

Dr. Shailesh Singh

Postdoctoral Research Associate

Sylvester Comprehensive Cancer Center, University of Miami, FL, USA

(March 2023 – October 2024)

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🔬 Expertise: Cancer Biology, Immunology, computational biology/bioinformatics, Flow Cytometry



Professional Summary

Experienced and results-driven cancer biology researcher based in India, having recently concluded a postdoctoral fellowship at the Sylvester Comprehensive Cancer Center, University of Miami (March 2023 – October 2024). Expertise spans flow cytometry, immune profiling, single-cell and bulk RNA-seq analysis, and in vivo mouse models of breast cancer. Skilled in translational research, data science, and experimental oncology, with a strong publication record and upcoming first-author paper in Science Translational Medicine.

Professional Experience

Postdoctoral Research Associate,

Sylvester Comprehensive Cancer Center, University of Miami | Mar 2023 – Oct 2024

- Investigated Notch signaling and DLL1–PD-L1+ TAM interactions in breast cancer immune evasion and endocrine resistance
- Performed scRNA-seq and bulk RNA-seq analyses, immune phenotyping, multiplex IF, cell sorting, and preclinical modeling
- Guided graduate students; managed multi-institutional collaborations; led manuscript development

Education

PhD in Zoology, Banaras Hindu University, Varanasi, India | 2016–2023

Thesis: Study on life history traits of a melon fly (*Z. cucurbitae*) and establishing its genomic and proteomic resources.

- Discovered novel golden brown (gb) eyed mutant in *Z. cucurbitae* and led genome and transcriptome submissions to NCBI
- Contributed to genome projects in beetle species; developed protocols for stress physiology in insects

MSc in Zoology, Banaras Hindu University, Varanasi, India | 2014–2016

BSc in Zoology, Banaras Hindu University, Varanasi, India | 2011–2014

Core Competencies

Molecular & Cellular Biology: Flow cytometry, cell sorting, confocal microscopy, multiplex IF, IHC, western blot, CRISPR/shRNA, human and mice cell culture and 3D culture

Omics & Bioinformatics: scRNA-seq, bulk RNA-seq, genome assembly, transcriptome annotation, R/Python scripting

Animal Models: Orthotopic breast cancer models, tumor dissociation, immune cell profiling

Soft Skills: Team mentorship, scientific writing, cross-disciplinary collaboration, project leadership

Key Publications

Singh S, et al. DLL1 Responsive PD-L1+ Tumor-Associated Macrophages Promote Endocrine Resistance in Breast Cancer. **Science Translational Medicine**, revision passed under editorial processing.

Singh S, Das M, Chakrabarti R. Abstract 777: Notch signaling dependent chemoresistance in racial disparity in ER+ breast cancer. *Cancer Research*, 2024; 84:777. <https://doi.org/10.1158/1538-7445.AM2024-777>

Das M, Henry S, **Singh S**, Santos CD, Chakrabarti R. Abstract 179: Identification of a novel crosstalk between MDSC and NKregs in immunotherapy resistant triple negative breast cancer. *Cancer Research*, 2024; 84:179. <https://doi.org/10.1158/1538-7445.AM2024-179>

Das M, Thacker G, Maiz JE, **Singh S**, et al. Targeting NK-dependent Wnt+ CSCs in TNBC. **Nature Communications**, under revision 4th Author.

Singh S, et al. An autosomal recessive eye colour mutant of melon fruit fly, *Bactrocera cucurbitae* (Coquillett). *Proceedings of Zoological Society*, 2019; 73:251-254.

NCBI Submissions

Single Cell RNA-sequence: PRJNA1173167, PRJNA1053819 (University of Miami)

Bulk RNA-sequence: PRJNA1087447, PRJNA1176135 (University of Miami)

Whole Genome Sequence: *Zeugodacus cucurbitae* mutant & wildtype – PRJNA835451; *Zygogramma bicolorata* (Parthenium beetle) – PRJNA792476 (BHU, India)

Nucleotide entries: OK334613, OM320478–79, OM507985–86 (BHU, India)

Awards & Fellowships

1st Prize, Oral Presentation – BHU Int'l Conference, 2022

CAS-JRF-SRF, Center for Advanced Study, BHU (2018–2022)

Teach for BHU Fellow, 2023

Conference Presentations

AACR Annual Meeting, San Diego, USA – April 2024

Miami Translational Oncology Symposium – Nov 2023

ICC Chronobiology Conference – JNCASR/UC Davis – July 2021

Workshops & Training

Certified and trained Flow Cytometry & Cell Sorting user (FCSR, University of Miami)

