

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors in the order listed on Form Page 2.

NAME SRIRAM, UMA	POSITION TITLE Associate Scientist
eRA COMMONS USER NAME (credential, e.g., agency login) USRIRAM	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)*

INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	MM/YY	FIELD OF STUDY
Tuberculosis Research Center (Indian Council of Medical Research, India	Ph.D.	1992-1998	Immunogenetics of tuberculosis
University of California, San Francisco	Postdoc Fellow	Jan 2001-Oct 2003	Pharmacogenomics of multiple sclerosis; Immunogenetics of HIV infection
The Children's Hospital of Philadelphia	Postdoc Fellow	Oct 2003-May 2009	Cellular/Molecular Immunology/Lupus autoimmunity
Temple University School of Medicine, Philadelphia	Associate Scientist	June 2009-present	Cellular/Molecular Immunology/Lupus autoimmunity

NOTE: The Biographical Sketch may not exceed four pages. Follow the formats and instructions below.

A. Personal Statement

My scientific interest is to study the role of Type I Interferons in the regulation of immune responses and in autoimmunity. I have been working with Dr. Gallucci (Associate Prof., Dept. of Microbiology and Immunology, Temple University School of Medicine, Philadelphia, PA) to study dendritic cell (DC) biology and DCs in autoimmunity, specifically in mouse models of lupus disease. My main focus in these projects is to look at the effects of Type I interferons (IFN) and how to modulate their responses. We have discovered an interesting phenomenon in our lab that IL-4, a Th2 cytokine, down regulates Type I interferon responses in murine myeloid DCs. We have published that Type I Interferons activate dendritic cells and interleukin-4 can suppress the response of dendritic cells to Type I Interferons by inhibiting the signaling pathway downstream of IFN α receptors. We have also recently published that lupus-prone mice show an Interferon Signature similar to the one present in SLE patients and that the dendritic cells are an important source of this Signature. We recently discovered from a microarray analysis that a group of genes known as kallikreins are

downregulated in dendritic cells from lupus-prone mice as compared to normal mice. I have framed my National Scientist Development Grant proposal based on this idea.

I got my initial research training in India at the Tuberculosis Research Institute (Recognized as the Center for Excellence in TB research by the NIH) where I obtained my Ph.D. studying HLA and immune responses in pulmonary tuberculosis. My postdoctoral training at the UCSF, in the department of Neurology, gave me the opportunity to learn about Type I interferons (especially IFN- β and responses to IFN- β treatment in multiple sclerosis patients) and now in Dr. Gallucci's lab I have developed my interest to study more about Type I IFNs – in regulating dendritic cells in general and the role of Type I Interferons in lupus disease. I was awarded a Postdoctoral fellowship from the Arthritis Foundation (2006-2009) that helped me pursue my research on the role of Type I Interferons in lupus.

I worked with Dr. Gallucci closely to write the RO1 grant that got funded in 2009. With this experience, I have gained confidence in writing a grant for independent research that will help me reach the next step in my research career and to establish independent research. The National Scientist Development Grant will help me establish independent research and results from this project will help me to write a bigger grant as an RO1 to be able to start an independent lab. The field of kallikreins in immunity and autoimmunity has come to light in the recent years. The vastness of this field and the potential pharmacological benefits of many candidates in the kallikrein system gives a great opportunity to venture into this field independently, explore and carve my own niche that is entirely different from Dr. Gallucci's main research interests.

B. Positions and Honors

Positions and Employment

1999-2000	Scientific Copy Editor, NewGen Science Publishing Company, India
2000-2001	Postdoctoral Fellow, Tuberculosis Research Center, India
2001-2003	Postdoctoral Fellow, University of California, San Francisco
Oct 2003-May 2009	Postdoctoral Fellow, The Children's Hospital of Philadelphia
May 2009-present	Associate Scientist, Temple University School of Medicine, Philadelphia

Honors

1. Award for General Proficiency in B.Sc.
2. Gopal Ayyar Memorial Award from University of Madras for securing the First rank in Zoology in the University
3. National Merit Scholarship from Government of India for securing First Rank in Zoology in the University in B.Sc.
4. University III rank in M.Sc.
5. Research Fellowship from the University Grants Commission, 1991, India
6. Research Fellowship from the Indian Council of Medical Research, 2000, India
7. Stewart J. McCracken Award for the highest-rated research project in the Philadelphia area by the Arthritis Foundation of Eastern Pennsylvania, 2006.

