

BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors.
Follow this format for each person. **DO NOT EXCEED FIVE PAGES.**

NAME: Jaya M. Satagopan

eRA COMMONS USER NAME (credential, e.g., agency login): SATAGO

POSITION TITLE: Professor

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

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Madras, Madras, India	B.S.	05/1988	Mathematics
Indian Statistical Institute, Calcutta, India	M.S.	05/1990	Statistics
University of Wisconsin, Madison, USA	Ph.D.	07/1995	Statistics
University of Edinburgh, Scotland, UK	M.Sc.	08/2019	Science Communication and Public Engagement

A. Personal Statement

I have a doctorate degree in biostatistics and a master's degree in science communication and public engagement. My biostatistics research program focuses on the broad area of statistical genetics/genomics. I have over 27 years of experience in cancer biostatistics and their applications in epidemiology and tumor biology studies. My research works have focused on and continue to focus on multiple areas of cancer, including cancer risk prediction, cancer risk factor identification, risk heterogeneity, and investigations of cancer disparities using epidemiologic, genetic, and genomic data. My research works have been supported by multiple R01 grants from the National Cancer Institute.

I joined Rutgers School of Public Health in September 2019, with appointment also in Rutgers Cancer Institute of New Jersey. At Rutgers, I established the Center for South Asian Quantitative Health & Education (SAQHE) with the vision of inspiring healthy communities and serve as its inaugural director. Under my leadership, SAQHE is engaged in studies to close data gaps in the health of South Asians living in the US and conduct scientific studies to address breast cancer disparities and to examine risk factors associated with breast cancer outcomes in South Asian Americans. These projects collaborate closely with colleagues from CINJ's Cancer Prevention Program, the Center for Cancer Health Equity, Molecular Oncology Program, and various core facilities. Notably, I have close collaborations with Drs. Elisa Bandera, Anita Kinney, and Shridar Ganesan. Our first collaborative study involved analysis of SEER data to report disparities in breast cancer for South Asian American women. Building on this, I established our first study – the South Asian Breast Cancer Study (SABCa) – to examine attitudes about breast cancer and scientific studies among South Asian American women.

Building on the emerging results of the SABCa study, which is nearing completion, I am establishing the Cancer Analytics and South Asian Health – Breast Cancer (CANSAH-BC) study to conduct epidemiologic investigations of breast cancer outcomes in South Asian women. This study leverages methodology from the NJ Black and Hispanic Cancer Survivor study led by Dr. Elisa Bandera, who will serve as Co-PI of this application. Together, the NJBHCS and CANSAH-BC studies will constitute a multi-ethnic breast cancer cohort to address breast cancer disparities and advance health equity for all in NJ and beyond. I have multiple ongoing collaborations with Dr. Bandera. We have already published two papers and recently submitted a third paper to report recruitment to the SABCa study. Additional collaborative manuscripts are underway. In collaboration with Drs. Bandera, Kinney, Ganesan and others, I launched the pilot phase of the CANSAH-BC study during December 2022. The goal of the pilot study is to recruit 100 South Asian women with breast cancer from NJ by collaborating with NJ State Cancer Registry, demonstrate feasibility of recruitment and data collection, and establish effective

data collection approaches for use in a larger study. Our pilot phase is progressing well and provides motivation to start expanding the CANSAH-BC cohort through additional recruitment. Our successful partnership to conduct the SABCa study, to launch the CANSAH-BC study, and to establish the pilot phase of CANSAH-BC provide evidence that we can continue to collaborate successfully to achieve the study goals.

Through over 27 years of experience, I bring unique expertise to lead this project to design a strong pilot study to recruit participants, collect data, and conduct comparisons of breast cancer characteristics and patient-reported outcomes across diverse underrepresented populations. I will continue my growing and strong partnership with colleagues from CINJ to successfully build this study. I am delighted to collaborate with Dr. Bandera as Co-PI of this study. The following publications highlight my competencies to accomplish the proposed study:

1. Amin S, Collin LJ, Setoguchi S, **Satagopan JM**, de Mertiens AB, Bandera EV. Neoadjuvant Chemotherapy in ovarian cancer: Are there racial disparities in use and survival? *Cancer Epidemiology, Biomarkers and Prevention* (accepted for publication, October 28, 2022).
2. Dutta D, Sen A, **Satagopan JM**. Sparse canonical correlation to identify breast cancer related genes regulated by copy number aberrations. *PLoS One*. 2022. (accepted for publication, October 17, 2022).
3. **Satagopan JM**, Stroup A, Kinney A, Dharamdasani T, Ganesan S, Bandera EV. Breast cancer among Asian and Pakistani Americans – A surveillance, epidemiology and end results-based study. *International Journal of cancer*. 2021. 148(7):598-1607. PMID: PMC8544783.
4. Lo L, **Satagopan JM**. Factors associated with surgery among South Asian American and non-Hispanic White women with breast cancer. *American Journal of Undergraduate Research*. 2021. 18(3):15-23. PMID: PMC8716021

