Stanford

Anuja Anand Sathe

Instructor, Medicine - Oncology

Bio

ACADEMIC APPOINTMENTS

- Instructor, Medicine - Oncology

HONORS AND AWARDS

- Translational Research and Applied Medicine Pilot Grant, Stanford Medicine (2019-2021)
- Leopold Casper-Promotionspreis, awarded for the best Ph.D. thesis in the field of Urology in Germany, German Association for Urology/Deutsche Gesselschaft fuer Urologie (DGU) (2016)
- Postdoctoral Fellowship, Fritz Thyssen Foundation, Germany (2015-2017)
- Scotland's Saltire Scholarship, British Council on behalf of the Scottish government (2010-2011)

PROFESSIONAL EDUCATION

- Bachelor of Med & Surgery (MBBS), B. J. Medical College, Maharashtra University of Health Sciences, Pune, India (2010)
- Masters of research (MRes), University of Glasgow, Glasgow, U.K (2011)
- Doctor of Philosophy (Ph.D.), Technische Universität München, Munich, Germany (2015)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

I am interested in understanding the determinants of therapeutic resistance in cancer. I investigate the composition of the tumor microenvironment and adaptive responses to therapy using single-cell and spatial approaches.

Publications

PUBLICATIONS

- **Immunosuppressive cellular topography and genomic adaptations sustain colorectal cancer metastasis to the brain**
  Sathe, A., Zhang, M., Bai, X., Kang, J., Meka, R., Sun, H., Humayun, M., Wang, X., Grimes, S. M., Khan, A., Liu, M., Luksik, A. S., Lim, et al
  AMER ASSOC CANCER RESEARCH.2026
- **Single-cell long-read transcriptomics reveals isoform centric molecular features of rare pseudomyxoma peritonei disease.**
  Lee, K., Sathe, A., Wood, R., Lee, D., Lau, B., Ji, H. P.
  AMER ASSOC CANCER RESEARCH.2026
- **Single-cell multi-omic characterization of gastric intestinal metaplasia reveals potential genetic, epigenetic and isoform signatures of lesions at high risk for GC progression**
  Lee, D., Bai, X., Grimes, S., Lee, K., Wang, Y., Wong, C., Sathe, A., Wichmann, I., Kim, Y., Meka, R., Long, R., Im, A., Lau, et al
  AMER ASSOC CANCER RESEARCH.2026: 4130