Professional Memberships

2010– present Member, AAI American Association of Immunologists

C. Selected Peer-reviewed Publications

1. **Sriram U**, Varghese L, Bennett HL, Jog NR, Shivers DK, Ning Y, Behrens EM, Caricchio R, Gallucci S. Myeloid dendritic cells from B6.NZM Sle1/Sle2/Sle3 lupus-prone mice express an IFN signature that precedes disease onset. *J Immunol*. 2012 Jul 1;189(1):80-91
2. Huang Y, Biswas C, Klos Dehring DA, **Sriram U**, Williamson EK, Li S, Clarke F, Gallucci S, Argon Y, Burkhardt JK. The actin regulatory protein HS1 is required for antigen uptake and presentation by dendritic cells. *J Immunol*. 2011 Dec 1;187(11):5952-63.
3. **Sriram U**, Biswas C, Behrens E.M., Dinnall J, Shivers D.K., Monestier M., Argon Y and Gallucci S. IL-4 suppresses dendritic cell response to Type I Interferons. *J Immunol*, 2007; Nov 15, 179(10), 6446-6455.
4. Behrens EM, **Sriram U**, Shivers DK, Gallucci M, Ma Z, Finkel TH, Gallucci S. Complement Receptor 3 Ligation of Dendritic Cells Suppresses Their Stimulatory Capacity. *Journal of Immunology*, 2007 May 15; 178(10):6268-6279.
5. **Sriram U**, Wong M, Caillier SJ, Hecht FM, Elkins MK, Levy JA, Oksenberg JR, Baranzini SE. Quantitative longitudinal analysis of T cell receptor repertoire expression in HIV-infected patients on antiretroviral and interleukin-2 therapy. *AIDS Research and Human Retroviruses*, 2007 May; 23(5):741-747.
6. Barbour JD, **Sriram U**, Caillier SJ, Levy JA, Hecht FM, Oksenberg JR. Synergy or Independence? Deciphering the Interaction of HLA Class I and NK Cell KIR Alleles in Early HIV-1 Disease Progression. *PLoS Pathog*. 2007 Apr 20; 3(4):e43
7. Biswas C, **Sriram U**, Ciric B, Ostrovsky O, Gallucci S, Argon Y. The N-terminal fragment of GRP94 is sufficient for peptide presentation via professional antigen-presenting cells. *Int Immunol*. 2006 Jul; 18(7):1147-57.
8. Frisoni L, McPhie L, Colonna L, **Sriram U**, Monestier M, Gallucci S, Caricchio R. Nuclear autoantigen translocation and autoantibody opsonization lead to increased dendritic cell phagocytosis and presentation of nuclear antigens: a novel pathogenic pathway for autoimmunity? *J Immunol*. 2005 Aug 15; 175(4):2692-701.
9. Elkins MK, Vittinghoff E, Baranzini SE, Hecht FM, **Sriram U**, Busch MP, Levy JA, Oksenberg JR. Longitudinal analysis of B cell repertoire and antibody gene rearrangements during early HIV infection. *Genes and Immunity*, 2005, 6(1), 66-9.
10. **Sriram U**, Barcellos LF, Villoslada P, Rio J, Baranzini SE, Caillier S, Stillman A, Hauser SL, Montalban X, Oksenberg JR. Pharmacogenomic analysis of interferon receptor polymorphisms in multiple sclerosis. *Genes and Immunity*, 2003; 4: 147-152.
11. **Sriram U**, Selvaraj P, Kurian SM, Reetha AM, Narayanan PR. HLA-DR2 subtypes & immune responses in pulmonary tuberculosis. *Indian J Med Res*. 2001 Apr; 113:117-24.
12. Selvaraj P, **Sriram U**, Mathan Kurian S, Reetha AM, Narayanan PR. Tumour necrosis factor alpha (-238 and -308) and beta gene polymorphisms in pulmonary tuberculosis: haplotype analysis with HLA-A, B and DR genes. *Tuberculosis (Edinb)*. 2001; 81(5-6):335-41.
13. Kurian SM, Selvaraj P, **Sriram U**, Chandra G, Narayanan, PR. HLA-DR2 phenotype and circulating immune complex level in pulmonary tuberculosis. *Biomedicine* 2000; 20: 282-287.
14. Selvaraj P, Kurian SM, **Uma H**, Reetha AM, Narayanan PR. Influence of non-MHC genes on lymphocyte response to Mycobacterium tuberculosis antigens & tuberculin reactive status in pulmonary tuberculosis. *Indian J Med Res*. 2000 Sep; 112: 86-92.
15. **Uma H**, Selvaraj P, Reetha AM, Xavier T et al. Influence of HLA-DR antigens on lymphocyte response to Mycobacterium tuberculosis culture filtrate antigens and mitogens in pulmonary tuberculosis. *Tuberc and Lung Disease* 1999, 79(4), 199-206.

16. **Uma H**, Selvaraj P, Reetha AM, Xavier T et al. Antibody and lymphocyte responses to Mycobacterium tuberculosis culture filtrate antigens in active and quiescent(cured) pulmonary tuberculosis. *Ind J Tub* 1999, 46, 21-29.
17. **Uma H**, Selvaraj P Reetha AM, Xavier T et al. Lymphocytotoxic antibodies and immunity in pulmonary tuberculosis. *Ind J Med Res* 1999, 109 (Jan), 5-10.
18. Selvaraj P, **Uma H**, Reetha AM, Xavier T et al. Influence of HLA-DR2 phenotypes on humoral immunity and lymphocyte response to Mycobacterium tuberculosis culture filtrate antigens in pulmonary tuberculosis, *Ind J Med Res* 1998,107 (May) 208-217.
19. Selvaraj P, **Uma H**, Reetha AM et al. HLA antigen profile in pulmonary tuberculosis patients and their spouses. *Ind J Med Res* 1998, 107:155-158.
20. Selvaraj P, Kannapiran M, Reetha AM, **Uma H** et al. HLA-DR2 phenotype and plasma lysozyme, glucuronidase and acid phosphatase levels in pulmonary tuberculosis. *Int J Tuberc Lung Dis* 1997, 1 (3): 265-269.
21. Selvaraj P, **Uma H**, Reetha AM et al. Association of HLA-Class I antigens and haplotypes with relapse of pulmonary tuberculosis in patients treated with short course chemotherapy. *Ind J Tub* 1997, 44: 9-12.
22. Selvaraj P. Reetha AM, **Uma H** et al. Influence of HLA-DR and - DQ phenotypes on tuberculin reactive status in pulmonary tuberculosis patients. *Tubercle and Lung Dis*, 1996;77:369-373.

D. Research Support

- . **Research Support (completed)**
Postdoctoral Fellowship from The Arthritis Foundation (2006-2009).
Project titled "Role of Type I Interferons in lupus".