Ongoing projects that I would like to highlight include:

CINJ Cancer Health Equity Center of Excellence Pilot Grant (PI: Satagopan) 1/13/2023 – 1/12/2024
(no fund number)

Implementing and evaluating recruitment and data collection strategies for the Cancer Analytics and South Asian Health – Breast Cancer (CANSAH-BC) Pilot Study

NJ ACTS (PI: Satagopan) 3/1/2023 – 1/31/2024
(no fund number)

Harnessing socio-cultural similarities between diverse populations to evaluate the uptake of cancer screening in under-represented groups

R01 CA197402 (PI: Satagopan) 4/1/2016-12/31/2022
Study of exposure and biomarkers in cancer epidemiology

R21 HD104558 (PI: Shaiu) 9/21/2020-8/21/2022
Leveraging NICHD DASH biospecimens to isolate the effects of HIV infection and HIV exposure on epigenetic profiles in infants

R25 CA244071 (MPI: Patil / Satagopan) 9/13/2019-8/31/2022
Building a statistics research program for preclinical cancer researchers

B. Positions and Honors

Positions and Employment

2021 – present	Associate Dean for Faculty Affairs, School of Public Health, Rutgers University, Piscataway, NJ
2020 – 2021	Interim Associate Dean for Faculty Affairs, School of Public Health, Rutgers University, Piscataway, NJ
2019 – present	Full Member, Cancer Prevention Program, Cancer Institute of New Jersey, Rutgers University, New Brunswick, NJ

2019 – present	Director, Center for South Asian Quantitative Health & Education, School of Public Health, Rutgers University, Piscataway, NJ
2019 – present	Professor, Department of Biostatistics and Epidemiology, School of Public Health, Rutgers University, Piscataway, NJ
2017 – 2019	Attending Biostatistician, Memorial Hospital, New York, NY
2017 – 2019	Member, Memorial Hospital, Memorial Sloan Kettering Cancer Center, New York, NY
2009 – 2019	Associate Professor of Public Health, Weill Cornell Medical College, New York, NY
2005 – 2017	Associate Member, Memorial Sloan Kettering Cancer Center, New York, NY
2005 – 2017	Associate Attending Biostatistician, Memorial Hospital, New York, NY
1998 – 2005	Assistant Member, Memorial Sloan Kettering Cancer Center, New York, NY
1998 – 2005	Assistant Attending Biostatistician, Memorial Hospital, New York, NY
1995 – 1998	Assistant Biostatistician, Memorial Hospital, New York, NY Clinical Assistant, Memorial Sloan Kettering Cancer Center, New York, NY

Honors

2021	New Jersey Health Foundation Excellence in Teaching Award
2015	Fellow, American Statistical Association

C. Contributions to Science

- 1. Two-stage designs:** I developed novel two-stage study designs for cost-effective evaluation of a large number of genetic factors. My study design has facilitated the identification of disease susceptibility loci in numerous genome-wide association studies (GWAS) of cancer and cancer-related traits and other diseases by various investigators around the world.
 - Satagopan JM**, Verbel DA, Venkatraman ES, Offit KE, Begg CB. Two-stage designs for gene-disease association studies. *Biometrics*. 2002;58: 163-170. PMID: PMC8978151
 - Satagopan JM**, Elston RC. Optimal two-stage genotyping in population based association studies. *Genet Epidemiol*. 2003; Sep;25(2):149-57. PMID: PMC8978311
 - Satagopan JM**, Venkatraman, ES, Begg CB. Two-stage designs for gene-disease association studies with sample size constraints. *Biometrics*. 2004; Sep;60(3):589-97. PMID: PMC8985053
 - Satagopan JM**, Sen S, Churchill GA. Sequential quantitative trait locus mapping in experimental crosses. *Stat Appl Genet Mol Biol*. 2007;6: Article12. PMID: PMC1449722
- 2. Hierarchical modeling:** The evaluation of multiple genetic and environmental risk factors is often challenging due to their underlying correlations, their contributions to disease risk through putative biological pathways, the unbalanced nature of observational data, and multiple testing issues. I developed robust hierarchical modeling approaches based on Bayes and empirical Bayes statistical methods to address these challenges and successfully applied them to several observational studies, including the MSK study of nevi in children, the MSK study of cognitive function in brain cancer patients, and the Janus Cohort non-Hodgkin's lymphoma study of the Cancer Registry of Norway.
 - Satagopan JM**, Zhou Q, Oliveria SA, Dusza SW, Weinstock MA, Berwick M, Halpern AC. Properties of preliminary test estimators and shrinkage estimators for evaluating multiple exposures – Application to questionnaire data from the SONIC study. *J R Stat Soc Ser C Appl Stat*. 2011 Aug 1;60(4):619-632. PMID: PMC3156460.
 - Orlow I, **Satagopan JM**, Berwick M, Enriquez HL, White KA, Cheung K, Dusza SW, Oliveria SA, Marchetti MA, Scope A, Marghoob AA, Halpern AC. Genetic factors associated with naevus count and dermoscopic patterns: preliminary results from the study of nevi in children (SONIC). *Br J Dermatol*. 2015; 172: 1081-1089. PMID: PMC4382400.
 - Satagopan JM**, Sen A, Zhou Q, Lan Q, Rothman N, Langseth H, Engel LS. Bayes and empirical Bayes methods for reduced rank regression models in matched case-control studies. *Biometrics*. 2016; 72(2):584-95. PMID: PMC4870158.
 - Correa DD, **Satagopan JM**, Cheung K, Arora A, Kryza-Lacombe M, Xu Y, Karimi S, Lyo J, DeAngelis LM, Orlow I. COMT, BDNF and DTNBP1 polymorphisms and cognitive functions in patients with brain tumors. *Neuro Oncol*. 2016; 18(10):1425-33. PMID: PMC5035520.

