Tanaya A. Purohit

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I am a final-year Ph.D. candidate in the Cancer Biology program at the University of Wisconsin-Madison. My doctoral research revolves around investigating epigenetic dysregulation in prostate cancer progression and therapy resistance. After I graduate, I want to pursue a career in translational cancer research using cutting-edge technologies and bridge the gap between research, therapeutics, and patient care.

Education

- **University of Wisconsin – Madison** — Madison, WI
  Ph.D. candidate, Cancer Biology — *Aug 2020 – Present*
- **New York University** — New York, NY
  M.S. Biotechnology and Entrepreneurship — *Sept 2016 – May 2018*
- **Bharti Vidyapeeth Deemed University** — Pune, India
  Advanced Diploma in Bioinformatics — *July 2015 – May 2016*
- **Savitribai Phule Pune University** — Pune, India
  B.Sc. Biotechnology — *July 2012 – May 2015*

Research Experience

- **University of Wisconsin – Madison** — Madison, WI
  Graduate Research Assistant, Advisor: Dr. David F. Jarrard — *Dec 2020 – Present*
  - **Project 1**: Identifying cellular susceptibilities during early androgen deprivation therapy that can be exploited to improve clinical outcomes in prostate cancer patients.
  - **Project 2**: Linking genetic mutations that commonly occur in prostate cancer patients to altered histone post-translational modifications and histone-modifying enzymes.
- **Memorial Sloan Kettering Cancer Center** — New York, NY
  Research Technician, Dr. Timothy Chan's Lab — *July 2018 – Jun 2020*
  - Under the guidance of Dr. Raghvendra Srivastava in the lab, I developed models to validate cancer antigens identified in renal cell carcinoma patient samples for personalized cancer immunotherapy. I performed molecular cloning for potential cancer antigens and validated them with immunogenic assays and flow cytometry.
  - Provided technical support to prepare *10X Genomics* Chromium single-cell RNA-seq libraries for fellow lab members and collaborators.
- **Columbia University** — New York, NY
  Research Intern, Dr. Jianwen Que's Lab — *May 2017 – May 2018*
  - Investigated different cell types contributing to airway epithelial regeneration in idiopathic pulmonary fibrosis (IPF) such as basal cells, bronchioalveolar stem cells, secretory club cells, and alveolar cells.
- **New York University** — New York, NY
  Laboratory Assistant, Dr. Claude Desplan's Lab — *Sept 2016 – Jan 2017*
  - Studied early embryonic development in drosophila.

Manuscripts in Preparation

- **Purohit, T. A.**, Gawdzik, J., Yang, B., ..., Jarrard, D.F. *Loss of CHD1 generates a distinct histone profile in the development of castration-resistant prostate cancer.*
- **Purohit, T. A.**, Schmitt, E., Bigarella, M., Yang, B., ..., Jarrard, D.F. *Identifying and targeting histone-modifying enzymes in prostate cancer cell survival after androgen deprivation therapy.*
- **Purohit, T. A.** and Jarrard, D.F. *Dysregulation of histone-modifying enzymes in the development and progression of castration-resistant prostate cancer (Review).*

Peer-reviewed Publications

- Filon, M., Yang, B., **Purohit, T.A.**, ..., Jarrard, D.F., (2023). *Development of a multiplex assay to assess activated p300/CBP in circulating prostate tumor cells.* Oncotarget, 14, 38.
- Nixon, B.G., Kuo, F., Ji, L., Liu, M., Capistrano, K., Do, M., Franklin, R.A., Wu, X., Kansler, E.R., Srivastava, R.M., **Purohit, T.A.**, ..., Li, M.O., (2022). *Tumor-associated macrophages expressing the transcription factor IRF8 promote T cell exhaustion in cancer.* Immunity, 55(11), 2044-2058.
- Krishna, C., DiNatale, R.G., Kuo, F., Srivastava, R.M., Vuong, L., Chowell, D., Gupta, S., Vanderbilt, C., **Purohit, T.A.**, ..., Hakimi, A.A., (2021). *Single-cell sequencing links multiregional immune landscapes and tissue-resident T cells in ccRCC to tumor topology and therapy efficacy.* Cancer Cell, 39(5), pp.662-677.
- Srivastava, R.M., **Purohit, T.A.** and Chan, T.A., (2020), April. *Diverse neoantigens and the development of cancer therapies.* In Seminars in radiation oncology (Vol. 30, No. 2, pp. 113-128). WB Saunders.
- Bessell, C.A., Isser, A., Havel, J.J., Lee, S., Bell, D.R., Hickey, J.W., Chaisawangwong, W., Bieler, J.G., Srivastava, R., Kuo, F., **Purohit, T.**, ..., Schneck, J.P., (2020). *Commensal bacteria stimulate antitumor responses via T cell cross-reactivity.* JCI insight, 5(8).
- Samstein, R.M., Krishna, C., Ma, X., Pei, X., Lee, K.W., Makarov, V., Kuo, F., Chung, J., Srivastava, R.M., **Purohit, T.A.**, ..., Nadeem, R., (2020). *Mutations in BRCA1 and BRCA2 differentially affect the tumor microenvironment and response to checkpoint blockade immunotherapy.* Nature Cancer, 1(12), pp.1188-1203.

