Luisel J. Ricks-Santi, PhD

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CAREER SUMMARY

Cancer disparities researcher and population scientist possessing over 13 years of research experience committed to diversity & inclusion through research education and training. Particularly adept in the areas of grantsmanship, organizational leadership, clinical-translational methods and transdisciplinary team science approaches.

LANGUAGES

English- fluent Spanish- fluent (first language)

AREAS OF EXPERTISE

Cancer Epidemiologist | Population Sciences | Genomics | Genetic Epidemiology | Precision Medicine | Clinical-Translational Medicine | Next Generation Sequencing | Microbiome | Bioinformatics | Biostatistics | Epidemiology | Biospecimen Science | Cancer Genetics & Genomics | Public Health Genomics | Molecular Biology | Health Disparities | Cancer Disparities | STEM Education in Minorities and Women

EDUCATION & PROFESSIONAL CONTINUING EDUCATION

HOWARD UNIVERSITY CANCER CENTER – NATIONAL HUMAN GENOME CENTER 2010

Washington, D.C.

Post-Doctoral Fellow | Cancer Genetic Epidemiology and Cancer Disparities Research Clinical-Translational Early Career Awardee (KL2) | Developed a clinical genomics algorithm to predict harbored cancer predisposition genes; also served as director of the National Human Genome Center Biorepository in collaboration with the Howard University Hospital Department of Pathology and the Cancer Center

GEORGETOWN UNIVERSITY PhD Tumor Biology DOD Pre-Doctoral Awardee	2000 - 2007 Washington, D.C.
JOHNS HOPKINS BLOOMBERG SCHOOL OF PUBLIC HEALTH Certificate: Epidemiology & Biostatistics Program Graduate Courses: Applied Biostatistics (STATA), Epidemiology I and II, Molecular Epidemiology	2003 - 2008 Baltimore, M.D.
GEORGE WASHINGTON UNIVERSITY	2011
Courses: Applied Biostatistics & Data Analysis (SAS)	Washington, D.C.
FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY	2010
Certificate: FASEB Building Excellence in Genetics Instruction (BEGIN)	Bethesda, M.D.
NATIONAL CANCER INSTITUTE	2004
Certificate: NCI Summer Curriculum in Cancer Prevention	Bethesda, M.D.
HAMPTON UNIVERSITY	2000
BS Molecular Biology	Hampton, VA

Minority Access to Research Careers & Alliance for Minority Participation in Science Fellow

DISSERTATION & DISSERTATION COMMITTEES

Ricks-Santi L. DNA repair gene polymorphisms in Hereditary and Sporadic Breast Cancer. PhD Dissertation (9195), Georgetown University, 2007 xv, 150 leaves: ill.; 29cm

Dissertation Committee Member:

- Jabril Johnson (2017): RNASEL SNPs associated with prostate cancer risk in African American • men
- Ashley Queen (2016): BRCA1 SNPs associated with breast cancer risk in African American • women
- Aliza Raja: (2016): Genetics and Epigenetics of HPV-Infected Anal Carcinomas •
- Rana Tbaishat (2013): DNA-methylation associated with prostate cancer and high-grade PIN in African American men
- Sylvia Dasi (2013): Unique metabolic profiles associated with triple negative breast cancer in African American women
- Danyelle Winchester (2012): SPINK1 SNPs associated with prostate cancer risk in African American men

RESEARCH AND TEACHING EXPERIENCE

ASSOCIATE DIRECTOR, DIVERSITY EQUITY & INCLUSION UNIVERSITY OF FLORIDA HEALTH CANCER CENTER

- Develop and implement a plan to enhance the diversity of the cancer research workforce
- Lead the DEI committee in developing activities in line with the DEI plan and goals •
- Deploy training programs that focus on cancer research workforce development •
- Develop the evaluation plan for DEI activities

ASSOCIATE PROFESSOR (TENURE TRACK) UNIVERSITY OF FLORIDA 2021-PRESENT

- Develop a rigorous research program in cancer genomics and cancer epidemiology •
- Lead the Cancer Disparities workgroup as part of the Cancer Center •
- Provide outstanding instruction in genetic epidemiology •
- Provide outstanding mentorship to undergraduate, graduate and professional students, as well as • early career investigators

TECHNICAL CONSULTANT, HAMPTON UNIV MOLECULAR COVID LAB 2020-2021

- ASCP Board of Certification as Technologist in Molecular Biology
- Worked with funders to develop the COVID-19 molecular lab •
- Developed and deployed standard operating procedures •
- Trained laboratory staff on use of King Fisher liquid handling station and gRT-PCR methods and • standards
- Review and approve gRT-PCR results prior to results dissemination .
- Manage COVID-19 clinic that focuses on testing Hampton University faculty, students, and staff. •
- Manage the electronic medical record to ensure accuracy •
- Create weekly testing reports
- Manage contact tracing efforts

ASSISTANT VICE PRESIDENT FOR RESEARCH, HAMPTON UNIVERSITY

- Developed program to prepare faculty for grants submission •
- Reviews the submission of grants at Hampton University •
- Develop teams to respond to federal grants •
- Mentoring minority early career faculty who have consequently been awarded R21, NIGMS score • grants, NSF grants and DOD grants