Statistical Softwares and Bioinformatics training (BHU & Redcliffe Genetics)

PARSE, CLC Genomics Workbench, R-R studio (Seurat) and Python (Bioconductor) scRNA/ Bulk RNA seq analysis (Independently acquired during Post-doc)

Ethical Research & Animal Use training (CPCSEA guidelines, BHU, INDIA; IACUC, Miami, FL, USA)

Professional Memberships

American Association for Cancer Research (AACR) 2024

Indian Society for Cell Biology

Life Saving Society of India, Member, 2022-2024

Mentorship & Leadership

Guided 10+ MSc/undergrad thesis students

Led DLL1–PD-L1+ macrophage study across institutions

Mentored visiting researchers and summer interns (**Mr. Andres Falaschini., 2024**; Summer Graduate Student; **Dr. Marcelo Mendes Götze., 2023**; Visiting Researcher)

Skills & Technical Expertise

Animal Models & Surgical Techniques

- Proficient in handling, monitoring, and performing surgical procedures on mouse models.
- Expertise in administering therapeutic agents via oral, intraperitoneal, intravenous, and subcutaneous routes.

- Orthotopic, tail vein, and retro-orbital injections for tumor studies and systemic delivery.

Imaging & Analysis

- Bioluminescence imaging (BLI) for in vivo tumor monitoring.
- Multiplex IF, histology, IHC, and SEM for cellular/molecular analysis.

Molecular & Cellular Biology Techniques

- Viral vector production, OE/KD models, stable cell line generation.
- Western blotting, ELISA, multiplex cytokine profiling.
- 3D culture, tumorsphere, transwell assays, and Patient-Derived Organoid (PDO) maintenance.
- qRT-PCR, RNA isolation, gene expression, patient sample analysis.

Flow Cytometry & Cell Sorting

- Certified trained user by FCSR, University of Miami.
- Design and optimization of multicolor panels for immune and tumor profiling.
- Sorting of tumor cells, TAMs, and immune populations.

Computational & Statistical Analysis

- Proficient in R/Python for transcriptomic and immunologic data analysis.
- scRNA-seq and bulk RNA-seq analysis including Gene set enrichment analysis (GSEA).
- GSEA, Gene prediction, marker discovery, Traimaker, Parse library preparation.
- NCBI submission and sequencing data management.

Full Publication List

Research Articles

- **Singh, S.**, Anjali, & Singh, A.K. (2022). Impact of environmental stress on biochemical profile and fitness traits in *Drosophila malerkotliana*. *Journal of Scientific Research*, 66: 68-76.
- **Singh, S.**, Yadav, N., & Singh, A.K. (2019). An autosomal recessive eye colour mutant of melon fruit fly, *Bactrocera cucurbitae*. *Proceedings of Zoological Society*, 73: 251-254.
- **Singh, S.**, Yadav, N., & Singh, A.K. (2019). Sexually dimorphic morphological traits in *Bactrocera cucurbitae*. *Current Life Sciences*, 05: 1-6.
- **Singh, S.** & Singh, A.K. (2018). Skewed distribution of melon fruit flies owing to colour preference. *Indian Journal of Scientific Research*, 08: 1-4.
- Patel, P., **Singh, S.**, et al. (2020). Stage-specific feeding attributes and mobilization of nutrients in *Zygogramma bicolorata*. *Journal of Asia-Pacific Entomology*, 23: 310-314.
- Kumar, S., Singh, A.K. & **Singh, S.** (2018). Random association between enzyme loci in *Drosophila ananassae*. *J. Molecular and Cellular Biochemistry*, 02: 1-6.
- Kumar, S., Singh, A.K. & **Singh, S.** (2019). Balancing selection at allozyme loci in *Drosophila ananassae*. *Genomics and Genetics*, 12: 11-18.

Book Chapters

- **Singh, S.**, Bhumika, & Singh, A.K. (2020). Intra-sexual Selection. Encyclopedia of Animal Cognition and Behavior. Springer.
- **Singh, S.**, & Singh, A.K. (2020). Nomenclature. Encyclopedia of Animal Cognition and Behavior. Springer.
- Bhumika and **Singh, S.** (2020). Artificial Selection. Encyclopedia of Animal Cognition and Behavior. Springer.
- Das, A., Upadhyay, S., **Singh, S.**, Singh, A.K. (2025). Altruism: Kin. Encyclopedia of Religious Psychology and Behavior. Springer.
- Das, A., Upadhyay, S., **Singh, S.**, Singh, A.K. (2025). Evolution: Costly Rituals and Neanderthal Challenge. Encyclopedia of Religious Psychology and Behavior. Springer.

References

Available upon request