

DEVISHI KESAR

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EDUCATION

German Cancer Research Center(DKFZ)

Doctor of Natural Science

October 2026

- **Relevant Skills:** Multi-modal data integration, analysis of ChIP-seq, DNA methylation, copy number variation (CNV)

Georgia Institute of Technology

Master's in Bioinformatics

December 2020

- **Relevant Skills:** Variant calling analysis, differential expression analysis, database systems management

Indraprastha Institute of Technology Delhi

Bachelor of Technology (Honors) in Computer Science and Engineering

Minor in Computational Biology

August 2019

- **Relevant Skills:** Machine Learning, statistical analysis, graph modeling, big data analysis

Heidelberg, Germany

University of Heidelberg

Atlanta, GA, USA

Delhi, India

SKILLS

Programming and Computational Skills: Python, Bash, R, Java, Scala, Regex, SQL, MATLAB

Tools and Platforms: Git, Hive, Cytoscape, RStudio, PyMol, Databricks, AWS, Spark, Docker, Google Cloud Services

PUBLICATIONS

- Chang, L., Jung, N.Y., Atari, A., Rodriguez, D.J., **Kesar, D.**, Song, T.Y., Rees, M.G., Ronan, M., Li, R., Ruiz, P., Chaturantabut, S., Ito, T., Tienen, L.M., Tseng, Y.Y., Roth, J., & Sellers, W.R. Systematic profiling of conditional pathway activation identifies context-dependent synthetic lethalties. (2023). *Nature Genetics*
- Li, R., Klingbeil, O., Monducci, D., Young, M. J., Rodriguez, D. J., Bayyat, Z., Dempster, J. M., **Kesar, D.**, Yang, X., Zamanighomi, M., Vakoc, C. R., Ito, T., & Sellers, W. R. Comparative optimization of combinatorial CRISPR screens. (2022). *Nature Communications*
- Mulvaney, K. M., Blomquist, C., Acharya, N., Li, R., Ranaghan, M. J., O'Keefe, M., Rodriguez, D. J., Young, M. J., **Kesar, D.**, Pal, D., Stokes, M., Nelson, A. J., Jain, S. S., Yang, A., Mullin-Bernstein, Z., Columbus, J., Bozal, F. K., Skepner, A., & Sellers, W. R. Molecular basis for substrate recruitment to the PRMT5 methylosome. (2021). *Molecular Cell*
- Mason, M.J., Schinke, C., Eng, C.L.P. et al. Multiple Myeloma DREAM Challenge reveals epigenetic regulator PHF19 as marker of aggressive disease. *Leukemia* (2020) - **member of DREAM consortium**
- Yang, et al. Assessment of the Limits of Predictability of Protein and Phosphorylation Levels in Cancer. (2020), *Cell Systems* - **member of NCI-CPTAC-DREAM consortium**

MANUSCRIPTS IN PREPARATION

- Knoll, N., Masser, S., **Kesar, D.**, Bordas, B., Kania, N., Zagar, S., Rodriguez, D.J., Jen, J., He, Y., Li, G., Mensah, C., Chen, Z., Feng, B., Chokshi, M., Raghavan, S., Sellers, W.R. and Mulvaney, K.M., CRISPR-Drug Combinatorial Screening Identifies Effective Combination Treatments for MTAP null cancer
- Shirole, N., **Kesar, D.**, Lee, Y., Goodale, A., Syamala, S., Kukreja, S., Li, R., Qiu, X., Yu, W., Goldman, S., Cejas, P., Long, H., Adelman, K., Doench, J., Sellers, W.R. and Kaelin, W., Sustaining Cyclin D1 Expression Renders Kidney Cancer Cells HIF2-Independent
- Chaturantabut, S., Oliver, S., Frederick, D.T., Kim, J., Robinson, F.P., Sinopoli, A., Song, T.Y., He, Y., Chang, Y.C., Rodriguez, D.J., Chang, L., **Kesar, D.**, Ching, M., Dzvurumi, R., Atari, A., Tseng, Y.Y., Bardeesy, N., Sellers, W.R., Identification of potent biparatopic antibodies targeting FGFR2 fusion driven cholangiocarcinoma
- Pal, D., Rodriguez, D.J., Robinson, F.P., Chang, L., Potter, D.S., **Kesar, D.**, Li, R., Tienen, L.M., Mulvaney, K.M., Jung, N.Y., Jain, S., Park, J., Letai, A. & Sellers, W.R., WSB2, a novel propeller domain containing E3 ubiquitin ligase for BIM regulates cellular apoptotic thresholds