2022-PRESENT

2020-2021

DIRECTOR, HAMPTON UNIVERSITY CANCER RESEARCH CENTER HAMPTON UNIVERSITY, HAMPTON, VA

2013 - 2021

- Managing NIH grants totaling \$3.5 million
- Awarded NCI R15 (research education) grant in breast cancer genomics in African American women in 2019; engages and financially supports 4 minority undergraduate and graduate students in research.
- Developed and implemented strategic plan which encompassed the acquisition of National Cancer Institute designation through the development of a cancer disparities, cancer genomics, and clinical-translational sciences program while providing administrative and operational support to facilitate the collective mission
- Developed programmatic initiatives and goals consistent with the collective mission with a focus on innovation in the field of cancer research and recommends biomedical research directives
- Oversees a team of researchers and students through the investigation of the biology of cancer and cancer disparities and identifies biomarkers of cancer diagnosis, prognosis, survival outcomes, and targeted therapies using genetic epidemiological and bio-statistical techniques
- As member of the Research council, developed and facilitated the implementation of research ethics efforts such as CITI human subjects training, development of supplemental research ethics training modules, Institutional Review Board organization and policy development, Institutional Animal Care and Use Committee, Biosafety, and radiation safety

ASSOCIATE PROFESSOR OF BIOLOGICAL SCIENCES HAMPTON UNIVERSITY, HAMPTON, VA

2013 - 2021

- Contact Principal Investigator for the Maximizing Access to Research Careers Program which provides scholarship funding to prepare minority STEM undergraduates for PhD programs and research careers
- Chair of the Graduate Biological Sciences Program Curriculum committee- overhauled the graduate program in biology to include a thesis and non-thesis track. The thesis track developed will be research intensive and aligns with our desire to bridge students to PhD programs. The goal was to be strategically poised to apply for an NIH BRIDGES program.
- Chair of the curriculum and catalog committee- realigned the biology curriculum with Vision and Change IN UNDERGRADUATE BIOLOGY: A CALL TO ACTION
- Coordinates and facilitates undergraduate and graduate level biology and cancer biology courses using hands-on, inquiry-based pedagogical methods, provides guidance and instruction to undergraduate, graduate, and fellow students, and provides research opportunities for students in the cancer research center labs expressing interest in careers in biomedical research, public health and medicine
- Provides students hands-on practical experience in molecular and cellular biological techniques, increasing their success in entering summer internship and graduate programs
- Advises and mentors students pursuing careers in medicine and biomedical research
- Instructed Courses: Research Problems, 2016-present | Biotechniques Laboratory, 2016-present | Introduction to Biology (Honor's Lab), 2014-present | Cancer Biology Laboratory, 2014-present | Biotechnology Explorations, 2016-present

SCIENTIFIC RESEARCH LEADER, HAMPTON UNIVERSITY PROTON THERAPY INSTITUTEHAMPTON UNIVERSITY, HAMPTON, VA2013 - 2021

- Developed the Hampton University Registry and Biorepository, providing the university research resources that promote collaboration and grantsmanship
- Led study in the area of radiogenomics to identify genomic profiles that may predict toxicity due to radiation therapy
- Provided administrative and operational leadership support to promote the mission and vision of the Cancer Research Center, offered recommendations for the direction of biomedical research

at the center, and managed a team of researchers and students through the investigation of the radiation biology of cancer

• Provides guidance on the development and execution of clinical trials

RESEARCH ASSOCIATE, HAMPTON VETERANS AFFAIRS HOSPITAL HAMPTON, VA

2013 - 2021

 Works collaboratively with VA physicians and behavioral health specialists to identify biomarkers of cancer diagnosis, prognosis, survival outcomes, and targeted therapies through the utilization of genetic epidemiological and bio-statistical techniques, provides recommendations regarding research, and serves as a member of the Institutional Review Board

ASSISTANT PROFESSOR, DEPARTMENT OF PEDIATRICS & HUMAN GENETICS HOWARD UNIVERSITY SCHOOL OF MEDICINE, WASHINGTON, D.C. 2010-2013

- Clinical-Translational Sciences U54-KL2 Award Scholar
- Managed a team of research assistants and students through the investigation of breast and prostate cancer genomics in ethnically diverse populations and identified biomarkers of cancer diagnosis, prognosis, and targeted therapies using genetic epidemiological and bio-statistical techniques
- Coordinated graduate level human and cancer genetics courses while providing guidance and instruction to undergraduate, graduate, and medical students at Howard University
- Instructed Courses: Human Genetics II, 2012 2013 | Cancer Genetics I: Clinical Aspects, 2011-201
 Molecular Biology of Cancer, 2010 2010

SPECIAL VOLUNTEER, LABORATORY OF EXPERIMENTAL IMMUNOLOGY (HUMAN GENETICS)

