U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30329-4027

Statement of Research Achievements

I have worked in biomedical sciences since 2004, primarily focusing on various infectious diseases to understand the fundamental principles regulating host's immune functions. My research has developed new biotechnologies using different adjuvants (Defensins, CpG ODNs, HPV-16 peptides, GPI-IL-12, GPI-B7-1, GPI-CCL28, host genomic DNA, and CCL27), antivirals (Lectins, CV-N, and Defensins) and vaccine delivery vehicles (PLGA microspheres, PLG nanoparticles, protein nanoparticles, virus-like particles; VLPs, microneedle patches; MNPs) for diseases such as HIV-1, malaria, influenza, cervical cancer and triple negative breast cancer as well as diagnostic kits for malaria and chikungunya infections. I have studied the coexistence of Th1/Th2 and Th17/Treg imbalances in patients with post-traumatic sepsis and the T cell profiles of HIV-1 infected Indian populations. I have investigated an HIV sequential immunization strategy with a panel of Env-enriched VLPs from HIV-1 clades A—E to generate broadly neutralizing antibody responses *(Received AIDS Vaccine Bike Ride Fellowship Award from Emory Vaccine Center)*.

I worked on various research to develop a universal influenza vaccine based on confirmation-stabilized tetrameric M2e nanoparticles, double-layered nanoparticles with HA stalk domains, and sequential immunization with various influenza HA. I have also participated in other influenza vaccine projects, including research into the use of two-layered nanoclusters, protein nanoparticles containing fusion proteins of flagellin with conserved influenza epitopes, and MNP delivery of 4M2e-tFliC fusion protein. As Research Assistant Professor, I with my amazing team developed double-layered protein nanoclusters composed of tetrameric M2e from four different viral strain cores with full-length Aic and Pr8 HA coatings to induce immune protection against divergent influenza A viruses and studied mouse genomic DNA as a novel adjuvant to enhance the potency of MNP-based influenza vaccines. I was also engaged in studying influenza skin vaccination and the adjuvanticity of CCL27 chemokine delivered *via* microneedle patches in mice.

At CDC, I worked in influenza virus surveillance and assessment of influenza virus susceptibility to FDA-approved and investigational antiviral agents. My interests were included the understanding of the molecular mechanisms of influenza virus resistance to antiviral medications and the effect of resistance mutations on viral fitness and evolution. Simultaneously, in collaboration with academic partners, I investigated the ability of the live attenuated influenza vaccines expressing hemagglutinin fused with M2 to provide protection against influenza challenge, in the ferret model.

Currently, I am working as LPRB-BAA Program Manager/ Scientist V and responsible to organize, track and report on communications and documents submitted to LPRB from multiple external research project partners and collaborators. Under the CDC-BAA program, I am involved in creating and maintaining detailed summaries, plans and organizational tools to track documents, communications, and responses from less than a dozen external partners. Additionally, I am in-charge to provide functional expertise in project coordination and expertise in laboratory data (microbiology, molecular biology, DNA/RNA sequencing).

I have a strong, consistent publication record in esteemed scientific journals such as Nature Communications, Journal of Controlled Release, Nanomedicine, and Scientific Reports *etc.* with more than 25 research/review articles with high citations. I have attended many scientific meetings, honored with number of prestigious awards worldwide, and served as reviewer and member of

editorial board of various scientific journals. I have overseen more than 30 undergraduate/graduate students, including 9 who have successfully completed their PhD program.

List of Awards/Honors:

