

# ANUSHKA GUPTA

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## Research Interests

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single-cell & spatial multi-omics, computational biology, adipose tissue dysfunction in diabetes, immuno-oncology, cancer metastasis & therapy resistance, personalized medicine

## Education

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University of California, Berkeley and University of California, San Francisco, USA 2016-2021  
*Joint PhD in Bioengineering* GPA: 3.9/4.0

- **Thesis:** Novel Methods for Investigating Human Adipose Tissue at the Single-Cell Level
- **Research Advisor:** Aaron Streets

Indian Institute of Technology Kharagpur, India 2011-2016  
*B. Tech and M. Tech (Dual Degree Program) in Chemical Engineering* GPA: 9.1/10.0

## Experience

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Scientist 2, In-situ and Spatial Transcriptomics 2023-2025  
*10x Genomics, USA* Manager: David Sukovich

Scientist 1, In-situ and Spatial Transcriptomics 2022-2023  
*10x Genomics, USA* Manager: Sultan Doganay Tuncer

Graduate Student Researcher 2016-2021  
*UC Berkeley, USA* Advisor: Aaron Streets

Undergraduate Research Assistant 2014-2016  
*IIT Kharagpur, India* Advisor: Parag Deshpande

Globalink Research Intern 2015  
*University of British Columbia, Canada* Host: Mina Hoorfar

Unilever's Future Leader Intern 2014  
*Hindustan Unilever, India* Manager: Sudheendra U R

## Publications

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### Preprints/Submitted

1. V Efthymiou, A Ghosh, S Kodani, X Caubit, L Fasano, W Ali, L Poulos, H Camara, **A Gupta**, Y Belaidouni, A Booeshaghi, S Yang, R Rastogi, F Shamsi, A Vernon, A Streets, YH Tseng, M Patti (2024)  
[Single-Nucleus Analysis of Human White Adipose Tissue Reveals Adipocyte Subsets with Distinct Metabolic Profiles](#)

### Published

8. M Oliveira, J Romero, M Chung, S Williams, A Gottscho, **A Gupta**, S Pilipauskas, S Mohabbat, N Raman, D Sukovich, D Patterson, S Taylor (2025)  
[Characterization of immune cell populations in the tumor microenvironment of colorectal cancer using high definition spatial profiling](#)  
*Nature Genetics*
7. **A. Gupta**, V Efthymiou, S Kodani, F Shamsi, M Patti, Y Tseng, A Streets (2023)  
[Mapping the transcriptional landscape of human white and brown adipogenesis using single-nuclei RNA-seq](#)  
*Molecular Metabolism*

6. **A Gupta**, F Shamsi, N Altemose, G Dorlhiac, A Cypess, A White, N Yosef, M Patti, Y Tseng, A Streets (2022)  
[Characterization of transcript enrichment and detection bias in single-nucleus RNA-seq for mapping of distinct human adipocyte lineages](#)  
*Genome Research*
5. F Shamsi, M Piper, L Ho, T Huang, **A Gupta**, A Streets, M Lynes, Y Tseng (2021)  
[Vascular smooth muscle-derived Trpv1+ progenitors are a source of cold-induced thermogenic adipocytes](#)  
*Nature Metabolism*
4. T Chen\*, **A Gupta\***, M Zalavadia, A Streets (2020)  
[μCB-seq: microfluidic cell barcoding and sequencing for high-resolution imaging and sequencing of single cells](#)  
*Lab on a Chip*, \* indicates co-first authors
3. **A Gupta**, G Dorlhiac, A Streets (2019)  
[Quantitative imaging of lipid droplets in single cells](#)  
*Analyst*
2. **A Gupta**, V Kumar, M Padole, M Saharia, K Kumar, P Deshpande (2018)  
[Ceria-Based Nanocrystalline Oxide Catalysts: Synthesis, Characterization, and Applications](#)  
*Nanomaterials Physical, Chemical, and Biological Applications*
1. B Nestor, E Samiei, R Samanipour, **A Gupta**, A Berg, M Derby, Z Wang, H Nejad, K Kim, M Hoorfar (2016)  
[Digital microfluidic platform for dielectrophoretic patterning of cells encapsulated in hydrogel droplets](#)  
*RSC advances*

