Roy**, P Barber, YC Tse-Dinh, E Batrakova, D Mondal, M Nair.(2015). Role of MRP transporters in regulating antimicrobial drug inefficacy and oxidative stress-induced pathogenesis during HIV-1 and TB infections. ***Front. Microbiol*.**6:948. doi: 10.3389/fmicb.2015.00948. (PMID:26441882) (Corresponding author)

7. **Upal Roy**, H Ding, S P Kanthikeel, A Raymond, VAtluri, A Yndart, E M. Kaftanovskaya, E Batrakova, M Agudelo, M Nair.2015. Preparation and Characterization of Anti-HIV Nano drug Targeted to Microfold cell of Gut-associated lymphoid Tissue (GALT). ***International Journal of Nanomedicine.*** 10:5819-35. doi: 10.2147/IJN.S68348. (PMID: 26425084). (Corresponding author) Video abstract: https://www.youtube.com/watch?v=XrMY98sT4Nc

8. **Upal Roy**, VS Atluri, M Agudelo, A Yndart, Z Huang and M Nair (2015). DJ1 Expression Downregulates in Neuroblastoma Cells (SK-N-MC) Chronically Exposed to HIV-1 and Cocaine. ***Front. Microbiol.*** 6:749. doi: 10.3389/fmicb.2015.00749. (PMID: 26284039). (Corresponding author)

9. A Tomitaka, Y. Takemura , Z Huang, **Upal Roy**, and M, Nair. Recent Advances in Magnetoliposomes as Drug Delivery Carriers. ***J Personali NanoMed***, 2015, 1(2):51-57.

10. A.D Raymond, P Diaz, S Chevelon, M Agudelo, , A Yndart-Arias, H Ding, A Kaushik, R D. Jayant, **Upal Roy**, S. Pilakka-Kantakeel, and M.P Nair.2015 Microglia-derived HIV Nef+ exosome (exNef) impairment of the blood-brain-barrier is treatable by nanomedicine-based delivery of Nef peptides. ***J Neurovirol***. . (PMID:26631079)

11. T Samikkannu, KV Rao, S Pilakka Kanthikeel, V Atluri Subba Rao, M Agudelo, **Upal Roy**, MP Nair. 2014. Immunoneuropathogenesis of HIV-1 clades B and C: Role of redox expression and thiol modification. ***Free Radic Biol Med***.69:136-44. (PMID: 24480751)

12. **Upal Roy**, C. Bulot, T. Hazari, A. Verma, K H zu Bentrup, D Mondal. 2013. Specific increase in P-gp (ABCB1) expression and drug-efflux function in human brain endothelial cells following concomitant exposure to HIV-1 and saquinavir. ***PLOS one***. *Oct 3;8(10):e75374.* (PMID: 24098380) (Corresponding author)

13. SL Gerlach, M Yeshak, U Göransson, **Upal Roy**, R Izadpanah, D Mondal. 2013. Cycloviolacin O2 (CyO2) suppresses productive infection and augments the antiviral efficacy of nelfinavir in HIV-1 infected monocytic cells. ***Biopolymers***. 100(5):471-479.(PMID: 23897405)

14. N Gautam, **Upal Roy**, S Balkundi, P Puligujja, D Guo, N Smith, XM Liu, B Lamberty, B Morsey, H Fox, J McMillan, H E. Gendelman, Yazen Alnouti 2013. Preclinical Pharmacokinetics and

Tissue Distribution of Long-Acting Nanoformulated Antiretroviral Therapy. ***Antimicrobial agents and chemotherapy*** 57 (7), 3110-3120. (PMID: 23612193).

15. **Upal Roy**, J McMillan, Y Alnouti, N Gautum, N Smith, S Balkundi, P Dash, S Gorantla, A Martinez-Skinner, J Meza, G Kanmogne, S Swindells, S.M. Cohen, R.L Mosley, L Poluektova , H.E. Gendelman. 2012. Pharmacodynamic and antiretroviral activities of combination nanoformulated antiretrovirals in HIV-1-infected human peripheral blood lymphocyte-reconstituted mice. ***J Infectious Disease.*** 206(10):1577-88. (PMID: 22811299).

