1) Determination of reference ranges for CD4+ T cell counts and percentages for adult Indian population.	
Principal Investigator	Dr. Madhuri Thakar
Co-Investigator(s)	Nil
Category / Nature	Nil
Collaboration / Participating Centers	Post Graduate Institute of Medical Education & Research, Chandigarh,All India Institute of Medical Sciences, New Delhi, National AIDS Research Institute, Pune,JJ Hospitals,and Grant Medical College, Mumbai, Y.R. G Centre for AIDS Research and Education, Chennai and National Institute of Mental Health and Neuro Sciences, Bengaluru , School of Tropical Medicine, Kolkata,and Regional Medical Research Centre, Dibrugarh
Funding Agency(ies) / Sponsors	NACO
Budget	Rs. 30,00,000/-
Study Period	1 year
Objectives	To determine reference values of absolute CD4+ T cell counts and percentages for adult Indian population.
Description	CD4+ T lymphocyte counts are the most important indicator of disease progression and success of antiretroviral treatment in HIV infection in resource limited settings. This study was conducted to determine reference values of absolute CD4+ T cell counts and percentages for adult Indian population. The study used stringent procedures for controlling the technical variation in the CD4 counts across the sites and thus could establish the robust national reference ranges for CD4 counts and percentages. These ranges will be helpful in staging the disease progression and monitoring antiretroviral therapy in HIV infection in India
Current Status	Completed

Publications	Establishment of reference CD4+ T cell values for adult Indian population. Madhuri R Thakar, Philip R Abraham, Sunil Arora, Pachamuthu Balakrishnan, Bhaswati Bandyopadhyay, Ameeta A Joshi, K Rekha Devi, Ravi Vasanthapuram, Madhu Vajpayee, Anita Desai, Janardhanan Mohanakrishnan, Kanwar Narain, Krishnangshu Ray, Shilpa S Patil, Ravinder Singh, Anuj Singla, and Ramesh S Paranjape. AIDS Res Ther. 2011; 8: 35.
Presentations	Nil

2) Activation of productive HIV infection in CD4 cells by antigen specific stimulation	
Principal Investigator	Dr. Ashwini Shete
Co-Investigator(s)	Dr. Madhuri Thakar, Dr. R.R. Gangakhedkar, Dr. S.P Tripathy, Dr. R.S.Paranjape
Category / Nature	HIV biology
Collaboration / Participating Centers	NARI, Pune
Funding Agency(ies) / Sponsors	Intramural
Budget	Rs. 5,00,000/-
Study Period	2 years
Objectives	1. To determine antigenic specificities and functional characteristics of HIV infected CD4 cells. 2. To determine activation of productive HIV infection by antigenic Stimulation. 3. To determine CTL response elicited against different HIV antigens responsible for activation of productive HIV infection

Description	The study was planned with a hypothesis that latent HIV replication will be reactivated from resting CD4 memory cells if these cells are activated by their cognate antigens. Since activation has been attempted as one of the strategies for elimination of latent HIV, antigens or therapeutic vaccinations can be used for activation of latent HIV. The present study was conducted with the objective of identifying HIV antigens capable of reactivation of HIV infection in CD4+ T cells by detecting intracellular P24 and simultaneously assessing functionality of CD4 and CD8 cells including HIV infected (P24 positive) cells by estimating intracellular cytokine expression in response to these antigens, which would contribute to containment of the HIV infected cells after reactivation. It was found that P24 expression representative of HIV replication increased after antigenic stimulation predominantly by Env and Pol. Whereas Gag and nef were found to elicit polyfunctional CD8 response. It was also found that HIV infected cells after activation predominantly secreted IL-10, an immunosuppressive cytokine. This indicated the role of IL-10 blocking antibodies along with attempted activation or therapeutic vaccination to improve CTL response to eliminate activated HIV infected cells. The findings will be helpful in future for elimination of latent HIV from HIV infected patients on ART.
Current Status	Completed
Publications	HIV antigen specific reactivation of HIV infection from cellular reservoirs: Implications in the settings of therapeutic vaccinations. Ashwini Shete, Madhuri Thakar, Dharmesh P. Singh, Raman Gangakhedkar, Asmita Gaikwad, Jyoti Pawar, Ramesh Paranjape. AIDS Res Hum Retroviruses. 2012 Aug; 28(8):835-43. Epub 2011 Nov 21.
Presentations	Poster presentation on “Can HIV antigens inducing reactivation of HIV replication be used as a strategy for elimination of latent HIV by activating cellular reservoir?: Implications in the settings of therapeutic vaccinations: Ashwini Shete, Madhuri Thakar, Dharmesh P. Singh, Jyoti Pawar, Ramesh Paranjape” in TRAI conference, Goa, organized by NARI, USF and CRF, Goa, in January 2010

