

CURRICULUM VITAE

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EDUCATION

B.Sc. (Chemistry, Botany, Zoology) 1967, Ravishankar University, Raipur (MP), India, 1st in Order of Merit, Distinctions in Chemistry and Botany
M.Sc. (Biochemistry) 1969, Nagpur University, Nagpur, India, 1st in Order of Merit (M.Sc. Final)
Ph.D. (Chemistry) 1978, University of Pune, India, Doctoral Thesis on "Molecular forms, structural characteristics and genetic implication of Murine Haemoglobins"
Certificate in French Language, 1989, Alliance Francaise de Delhi, New Delhi, India

EMPLOYMENT

- 8/04 - Present Associate Research Scientist, Respiratory Immunology and Asthma Program, Lovelace Respiratory Research Institute, Albuquerque, NM
My current research will be on "The role of nicotinic acetylcholine receptor (nAChR) in AIDS associated cryptococcal meningitis." I have just started work on this project. I am currently involved in molecular studies related to the α -7 subunit of nAChR using siRNA to develop a gene knockout *in vitro* model for the subunit of the receptor using the T cell line Jurkat. In the future, I will be involved with the study on "Immunological aspects of lung diseases in HIV infection."
- 2002 - 2004 Visiting Research Scholar, Lab of Molecular Microbiology, NIAID, NIH, Rockville, MD
My project was to study the mechanism of pathogenesis of SIV infection in an *in vivo* primate model by studying the evolution of *env* gene (gp120) of the viral genome. Two groups of primates, the African green monkey (AGM) and pig-tailed macaques were experimentally inoculated with SIV_{agm}. This resulted in non-pathogenic manifestation in the natural host species (AGM), but caused simian AIDS in the heterologous host, the pig-tailed macaques. A report based on the study is in preparation for publication. I also carried out another project to molecularly characterize simian retrovirus (SRV-7) naturally infecting feral Indian rhesus monkeys (*Macaca mulatta*). This study revealed a novel SRV, related to SRV-6 from the Indian Hanuman langurs, reported by my laboratory earlier from India. The report is submitted.
- 1992 - 2002 Assistant Director and Head, Department of Retrovirology, National Institute of Virology, Pune, India
My work was focused on the basic science of HIV infection in India with special reference to the unintegrated HIV DNA. My team and I also reported natural infection by a novel simian retrovirus, SRV-6 from the Indian langurs.

- 1995 - 1997 Wellcome Trust Visiting Fellow and Honorary Member of the Faculty, Department of Virology, University College London Medical School, London, UK
My research involved the study of unintegrated HIV DNA in the patients from the UK and India.
- 1990 - 1992 Research Officer, Department of Hepatitis and AIDS National Institute of Virology, Pune, India
The research work focused on serological molecular diagnosis of Hepatitis B and HIV infection in Indian patients.
- 1987 - 1989 Research Associate, Department of Biochemistry, All India Institute of Medical Sciences, New Delhi, India
My research was based on the study of factors affecting melanogenesis in vitiligo and melanomas.
- 1982 - 1987 A hiatus to raise twin sons.
- 1979 - 1981 Research Associate, Department of Microbiology, Madurai Medical College, Madurai, India
Worked on serodiagnosis of Echinococcosis.

AWARDS

- College Gold Medal, 1st Rank at the Pre-Professional (Medical) Examination, Ravishankar University, Raipur, India, 1965
National Science Talent Search Scholar, India, 1965-1967
National Merit Scholar, India, 1967-1969
Gen. R. S. Hoon Award, Armed Forces Medical Services, Ministry of Defense, Government of India, 1995
Wellcome Trust International Fellowship, London, UK, 1995-1997

PROFESSIONAL EXPERIENCE - TEACHING

Before coming to the USA as a visiting scientist in September 2002, I worked at the National Institute of Virology, Pune, India as Assistant Director and Head of the Department of Retrovirology, until August 2002.

As a part of the academic responsibilities of the institute, recognized scientists had limited teaching commitments for the M.Sc. Microbiology and Biotechnology programmes of the Pune University as Adjunct Professors.