Journal of Infectious Disease has selected Figure-1 of this publication as the cover page of the journal. It also received media attention as potential scientific discovery from different national and international newspapers including Omaha World-Herald, Times of India, Health News Digest, Infection Control Today, Newswise, Nanowerk, News-medical etc.

16. P. Dash, H.E. Gendelman, **Upal Roy**, S. Balkundi, T.Gutti, J.Knibbe, E. Makarov, N. Smith, Y. Alnouti, R. L. Mosley, H.A. Gelbard, J. McMillan, S. Gorantla, and L. Poluektova. 2012 .Long-acting Nanoformulated Protease Inhibitors Show Potent Antiretroviral Responses in HIV-1 Infected Humanized Mice. ***AIDS.*** 26(17):2135-44. (PMID: 22824628)

17. G.D. Kanmogne, S. Singh, **Upal Roy**, X. Liu, J McMillan,S Gorantla, S Balkundi, N Smith, Y Alnouti, N Gautam, Y Zhou, L Poluektova, A Kabanov, T Bronich and H E.Gendelman.2012. Mononuclear phagocyte intercellular crosstalk facilitates transmission of cell-targeted nanoformulated antiretroviral drugs to human brain endothelial cells. ***International Journal of Nanomedicine*** 7.1-16. (PMID: 22661891)

18. S Balkundi, A.S. Nowacek, R.S. Veerubhotla, H Chen, A Martinez-Skinner, **Upal Roy**, RL Mosley, G Kanmogne, X Liu, A.V. Kabanov, T Bronich, J McMillan, H.E. Gendelman.2011. Comparative manufacture and cell-based delivery of antiretroviral nanoformulations. ***International Journal of Nanomedicine***.6:3393-404. (PMID: 22267924)

19. J Huang, N Gautam, SP Bathena, **Upal Roy**, J McMillan, HE Gendelman, Y Alnouti.2011. UPLC-MS/MS quantification of nanoformulated ritonavir, indinavir, atazanavir, and efavirenz in mouse serum and tissues. ***Journal of Chromatography B*** 879(23):2332-8. (PMID: 21752731)

20. TZ Nazari-Shafti, E Freisinger, **Upal Roy**, CT Bulot, C Senst, CL Dupin, AE Chaffin, SK Srivastava, D Mondal, EU Alt, R Izadpanah. 2011. Mesenchymal stem cell-derived hematopoietic cells are permissive to HIV-1 infection. ***Retrovirology***.12;8(1):3. *(Article is considered as 'Highly accessed' relative to age)* (PMID: 21226936)

21. S Balkundi, AS Nowacek, **Upal Roy**, A Martinez-Skinner, J McMillan, H. E. Gendelman.2010. Methods Development for Blood Borne Macrophage Carriage of Nanoformulated Antiretroviral Drugs. ***Journal of Visual Experiments*** (46):pii 2460.doi.10.3791/2460. (PMID: 21178968)

22. AS Nowacek , S Balkundi , J McMillan , **Upal Roy** , A Martinez-Skinner , RL Mosley , G Kanmogne , AV Kabanov , T Bronich , HE Gendelman . 2011. Analyses of nanoformulated antiretroviral drug charge, size, shape and content for uptake, drug release, and antiviral activities in human monocyte-derived macrophages. ***Journal of Control Release.*** 150(2):204-11. (PMID: 21108978)

23. **Upal Roy** , G Chakravarty , K Honer Zu Bentrup , D Mondal. 2009. Montelukast is a potent and durable inhibitor of multidrug resistance protein 2-mediated efflux of taxol and saquinavir**.** ***Biological & pharmaceutical bulletin*** 32(12):2002-9. (PMID: 19952419)

24. **Upal Roy**, S A. Simpson, D Mondal, S Eloby-Childress, E L. Winsor, M A. Beilke. 2008. Up-regulation of HTLV-1 and HTLV-2 expression by HIV-1 *in vitro*. ***Journal of Medical Virology***. 80(3):494-500. (PMID: 18205225)

25. M. A. Eilers, **Upal Roy** and D. Mondal. 2008. MRP (ABCC) transporters-mediated efflux of anti-HIV drugs, saquinavir, and zidovudine, from human endothelial cells. ***Experimental Biology and Medicine***. (Maywood). 233(9).1149-1160. (PMID: 18535159).

