Abhinav Jain, PhD

Computational Biologist | Immunology | Cancer | Aging | Biomarker Discovery

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LinkedIn | **Google Scholar** | **GitHub**

Professional Summary:

Computational biologist with 9+ years of experience in multi-omics analysis, specializing in **single-cell, spatial, TCR, epitope**, and **bioinformatics pipeline development**. Experienced in developing single cell, spatial and bulk multi-omics bioinformatics pipelines in **neuro-oncology, immune ageing, autoimmunity, population genomics**, & **rare disease**. Seeking to contribute my skills in biotech for oncology, biomarker discovery, or therapeutic target identification.

Key Skills

- **Single-Cell**: scRNA, scTCR, CITESeq, scATAC, Multiome, BEAM-T, TetTCR
- **Spatial:** Xenium, Visium, MERFISH, Cyclic IF, CODEX
- **Bulk:** Whole Genome Sequencing, Transcriptomics, Epigenomics
- **Workflow Optimization**: Pipeline automation, Nextflow, Docker, Singularity & RShiny
- **Programming**: R, Python, Shell scripting; HPC (Slurm, SGE, LSF)
- **Machine learning**: scikit-learn, PyTorch, TensorFlow
- **Cloud Computing:** AWS, MS-Azure, GCP
- **Collaboration**: Extensively worked with clinicians, wet-lab, and dry-lab scientists
- **Industry Mentorship:** Consultant (> 1year) for a startup Genomiki Solutions.
- **Mentor**: Guided postdoc and PhD students in computational biology projects
- **Leadership:** Lead computational team for India 1000 Genome Project
- **Version Control**: Git, Github

Professional Experience

Computational Biologist, Voyant Bio, San Francisco (Startup) May 2025 – Present

- Integrated pan cancer immune single cell and spatial dataset to identify the biomarkers to improve immunotherapy response.

Post-Doctoral Fellow, University of California San Francisco June 2024 – Present
(Currently Collaborator)

- Analyzed **snRNA, ATAC**, and **spatial (Visium & Xenium)** transcriptomics to identify therapeutic targets in **SHH medulloblastoma**. (1st Revision: Genome Medicine*)
- SHH MB driver mutation and genes queried using cancer database (**TCGA, cBioPortal**).
- Developing **lineage-tracing** methodologies to track **tumor evolution** using CRISPR barcodes. lineage-tracing Github
- **Foundation model** (scGPT) fine-tuned using >100 paired brain cancer metastasis samples using scRNA dataset Metastasis Github.

* First / co-first author

Post-Doctoral Fellow, Mayo Clinic, Rochester Aug2021–May2024
(Currently Collaborator) June 2024- Present

- Characterized **antigen-specific T-cell** in aging and vaccine using **CITESeq, BEAM-T** & **ATACseq** Nature Communications 2025*, BioRxiv 2025* (Sci. Transl. Med revision*)
- Performed **scRNA**, **scTCR** and **bulk RNA** to identify clonal diversity in naïve CD4 T cells of **Aortitis** patients. Science Translation Medicine 2023
- Performed epigenetic analysis using **scmultiome** in aged T cells JCI Insight 2024*
- Integrated **single-cell** and **spatial** (Visium, CODEX, and multiplexed Cycif) to study immune cell crosstalk in autoimmune disorders.

Graduate Research Fellow CSIR-IGIB, New Delhi, India July 2016 – July 2021

- **Led bioinformatics analysis team for 1,000+ Indian Genome Sequencing Project**, focusing on rare disease variants. Nucleic Acid Research 2020*
- Developed workflows for **SARS-CoV-2 variant tracking** using Illumina and Nanopore sequencing. Clinical Infectious Disease 2020*
- Variant prioritization in **~300 primary immunodeficiency disorder patients** using genome sequencing. PloS One 2020*, PloS One 2021*, Human Immunology 2022*

Education

- **Ph.D. in Computational Biology and Immunology**, CSIR-Institute of Genomics and Integrative Biology, New Delhi, India (2016-2021)
- **Bachelor's in Technology, Biotechnology**, Amity University, India (2011-2015)

Selected Publications: 38 publications (16 first/co-first author): Full list on Google Scholar

- Sturmlechner I*, **Jain A***, et al. Aging trajectories of memory CD8+ T cells differ by their antigen specificity. Nature Communications (2025)
- Sato Y, **Jain A**, et al. Stem-like CD4 T cells in perivascular tertiary lymphoid structures sustain autoimmune vasculitis. Science Translation Medicine (2023)**.**
- **Jain A*,** Bhoyar R*, et al. IndiGenomes: a comprehensive resource of genetic variants from over 1000 Indian genomes. Nucleic Acid Research (2021)
- Zhang H*, Okuyama H*, **Jain A***, PREX1 improves homeostatic proliferation to maintain a naive CD4+ T cell compartment in older age. JCI Insight (2024)

Certifications & Trainings

- Introduction to Statistics – Stanford Online (Dec 2022)
- Teamwork Recognition – Mayo Clinic (Sept 2023 & May 2024)

Awards & Recognitions

- **CSIR-UGC National Eligibility Test** – All India Rank 51
- **Graduate Aptitude Test in Engineering (GATE)** – All India Rank 150

* First / co-first author