- **Single cell multi-omics enables molecular dissection of gastric cancer subtypes**
  Cha, J., Sathe, A., Wang, Y., Grimes, S. M., Ji, H. P.
  AMER ASSOC CANCER RESEARCH.2026
- **AI foundation model for single cell annotation from conventional histopathology images of cancer.**
  Bai, X., Lee, H., Tan, X., Li, C., Sathe, A., Wang, Y., Nguyen, Q., Ji, H. P.
  AMER ASSOC CANCER RESEARCH.2026
- **Single-cell aneuploidy and chromosomal arm imbalances define subclones with divergent transcriptomic phenotypes.** *NAR genomics and bioinformatics*
  Bai, X., Lau, B. T., Sathe, A., Grimes, S. M., Almeda-Nostine, A., Ji, H. P.
  2025; 7 (4): lqaf138
- **Colorectal cancer relies on an immunosuppressive cellular topography and genomic adaptations for establishing brain metastases.** *bioRxiv : the preprint server for biology*
  Sathe, A., Zhang, M., Bai, X., Kang, J. I., Meka, R., Sun, H., Grimes, S. M., Khan, A., Liu, M., Luksik, A. S., Lim, M., Petrisch, C. K., Jackson, et al
  2025
- **Cancer subclone detection based on DNA copy number in single-cell and spatial omic sequencing data.** *Nature methods*
  Wu, C. Y., Rong, J., Sathe, A., Hess, P. R., Lau, B. T., Grimes, S. M., Huang, S., Ji, H. P., Zhang, N. R.
  2025
- **Co-occurrence of clonally related follicular lymphoma and histiocytic sarcoma.** *Blood cancer journal*
  Haebe, S., Czerwinski, D. K., Sathe, A., Grimes, S. M., Chen, T., Suarez, C. J., Martin, B., Ji, H. P., Levy, R., Shree, T.
  2025; 15 (1): 131
- **Single cell and spatial alternative splicing analysis with Nanopore long read sequencing.** *Nature communications*
  Fu, Y., Kim, H., Roy, S., Huang, S., Adams, J. I., Grimes, S. M., Lau, B. T., Sathe, A., Ji, H. P., Zhang, N. R.
  2025; 16 (1): 6654
- **The single-cell spatial landscape of stage III colorectal cancers.** *NPJ precision oncology*
  Su, A., Lee, H., Tran, M., Dela Cruz, R. C., Sathe, A., Bai, X., Wichmann, I., Pflieger, L., Moulton, B., Barker, T., Haslem, D., Jones, D., Nadauld, et al
  2025; 9 (1): 101
- **A spatial transcriptomic signature of 26 genes resolved at single-cell resolution characterizes high-risk gastric cancer precursors.** *NPJ precision oncology*
  Huang, R. J., Wichmann, I. A., Su, A., Sathe, A., Shum, M. V., Grimes, S. M., Meka, R., Almeda, A., Bai, X., Shen, J., Nguyen, Q., Luo, I., Han, et al
  2025; 9 (1): 52
- **Distinct gene signatures define the epithelial cell features of mucinous appendiceal neoplasms and pseudomyxoma metastases.** *Frontiers in genetics*
  Ayala, C., Sathe, A., Bai, X., Grimes, S. M., Shen, J., Poultsides, G. A., Lee, B., Ji, H. P.
  2025; 16: 1536982
- **The Gastric Cancer Registry: A multi-omic cellular and molecular resource for cancer biomarker and therapeutic discovery.**
  Ji, H. P., Meka, R., Perez, I., Grimes, S. M., Lee, H., Wang, Y., Sathe, A.
  LIPPINCOTT WILLIAMS & WILKINS.2025: 491
- **A phase I clinical trial adding OX40 agonism to in situ therapeutic cancer vaccination in patients with low-grade B cell lymphoma highlights challenges in translation from mouse to human studies.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
  Shree, T., Czerwinski, D., Haebe, S., Sathe, A., Grimes, S., Martin, B., Ozawa, M., Hoppe, R., Ji, H., Levy, R.
  2025
- **The single-cell spatial landscape of stage III colorectal cancers.** *bioRxiv : the preprint server for biology*
  Su, A., Lee, H., Tran, M., Cruz, R. D., Sathe, A., Bai, X., Wichmann, I., Pflieger, L., Moulton, B., Barker, T., Haslem, D., Jones, D., Nadauld, et al
  2024
- **Single cell transcriptomic analysis reveals differences between primary appendiceal tumors**
  Ayala, C. I., Sathe, A., Bai, X., Grimes, S., Lee, B., Ji, H. P.

SPRINGER.2024: S230

- **Single cell transcriptomic analysis of malignant peritoneal mesothelioma: finding the tumor cells?**
  Ayala, C. I., Sathe, A., Bai, X., Grimes, S., Lee, B., Li, H. P.
  SPRINGER.2024: S236-S237

- **Niche-DE: niche-differential gene expression analysis in spatial transcriptomics data identifies context-dependent cell-cell interactions.** *Genome biology*
  Mason, K., Sathe, A., Hess, P. R., Rong, J., Wu, C. Y., Furth, E., Susztak, K., Levinsohn, J., Ji, H. P., Zhang, N.
  2024; 25 (1): 14

- **GITR and TIGIT immunotherapy provokes divergent multicellular responses in the tumor microenvironment of gastrointestinal cancers.** *Genome medicine*
  Sathe, A., Ayala, C., Bai, X., Grimes, S. M., Lee, B., Kin, C., Shelton, A., Poultsides, G., Ji, H. P.
  2023; 15 (1): 100

- **A clinical trial of therapeutic vaccination in lymphoma with serial tumor sampling and single cell analysis.** *Blood advances*
  Shree, T., Haebe, S. E., Czerwinski, D. K., Eckhert, E., Day, G., Sathe, A., Grimes, S. M., Frank, M. J., Maeda, L., Alizadeh, A. A., Advani, R. H., Hoppe, R. T., Long, et al
  2023

- **Co-Occurrence of Clonally Related Follicular Lymphoma and Histiocytic Sarcoma**
  Haebe, S., Czerwinski, D. K., Sathe, A., Grimes, S., Chen, T., Martin, B., Ji, H., Levy, R., Shree, T.
  AMER SOC HEMATOLOGY.2023

- **A spatially mapped gene expression signature for intestinal stem-like cells identifies high-risk precursors of gastric cancer.** *bioRxiv : the preprint server for biology*
  Huang, R. J., Wichmann, I. A., Su, A., Sathe, A., Shum, M. V., Grimes, S. M., Meka, R., Almeda, A., Bai, X., Shen, J., Nguyen, Q., Amieva, M. R., Hwang, et al
  2023

