

MEENA KUSI

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SUMMARY

Highly motivated computational epigeneticist with 5+ years of experience in cancer research. Analyzed and evaluated high-throughput Next Generation Sequencing data. Performed single-cell epigenomics (scATAC-seq), RNA-seq and single-cell proteomics (CyTOF). Successful collaboration and leadership abilities within and outside academic setting. Author of 3 publications in peer-reviewed journals including a first-author paper.

RESEARCH EXPERIENCES

The University of Texas Health Science Center at San Antonio (UT Health San Antonio)

Graduate Research Fellow (CPRIT predoctoral fellow)

Expected graduation May 2021

- Identified transcriptional factors regulating lineage plasticity through single-cell epigenomics, ATAC-seq
- Discovered impairment of DNA damage response pathway and identified by GSEA analysis of RNA-seq data
- Identified undifferentiated stem-like gene signatures using Singscore analysis of transcriptome data
- Performed multi-omics correlation studies to validate drivers of heterogeneity from publicly available multidimensional metadata
- Designed and developed chromatin panel and prepared SOP for mass cytometry (CyTOF)
- Established circulating tumor cell culture derived from patient's blood samples
- Collaborated with computational biologists across the institution to generate mathematical models
- Trained and mentored MD PhD, Master's and Undergraduate degree students

National Academy of Science and Technology, Nepal

Master of Science Research Fellow

2012 - 2013

- Conceived and led the project to extract, isolate and purify flavonoids and polyphenols from ethnic medicinal plants
- Collaborated with cross-functional teams within the organization

Tribhuvan University, Nepal

Master of Science Research Fellow

2010 - 2013

Department of Biotechnology

- Mass production and distribution of vaccine with government support to over 1,000 farmers
- Actively generated vaccine against "New Castle Disease" in chicken embryos

PROFESSIONAL EXPERIENCES

Genetic Data Analyst, Department of Genomics, Deerwalk Services Pvt. Ltd

2013 - 2016

- Coordinated projects across cross-country teams and partners
- Managed a team of 8 people to conduct variant analysis using in silico tools
- Successfully trained two interns, one of them hired as full-time employee
- Presented seminal papers to the team on bi-monthly basis

Teaching Assistant, Department of Biotechnology, Tribhuvan University

2013 - 2014

- Designed curriculum for Master's degree courses
- Designed cell biology lectures and experimental protocols

LEADERSHIP AND BUSINESS EXPERIENCE

Commercialization Assistant, Technovum Accelerator, UT Health San Antonio

2019

- Enrolled 5 dental schools to incorporate "Dencision" - a digital assessment platform
- Performed risk mitigation and proposed solutions to improve precision

International Relations Committee Member, UT Health San Antonio

2017 - 2018

- Revised the enrollment process for abroad internships
- Improved attendance by 75% in monthly events

Co-founder and Treasurer, UT Health San Antonio SACNAS Chapter

2017- 2018

- Designed science outreach and career exploration events
- Secured over \$7,000 through fundraising events and institutional grant

EDUCATION**The University of Texas Health Science Center at San Antonio**

Ph.D. Integrated Biomedical Science

Expected May 2021

Tribhuvan University, Nepal

MSc. in Biotechnology, Department of Biotechnology

2013

BSc. In Microbiology, Department of Microbiology

2010

TECHNICAL SKILLS

- High-throughput NGS analysis using R, Python and Shell scripts, machine learning
- Epigenetics: BS/oxBS-seq, TABseq, MeDIP-qPCR, ChIP assays
- Molecular biology: Pyrosequencing, methylation-immunoprecipitation, PCR, RT-qPCR
- Imaging analysis, confocal microscopy, fluorescent microscopy
- Cell culture: circulating tumor cells, primary cells, flow cytometry, cell proliferation, survival assays

SELECTED PUBLICATIONS

Meena Kusi, Maryam Zand, Anthony Lopez, Chun-Lin Lin, Chiou-Miin Wang, Nicholas D. Lucio, Nameer B. Kirma, Jianhua Ruan, Tim H.-M. Huang and Kohzoh Mitsuya. 2-Hydroxyglutarate reversibly destabilizes epigenome and potentiates cell fate plasticity to promote non-genetic breast tumor heterogeneity. Under review and a part available on bioRxiv: <https://www.biorxiv.org/content/10.1101/2020.02.18.954495v1>

Brandon Lieberman*, **Meena Kusi***, Chia-Nung Hung*, Chih-Wei Chou, Ning He, Yen-Yi Ho, Josephine A Taverna, Tim HM Huang, Chun-Liang Chen. Toward uncharted territory of cellular heterogeneity: advances and applications of single-cell RNA-seq. *J Transl Genet Genom* 4, (2020).

Chun-Lin Lin, Xi Tan, Meizhen Chen, **Meena Kusi**, Chia-Nung Hung, Chih-Wei Chou, Ya-Ting Hsu, Chiou-Miin Wang, Nameer Kirma, Chun-Liang Chen, Ching-Hung Lin, Kate I Lathrop, Richard Elledge, Virginia G Kaklamani, Kohzoh Mitsuya, Tim H-M Huang. ER α -related chromothripsis enhances concordant gene transcription on chromosome 17q11. 1-q24. 1 in luminal breast cancer. *BMC Med Genomics* 13, 69 (2020).

Chih-Wei Chou, Xi Tan, Chia-Nung Hung, Brandon Lieberman, Meizhen Chen, **Meena Kusi**, Kohzoh Mitsuya, Chun-Lin Lin, Masahiro Morita, Zhijie Liu, Chun-Liang Chen, Tim Hui-Ming Huang. Menin and Menin-Associated Proteins Coregulate Cancer Energy Metabolism. *Cancers* 12, 9 (2020).

SELECTED PRESENTATIONS

Best oral presentation, Predoctoral category, Cancer Prevention and Research Institute of Texas CPRIT/T32 Annual retreat, Oncometabolite 2-hydroxyglutarate impairs chromatin dynamics and enhances tumor heterogeneity, 2020

Selected speaker, NCI Division of Cancer Biology CSBC/PS-ON/BD-STEP Junior Investigator Meeting, Oncometabolite 2-hydroxyglutarate impairs chromatin dynamics and enhances tumor heterogeneity, 2020 and 2018

Invited seminar lecture, Precision Molecular Medicine Master's Program, UT Health San Antonio, Oncometabolites, epigenetics and tumor heterogeneity, 2020

FELLOWSHIPS AND AWARDS

- Cancer Prevention and Research Institute of Texas (CPRIT) predoctoral fellow, CPRIT, 2018-2020
- Best oral presentation, CPRIT/T32 Annual Retreat, 2020
- Best oral presentation, CPRIT/T32 Annual Retreat, 2019
- National Gold Medal, Nepal Vidhya Bhusan Padak "Kha" for outstanding performance in MSc in Biotechnology- Ministry of Education, Nepal, 2015
- Dr. Rekha and Lakshmaiah Sreerama Gold Medal, Tribhuvan University, Nepal, 2014
- Master's Thesis Grant, University Grants Commission, Nepal, 2012-2013