I also acted as the Chairperson of the Academic committee of the NIV, Pune until my departure in 2002.

Additionally, I was a recognized guide for the M.Sc. (Microbiology) and Ph.D. (Biochemistry, Biotechnology and Microbiology Faculties) of the Pune University.

Several students of M.Sc. completed their dissertation required for partial fulfillment of the degree under my supervision between 1996-2002.

One student got her Doctoral degree under my supervision for her Ph.D. degree from the Pune University on "Natural infection of Indian primates by simian retroviruses" in 2001.

The institute conducted a one year Diploma course, D.M.V. (Diploma in Medical Virology) for candidates with M.D. or Ph.D. degrees. The Diploma was recognized by the Medical Council of India. My responsibility was to teach Molecular Virology of Retroviruses to the students of D.M.V.

ACADEMIC DESIGNATIONS

Adjunct Associate Professor, Department of Molecular Genetics and Microbiology, University of New Mexico, Albuquerque, NM

Examiner for Ph.D. programme, Devi Ahilya Bai University, Indore (M.P. State), India

Research Supervisor for Ph.D. Programme in Biochemistry, Microbiology and Biotechnology, University of Pune, India (One Ph.D. student qualified for the degree from the University of Pune)

Examiner for M.Sc. Programme, Clinical Biochemistry, University of Nagpur, India

Adjunct Professor, Department of Microbiology and Biotechnology for M.Sc. Programme, Pune University and Diploma in Medical Virology Programme, recognized by the Medical Council of India, University of Pune, Pune, India

SUMMARY OF PAST ACCOMPLISHMENTS AND FUTURE PLANS (2004)

I have been involved with the study of human and non-human retroviruses and lentiviruses for more than fifteen years, in India, UK and USA.

At the National Institute of Virology, Pune (India), where I worked from 1990 until Aug. 2002, my team and I studied the unintegrated HIV DNA and proposed an alternative mode of replication of HIV in the early 90's. The hypothesis was published and well received by colleagues across the world.

We were also involved in routine serological and PCR based diagnoses of HIV-1 and HIV-2 infected patients from the local hospitals.

I went to the Department of Virology, University College London Medical School, UK on a Wellcome Trust Visiting Fellowship to continue my work on unintegrated HIV DNA in patients from India as well as from the UK between 1995 to 1997.

On my return to India, my team and I published the first ever report on natural infection by a novel simian retrovirus, SRV-6 in the Indian Hanuman langur (*Semnopithecus entellus*) and subsequently published a related work in a genetically isolated population of the Indian langurs from the desert region of Rajasthan in 2000 and 2003, respectively. A report on the comparative study of *pol* and *env* regions of SRV naturally infecting the feral rhesus macaque from India (*Macaca mulatta*) is ready for submission.

I came to the USA in September 2002 as a visiting Research Scientist.

At the laboratory of Molecular Microbiology, NIAID, NIH, Rockville, MD (USA) I was involved in studying the evolution of envelope genes of SIVagm in two groups of experimentally infected primate species, the African green monkeys and the pig-tailed macaques between Oct. 2002 and July 2004 to understand the mechanism of pathogenesis in 'non-progressors' versus the 'progressors' in HIV infected patients in a primate model. The AGMs are the natural hosts for SIVagm and remain asymptomatic if they are naturally infected in the wild or are experimentally infected. However, if the virus is experimentally inoculated in a heterologous host (pig-tailed or PT macaques), the animals come down with simian AIDS.

My work involved amplifying the viral *env* genes from five longitudinal plasma samples by RT-PCR from each of the three experimentally infected AGMs and three PT at five different time points. The RT-PCR products were cloned. Ten clones from each sample were sequenced with a set of four overlapping primers spanning the *env* gp120 region. After assembly of the full *env* gp120 gene (1.5Kb) using standard software programmes, the various DNA sequences were aligned and searched for any specific mutation, deletion or insertion that might be correlated with pathogenesis. The work is in preparation for publication (2004).

My future plans are to study the molecular evolution of human and non-human primate lentiviruses and the mechanism of pathogenesis of HIV and SIV infection.