- **Direct measurement of engineered cancer mutations and their transcriptional phenotypes in single cells.** *Nature biotechnology*
  Kim, H. S., Grimes, S. M., Chen, T., Sathe, A., Lau, B. T., Hwang, G. H., Bae, S., Ji, H. P.
  2023

- **Follicular lymphoma evolves with a surmountable dependency on acquired glycosylation motifs in the B cell receptor.** *Blood*
  Haebe, S. E., Day, G., Czerwinski, D. K., Sathe, A., Grimes, S. M., Chen, T., Long, S. R., Martin, B. A., Ozawa, M. G., Ji, H. P., Shree, T., Levy, R.
  2023

- **Single-cell multi-gene identification of somatic mutations and gene rearrangements in cancer.** *NAR cancer*
  Grimes, S. M., Kim, H. S., Roy, S., Sathe, A., Ayala, C. I., Bai, X., Almeda-Notestine, A. F., Haebe, S., Shree, T., Levy, R., Lau, B. T., Ji, H. P.
  2023; 5 (3): zcad034

- **Single cell and spatial alternative splicing analysis with long read sequencing.** *Research square*
  Fu, Y., Kim, H., Adams, J. I., Grimes, S. M., Huang, S., Lau, B. T., Sathe, A., Hess, P., Ji, H. P., Zhang, N. R.
  2023

- **GITR and TIGIT immunotherapy provokes divergent multi-cellular responses in the tumor microenvironment of gastrointestinal cancers.** *bioRxiv : the preprint server for biology*
  Sathe, A., Ayala, C., Bai, X., Grimes, S. M., Lee, B., Kin, C., Shelton, A., Poultsides, G., Ji, H. P.
  2023

- **Single Cell Transcriptomic Analysis of Human Extra- and Intra-Hepatic Cholangiocarcinoma**
  Ayala, C. I., Sathe, A., Grimes, S., Bae, X., Dua, M., Poultsides, G., Visser, B., Ji, H.
  SPRINGER.2023: S177-S178

- **Activating Immune Effectors and Dampening Immune Suppressors Generates Successful Therapeutic Cancer Vaccination in Patients with Lymphoma**
  Shree, T., Haebe, S., Czerwinski, D. K., Eckhert, E., Day, G., Sathe, A., Grimes, S. M., Frank, M. J., Maeda, L. S., Alizadeh, A. A., Advani, R. H., Hoppe, R., Long, et al
  AMER SOC HEMATOLOGY.2022: 6450-6451

