

CURRICULUM VITAE

Rithika Sankar

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EDUCATION

In Progress **Ph.D., Integrative Systems Biology**
School of Medicine, University of Pittsburgh, USA.

2015 – 2019 **B.Tech Genetic Engineering**
Department of Bioengineering, SRM Institute of Science and
Technology, India.

CURRENT POSITION

2022 – Present **Graduate Student**
Advisor: Dr. Sarah J. Hainer.
Department of Biological Sciences, University of Pittsburgh, USA.
*Understanding the role of histone chaperone FACT in maintaining
pluripotency in mouse embryonic stem cells*

PREVIOUS POSITIONS

2021 **First year Graduate Student Rotation**
Advisor: Dr. Mo Ebrahimkhani
Department of Pathology, University of Pittsburgh, USA.
*Improving vasculature in fetal liver organoids by co-differentiating with
ETV2 cells*

2021 **First year Graduate Student Rotation**
Advisor: Dr. Sarah J. Hainer
Department of Biological Sciences, University of Pittsburgh, USA.
*Determining the role of eRNAs in POU5F1 gene expression in mouse
embryonic stem cells.*

2021 **First year Graduate Student Rotation**
Advisor: Dr. Ipsita Banerjee
Department of Chemical and Petroleum Engineering, University of
Pittsburgh, USA.
*Assessing mitochondrial metabolism in healthy and diseased state
pancreatic islets*

2019 – 2021 **Research Fellow**
Advisor: Dr. Gaiti Hasan
National Institute of Science and Technology, India.
*Understanding the systemic and cellular consequences of intracellular
calcium signaling mediated by IP3R1 and Store Operated Calcium
Entry in human neuronal cells.*

2019 **Visiting Scientist- Research Assistant (Semester abroad)**

Advisor: Dr. Hannele Ruohola Baker and Dr. Julie Mathieu
Institute for Stem cell and Regenerative Medicine, University of
Washington, Seattle, USA.
*Understanding the function and formation of human primary cilia in
early stages of development*

2018 **Shadow genetic counselor- Research Assistant**
Advisor: Dr. Sujatha Jagadeesh
Department of Genetic Counseling and Clinical Genetics, Mediscan
systems, India.
*Assessing the primary characteristics of Mucopolysaccharide
diseases (Type 1- Hurler and type 4 Morquio syndrome). Shadowed
genetic counselling sessions on index, pre-pregnancy, on-going
pregnancy and fetal autopsy cases.*

2017– 2018 **Undergraduate Research Assistant**
Advisor: Dr. Rex Arunraj
Department of Bioengineering, SRM Institute of Science and
Technology, India.
*Examining the effects of varying concentrations of Benzyl
aminopurine (BAP) on V-Branching (Phenotype) in chickpeas.*

PUBLICATION

Wang Y, Hussein AM, Somasundaram L, **Sankar R**, Detraux D, Mathieu J, Ruohola-Baker H.
MicroRNAs regulating human and mouse naïve pluripotency. International journal of
molecular sciences. 2019 Jan;20(23):5864.

PRESENTATIONS

Poster, *FACT maintains pluripotency through gene distal regulation and coordinated
colocalization with chromatin regulatory factors*, CSHL Epigenetics & Chromatin, September
2022.

Seminar, *Understanding the role of FACT in maintaining pluripotency in mouse embryonic
stem cells*, School of Medicine, University of Pittsburgh, April 2022.

Poster, *Morphogenesis of primary cilia during naïve to primed transition in stem cells,
licenses primed stage for Hh activity*. Annual research symposium, Department of Genetic
Engineering, SRM Institute of Science and Technology Chennai, India, July 2019.

LABORATORY SKILLS AND TECHNICAL COMPETENCIES

- **Cell culture** of human and mouse pluripotent stem cells and other mammalian cell lines
- **Differentiation** of pluripotent stem cells to neuronal lineages
- **Molecular biology**: cloning, PCR, RT-PCR, qPCR, nucleic acid isolation and purification, primer designing, guide RNA designing, western blots, CRISPR targeting, CUT&RUN Sanger sequencing preparation.
- **Imaging**: Immunofluorescence staining, confocal microscopy and Dual excitation-emission calcium imaging.
- **Cell transfection**: Lipofection, nucleofection
- **Cell transduction**: Viral production, lentiviral transduction
- **Bacteria**: culture, competent cell preparation, manipulation, transformation
- **Cellular assays**: Colony forming assay, cell viability, mitochondrial bioenergetics- Seahorse assay

- **Computational skills:** Bioinformatic data analysis of RNA-seq, CUT&RUN, and ChIP-seq data. Programming in R, Python and Unix.

MENTORING

Graduate Student mentor, Hainer lab, Department of Biological Sciences, University of Pittsburgh.

Aigbe Woghiren-Afegbua, Graduate Student, Hainer lab. Trained Aigbe in cell culture, CRISPR/Cas9 cell line targeting.

Graduate Global ties mentor, Graduate and professional student government, University of Pittsburgh, May 2022.

CONFERENCES

- CSHL Epigenetics & Chromatin (Poster presentation, September 2022)
- MGDB/CBMP/ISB 6th Annual Scientific retreat, University of Pittsburgh, School of Medicine (Attendee, May 2022)
- Systems Biology: Global regulation of Gene expression at CSHL (Attendee, March 2022)
- EMBO symposium, Calcium Signaling: Molecular mechanisms to role in health and diseases, National Centre for biological Sciences, India (Attendee, January 2019)
- Annual talks 2020: Circle of life, research symposium, National Centre for biological sciences (Attendee, January 2020)
- Annual research Symposium, Department of genetic engineering, SRM Institute of Science and Technology, India (Attendee, July 2019)
- Institute for stem cell and regenerative medicine (ISCRM) Stem cell symposium, Seattle, USA (Attendee, April 2019)
- Institute for stem cell and regenerative medicine (ISCRM) research update: weekly, Seattle, USA (Attendee, January 2019- July 2019)
- Recent trends in genetic engineering and Biotechnology, SRM Institute of Science and Technology (Attendee, October 2017)
- Indian society for human genetics, annual conference, Chennai India (Attendee, February 2018)

CAMPUS INVOLVEMENT AND VOLUNTEERING

- Travel awards committee, BGSA, School of Medicine, University of Pittsburgh (Current)
- Volunteer, program coordinator, EMBO Symposium, Calcium Signaling: Molecular mechanisms to role in health and disease, National Centre for biological Sciences, India (January 2019)
- Volunteer, program coordinator, Rare disease day, SRM Institute of Science and Technology (2017, 2018)
- Volunteer, program coordinator, Recent trends in Genetic engineering and Biotechnology (RTGEB), SRM Institute of Science and Technology (October 2017)
- Volunteer, program coordinator, exploring microbial world, SRM Institute of Science and Technology (February 2017)

REFERENCES:

- **Dr. Sarah J Hainer**
Assistant Professor, Department of Biological Sciences
University of Pittsburgh

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- **Dr. Julie Mathieu**
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Institute for Stem Cell and Regenerative Medicine
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- **Dr. Gaiti Hasan**
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Tata Institute of Fundamental research
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- **Dr. P. Rathinasabapathi**
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Department of Biotechnology, School of Bioengineering. Kattankulathur campus
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