    This publication has been selected as the feature article for the September issue 2008 and received media recognition from different online science journal including Eurekalert.org, Genengnews.com, Medicalnewstoday.com, sina.com, and esciencenews.com.

26. R Dixit, **Upal Roy**, S. Patole, Y S. Shouche.2008. Molecular and Phylogenetic analysis of a novel family of fibrinogen-related proteins from mosquito *Aedes albopictus* cell line. ***Computational Biology and Chemistry*** 32. 382-386. (PMID: 18706867)

27. R. Dixit., S. Dixit., **Upal Roy**, Y. Shouche and S Gakhar.2007. Partial genomic organization of ribosomal protein S7 gene from malaria vector *Anopheles stephensi.* ***Insect Science***.14. 65-75. DOI: 10.1111/j.1744-7917.2007.00131.x

28. **Upal Roy**, D Nair**.**2007**.** Biodiversity of organotin resistant *Pseudomonas* from the west coast of India. ***Ecotoxicology***. 16 (2), 253-261. (PMID: 17131180)

29. T.P. Anand, A. W. Bhat., Y.S. Shouche., **Upal Roy**, J. Siddharth., S. P. Sharma. 2006. Antimicrobial activity of marine bacteria associated with marine sponges from the waters off the coast of south-east India. ***Microbiological Research***.161. 252-262. (PMID: 16765842)

30. **Upal Roy** and S. Bhosle. 2006. Microbial transformation of tributyltin chloride by *Pseudomonas aeruginosa* strain USS25 NCIM-5224. ***Applied Organometallic Chemistry***.20. 5-11. DOI: 10.1002/aoc.997

31. **Upal Roy**; S.K Dubey and S. Bhosle**.** 2004 Tributyltin chloride degrading bacteria from marine environment of the west coast of India. ***Current Science*.**85.702-705.

32. **Upal Roy**, S. K. Dubey and S. Bhosle.2001."Characterisation of Exopolymer Produced by *Sphingomonas sp*. Utilizing TBTC". ***Proceedings of International Conference on Industrial Pollution and Control Technologies*** (ICIPACT-2001, JNTU, Hyderabad), 639-642.

33. S.K. Dubey and **Upal Roy.** 2003 Biodegradation of Tributyltins (organotins) by Marine Bacteria. ***Applied Organometallic Chemistry***.17. 3-8. DOI: 10.1002/aoc.394

Complete List of Published Work in My Bibliography:

https://www.ncbi.nlm.nih.gov/sites/myncbi/1v5M3Wnodp05h/bibliography/48575695/public/?sort=date&direction=ascending

Book Chapters:

1. **Roy U** and Bekhout, B. HIV Infection and Adipose Tissue-Resident Stem cells: Their Involvement in Pathology and Treatment. *In* STEM CELLS AND CANCER STEM CELLS:

Therapeutic Applications in Disease and Injury, Ed. M.A. Hayat, Kean University, Union, NJ, USA. Springer. Volume 13, 2015. 21-34.

2. **Roy, U**., Balkundi, S., McMillan, J., and Gendelman, H.E. Nanomedicine to improve central nervous system drug delivery in neuroAIDS. *In:* The Neurology of AIDS, Third Edition. Eds: H.E. Gendelman, I.P. Everall, H.S. Fox, H.A. Gelbard, I. Grant, S.A. Lipton, S. Swindells. Oxford University Press, New York, 2011, pp. 987-998.

3. **Roy U** and Bhosle S., "Microbial Degradation of Xenobiotics in Marine Environment ", chapter in the book entitled "*Advances in Microbiology*" Edited by Prof. P.C. Trivedi, Department of Botany, University of Rajasthan, Jaipur-30, India. Published by Scientific Publishers (India), Jodhpur, 2003, p-293-301.

PATENTS (USA):

1. "Materials and Methods for Targeting Therapeutic Compositions to Gut-Associated Lymphoid Tissue (GALT)" **Roy, U**.; Ding, H; Nair, M.P. US Patent # 9,872,859, 2018.