3. Analysis methods for case-control studies – Lifetime risk of cancer and statistical interactions: In collaboration with clinical epidemiology colleagues, I developed novel methods for estimating the absolute risk of cancer associated with specific mutations using case-control data. Our well-cited approach has resulted in estimates of breast and ovarian cancer risk for use in genetic counseling of cancer patients. Recently, I have developed parsimonious risk models of tumor growth for evaluating gene-environment interactions and for obtaining accurate and precise estimates of odds ratios in case-control studies. Building on these ideas, I am currently collaborating with biostatistics and clinical colleagues at MSK to develop statistical methods for quantifying treatment benefit and to test how this benefit varies between carriers and non-carriers of mutations in randomized clinical trials with time-to-event endpoint.

- a. **Satagopan JM**, Offit K, Foulkes W, Robson ME, Wacholder S, Eng CM, Karp SE, Begg CB. The lifetime risks of breast cancer in Ashkenazi Jewish carriers of BRCA1 and BRCA2 mutations. *Cancer Epidemiol Biomarkers Prev.* 2001 May;10(5):467-73.
- b. **Satagopan JM**, Elston RC. Evaluation of removable statistical interaction for binary traits. *Stat Med.* 2013 Mar 30;32(7):1164-90. PMID: PMC3744333.
- c. Iasonos A, Chapman PB, **Satagopan JM**. Quantifying treatment benefit in molecular subgroups to assess a predictive biomarker. *Clin Cancer Res.* 2016; 22: 2114 – 2220. PMID: PMC4856220.
- d. **Satagopan JM**, Iasonos A. Measuring differential treatment benefit across marker specific subgroups: The choice of outcome scale. *Contemp Clin Trials.* 2017; 63: 40-50. PMID: PMC5568905

4. Risk factors and genetic association studies in cancer epidemiology: As a quantitative researcher in cancer outcomes and the lead biostatistician of several funded projects, I have led and developed statistical models for analyzing data resulting from several cancer epidemiology and genomics projects, and used these models to identify genetic and environmental factors associated with the etiology and progression of cancer and cancer-related traits.

- a. Oliveria SA, **Satagopan JM**, Geller AC, Dusza SW, Weinstock MA, Berwick M, Bishop M, Heneghan MK, Halpern AC. Study of nevi in children (SONIC): Baseline findings and predictors of nevus count. *Am J Epidemiol.* 2009; 169: 41-53. PMID: PMC2720704.
- b. **Satagopan JM**, Oliveria SA, Arora A, Marchetti MA, Orlow I, Dusza SW, Weinstock MA, Scope A, Geller AC, Marghoob AA, Halpern AC. Sunburn, sun exposure, and sun sensitivity in the study of nevi in children. *Annals of Epidemiology.* 2015; 25: 839-843. PMID: PMC4609579.
- c. Werder EJ, Engel LS, **Satagopan J**, Blair A, Koutros S, Lerro CC, Alavanja MC, Sandler DP, Bene Freeman LE. Herbicide, fumigant, and fungicide use and breast cancer risk among farmers' wives. *Environmental Epidemiology.* 2020. 4(3): e097. PMID: PMC7289136
- d. **Satagopan JM**, Stroup A, Kinney A, Dharamdasani T, Ganesan S, Bandera EV. Breast cancer among Asian and Pakistani Americans – A surveillance, epidemiology and end results-based study. *International Journal of cancer.* 2021. 148(7):598-1607. PMID: PMC8544783.

Complete List of Published Work in NCBI:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/jaya.satagopan.1/bibliographhy/40680968/public/?sort=date&direction=ascending>