NATIONAL CANCER INSTITUTE, BETHESDA, MD

- Developed formal collaborations with investigators at the NCI for proposed studies of the genetics of breast and prostate cancer, coordinated resources between the HUCC and NCI, and led genetic analysis of bio-specimens from Howard University
- Annotated bio-specimens in NHGC and NCI biorepositories and collaborated on the development of a bioinformatics network between the NIH, NCI, NHGC, and Howard University

RESEARCH ASSOCIATE/POST DOCTORAL FELLOW, NATIONAL HUMAN GENOME CENTERHOWARD UNIVERSITY, WASHINGTON, D.C.2007 - 2010

- Coordinated, mobilized, and managed a team of researchers to recruit research participants and collect bio-specimens for a prospective study of the genetics of breast cancer in African American women and coordinated resources between the HUCC and NCI for the study while facilitating the attainment of resources through grants and published data
- Utilized molecular genetics and epidemiological techniques to address the causes of disproportionate morbidity and mortality in minorities due to cancer
- Directed and managed the National Human Genome Center Tissue Biorepository and organized a symposium on the "1000 Genomes Project: On the Frontier of Personalized medicine"

RESEARCH ASSOCIATE/PRE DOCTORAL FELLOW, PRE-DOCTORAL TRAINING PROGRAMGEORGETOWN UNIVERSITY, WASHINGTON, D.C.2001 – 2007

- Successfully defended dissertation entitled "DNA repair gene polymorphisms in Hereditary and Sporadic Breast Cancer" and received Department of Defense pre-doctoral grant (90K) for particular work
- Utilized cytogenetic and genotyping techniques to identify genetic biomarkers in breast cancer in a case-control study of over 3000 samples while maintaining databases and biomarker core facilities

2010 - 2013

SCIENTIFIC LIAISON/INTERN - HIV & AIDS ADMINISTRATION/SURVEILLANCE DC DEPARTMENT OF HEALTH, WASHINGTON, D.C.

Provided technical consultation by informing department of new techniques and methods used in HIV detection methods and HIV/AIDS surveillance, lectured department staff about basic immunology, molecular biology methods to detect HIV, and methods to detect viral resistance, and designed a brochure for the recruitment of new patients, health care providers, and lab technicians into the study of "STARHS" (Serological Testing Algorhithm for Recent HIV Seroconverters)

LABORATORY ROTATION - PRE DOCTORAL TUMOR BIOLOGY PROGRAM GEORGETOWN UNIVERSITY, WASHINGTON, D.C.

- Under the direction of Yan Su, MD/PhD, utilized filter and glass slide microarrays to focus on hybridization techniques using total RNA while gaining experience in the handling and purification of samples
- Collaborated with investigators in animal mouse studies involving tumor removal, DNA extraction, generation of cell line growth curves, and Southern blot production and hybridizations in an effort to gain deeper insight into high-throughput DNA technology and the wide range of application made possible by cDNA microarrays

LABORATORY ROTATION - PRE DOCTORAL TUMOR BIOLOGY PROGRAM GEORGETOWN UNIVERSITY, WASHINGTON, D.C.

Under the direction of Dorraya El-Ashry, PhD, explored the localization of the estrogen receptor (ER) in MCF7 cell lines and its derivatives and investigated the role of MAPK activation in ER- cells using a variety of techniques including cell culture, luciferace reporter assays, immunohistochemistry, ER ligand binding assays, and western blots

UNDERGRADUATE STUDENT FELLOW - SUMMER ASSISTANTSHIP IN ONCOLOGY NCI/EASTERN VIRGINIA MEDICAL SCHOOL & CENTER FOR PEDIATRIC RESEARCH 1999-2000

Under the direction of William Kearns, Ph.D., Michael Stacy, Ph.D., and Abiodun Adibi, Ph.D., successfully determined the prevalence of GSTT1 and GSTM1 null alleles in bone marrow cells from patients with aplastic anemia, myelodysplastic syndrome, and controls, performed multiplex PCR on extracted DNA to amplify the GSTT1, GSTM1, and actin alleles as an internal control, and used results to suggest the presence of a significant increase in the frequency of GSTT1 null genotypes in Aplastic Anemia and myelodysplastic syndrome patients

UNDERGRADUATE STUDENT FELLOW - HOWARD HUGHES FELLOW/DEPT. OF BIOLOGY UNIVERSITY OF MIAMI, CORAL GABLES, FL 1998

Under the direction of Marion Preest, Ph.D., examined the effects of age on phosphokreatine and lactate concentrations in Osteopilus septentrionalis larvae, provided care for amphibians and reptiles, and utilized experimental observations to conclude that larvae age and lactate levels increased conjointly

UNDERGRADUATE STUDENT FELLOW ALLIANCE FOR MINORITY PARTICIPATION IN SCIENCE 1999

Under the direction of Edison Fowlks, Ph.D., Larry -Blount, Ph.D., and Edward Smith, Ph.D., learned • and utilized techniques commonly required in molecular biology and molecular genetics, such as

2001-2001

2004 - 2005

2000-2001

1997-

RNA/DNA extraction, PCR, cDNA isolation, plasmid preparation, and tissue culturing and served as lab assistant in vertebrate morphogenesis class