2001	Best Performance Award in Software Technology, IICT, Uttar Pradesh, India
2002	Gold Medal for Best student of B.S. (Biology), Meerut University, Uttar Pradesh, India
2006	CSIR-UGC-NET Fellowship Award, Ministry of HRD, Govt. of India, India
2007	Best poster & oral presentation Award, 33rd IMMUNOCON, New Delhi, India
2008	Best poster & oral presentation Award, SFRR-2008 Satellite India Meeting, India
2009	K. S. Sarma Memorial Award, 2nd Indian Peptide Symposium, New Delhi, India
2009	RANBAXY Young Scientist Award, RANBAXY Research Foundation, Gurgaon, India
2009	Dr. Ranga Travel grant, All India Institute of Medical Sciences, New Delhi, India
2009	Rashtriya Gaurav Award, International Friendship Society, New Delhi, India
2010	Rajiv Gandhi Excellence Award, International Friendship Society, New Delhi, India
2010	Best oral presentation, International Conference on Opportunistic Pathogens, India
2010	Prof. G. P. Talwar Young Scientist Award, 37th IMMUNOCON, Jammu & Kashmir, India
2010	APCCB Young Scientific Award, Asian Pacific Con. of Clin. Biochemistry, South Korea
2011	IFCC Travel grant, IFCC Worldlab and EuroMedlab Int. Congress, Berlin, Germany
2011	BIOVISION.NXT Fellowship, 7th Life Science World Forum, Lyon, France
2011	Indira Gandhi Women Achiever Award, India International Friendship Society, India
2011	EACS 2011 Scholarship Award, European AIDS Conference, Belgrade, Serbia
2012	Microbicides Scholarship Award, Int. Conference on Microbicides, Sydney, Australia
2013	MSM Institute Scholarship, Annual African American MSM Institute, USA
2013	Young Scientist Award, Int. Congress on AIDS in Asia and Pacific, Bangkok, Thailand
2014	ISCB Best Thesis Award, Indian Society of Chemists and Biologist (ISCB), India
2015	AIDS Vaccine 200 Bike Ride Fellowship Award, Emory Vaccine Center, Atlanta, USA
2016	Oral Presentation Award, 14th Southeastern Reg. Virology Conference, Atlanta, USA
2017	Marquis Who's Who, Marquis Who's Who in America LLC, USA
2018	Vaccine Renaissance Award, ISV Annual Congress, Atlanta, USA
2021	Women Researcher Award, International Scientist Awards on Engineering, Science and Medicine, Pondicherry, India

List of Other Research Contributions:

2012 – 2014	Executive Member, Indian Immunology Society Committee, New Delhi, India
2009 – 2010	Member, Editorial Board, Journal of HIV for Clinical and Scientific Research
2013 – Present	Member, Editorial Board, International Journal of Immunology Research
2014 – Present	Member, Editorial Board, Journal of HIV for Clinical and Scientific Research
2015 – Present	Member, Editorial Board, International Journal of Pharmaceutical Sciences
2016 – Present	Member, Editorial Board, Austin Immunology
2016 – Present	Member, Editorial Board, Austin Neurology
2016 – Present	Member, Editorial Board, ARC Journal of AIDS
	Reviewer, Current Immunology Review
	Reviewer, Journal of Immunobiology
	Reviewer, Scientific Pages of Immunology
	Reviewer, Journal of Infectious Diseases and Diagnosis

Reviewer, International Journal of STDs and AIDS
Reviewer, Indian Journal of Clinical Biochemistry
Reviewer, World Journal of Gastroenterology
Reviewer, Journal of Enzymology and Biotechnology
Reviewer, International Immunology Journal
Reviewer, Journal of Antivirals & Antiretrovirals
Reviewer, International Journal of Plant and Animal Sciences
Reviewer, Indian Journal of Medical Research
Reviewer, Current HIV Research
Reviewer, Canadian Journal of Physiology and Pharmacology
Reviewer, Immunology
Reviewer, Viral Immunology
Reviewer, Scientific Reports
Reviewer, Virology
Reviewer, Journal of AIDS
Reviewer, Immunology Research
Reviewer, Vaccine
Reviewer, Viral Immunology
Reviewer, Viruses
Reviewer, Emerging Infectious Diseases
Reviewer, Influenza and Other Respiratory Viruses
Reviewer, Antimicrobial Agents and Chemotherapy
Reviewer, Journal of Infectious Diseases

List of Memberships of Scientific Organizations:

2009 – Present	Member, Indian Peptide Society (IPS)
2009 – Present	Member, Indian Immunology Society (IIS)
2009 – 2010	Member, Society of Biological Chemists of India (SBC India)
2010 – Present	Member, Association of Clinical Biochemists of India (ACBI)
2012 – Present	Member, Indian Society of Chemists and Biologists (ISCB)
2012 – 2014	Executive Member, Committee of Indian Immunology Society (IIS)
2014 – 2015	Member in Training, American Society of Clinical Oncology (ASCO)
2015 – 2016	Member, Committee on the Environment– Emory University (COE)
2015 – Present	American Association for Clinical Chemistry (AACC)
2016 – Present	Member, American Association of Immunologists (AAI)
2021 – Present	Federation of Clinical Immunology Society (FOCIS)
2021 – Present	American Society for Virology (ASV)
2021 – Present	International Society for Influenza and other Respiratory Virus Diseases (ISIRV)