Published Abstracts

- **Purohit, T.**, ..., Jarrard, D., (2024). *PD35-07: Identifying and targeting upregulated histone modifying enzymes involved in prostate cancer cell survival after androgen deprivation therapy.* The Journal of Urology, 211(5S), e727.
- **Purohit, T. A.**, ..., Jarrard, D. F., (2023). *A060: Genetic alterations induce distinct histone post-translational modifications during the transition to castration-resistant prostate cancer.* Cancer Research, 83(11_Supplement), A060-A060.
- Esdaille, A., Yang, B., **Purohit, T.**, ..., Jarrard, D., (2023). *MP20-06: Atorvastatin with degarelix modulates tumor proliferation and the prostate tumor immune environment in a Myc-CaP/AS murine model.* The Journal of Urology, 209(Supplement 4), e277.

Poster Presentations

- *Identifying and targeting upregulated histone-modifying enzymes involved in prostate cancer cell survival after androgen deprivation therapy.* Poster presented at:
  - Cancer Biology Student Orientation, UW–Madison, August 2024, Madison, WI.
  - UW Carbone Cancer Center's Annual Research Retreat, April 2024, Madison, WI.
- *Genetic alterations induce distinct histone post-translational modifications during the transition to castration-resistant prostate cancer.* Poster presented at:
  - Interdisciplinary Biological and Health Sciences Consortium (IBHSC), UW–Madison, February 2025, Madison, WI.
  - Keystone Symposia Conference on Epigenetic Mechanisms and Cancer Treatment, February 2024, Santa Fe, NM.
  - AACR Special Conference: Advances in Prostate Cancer Research, March 2023, Denver, CO.
  - 30$^{\text{th}}$ Annual Meeting of the Society for Basic Urologic Research (SBUR), November 2022.
  - UW Carbone Cancer Center's Annual Research Retreat, 2022-2023, Madison, WI.
  - 6$^{\text{th}}$ Annual UW Epigenetics Symposium, October 2022, Madison, WI.
  - McArdle Fall Poster Session, UW–Madison, October 2022, Madison WI.

Oral Presentations

- *CHD1 loss generates a distinct histone post-translational modification pattern with the development of castration-resistant prostate cancer.* Presented at:
  - UWCCC Cancer Trainee Network Seminar (Spring 2025), UW–Madison.
  - McArdle Trainee Seminar Series (Spring 2022, Fall 2024), UW–Madison.
  - Prostate Research Group Meeting (Summer 2022), UW–Madison.
- *Identifying and targeting upregulated histone-modifying enzymes involved in prostate cancer cell survival after androgen deprivation therapy.* Presented at:
  - McArdle Trainee Seminar Series (Spring 2024), UW–Madison.
  - Prostate Research Group Meeting (Spring 2024), UW–Madison.
- *Improving androgen deprivation therapy: Targeting NSD2 in advanced prostate cancer.* Presented at:
  - UW Prostate SPORE Annual Retreat (Summer 2024), UW–Madison.
  - McArdle Trainee Seminar Series (Spring 2023), UW–Madison.
  - Prostate Research Group Meeting (Spring 2023), UW–Madison.

Teaching Experience

- **New York University** New York, NY
  Teaching Assistant, Department of Chemical and Biomolecular Engineering *Jan 2017 – May 2018*
  - Assisted undergraduate students in learning different lab skills and performing cellular and molecular biology experiments such as bacterial cloning, chromatography techniques, immunoblotting, PCR, etc.

Awards

- UW–Madison Student Research Grants Competition Travel Award, Spring 2024.
- UWCCC Heidi Dvinge and Patti Keely Cancer Trainee Network Travel Award, Summer 2022.
- UW–Madison Welcome Scholarship, Fall 2020.
- NYU Wasserman Internship Grant, Summer 2017.
- NYU Graduate Scholarship, Fall 2016.

Extracurricular activities

- Member of Leadership Team (2022-Present), UWCCC Cancer Trainee Network.
- Mentor (Summer 2024), UWCCC Advancing Research in Science with Equity (ARISE) high school internship program.
- Trainee representative (Summer 2023), SMPH/UW Health Diversity Workforce and Equity Transformation committee.
- Mentor for WoMentorship Program (Fall 2017), NYU Tandon School of Engineering.
- Volunteer for the cultural festival 'Chimera' (2012–2015), Department of Biotechnology, Fergusson College.

Skills

- Cell culture and 3D organoid culture.
- Derive different immune cell types from patient-specific peripheral blood mononuclear cells.
- Cell-based assays for proliferation, drug cytotoxicity, apoptosis, and immunological assays such as T-cell activation and cytokine production.
- CRISPR knockout screens and gene expression modulation techniques.

- Flow cytometry and cell sorting assays.
- Molecular cloning, immunoprecipitation, Western blotting, qPCR, and immunohistochemistry.
- Bulk RNA-seq, 10X Genomics single-cell RNA-seq, ChIP-seq, and data analysis.
- Experience with animal tumor models (mice).
- GraphPad Prism, Microsoft Office, and Adobe Photoshop.