RESEARCH EXPERIENCE

Pediatric glioma research lab, DKFZ

Heidelberg, Germany

Graduate student

October 2023 – Present

- Processed ChIP-seq data to identify transcription factor binding patterns and histone modifications in pediatric gliomas
- Integrated RNA-seq and ChIP-seq data to link super-enhancer regions with gene expression
- Conducted transcription factor motif analysis to explore regulatory elements driving tumor-specific pathways
- Performed methylation and copy number variation analyses to uncover genetic and epigenetic changes in tumor subtypes

Sellers Lab, Broad Institute of MIT and Harvard

Boston, MA, USA

Associate Computational Biologist

April 2021 – September 2023

- Processed and analyzed data for CRISPR paralog redundancy screens to find actionable biomarkers
- Executed antibody docking and structure prediction for antibodies using modeling softwares
- Performed ChIPseq data analysis to look at TF motif enrichment and single nucleotide resolution cut profile
- Detected alternate splicing events helping suggest PBM interaction requirement for PRMT5-dependent splicing events
- Analyzed data from mass spectrometry experiments conducted to identify novel E3 substrates

Georgia Institute of Technology

Atlanta, GA, USA

Graduate Research Assistant

August 2019- December 2020

- Benchmarked variant calling pipelines by comparison of performance of mappers and variant callers
- Cataloged genomic variants from Colombian populations and characterized their predicted functional impact
- Identified single variant disease associations using best practices from the American College of Medical Genetics
- Evaluated distribution of health-related genetic variants among populations from Colombia in light of their ancestry

EMD Sereno

Boston, MA, USA

Bioinformatics Summer Intern

May 2020 – July 2020

- Developed Rshiny app to share isolated immune cell RNAseq from bulk breast cancer tumors with biological experts
- Discovered novel myeloid drug targets by leveraging differential expression and gene signature analysis
- Drove bioinformatics discovery by frequently presenting results to key stakeholders across multiple departments
- Identified actionable biomarkers supporting therapeutic remediation of immuno-oncology and autoimmune disease

POSTER PRESENTATIONS

- **Kesar, D.**, Keck, M.K., Joshi, P., Okonechnikov, K., Autry, R.J., T.W. Jones, D.T.W., Integrated (epi)genomic atlas for identification of biomarkers in pediatric gliomas, KiTZ retreat 2024
- **Kesar, D.** Colombian Genome Diversity Project, GT@SC20 HPC Poster Show Proceedings
- **Kesar, D.** The discovery of context-specific paralog dependencies in cancer, Broad Retreat 2022

AWARDS

- Computational Biology Research Award – Spring 2020 and Fall 2020 – Georgia Tech
- Dean Academic Excellence Award – IIIT Delhi 2018
- RECOMB/ISCB Conference Travel Grant 2017

TEACHING EXPERIENCE

- Bulk RNA-seq computational analysis

Nov 2024-Present

- Introduction to quantitative biology

Jan 2018-Apr 2018

Instructor: Dr. Subhadip Raychaudhuri

LEADERSHIP AND VOLUNTEER EXPERIENCE

- Member, Social events team, DKFZ, Germany 2023-25
- Organizing team, Broad Retreat 2022, Broad Institute, USA 2021-22
- Volunteer, Charles river cleanup, The Charles River Conservancy, MA, USA, 2021-22
- Volunteer, GP Covid testing lab, Broad Institute, MA, USA, 2022

CERTIFICATIONS

● CRUK Children's Brain Tumor Centre of Excellence Summer School	Jul'24
● Cancer Genomics and Precision Oncology, online course by Harvard Medical School	Mar'22
● Immuno-oncology, online course by Harvard Medical School	Mar'22
● Precision medicine, online course by University of Geneva	Feb'21
● Starting single cell analysis, online course by EMBL-EBI	Jun'20
● Introduction to breast cancer, online course by Yale University	Jun'19
● Computer science and automation, Summer School IISc Bangalore	Jul'18
● Summer school in Bioinformatics NCBS	Jun'17