INSTRUCTION EXPERIENCE

Howard University College of Medicine: Lecturer (2010-2012)

- 1. Medicine and Society Unit 1- Health Care and Ethics, Howard University College of Medicine, Department of Community and Family Medicine, Spring 2011, 2012, 2013
- 2. Medicine and Society Unit 3-Translational Sciences, Howard University College of Medicine, Department of Community and Family Medicine, Spring 2011, 2012, 2013
- 3. Human Genetics Unit- Howard University College of Medicine, Department of Pediatrics and Child Health, Division of Genetics and Human Genetics, Fall 2010, 2011, 2013
- 4. Medicine and Society Unit, Howard University College of Medicine, Department of Community and Family Medicine, Spring 2010, 2011, 2012

Howard University College of Medicine: Assistant Professor (2012-2013)

- 1. Cancer Genetics, Howard University College of Medicine Department of Pediatrics, Spring 2011, 2012, 2013
- 2. Cancer Bioinformatics, Howard University College of Medicine Department of Pediatrics, Spring 2011, 2012, 2013

Hampton University: Associate Professor (2013-2021)

- 1. Bio 105 Lab Introduction to Biology (Honor's Lab), 2014-2016
- 2. Bio 110 Freshman Biology Seminar Fall 2016- present
- 3. Bio 311 Biotechnology Explorations, 2016-present
- 4. Bio 405 Topics in Molecular Biology, Spring 2020
- 5. Bio 408 Research Problems, 2016-present
- 6. Bio 423 Cancer Biology Laboratory, 2014-2016
- 7. Bio 505 Research Problems, 2016-present
- 8. Bio 607 Modern Biology I, Spring 2020

University of Florida: Associate Professor (2021-current)

- 1. PHA 6935 Genetic Epidemiology
- 2. PHA 5787C Patient Care 5
 - o Social Determinants of Breast and Ovarian Cancer
 - Breast Cancer Genomics

AWARDS & GRANTSMANSHIP

National Cancer Institute Research Education grant (R15) 2019-present

Hampton University Minority Men's Health Initiative Pilot Award, 2015-2017

Washington, DC Department of Health Public Health Genomics Contract 2010-2012 National Center for Minority Health and Health Disparities, Loan Repayment Recipient, 2012-2013

National Center for Minority Health and Health Disparities, Loan Repayment Recipient, 2012-2013 National Center for Minority Health and Health Disparities, Loan Repayment Recipient, 2009-2011 Howard University/Johns Hopkins University Partnership in Cancer Research (U54), 2007-2010 Department of Defense Breast Cancer Research Program Pre-Doctoral Award Program, 2004-2007 Georgetown University Pre-Doctoral Interdisciplinary Program in Tumor Biology (T32), 2000-2004 Minority Access to Research Careers- Hampton University (T34), 1999-2000

CURRENT

University of Florida Health Cancer Center Support Grant

Funding Agency: NIH/ NCI Dates: 04/01/2023- 03/31/2028 Title: Plan to Enhance Diversity Role: Associate Director Effort: 15%

Summary: The University of Florida Health Cancer Center (UFHCC) is committed to building a workforce reflecting the diverse U.S. population with scientific capabilities, leadership skills, and cultural competency to address racial, geographic, structural, and socioeconomic disparities in the UFHCC catchment area. The PED is directed by Ricks-Santi (CCPS), Associate Director for Diversity, Equity, and Inclusion (DEI) and supported by a DEI Committee charged with setting goals for diversity, developing activities to enhance diversity, mentoring, and monitoring progress. The PED has 4 aims: 1) enhance the diversity of the cancer research workforce, community, and advisory boards; 2) recruit, mentor, and sponsor diverse and inclusive cohorts of scholars into professional development programs to create future leaders of the UFHCC and the cancer research community; 3) leverage and strengthen institutional infrastructure and resources to ensure the success of URMs, women, and other URGs in the cancer workforce and leadership; and 4) develop processes and metrics to evaluate progress and ensure continuous improvement on institutional culture. The PED will build on a foundation developed by CaRTEC and the CaRE2 Health Equity Center, the latter in partnership with Norris-USC and Florida A&M University (a Historically Black University in the catchment area). This includes precollegiate, undergraduate, and postbaccalaureate programs for populations underrepresented in the cancer research workforce, including URMs. The UFHCC PED will develop programs and activities that increase the diversity of the cancer research community through UFHCC initiated training, recruitment, retention, and promotion. This includes new applications for URGfocused R25 and T32 grants. The UFHCC PED augments recruitment of graduate and medical students to cancer specific programs by leveraging affinity groups, recruiting faculty using inclusive processes to identify a diverse talent pool, and creation of communities, structured mentorship, and sponsorship to enhance faculty development and retention. Lastly, PED and CaRTEC will develop an Emerging Leaders Program to increase the diversity of the next generation of UFHCC leaders.