I also wish to fully characterize SRV-6 and its variants in naturally infected Indian langur (*Semnopithecus entellus*) and the rhesus SRV, from the common primate species from India, in collaboration with my primatologist colleagues from India.

At the Lovelace Respiratory Research institute, Albuquerque, I am currently involved in the molecular characterization of the non-neuronal nicotinic acetylcholine receptors in human T cell line (Jurkat) and mouse brain and microglia. In the future I will study the inflammatory complications in lungs in HIV infection.

PUBLICATIONS

1. Nandi, J. and K. Banerjee: Alternative Mode of Replication of Human Immunodeficiency Virus: A Hypothesis. *Med. Hypotheses* 40: 1-7, 1993.
2. Nandi, J., K. Banerjee, M. Thakar, V. Bhavalkar and J. Rodrigues: Human Immunodeficiency Virus-1 Infection in Spouses of Seropositive Individuals. *Natl. Med. J. India* 6: 156-159, 1993.
3. Nandi, J., V. Bhavalkar and H. Mody, A. Elavia, P. K. Desai and K. Banerjee: Detection of HIV-1, HBV and HCV Antibodies in Blood Donors from Surat, Western India. *Vox Sang.* 67: 406-407, 1994.
4. Nandi, J., H. Kamat, V. Bhavalkar and K. Banerjee: Detection of Human Immunodeficiency Virus Antibody Infection Among Homosexual Men from Bombay. *Sex. Transm. Dis.* 21: 235-236, 1994.
5. Elavia, A. J., A. Thomas, J. Nandi, G. D. Coyaji and V. Bhavalkar-Potdar: Performance Evaluation of a Particle Agglutination Test for Antibody to Human Immunodeficiency Virus 1: Comparison with Enzyme Immunoassay. *Vox Sang.* 69: 23-26, 1995.
6. Nandi, J.: Scientific Data on HIV Transmission. *Natl. Med. J. India* 8: 95, 1995.
7. Nandi, J. and K. Banerjee: Tyrosine Phosphorylation as a Possible Regulatory Mechanism in the Expression of Human Immunodeficiency Virus Genes. *Med. Hypotheses* 45: 476-480, 1995.
8. Korber, B., M. Hoelscher, et al. (with inputs from all delegates from 48 countries including J. Nandi from India): Workshop Report on HIV-1 Subtypes: Implications for Epidemiology, Pathogenicity, Vaccines and Diagnostics (DGXII INCO/DC of the European Commission and UNAIDS). *AIDS* 11: s17-s36, 1997.
9. Nandi, J.: Unintegrated HIV DNA *In Vitro* and *In Vivo*. *Acta Virol.* 43: 367-372, 1999.
10. Nandi, J. S., V. Bhavalkar-Potdar, S. Tikute and C. G. Raut: A Novel Type D Simian Retrovirus Naturally Infecting the Indian Hanuman Langur (*Semnopithecus entellus*). *Virology* 277: 6-13, 2000. Abstract of the same work is published in *Antivir. Ther.* 5: 49, 2000.
11. Nandi, J. S., S. A. Tikute, A. K. Chhangani, V. A. Potdar, M. Tiwari-Mishra, R. A. Ashtekar, J. Kumari, A. Walimbe and S. M. Mohnot: Natural Infection by Simian Retrovirus-6 (SRV-6) in Hanuman Langurs (*Semnopithecus entellus*) from Two Different Geographical Regions of India. *Virology* 311: 192-201, 2003.
12. Nandi, J. S., S. Vandooren, A. K. Chhangani, and S. M. Mohnot: Comparison of a New Type D Retrovirus, SRV-7 from the Feral Rhesus Monkeys (*Macaca mulatta*) with the Langur (*Semnopithecus entellus*) Virus, SRV-6 from Rajasthan, India (submitted).
13. Nandi, J. S. and V. M. Hirsch: Evolution of *env* Genes of SIVagm in Experimentally Inoculated African Green Monkey and Pig-Tailed Macaques: A Longitudinal Study (in preparation).