LAAVANYA SANKARANARAYANAN

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EDUCATION

Doctorate of Philosophy, Genetics and Genomics; Certificate in College Teaching
*Duke University, Durham, NC, USA 2018-spring 2024**
Advisor: Dr. Timothy Reddy
Masters in Biotechnology, Molecular Biology
University of Pennsylvania, Philadelphia, PA, USA May 2015
Bachelor of Technology, Biotechnology, First Class with Distinction
Anna University, Chennai, TN, India May 2013

PUBLICATIONS

Sankaranarayanan L, Brewer JK, Johnson GD, Barrera A, Venukuttan R, Sisk R, Dunaif A, Reddy TE. Gene regulatory activity associated with PCOS revealed DENND1A-dependent testosterone production (*manuscript in preparation)*

Cunningham SJ, Barrera A, Sankaranarayanan L, Allen TK, Reddy TE. Glucocorticoid Receptor Regulated KCNA5 Mediates Cell Proliferation in Human Fetal Membranes https://doi.org/10.21203/rs.3.rs-1594481/v2

Grevet JD, Lan X, Hamagami N, Edwards CR, Sankaranarayanan L, Ji X, Bhardwaj SK, Face CJ, Posocco DF, Abdulmalik O, Keller CA, Giardine B, Sidoli S, Garcia BA, Chou ST, Liebhaber SA, Hardison RC, Shi J, Blobel GA. Domain-focused CRISPR screen identifies HRI as a fetal hemoglobin regulator in human erythroid cells. Science. 2018 Jul 20;361(6399):285-290. doi: 10.1126/science.aao0932. PMID: 30026227

Behera V, Evans P, Face CJ, Hamagami N, Sankaranarayanan L, Keller CA, Giardine B, Tan K, Hardison RC, Shi J, Blobel GA. Exploiting genetic variation to uncover rules of transcription factor binding and chromatin accessibility. Nat Commun. 2018 Feb 22;9(1):782. doi: 10.1038/s41467-018-03082-6. PMID: 29472540

Hsiung CC, Bartman CR, Huang P, Ginart P, Stonestrom AJ, Keller CA, Face C, Jahn KS, Evans P, Sankaranarayanan L, Giardine B, Hardison RC, Raj A, Blobel GA. A hyperactive transcriptional state marks genome reactivation at the mitosis-G1 transition. Genes Dev. 2016 Jun 15;30(12):1423-39. doi: 10.1101/gad.280859.116. PMID: 27340175

AWARDS AND FELLOWSHIPS

2023	Trainee Research Excellence Award Seminfinalist, American Society for Human Genetics
2022	Teaching on Purpose Fellowship, Kenan Institute of Ethics, Duke University
2022	Gordon Research Conference/Seminar (Mammalian Reproduction) Travel Award
2021-2022	Preparing Future Faculty Fellowship, Duke University
2020	Bass Instructional Teaching Fellowship, Duke University
2020	Gridley McKim-Smith Women's Health Fellowship Award, Foundation for Women's Wellness
2018-2019	Marcy Speer Fellowship, Duke University
2013	First Class with Distinction in Biotechnology, Anna University
2009-2012	Merit Awards per semester, Anna University (*equivalent of Dean's list)

CONFERENCE PRESENTATIONS

2023 Sankaranarayanan L., Johnson G.D., Barrera A., Majoros W., Dunaif A., Reddy T.E *Functional Characterization of Polycystic ovary syndrome-associated risk loci identifies genetic regulatory regions,* American Society for Human Genetics

2022 Sankaranarayanan L., Johnson G.D., Barrera A., Dunaif A., Reddy T.E *Functional Characterization of Polycystic ovary syndrome-associated risk loci identifies genetic regulatory regions*, NIH Center for Excellenece in Genomic Sciences meeting

2022 Sankaranarayanan L., Johnson G.D., Barrera A., Dunaif A., Reddy T.E *Identification of regulatory regions driving testosterone production in Polycystic Ovary Syndrome susceptibility loci,* Gordon Research Conference & Seminar

2022 Sankaranarayanan L., Johnson G.D., Majoros W., Dunaif A., Reddy T.E. *Functional Characterization of Polycystic ovary syndrome-associated risk loci identifies genetic regulatory regions*, Triangle Consortium for Reproductive Biology

2021 Sankaranarayanan L., Johnson G.D., Kim Y.-S., Venukuttan R., Dunaif A., Reddy T.E. *Functional Characterization of Polycystic ovary syndrome-associated risk loci identifies genetic regulatory regions*, NIH Center for Excellenece in Genomic Sciences meeting