Transferred to Hampton University alternate PI upon departure

P20 CA264075-01

Title: Feasibility study to build a collaboration in genetics and genomic cancer research **Percent Effort:** 25%

Project Period Begin Date: 07/01/2021

Project Period End Date: 06/30/2025

Project Goals: This partnership proposal between Hampton University (HU) and the Tisch Cancer Institute (TCI) at the Icahn School of Medicine Mount Sinai School of Medicine (MSSM) seeks to establish the Center for Genetics and Genomics Cancer Research as a robust, sustainable collaboration between the two institutions by providing research, training and educational support for the students and the faculty. Training and education will aim to increase HU faculty's research capacity in the area of genetics and genomics and health disparities, using the examples of prostate and breast cancer. It will provide TCI MSSM with access and collaboration to scientific projects in breast and prostate cancer disparity etiology, treatment and outcome, as well as to a mechanism to increase the diversity of the genetics and genomics faculty, which has traditionally lacked diversity. The final goal is to create a competitive and sustainable joint Center of Excellence, encompassing the genetics and genomics of health disparities to explain population differences in breast and prostate cancer occurrence and outcome.

Role: Pl

Title: HU-CHEM: Deploying evidence-based interventions in Chemistry at Hampton University to plug leaks in the biomedical training pipeline

Funding Agency: NIH

Grant ID: 1U01GM138433-01 PI: Oluwatoyin Asojo (Contact PI)

Dates: 9/1/2020-8/30/2023

Summary: There is an urgent need to increase the diversity of the biomedical workforce. Thus, we propose to disseminate and deploy evidence-based DPC interventions that plug the leaky biomedical training pipeline by targeting a first-year level gatekeeper chemistry course. Our intervention will be empirically tested using rigorous quantitative and qualitative statistical analysis with appropriate baseline controls so as to generate and disseminate outcomes data that will inform on best practices on several major DPC hallmarks of trainee, faculty and institutional success. **Role:** Co-Investigator

Title: U-RISE at Hampton University

Funding Agency: NIH

Grant ID: 1T34GM136489-01 Dates: 4/1/2020-3/30/2025

Summary: There is an urgent need to expand the number of underrepresented minorities in STEM. Hampton University proposes the implementation of the U-RISE program which endeavors to: 1) increase the number of students interested in research careers; 2) improve STEM retention rates; 3) improve academic performance and achievement in training eligible departments; 4) increase the number of students from Hampton pursuing and matriculating in PhD or MD/PhD programs in biomedical sciences; and 5) implement effective mentoring and enhanced opportunities for pre-U-RISE and U-RISE Scholars through formal mentor training and engagement of U-RISE faculty in program activities. Overall, the proposed curriculum and activities will continue to enhance students' skills and prepare scholars for entry into top-ranked biomedical PhD or MD/PhD programs. This program will also improve the mentoring capacity of faculty at Hampton University. **PI:** Luisel Ricks-Santi (Contact PI)

COMPLETED

Title: Development of the Hampton University Cancer Research Center Supporting Agency: Hampton University Performance Period: 7/2014-Indefinite Role: Director Project Goals: Yearly funds are being provided to Dr. Ricks-Santi to develop and implement research

activities at the new Hampton University Cancer Research Center (HUCRC).

Funding Agency: NIH-NIMHD

Grant ID: 1R13MD012764-01 PI: Penn-Marshall, M (PI) Role: Principal Investigator (MPI)

Dates of Award: 9/17/2018-9/22/2019

Title: HAMPTON UNIVERSITY'S FIRST ANNUAL CARIBBEAN HEALTH CONFERENCE – ADDRESSING INEQUITIES ONE STEP AT A TIME

The goal of this conference is to address the large health inequities that exist within Caribbean populations residing in Caribbean Nations and U.S. territories. The Specific Aims of the conference are: Aim 1: Disseminate culturally specific evidence-based strategies that will maximize community outreach activities and promote health awareness among Caribbean nations, and Caribbean-American subpopulations; Aim 2: Connect key stakeholders from the Caribbean community with healthcare professionals, healthcare systems, and genomic scientists in the U.S. to accelerate collaborations and communications related to improving health and treatment outcomes of Caribbean nations and Caribbean-American subpopulations; Aim 3: Facilitate the development of genomic clinical studies, admixture mapping, and genotype-stratified trials that are more inclusive of Caribbean nations and Caribbean-American subpopulations

Title: Minority Men's Health Initiative Pilot Award: Gut microbiome dysbiosis in Prostate Cancer patients in response to Radiation Therapy in combination with Androgen Deprivation Treatment Funding Agency: NIMHD Grant ID: U54MD008621-01 Percent effort: 10% Performance Period: 12/1/2018-6/30/2020 Level of Funding: \$100,000 Role: co-investigator Project Goal: To identify biological and microbiome correlates of outocomes following ADT therapy and proton radiation.