2. "Nanodiamond compositions and their use for drug delivery" **Roy, U**., Dorzd, V., Durygin, A., Saxena, S., Nair M.P., US Patent # 9616022, 2017.

RESEARCH SUPPORT:

1R15NS108815-01 PI 07/01/2018 – 06/30/2021
Nanodiamond based anti-HIV drug delivery targeted towards the brain

I am responsible for the overall direction and administration of the project. In this project, we are making brain targeted nano formulated anti-HIV drugs to deliver to the brain for efficient viral suppression. This project also provides us an opportunity to expose the student to biomedical research.

STUDENTS MENTORED (Undergraduate and Master thesis)

Dustin Hill	Tulane University
Sarah Galvez	Tulane University
Thomas Trang	Tulane University
Joniece Willis	Tulane University
Alec Anderson	University of Nebraska Medical Center
Landon Ehlers	University of Nebraska Medical Center
Nathan Smith	University of Nebraska Medical Center
Alberto A Martinez	Florida International University
Jessica Rodriguez	Florida International University
Yat Fung Chiu	Florida International University
Paul Barber	Florida International University

Delyn Brito	Florida International University
Jonathan Abshire	University of Texas Rio Grande Valley
Hari Das	University of Texas Rio Grande Valley
Roberto De La Garza	University of Texas Rio Grande Valley
Natalila Davila	University of Texas Rio Grande Valley
Bryan Martinez	University of Texas Rio Grande Valley
Erika Torres	University of Texas Rio Grande Valley
Daphne Alcala Zuniga	University of Texas Rio Grande Valley
Jesus Hernandez	University of Texas Rio Grande Valley
Arvind Manojkumar	University of Texas Rio Grande Valley

Summer Research Fellow

Jesse Rodríguez (2015) Williams College, Williamstown, MA
Rosalyn Aron (2014) Xavier University, New Orleans, LA

Visiting Scholar (2013)

Ibrahim M Almuhaydib From Imam Mohammed Bin Saud University, Kingdom of Saudi Arabia.

STUDENTS CO-MENTORED

Ph.D. Students

Michelle Schultz	Tulane University
April Johnson	Tulane University
Christine Bulot	Tulane University
Pavan Pulligujja	University of Nebraska Medical Center
Sneham Tiwari	Florida International University

SELECTED MEETING ABSTRACTS:

1. **U Roy**, M Gil, G de Erausquin. The Impact of Exercise in an Enriched Environment on Parkinson Disease Pathology. Neuroscience 2018, November 3-7, San Diego, CA.
2. J Hernandez and **U Roy**. Role of DJ1 gene in cocaine addiction and HIV-associated cognitive impairment. NIDA Genetics Consortium Meeting, January 8th to 9th, 2018, NIDA Headquarters, Rockville, USA.
3. **U Roy**, V Drozd, A Durygin, J Rodr´ıguez, P Barber, V Atluri, X Liu, T G Voss, J Abshier, S Saxena, and M Nair. Development of Nanodiamond-based anti-HIV drug delivery targeted to the Brain. SNIP/ISNV meeting, April 10-14, 2018, Chicago, USA. (Accepted)
4. **U Roy**, H Ding, Huang Z, A Kaushik, RD Jayant, S Pilakka-Kanthikeel, AD Raymond, V Sagar, A Yndart-Arias, V Atluri, M Nair. Characterization of on-demand delivery of fluorescent magnetic nanoparticle (MNP) targeted towards the brain. Society on NeuroImmune Pharmacology (SNIP). Miami. April 22-25. 2015.
5. V Sagar, Huang Z, A Kaushik, **U Roy**, RD Jayant, V Atluri, S Pilakka-Kanthikeel, El-Hege N, Nair M. Effect of magneto-electric nanoparticle on deep brain motor coordination activity. SNIP. Miami. April 22-25. 2015.
6. AD Raymond, P. Diaz, S.Chevelan, AA Yndart, M. Agudelo , A. Kaushik., RD Jayant, **U Roy**, S Pilakka-Kanthikeel, M Nair. Polydrug nanocarrier to treat opiate addiction and reduce HIVexNef-associated neuropathogenesis. SNIP. Miami. April 22-25. 2015.
7. A Kaushik, RD Jayant, **U Roy**, Z Huang, A Ruiz, A Yadart, V Sagar, V Atluri, R Nikkhah, V Bharadwaj, M, nair. *In vitro* and *in vivo* cytotoxic evaluation of magneto-electric nanoparticles for the CNS delivery. SNIP. Miami. April 22-25. 2015.