2020 Sankaranarayanan L., Johnson G.D., Kim Y.-S., Dunaif A., Reddy T.E. *Fine-mapping of Polycystic Ovary Syndrome susceptibility loci identifies regulatory variants in FSHB,* American Society for Human Genetics

TEACHING EXPERIENCE

Fall 2022 *Graduate student co-instructor*, Epigenetics
Graduate level class, worked with faculty on redesigning the syllabus to serve as introductory course with a focus on quality control of epigenetic data analysis

Spring 2022 *Guest Lectures – Personal Genetics in the context of Public Health*
At Guilford College in the Public Health department (PBH101)

Fall 2021 *Guest Lectures – "Genome Wide Association Studies – design, results & biases"*
At Duke University in the Biology/Evolutionary Anthropology department (BIOLOGY318)

Spring 2021 *Teaching Assistant, BIO201*, Duke University
Led weekly lab sessions as the instructor for the course including lectures and basic biology lab techniques. Guided students through semester long research project

Spring 2021 *Scientific Reader, Senior Biology Writing Project*
Worked with Ananya V. (Duke '21) on their senior writing project, including scientific accuracy and writing style.

Spring 2019 *Instructor*, Miniterm, North Carolina School of Science and Math
Archaeal growth and analysis experiments and data presentation.

Summer 2019 *Teaching Assistant*, Responsible Conduct of Research Incoming Student Workshop
Lead group discussions about ethical questions in scientific research

Summer 2015 *Instructor – Genomics*, Center for Talented Youth, Johns Hopkins University, Baltimore
Designed and lead experiments to isolate environmental DNA and its isolation+species identification and exploration of relevant ChIP-seq data from publicly available databases

Spring 2015 *MAS teaching fellow*, University of Pennsylvania, Philadelphia, PA
Served as a teaching assistant for introductory biology for West Philadelphia High School

MENTORSHIP

2021-2022	Duke Peer Mentorship Fellow for graduate students
2019-2022	Graduate Research Mentor, Duke Summer Scholars in Genome Sciences & Medicine, Duke University (2020* schedule canceled because of Covid-19)
2019-2022	International Graduate Student Fellow, Duke University
2021	Summer Research Undergraduate Mentor. Summer research undergraduate student, Makala Sobers (Winston-Salem State University. '21)
2014	Undergraduate student research project, Niharika Gupta (University of Pennsylvania), Children's Hospital of Philadelphia
2013-2015	Graduate/Undergraduate mentor, Penn Graduate Women in Science & Engineering

SERVICE AND OUTREACH

2020-2022	Student co-chair representative, Duke University Program in Genetics and Genomics
2019-2020	Recruitment committee co-chair, Duke University Program in Genetics and Genomics
2019-2021	Distinguished Lecture Series committee, Duke University Program in Genetics and Genomics
2019-2020	International Student Task Force, Graduate & Professional Student Government, Duke University
2018-2021	Duke Outreach in Genetics and Genomics, Duke University,
2018-2019	MicroMoles: Learning STEMs from Curiosity, designing illustrated children's stories based on recent graduate student publications
2018-2019	Student Advisory Board, Center for Global Reproductive Health, Duke University
2018-2019	Educational events volunteer, Durham Animal Protection Society
2017-2020	Science outreach events at Durham County high schools (Duke Women in Science & Engineering, Triangle Science Share, North Carolina DNA day)
2017-2019	Curriculum committee, Duke University Program in Genetics and Genomics
2015	Educational event volunteer, Philadelphia Science Festival
2009-2012	Olive Ridley Conservation program, SVCE Leo club, Chennai

PAST RESEARCH EXPERIENCE

Children's Hospital of Philadelphia, Lab of Dr. Gerd Blobel, *2015-2017*

I worked on projects related to induction of fetal hemoglobin and chromatin accessibility during erythropoiesis. We identified mutations to a transcription factor (TF) motif has consistent effects on this TF binding. Additionally, with another project we found a novel regulator of fetal hemoglobin.

Children's Hospital of Philadelphia, Lab of Dr. Matthew Deardorff, *2014-2015*

As part of my Master's research project, I worked on a project in Dr. Deardorff's lab assisting in identifying *de novo* mutations in people with a rare disease, Cornelia de Lange Syndrome. I designed a sequencing based assay based on the use of molecular inversion probes to identify *de novo* mutations using trio whole genome samples.

Sankara Nethralaya, Lab of Dr. Krishna Kumar, *Nov 2012-April 2013*

I investigated corneal stem cell differentiation using biofilms for my undergraduate thesis. Specifically, I tested whether culturing corneal stem cells on different chitosan-based biofilms supported their differentiation to corneal epithelial cells by testing for expression of marker genes, and identified one composition of biofilm that supported better attachment and differentiation of the stem cells.