Title: MUSC Trandisciplinary Collaborative Center on Precision Medicine and Minority men's Health Funding Agency: NIH/NIMHD Grant ID: U54MD010706 PI: Luisel J. Ricks-Santi, PhD Type of Award: Sub-award **Amount:** \$481,000 Dates of Award: 7/2016-3/2021 **Project Goal:** To facilitate the development of precision medicine strategies that address disparities in health outcomes among minority men. Engaging the community in focus groups and educational forums to increase the engagement of minority men in precision medicine trials. Title: Minority Men's Health Initiative Pilot Award: Genomic biomarkers associated with aggressive prostate cancer in African American Funding Agency: NIMHD Grant ID: U54MD008621-01 Percent effort: 25% (3.0 Calendar months) Performance Period: 9/1/2015-6/30/2020 Level of Funding: \$249,994 Role: PI Type of Award: Sub-award

Project Goals: The proposed study will improve the understanding of aggressive PCa, as well as identify unique genomics differences between aggressive tumors in men of African and European descent. This will increase the understanding of PCa in men of African descent, which will ultimately contribute to the reduction of PCa and PCa-related death among men of African descent. Additionally, the data resulting from this project could immediately result in a panel of genes that could readily identify PCa patients that warrant treatment.

Title: Determinants of Quality of Life in Proton and conventional Radiation Therapy of Patients: A Feasibility Study

Funding Agency: University of Virginia Cancer Center CCPH Funding for Translational and Population Pilot Research Projects

PI: Randy Jones, PhD, RN, FAAN and Luisel J. Ricks-Santi, PhD; CO-I: John McDonald **Type of Award:** Sub-award **Amount:** \$19,019

Dates of Award: 3/31/2017-2/28/2017

Project Goal: To determine the feasibility to collect clinical data and blood sample from patients undergoing proton and photon therapy.

Title: Characterization of mutations associated with aggressive breast cancer and the utility of mutation status for clinical decision making Percent Effort: 75% Supporting Agency: NIH (KL2RR-031974) Level of funding: \$450,000 Performance Period: 7/1/2014-Indefinite Project Goals: The specific aims were to 1) Assess genetic variation in *BRCA1* and *BRCA2* and verify association to increased susceptibility to molecular cancer subtypes, and 2) Explore the usefulness of present data in predicting individuals likely to carry *BRCA1*/2 mutations. Role: *Pl*

Title: Genomics Awareness and Risk Assessment Services Percent Effort: 100% Supporting Agency: DC Department of Health (RQ694584) Performance Period: 09/2010-04/2011 Level of funding: \$50,000 Role: Pl

Project Goals: We were contracted to provide cancer genomic educational awareness and risk assessment materials; develop, implement, and evaluate an evidenced based community level risk assessment tool aimed at the collection of family medical history as it relates to breast, colorectal, and ovarian cancer; and to develop, implement, and evaluate an outreach and education plan aimed at increasing awareness of the importance of obtaining family medical histories, and the value of genetic testing and counseling.

Leading Emerging and Diverse Scientists to Success (LEADS)- Faculty Development Program Site Lead

	2019 - Present
Maximizing Access to Research Careers- Steering Committee	2014 - Present
Department of Biological Sciences, Curriculum Committee	2013 - Present
Hampton University Research Council	2013 - Present
Hampton University Internal Review Board	2013 - Present
Minority Men's Health Initiative, Group Member	2013 - Present
American Association for the Advancement of Science- Member	2008 - Present
American Society for Human Genetics- Member	2007 - Present
American Public Health Association- Member of Genomics Forum	2005 - Present
American Association for Cancer Research-Member	2000 - Present

RESEARCH

- 1. Clinical biomarkers in African American Women with triple negative breast cancer (TNBC): As an assistant professor at Howard University, I was also involved in the improved characterization of triple negative breast cancer in African American women. This work is ongoing, and to date we have examined immunohistochemical staining of over 30 protein markers in a tumor array of 202 tumors from African American women. The identification of immunohistochemistry markers associated with tumor subtype (i.e TNBC, Luminal A; Luminal B, etc.) have provided improved insight into the biology and behavior of TNBC in African American women. I performed all of the molecular epidemiological analysis.
 - b. <u>Esnakula A</u>, <u>Ricks-Santi L</u>, Kanaan Y, DeWitty R, Frederick W, Wilson L, Apprey V, Gold B, Sawitzke J, Im K, Naab TJ. (2014) Strong association of fascin expression with triple negative breast cancer and basal-like phenotype in African-American women. Journal of Clinical Pathology. J Clin Pathol. 67(2):153-60. PMID: 23986556.
 - c. Kanaan YM, Sampey BP, Beyene D, <u>Esnakula AK</u>, Naab TJ, <u>Ricks-Santi L</u>, Dasi S, Day A, Blackman KW, Frederick, W, Copeland RL, Gabrielson E, DeWitty RL. (2014) Metabolic profile of Triplenegative Breast Cancer in African–American Women Reveals Potential Biomarkers of Aggressive Disease. Cancer Genomics Proteomics. 11(6):279-94. PMID:25422359.
 - d. Khan F, **Ricks-Santi LJ**, Zafar R, Kanaan Y, Naab T. Expression of p27 and c-Myc by immunohistochemistry in breast ductal cancers in African American women. Ann Diagn Pathol. 2018 Jun;34:170-174. doi: 10.1016/j.anndiagpath.2018.03.013. Epub 2018 Apr 5.
- 1. **Breast cancer epidemiology and outcomes research:** As a cancer and genetic epidemiologist, I am interested in identifying the characteristics of aggressive cancer in African Americans and the predictors of worse outcomes. At Howard University, I worked closely with the DC tumor registry to identify the characteristics of DC breast cancer patients with a focus on outcomes in African American women. After returning, to Virginia, similar analyses were performed and published. The manuscripts below used tumor registry data as their source. There are additional manuscripts in preparation.
 - a. Luisel Ricks-Santi & John McDonald. Low Utilization of Oncotype DX in the Clinic. Cancer Med. 2017 Mar;6(3):501-507. doi: 10.1002/cam4.837. Epub 2017 Feb 1.
 - b. Luisel J Ricks-Santi, PhD; Brittany Barley, BS, MPH; Danyelle Winchester, PhD; Dawood Sultan, PhD; John T McDonald, PhD; Amari Pearson-Fields, MPH, PhD; Yasmine Kanaan, PhD, Vanessa Sheppard, PhD, Arnethea Sutton, MD, Carla Williams, PhD. Affluence does not influence breast cancer outcomes in African American women, Journal of Health Care for the Poor and Underserved – (Accepted JHCPU-Oct. 2, 2017)