8. M.E. Page, A Durygin, **U Roy**, S.K. Saxena, V Drozd. Novel nanodiamond synthesis fabrication method for use in drug delivery. Conference of Study of Matter at Extreme Conditions 2015.March 8-15, 2015,Fort Lauderdale –Haiti-Jamaica- Mexico- Fort Lauderdale (cruise).
9. **U. Roy**, H Ding, S P Kanthikeel, A Raymond, M Nair. Development of nanomedicine-based anti-HIV drug delivery targeting to microfold cell of the GALT. XXIV International HIV Drug Resistance Workshop, February 21-22, 2015, Seattle, Washington USA.
10. **U Roy**. Nanoparticle-Based Anti-HIV Drug Delivery Targeted Towards The Brain. The 2nd Personalized NanoMedicine Symposium 29th-30th January 2015, Miami, Florida.
11. A.D Raymond., P. Diaz, S.Chevelan, AA Yndart, M. Agudelo , S.P Pilakka, **U Roy**, A. Kaushik, S Thangavel, M Nair. Nanomedicine-based approach targeting ex Nef to treat HIV-associated neuropathogenesis and cocaine addiction. The 2nd Personalized NanoMedicine Symposium 29th-30th January 2015, Miami, Florida.
12. **U Roy**, H Ding, S P Kanthikeel, A Raymond, V Atluri, A Yndart-Arias, K Munoz-Caamano, V Sagar, S Thangavel, M Nair.2014. Magnetic nanoparticle for targeted anti-HIV drug delivery in *in vivo* model. SNIP. New Orleans. March -26-29. 2014.
13. V Atluri, S Pilakka-Kanthikeel, KVK Rao, V Sagar, S Thangavel, H Ding, **U Roy**, RD Jayant, A Yadart, A Raymond, M Agudelo, O Harnendez, M Fuenmayor, M Nair. Role of HDAC2 and miR-485 in regulation of synaptic plasticity gene in HIV infection: Implication in HAND. SNIP. New Orleans. March -26-29. 2014.
14. H Ding, C Yatfung, A Raymond, V Atluri, **U Roy**, A Yndart, S Pilakka-Kanthikeel, V Sagar, S Thangavel, M Nair. Development of hybrid nanocarrier (Au/Fe_3O_4) for active drug delivery to the brain to eliminate HIV-1 persistence. SNIP. New Orleans. March -26-29. 2014.
15. S Pilakka-Kanthikeel, A Raymond, V Atluri, V Sagar, **U Roy**, A Yndart, M Nair. SAMHD1facilitates HIV-1 persistence: Role of miR-155. SNIP. New Orleans. March -26-29. 2014.
16. A Raymond**,** H Ding, **U Roy**, A Yndart, M Agudelo, K Munoz, V Atluri, S Pilakka-Kanthikeel, S Thangavel, K Rao, M Nair. Polydrug mediated effect on HIV Nef exosome release and neuropathogenesis is modulated by Nef peptide magnetic nanocarrier. SNIP. New Orleans. March -26-29. 2014.
17. **U Roy,** H Ding, S P Kanthikeel, E M. Kaftanovskaya, A Raymond, K Munoz-Caamano, M Nair. 2014. Fluorescent Magnetic Nanoparticle as anti-HIV drug career for rodent brain targeting. International Conference on Retroviruses and Opportunistic Infections (CROI), Boston, March 3-6, 2014.
18. P Puligujja, H Gendelman, L Kendrick, N Smith, S Balkundi, **U Roy**, R Veerubhotla, J McMillan, X.M Liu. "Improved Biodistribution, Pharmacokinetics and Antiretroviral Responses for Folate-Targeted Nanoformulated Antiretroviral Therapy" CROI 2013, Atlanta, Georgia, March 3-6, 2013.
19. GD Kanmogne, **U Roy**, Z Liu, J McMillan, S Gorantla, S Balkundi, N Smith, Y Alnouti, N Gautam, L Poluektova, A Kabanov, T Bronich, HE Gendelman. Antiretroviral activity and brain penetrance of folate-coated nanoformulated antiretroviral drugs. SNIP. April 24-28, Honolulu, HI, April, 2012.
20. PK. Dash, S Gorantla, **U Roy**, J Knibbe, S Balkundi, J McMillan, H A. Gelbard, L. Poluektova and Howard E. Gendelman. Efficacy and safety tests of long-acting nanoformulated anti-retroviral drugs in HIV-1 infected humanized mice. SNIP. April 24-28, Honolulu, HI, April, 2012.
21. H. Gendelman, Y. Alnouti, P. Dash, **U. Roy**, S. Swindells, S. Gorantla, S. Balkundi, G. Kanmogne, J. McMillan, L. Poluektova, Preclinical development of sustained release combination nanoformulated ART. 19th CROI, Seattle, WA. Mar 5-8, 2012.
22. L Poluektova, P. Dash, J McMillan, H Gendelman, S Gorantla, **U Roy**. Development of nanoformulated antiretroviral drugs utilizing HIV-1 infected humanized mice as a drug testing platform. Third International Workshop on Humanized Mice. Pittsburgh, PA October 28-31, 2011.
23. **U. Roy**, S. Balkundi, A. Nowacek, J. McMillan, A. Martinez-Skinner, R. Lee Mosley, G. Kanmogne, A. Kabanov, T. Bronich, H. Gendelman, Bio-distribution and Efficacy of