- **Prevalence of Acquired N-Glycosylation Sites at the Single Cell Level in Follicular Lymphoma**
  Haebe, S., Shree, T., Day, G., Czerwinski, D. K., Sathe, A., Grimes, S. M., Long, S. R., Martin, B., Ozawa, M. G., Ji, H. P., Levy, R.
  AMER SOC HEMATOLOGY.2022: 9211-9212
- **Colorectal cancer metastases in the liver establish immunosuppressive spatial networking between tumor associated SPP1+ macrophages and fibroblasts.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
  Sathe, A., Mason, K., Grimes, S. M., Zhou, Z., Lau, B. T., Bai, X., Su, A., Tan, X., Lee, H., Suarez, C. J., Nguyen, Q., Poultsides, G., Zhang, et al
  2022
- **Reconstructing the spatial evolution of cancer through subclone detection on copy number profiles in tumor sequencing data.**
  Wu, C., Hess, P. R., Sathe, A., Rong, J., Lau, B. T., Grimes, S. M., Ji, H. P., Zhang, N. R.
  AMER ASSOC CANCER RESEARCH.2022
- **A single-cell solution for solid tumors to detect mutations and quantify copy number variations.**
  Wu, C., Hess, P. R., Sathe, A., Rong, J., Lau, B. T., Grimes, S. M., Ji, H. P., Zhang, N. R.
  AMER ASSOC CANCER RESEARCH.2022
- **Reconstructing the spatial evolution of cancer through subclone detection on copy number profiles in tumor sequencing data**
  Wu, C., Hess, P. R., Sathe, A., Rong, J., Lau, B. T., Grimes, S. M., Ji, H. P., Zhang, N. R.
  AMER ASSOC CANCER RESEARCH.2022
- **Mucinous Epithelial Cell Secretion Drives Mucinous Ascites Formation in Pseudomyxoma Peritonei Patients**
  Ayala, C., Sathe, A., Grimes, S., Zhao, L., Bai, X., Poultsides, G., Lee, B., Ji, H.
  SPRINGER.2022: 520-521
- **In Situ Vaccination Induces Changes in Follicular Lymphoma Tumor Cells That Correlate with Abscopal Clinical Regressions**
  Haebe, S., Shree, T., Day, G., Sathe, A., Czerwinski, D. K., Grimes, S. M., Long, S. R., Martin, B., Hoppe, R., Ji, H. P., Levy, R.
  AMER SOC HEMATOLOGY.2021
- **Therapeutic and Immunologic Responses Elicited By in Situ Vaccination with CpG, Ibrutinib, and Low-Dose Radiation**
  Shree, T., Haebe, S., Czerwinski, D. K., Day, G., Sathe, A., Khodadoust, M. S., Frank, M. J., Beygi, S., Hoppe, R., Long, S. R., Martin, B., Ji, H. P., Levy, et al
  AMER SOC HEMATOLOGY.2021
- **Patient-derived ex vivo TME-models and single-cell sequencing reveal transcriptional responses to immunotherapy.**
  Sathe, A., Chen, J., Grimes, S. M., Ayala, C. I., Poultsides, G., Ji, H. P.
  AMER ASSOC CANCER RESEARCH.2021
- **Integrative single-cell analysis of allele-specific copy number alterations and chromatin accessibility in cancer.** *Nature biotechnology*
  Wu, C., Lau, B. T., Kim, H. S., Sathe, A., Grimes, S. M., Ji, H. P., Zhang, N. R.
  2021
- **An expanded universe of cancer targets.** *Cell*
  Hahn, W. C., Bader, J. S., Braun, T. P., Califano, A., Clemons, P. A., Druker, B. J., Ewald, A. J., Fu, H., Jagu, S., Kemp, C. J., Kim, W., Kuo, C. J., McManus, et al
  2021; 184 (5): 1142–55
- **Single Cell Analysis Can Define Distinct Evolution of Tumor Sites in Follicular Lymphoma.** *Blood*
  Haebe, S. E., Shree, T. n., Sathe, A. n., Day, G. n., Czerwinski, D. K., Grimes, S. n., Lee, H. n., Binkley, M. S., Long, S. R., Martin, B. A., Ji, H. P., Levy, R. n.
  2021
- **IDENTIFY IMMUNE CELL TYPES AND BIOMARKERS ASSOCIATED WITH IMMUNE-RELATED ADVERSE EVENTS USING SINGLE CELL RNA SEQUENCING**
  Chen, J., Pflieger, L., Grimes, S., Baker, T., Brems, M., Fulde, G., Snow, S., Howe, P., Sathe, A., Christensen, B., Ji, H., Rhodes, T.
  BMJ PUBLISHING GROUP.2020: A39
- **Identify biomarkers associated with immunotoxicities using single-cell RNAseq.**
  Chen, J., Pflieger, L., Sathe, A., Grimes, S., Brems, M., Pattison, T., Christensen, B., Rhodes, T., Ji, H.
  AMER ASSOC CANCER RESEARCH.2020: 32

- **Joint single cell DNA-seq and RNA-seq of gastric cancer cell lines reveals rules of in vitro evolution.** *NAR genomics and bioinformatics*
  Andor, N. n., Lau, B. T., Catalanotti, C. n., Sathe, A. n., Kubit, M. n., Chen, J. n., Blaj, C. n., Cherry, A. n., Bangs, C. D., Grimes, S. M., Suarez, C. J., Ji, H. P.
  2020; 2 (2): lqaa016

- **Single cell genomic characterization reveals the cellular reprogramming of the gastric tumor microenvironment.** *Clinical cancer research : an official journal of the American Association for Cancer Research*
  Sathe, A. n., Grimes, S. M., Lau, B. T., Chen, J. n., Suarez, C. n., Huang, R. J., Poultsides, G. A., Ji, H. P.
  2020

- **Site to Site Comparison of Follicular Lymphoma Biopsies By Single Cell RNA Sequencing**
  Haebe, S., Shree, T., Sathe, A., Day, G., Lee, H., Czerwinski, D. K., Grimes, S., Ji, H., Levy, R.
  AMER SOC HEMATOLOGY.2019

- **Dynamic Immune Modulation Seen By Single Cell RNA-Sequencing of Serial Lymphoma Biopsies in Patients Undergoing in Situ Vaccination**
  Shree, T., Haebe, S., Sathe, A., Day, G., Lee, H., Czerwinski, D. K., Grimes, S., Ji, H., Levy, R.
  AMER SOC HEMATOLOGY.2019

- **Functional genomics identifies predictive markers and clinically actionable resistance mechanisms to CDK4/6 inhibition in bladder cancer** *JOURNAL OF EXPERIMENTAL & CLINICAL CANCER RESEARCH*
  Tong, Z., Sathe, A., Ebner, B., Qi, P., Veltkamp, C., Gschwend, J. E., Holm, P., Nawroth, R.
  2019; 38: 322