List of Scientific Conferences/Meetings Attended

2005	Symposium on Quality Control, New Delhi, India
2007	Recent Advances and challenges in Reproductive Health Research, New Delhi, India
2007	33rd Annual conferences of the Indian Immunology Society held at New Delhi, India
2007	National Hematology Updates –VI, New Delhi, India
2007	Association of Clinical Biochemists of India Conference, New Delhi, India

2007 Interdisciplinary Sciences Conference, New Delhi, India
2007 National Symposium on New Frontier in Cell Biology, New Delhi, India
2007 National Symposium on Immunity to Infection, New Delhi, India
2007 National Symposium on Nanotechnology, New Delhi, India
2008 Society of Free Radical Research Satellite Meeting, New Delhi, India
2008 National Hematology Updates-VII, New Delhi, India
2008 Conference on Human Viruses Translational Medicine, New Delhi, India
2009 2nd Indian Peptide Conference, New Delhi, India
2010 37th Annual conferences of the Indian Immunology Society held at J & K, India
2010 2nd Int. Conference on the Natural Polymers and Biomaterials, Kerala, India
2010 International Conference on Opportunistic Pathogens, New Delhi, India
2010 Asian Pacific Conference of Clinical Biochemistry, Seoul, South Korea
2011 7th Life Sciences World Forum, Lyon, France
2011 IFCC World Lab and Euromed Laboratory International Congress, Berlin, Germany
2011 European AIDS Conference, Belgrade, Serbia
2012 International Conference on Microbicides, Sydney, Australia
2013 5th Annual African American MSM conference, West Columbia, USA
2013 34th Federation of Immunological Societies of Asia-oceania, New Delhi, India
2013 International Congress on AIDS in Asia and Pacific, Bangkok, Thailand
2015 14th Southeastern Regional Virology Symposium, Emory University, Atlanta, USA
2015 Annual Postdoctoral Symposium, Emory University, Atlanta, USA
2015 The Microbiome Symposium, Emory University, Atlanta, USA
2016 Emory Antibiotic Resistance Center Symposium, Emory University, Atlanta, USA
2016 HIV Cure symposium, Emory University, Atlanta, USA
2018 IBMS Biomedical Symposium, Georgia State University, Atlanta, USA
2018 International Society for Vaccines Annual Congress, Atlanta, USA
2021 Keystone Symposia's eSymposia on "COVID-19: One Year Later", USA
2021 Advance Course in Basic & Clinical Immunology, FOCIS, USA

List of the Submitted IP Disclosures:

a. Membrane bound CCL28 through GPI-anchoring as an adjuvant.
Wang BZ, Compans RW, **Mohan T**.
b. Sequential immunization of HIV-1 chimeric Env VLPs to generate bnAbs.
Wang BZ, **Mohan T**.
c. Induction of influenza broad cross protective immunity through sequential immunizations with divergent hemagglutinin antigens.
Wang BZ, Luo Y, **Mohan T**.

List of Research Support and/or Scholastic Performance

Department of Biotechnology-JRF Fellowship
PI: **Mohan T**
Start/End date: 02/01/2006 to 01-31-2011
Title: Alpha and beta defensins as microbicides/mucosal adjuvants with the peptide antigens of HIV-1.

The goal of the project is to investigation of synthetic defensins as vaginal microbicides or mucosal adjuvants with the peptide antigens of HIV-1.
Role: PI and DBT-JRF fellow.

AIDS Vaccine 200 Bike Ride Fellowship
PI: **Mohan T**
Start/End date: 06/01/2015 to 05-31-2016
Title: Sequential immunization with HIV VLPs containing conformation stabilized trimeric Env.
The goal of the project is to sequentially immunized animals with conformation-stabilized trimeric HIV Env for the generation of broadly neutralizing antibody responses.
Role: PI and AIDS vaccine 200 bike ride fellow.