Nanoformulated Antiretroviral Drugs. 17th Scientific SNIP conference, Clearwater Beach, FL. Apr 6-10, 2011

24. S. Balkundi, A. Nowacek, J. McMillan, **U. Roy**, A. Martinez-Skinner, R. Lee Mosley, G. Kanmogne, A. Kabanov, T. Bronich, H. Gendelman. Manufacture and Pre-clinical Testing of Nanoformulated Antiretroviral Therapeutics. 17th Scientific SNIP conference, Clearwater Beach, FL. Apr 6-10, 2011
25. Nowacek, I. Kadiu, S. Balkundi, **U. Roy**, G. Kanmogne, L. Poluektova, P. Dash, Y. Alnouti, J. McMillan, H. Gendelman. NanoART for Improved Antiretroviral Drug Delivery. 18th CROI, Boston, MA. Feb 27-Mar 2, 2011.
26. **U. Roy**, P. Dash, S. Balkundi, J. Huang, A. Nowacek, A. Martinez-Skinner, A. Epstein, J. Knibbe, S. Gorantla, L. Poluektova, J. McMillan, Y. Alnouti, H. Gendelman. Pharmacokinetics and Therapeutic Activities of Nanoformulated Antiretroviral Drugs. The 8th International Nanomedicine and Drug Delivery Symposium (NanoDDS'10), Omaha, NE**,** Oct 3-5, 2010.
27. S. Balkundi, A. Nowacek, J. McMillan, **U. Roy**, A. Martinez-Skinner, R. Lee Mosley, G. Kanmogne, Y. Li, A. Kabanov, T. Bronich, H. Gendelman. Manufacture and cell-based testing of nanoformulated antiretroviral drugs: Bridge for clinical development. The 8th International NanoDDS'10, Omaha NE**,** Oct 3-5, 2010
28. Nowacek, S. Balkundi, **U. Roy**, A. Martinez-Skinner, G. Kamogne, R. Lee Mosely, J. McMillan, A. Kabanov, T. Bronich, H. Gendelman. Optimizing Cell-Mediated Delivery of Crystalline Antiretroviral Nanoparticles. The 8th International NanoDDS'10, Omaha, NE**,** Oct 3-5, 2010.
29. **U Roy,** Kerstin Honer zu Bentrup and D. Mondal. HIV-1 infection increases drug efflux functions in blood barrier endothelial cells: persistence of CNS viral reservoirs despite therapy. Presented in 20th Research Day at Tulane University in New Orleans, February 11th -12th 2009 (Abstract number- B33).
30. **U Roy,** Kerstin Honer zu Bentrup and D. Mondal. Concomitant exposure to HIV-viral particles and HIV- protease inhibitors enhances drug –efflux functions in brain endothelial cells by regulating ABCB-1(P-gp) expression at both transcriptional and post-transcriptional levels. Presented in Multidrug resistance and ABC transporters Conference in Baltimore, Maryland, November 5th, 2008 (Abstract number- 20).
31. **U Roy** and D. Mondal. Concomitant exposure to HIV and anti-HIV drugs augment drug-efflux functions in Human brain Microvascular endothelial cells (BBB-ECs). Presented in FASEB2008 in San Diego, April 5th to 9th 2008 (Abstract number- 2849).