3) Study for comparison of phenotypic characteristics of fresh and frozen PBMCs	
Principal Investigator	Dr. Ashwini Shete
Co-Investigator(s)	Dr. Madhuri Thakar, Dr. R.S.Paranjape

Category / Nature	HIV biology
Collaboration / Participating Centers	NARI, Pune
Funding Agency(ies) / Sponsors	Intramural
Budget	Rs. 5,00,000/-
Study Period	2 years
Objectives	1. To do comparative assessment of the phenotypic characterization of fresh and frozen peripheral blood mononuclear cells. 2. Estimation of phenotypic differences of PBMC in HIV infected individuals and control group.
Description	The study was planned with the objective of comparing phenotypic characteristics of fresh and frozen PBMCs so as to assess utility of frozen PBMCs for different phenotypic and functional assays. Expression of maturation markers (CD45RA, CCR7, CD62L) and activation markers (HLA DR, CD69, CD38) was assessed on fresh and cryopreserved PBMCs
	of 10 HIV infected and 10 uninfected participants. Comparison of phenotypic characteristics of fresh and frozen PBMCs showed significant decrease in naïve cell population and increase in effector memory populations after cryopreservation. Activation markers (HLA DR, CD69, CD38) assessed showed no significant difference between fresh and frozen PBMCs except for HLA DR on CD8 cells in HIV infected individuals.
Current Status	Completed
Publications	Differential modulation of phenotypic composition of HIV infected and uninfected PBMCs during cryopreservation Ashwini Shete, Priyanka Jayawant, Madhuri Thakar, Swarali Kurle, Darmesh P Singh and R.S. Paranjape. Accepted for publication in Journal of Immunoassay and Immunochemistry.
Presentations	Poster presentation on “Effect of cryopreservation on phenotypic composition of PBMCs: Priyanka Jaywant, Ashwini Shete, Madhuri Thakar, Swarali Kurle, Darmesh P Singh and R.S. Paranjape” in 4th Annual TCS Symposium and 12th Indo-US workshop on Flowcytometry during 8-12 October 2011

Title	Identification of HIV modulated cell signalling pathways in context with persistence of HIV after activation
PI and Co-PIs	Principal Investigator: Dr. Ashwini Shete Other Investigator(s): Dr. Sampada Dhayarkar, Dr. Vijay Nema, Dr. Madhuri Thakar
Funding/Sponsoring agency	DBT (RGYI)
Category	HIV Biology
Study Period	2012-2015
Broad Objective	To determine mechanisms exploited by HIV interfering in elimination of HIV reservoir after activation with different strategies
Approved Budget	Rs. 24,70800/
No. of publications with titles and/or abstracts presented	**Publication:** HIV infected CD4+ T cells use T-bet dependent pathway for production of IL-10 upon antigen recognition. Ashwini Shete, Poonam Suryawanshi, Sheela Godbole, Jyoti Pawar, Ramesh Paranjape and Madhuri Thakar. Scandinavian Journal of Immunology. 2016:83(4):288-96 **Abstracts:** 1. Role of immune mechanisms in possible long term survival of infected CD4 T cells after TCR induced HIV reactivation: Implications for therapeutic vaccination. Ashwini Shete, Ms. Poonam Suryawanshi, Dr. Madhuri Thakar, Dr. Sheela Godbole. Abstract accepted for oral presentation in Euro Vaccines-2016 2. T-bet induces IL-10 secretion in HIV infected CD4 T cells A Shete; P Suryawanshi; S Godbole; J Pawar; M Thakar. Poster presentation in 2015 Keystone Symposia Conference E1: Mechanisms of HIV Persistence: Implications for a Cure in Boston during 26 April to 1 May 2015. 3. Higher expression of human telomerase reverse transcriptase in productively- infected CD4 cells possibly indicates a mechanism for persistence of the virus in HIV infection. Poonam Suryawanshi, Sheela Godbole, Jyoti Pawar, Madhuri Thakar, Ashwini Shete. Accepted for publication in Microbiology and Immunology. Article DOI: 10.1111/1348-0421.12585