- **Single cell RNA sequencing of serial tumor and blood biopsies from lymphoma patients undergoing in situ vaccination**
  Shree, T., Sathe, A., Ji, H., Levy, R.
  AMER ASSOC CANCER RESEARCH.2019

- **Comprehensive characterization of gastric cancer at single-cell resolution**
  Chen, J., Sathe, A., Grimes, S., Greer, S., Lau, B., Renschler, A., Poultsides, G., Suarez, C., Ji, H.
  AMER ASSOC CANCER RESEARCH.2019

- **Single cell RNA sequencing reveals multiple adaptive resistance mechanisms to regorafenib in colon cancer**
  Sathe, A., Lau, B. T., Grimes, S., Greer, S., Ji, H.
  AMER ASSOC CANCER RESEARCH.2019

- **scPred: accurate supervised method for cell-type classification from single-cell RNA-seq data.** *Genome biology*
  Alquicira-Hernandez, J. n., Sathe, A. n., Ji, H. P., Nguyen, Q. n., Powell, J. E.
  2019; 20 (1): 264

- **Single Cell RNA Sequencing of Serial Tumor and Blood Biopsies from Lymphoma Patients on an in Situ Vaccination Clinical Trial**
  Shree, T., Sathe, A., Czerwinski, D. K., Long, S. R., Ji, H., Levy, R.
  AMER SOC HEMATOLOGY.2018

- **Targeting the PI3K/AKT/mTOR Pathway in Bladder Cancer.** *Methods in molecular biology (Clifton, N.J.)*
  Sathe, A., Nawroth, R.
  2018; 1655: 335-350

- **Characterization of colorectal liver metastasis at single-cell resolution reveals dynamic interplay in the tumor microenvironment**
  Sathe, A., Chen, J., Wood-Bouwens, C., Almeda, A., Lau, B., Grimes, S. M., Poultsides, G. A., Ji, H.
  AMER ASSOC CANCER RESEARCH.2018

- **Integrated single-cell DNA and RNA analysis of intratumoral heterogeneity and immune lineages in colorectal and gastric tumor biopsies**
  Lau, B., Andor, N., Sathe, A., Wood-Bouwens, C., Poultsides, G., Ji, H.
  AMER ASSOC CANCER RESEARCH.2018

- **Parallel PI3K, AKT and mTOR inhibition is required to control feedback loops that limit tumor therapy.** *PloS one*
  Sathe, A., Chalaud, G., Oppolzer, I., Wong, K. Y., von Busch, M., Schmid, S. C., Tong, Z., Retz, M., Gschwend, J. E., Schulz, W. A., Nawroth, R.
  2018; 13 (1): e0190854

- **Applying the chicken embryo chorioallantoic membrane assay to study treatment approaches in urothelial carcinoma.** *Urologic oncology*
  Skowron, M. A., Sathe, A., Romano, A., Hoffmann, M. J., Schulz, W. A., van Koeveringe, G. A., Albers, P., Nawroth, R., Niegisch, G.
  2017
- **Wntless promotes bladder cancer growth and acts synergistically as a molecular target in combination with cisplatin.** *Urologic oncology*
  Schmid, S. C., Sathe, A., Guerth, F., Seitz, A. K., Heck, M. M., Maurer, T., Schwarzenböck, S. M., Krause, B. J., Schulz, W. A., Stoehr, R., Gschwend, J. E., Retz, M., Nawroth, et al
  2017
- **CDK4/6 Inhibitors in Cancer Therapy: A Novel Treatement Strategy for Bladder Cancer.** *Bladder cancer (Amsterdam, Netherlands)*
  Pan, Q., Sathe, A., Black, P. C., Goebell, P. J., Kamat, A. M., Schmitz-Draeger, B., Nawroth, R.
  2017; 3 (2): 79-88
- **CDK4/6 Inhibition Controls Proliferation of Bladder Cancer and Transcription of RB1** *JOURNAL OF UROLOGY*
  Sathe, A., Koshy, N., Schmid, S. C., Thalgott, M., Schwarzenboeck, S. M., Krause, B. J., Holm, P. S., Gschwend, J. E., Retz, M., Nawroth, R.
  2016; 195 (3): 771-779
- **Mutant PIK3CA controls DUSP1-dependent ERK 1/2 activity to confer response to AKT target therapy** *BRITISH JOURNAL OF CANCER*
  Sathe, A., Guerth, F., Cronauer, M. V., Heck, M. M., Thalgott, M., Gschwend, J. E., Retz, M., Nawroth, R.
  2014; 111 (11): 2103-2113