- c. **Ricks-Santi L**, <u>Ewing A</u>, <u>Thompson N</u>, Harrison B, Wilson B, Richardson F, Carter-Nolan P, Spencer C, Laiyemo A, Williams C. "Self-Reported Family History of Cancer Associated with Breast Tumor Clinicopathological features". J Community Genet. 2014 Jan 15
- d. Luisel Ricks-Santi, et al. "Predictors of self-reported family health history of breast cancer". Accepted to Journal of Immigrant and Minority Health February 2014.

2. Genetic analysis of BRCA1 and BRCA2 variants African Americans populations with breast cancer.

This work focused on the identification of genetic risk modifiers in BRCA1 and BRCA2 mutation carriers. Specifically, in an unaffected population of mutation carriers, we investigated if there were genetic risk modifiers and/or biomarkers that could help distinguish family members at greatest risk for disease. Patients were recruited into a Familial Cancer Registry that was partially funded by my awarded DOD pre-doctoral grant. EBV-immortalized lymphocytes from patients were used to correlate sample genotype with phenotype as measured by functional DNA repair analysis. This work 1) confirmed that deficient DNA repair capacity is a characteristic of mutation carriers; 2) identified a polymorphism associated with DNA repair capacity; and 3) identified a novel haplotype associated with triple negative breast cancer. These studies confirm that BRCA mutations are not fully penetrant and combinations of common polymorphisms in BRCA1 and BRCA2 could also increase predisposition to breast cancer. Recently, I also focused on determining the impact of BRCA1 and BRCA2 in high risk African American women. My lab demonstrated a decreased prevalence of pathogenic mutations in African American women with a family history of cancer but an increased prevalence of variants of unknown significance (VUS). We recently received an R15 (AREA) grant from NCI to characterize VUSs.

- a. <u>Ricks-Santi L</u>, Sucheston L, Yang Y, Freudenheim JL, Isaacs C, Schwartz MD, Dumitrescu R, Marian C, Nie J, Vito D, Edge S, Shields PG. (2011) Association of Rad51 polymorphism with DNA repair in BRCA1 Mutation Carriers and Sporadic Breast Cancer Risk. BMC Cancer. 11:278. PMCID: PMC3146938.
- b. <u>Ricks-Santi L</u>, Nie J, Marian C, Ochs-Balcom H, Trevisan M, Edge S, Freudenheim J, Shields P. (2013) BRCA1 polymorphisms and breast cancer epidemiology in the Western New York Exposures and Breast Cancer (WEB) study Genet Epidemiol. 37(5):504-11. PMCID: PMC3699175.
- c. <u>Ricks-Santi L</u>, McDonald JT, Gold B, Dean M, Thompson N, Abbas M, <u>Wilson B</u>, Kanaan Y, Naab TJ, Dunston G. (2017) Next Generation Sequencing Reveals High Prevalence of BRCA1 and BRCA2 Variants of Unknown Significance in Early-Onset Breast Cancer in African American Women. Ethnicity & disease. 27(2):169-178. PMCID: PMC5398176.
- 3. Ancestry Informative Markers (AIMs) contribute to Prostate Cancer Health Disparities: Ancestry informative markers and genetic variants have higher frequencies in ancestral populations potentially due to environmental adaptations (i.e. malaria and mutations in the beta-globin locus). I have conducted genetic epidemiological studies of ancestry informative markers (AIMs) and their association with prostate cancer in African Americans. This work contributes my expertise in cancer genomics, genetic epidemiology, biostatistics, and the biology of cancer disparities. Our pioneering work demonstrated that variants with ancestral frequency differences could explain, in part, prostate cancer disparities. Note, Dr. Jingwi is one of my former graduate students. In all of the manuscripts, I performed the genetic epidemiological analyses.
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- d. Jingwi EY, Abbas M, <u>Ricks-Santi L</u>, <u>Winchester D</u>, Beyene D, Naab TJ, Kassim OO, Dunston GM, Copeland RL, Kanaan YM. (2015) Vitamin D Receptor Genetic Polymorphisms are Associated with PSA level, Gleason Score and Prostate Cancer Risk in African-American Men. Anticancer Res. 35(3):1549-58. PMCID: PMC4743656.
- 4. Familial and Sporadic Breast Cancer Samples from African American Women and Family Members: I was the lead investigator on a study to recruit 200 African American familial and sporadic breast cancer patients. This work was made possible by a career development award from the Georgetown-Howard University Center for Clinical and Translational Sciences. This patient data and samples enhanced a previously established, a well-annotated biorepository of DNA and patient data which will be utilized for the proposed study. The original study was initiated by Dr. Georgia Dunston and included the recruitment of 64 families (affected probands, affected and unaffected family members, and population controls). As far as we are aware, this is one of the largest
 - collections of African American breast cancer families.
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 - c. <u>Ewing A</u>, Erby L, Bollinger J, <u>Ricks-Santi L</u>, Telemaque E, Kaufman D. (2015) Demographic Differences in Willingness to Provide Broad and Narrow Consent for Biobank Research. Biopreserv Biobank. 13(2):98-106. PMCID: PMC4574731.
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 - e. <u>Thompson N, Ewing AT, Bonner JV</u>, <u>Wilson B</u>, Spencer C, Williams C, Kanaan Y, Pearson-Fields A, <u>Ricks-Santi L</u>. (2015) Know Your Family Ancestry, Conditions, Traits, and Traditions (FACTs) DC: Increasing Genomic Awareness in Underserved Communities. J Cancer Prev Curr Res 3(6): 00100. DOI: 10.15406/jcpcr.2015.03.00100