32. S Galvez, D Hill, **U Roy**, J Fuselier, D Coy and Debasis Mondal. Somatostatin (SST) Receptor Expression Profiling in HIV-infected Lymphocytes: Development of SST-analog Conjugated Anti-HIV Drugs in order to Target the Sequestered Viral Reservoirs. *Presented in* Tulane University Research Days on March 26 and 27, 2008 (Abstract number- F7).
33. M A. Beilke, **U Roy**, S A. Simpson, D Mondal, S Eloby-Childress, and E L. Winsor. In vitro model of HIV/HTLV-1/2 co-infection: Role of HIV-1 tat and PKC-induced factors presented in 45th Annual Meeting of the Infectious Diseases Society of America (IDSA), October 4-7, 2007 at the San Diego Convention Center, San Diego, California (Abstract number- 489).
34. **U Roy**; M Eilers and D. Mondal. The MRP-transporters decrease intracellular levels of anti-HIV drugs Saquinavir and Zidovudine in endothelial cells (ECs): Specific inhibition of MRP-mediated efflux by Leukotriene (LT) receptor antagonists. Presented in FASEB in Washington DC, April 28th to May 2nd 2007 (Abstract number- B151).
35. **U Roy,** and L.J.C.M. Effect of succinate and glycerol on biodegradation of Tributyltin chloride (TBTC) by in SETAC 23rd Annual meeting Abstract book, No- P785, Page-312-313. Meeting held on 16th -20th November 2002, at Salt Lake city, Utah, U.S.A.
36. **U Roy** & S.K. Dubey. Biological Characterization of Pigment-Producing Marine Bacteria Utilizing TBT From West Coast of India, was accepted for poster presentation at the Xth International Congress of Bacteriology and Applied Microbiology in Paris, 27th July- 1st August 2002.
37. **U Roy,** S.K.Dubey & S. Bhosle. Isolation and characterization of Tributyltin chloride degrading *Sphingomonas sp.* from marine surface water at the Bioremediation & Biodegradation: current Advances in Reducing Toxicity, exposure and Environmental Consequences Conference at Asilomer Conference Centre, Pacific Grove, CA, USA, organised by Biotechnology Centre for

Agriculture and the Environment, Rutgers University, New Brunswick, NJ, USA ,June 9th -12th . 2002.

38. **U Roy**, S. K. Dubey and S. Bhosle. Characterisation of Exopolymer Produced by *Sphingomonas sp.* Utilizing TBTC. Proceedings of International Conference on Industrial Pollution and Control Technologies (ICIPACT-2001, JNTU, Hyderabad), 639-642.December 7th -10th, 2001.
39. S.K.Dubey and **U Roy**. Biological Characterization of a TBTC Resistant Marine Bacterium, *Vibrio sp* in International Conference on New Horizons and Biotechnology, organized by Regional Research Laboratory, CSIR, Trivandrum, India, April 18th -21th ,2001.
40. **U Roy,** S.K.Dubey & S. Bhosle Tributyltin Resistant Bacteria from Marine Environment in MICROBIOTECH, at Birla Institute of Scientific Research, Jaipur, Organized by Association of Microbiologist of India, 41st Annual Conference. November 25th -27th, 2000.