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MANUSCRIPTS UNDER REVIEW

- 42. Oluwadamilola T. Oladeru, Tammey Naab, Yasmine Kanaan, Luisel Ricks-Santi. Beyond Triple-Negative: The Prognostic Disparity of Quadruple-Negative Breast Tumors in African American Women - A Call for Subtype Recognition. Submitted to Breast Cancer Research and Treatment. Under Review
- Velasquez, J.....Ricks-Santi, L. Attenuation of circulating miR-17-5p, miR-20b-5p, and miR-106a-5p in low-risk prostate cancer patients following proton therapy. Cancer Epidemiology, Biomarkers, and Prevention. Manuscript in development
- 44. Rosenstein, B... **Ricks-Santi L.**West, C.... The Need to Enrich Population Diversity in Radiogenomic Research. Manuscript in development
- 45. Fareed, Rameesha....**Ricks-Santi, L.** PARP Inhibitors: A Critical Review of the Lack of Diversity in Clinical Trial Data. Manuscript under review

SELECTED ABSTRACT PRESENTATIONS

 American Association for Cancer Research (AACR- MICR Travel Award Recipient) Title: Quadruple negative breast tumors in African American women express factors associated with worse prognosis compared to triple negative tumors. April 8-13, 2022. New Orleans, LA. Authors: Oluwadamilola T. Oladeru, Tammey Naab, Yasmine Kanaan, Luisel Ricks-Santi

- American Association for Cancer Research (AACR) Special Conference On Computational Systems Biology of Cancer. Title: (150306_1) - Ancestrally derived SNPs influence on Gene Expression in Breast Cancer Data Sets. February 9-11, 2015. San Francisco, CA.
- 19th Annual School of Science Research Symposium Title: Examining Allele Frequency Differences in Variants for DNA Repair Genes between Populations. Myron K. Gibert Jr., Jocelyn Mapp, Dr. J. Tyson McDonald, Dr. Luisel Ricks-Santi. April 17-18, 2014
- LJ Ricks-Santi, et al. Family history of cancer associated with breast tumor clinicopathological features. 2014 Xavier University of Louisiana College of Pharmacy's Center for Minority Health & Health Disparities, The Seventh Health Disparities Conference March 10-12, 2014, New Orleans, LA
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- 14. TE Mason, MS; LJ Ricks-Santi, PhD; W Chen, MD; V Apprey, PhD; J Joykutty, MD; C Ahaghotu, MD; R Kittles, PhD; GE Bonney, PhD; GM Dunston, PhD. Association of CD14 with prostate cancer in African American men- 12th RCMI International Symposium on Health Disparities

- BD Wilson, MS; LJ Ricks-Santi, PhD; T Mason, MS; V Apprey, PhD; G Bonney, PhD; GM Dunston, PhD; RA Kittles, PhD. ANCESTRY INFORMATIVE MARKERS ASSOCIATED WITH PROSTATE CANCER-12th RCMI International Symposium on Health Disparities
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- Ricks-Santi, L et al. Interrogating genomic signatures of health disparities in prostate cancer- 59th Annual AMERICAN SOCIETY FOR HUMAN GENETICS 2009
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