## **Patent Applications**

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4. **A Gupta** (2024)  
[Methods, compositions, and kits for spatial detection of target nucleic acids](#)  
*US Publication Number US20250369037A1*
3. **A Gupta**, P Lund (2023)  
[in vitro transcription of spatially captured nucleic acids](#)  
*US Publication Number US20250207125A1*
2. A Streets, T Chen, **A Gupta** (2021)  
[Microfluidic cell barcoding and sequencing](#)  
*US Publication Number US 2023/0093891A1*
1. A Streets, T Chen, **A Gupta** (2021)  
[Microfluidic cell barcoding and sequencing](#)  
*International Publication Number WO2021163442A1*

## **Conference Posters & Talks**

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### Talks

5. Mapping tumor-immune interactions in colorectal cancer using high definition spatial transcriptomics  
*6<sup>th</sup> Annual ICGA Meeting, IIT Madras, Chennai, India, November 14-16, 2025*
4. Characterization of transcript enrichment and detection bias in single-nuclei RNA-seq for mapping the transcriptional landscape of human adipogenesis  
*Single Cell Analyses, Cold Spring Harbor Laboratory, Virtual Conference, November 10-12, 2021*
3. Mapping Human Adipose Tissue Heterogeneity using Single-cell and Single-nuclei RNA-sequencing  
*Seed Networks for the Human Cell Atlas Annual Meeting, Virtual Conference, November 17-19, 2020*

2. Single-cell and single-nuclei RNA-seq reveal molecular heterogeneity in distinct human adipocyte lineages  
*UC Berkeley-UCSF Joint PhD in Bioengineering Retreat, Virtual Conference, October 5-6, 2020*
1. 3D Cell Patterning using Dielectrophoresis on Digital Microfluidics  
*IEEE Engineering in Medicine and Biology Society Conference, Milano, Italy, August 25-29, 2015*

### Posters

7. Spatiotemporal mapping of neurogenesis in developing mouse brain at single cell scale using Visium HD 3'  
*Society for Neuroscience (SfN) Annual Meeting, San Diego, USA, November 15-19, 2025*
6. Visium HD enables single cell scale spatial profiling of immune cell populations in the tumor microenvironment of colorectal cancer  
*Spatial Biology Summit, Stanford University, Palo Alto, USA, September 10-12, 2024*
5. Spatially resolved whole-transcriptome analysis with multiplexed protein detection in human FFPE tissues  
*Immunology AAI Annual Meeting, Washington D.C., USA, May 11-15, 2023*
4. Extended capability of Visium CytAssist to enable transcriptomic profiling of PFA fixed, OCT embedded biological specimens  
*Association of Biomolecular Resource Facilities Annual Meeting, Boston, USA, May 7-10, 2023*
3. Technical artifacts in droplet-microfluidics-based single-nuclei RNA-sequencing  
*Miniaturized Systems for Chemistry and Life Sciences, Palm Springs, USA, October 10-14, 2021*
2.  $\mu$ CB-seq: Microfluidic Cell Barcoding and Sequencing for mapping adipogenesis using coupled imaging and sequencing  
*Single Cell Analyses, Cold Spring Harbor Laboratory, New York, USA, November 13 - 16, 2019*
1. A microfluidic platform for multimodal single-cell metabolic and molecular fingerprinting  
*UC Berkeley-UCSF Joint PhD in Bioengineering, Pacific Grove, CA, USA, October 26-28, 2018*

### Honors & Awards

Awarded <i>Special Equity Grant</i> at 10x Genomics, USA for exceptional research	2022
Awarded <i>UC Berkeley Lloyd Fellowship</i> in Bioengineering at UC Berkeley, USA	2019
Awarded <i>Institute Blue</i> for exceptional performance in academics and sports at IIT Kharagpur, India	2016
Ranked 2 <sup>nd</sup> in the Department of Chemical Engineering, IIT Kharagpur, India	2016
Selected for the <i>Unilever's Future Leader Programme</i> at Hindustan Unilever, India	2016
Awarded <i>Mitacs Globalink Research Fellowship</i> in partnership with the Canadian government	2015
Awarded <i>Merit Certificate for being top 0.1% scorers</i> in Science in All India Secondary School Examination	2010

### Leadership & Service

Peer Reviewer <i>PeerJ, PeerJ Computer Science, STAR Protocols, Bioinformatics and Biology Insights, Micromachines, Reproductive Medicine, Biosensors, Cells, Optics, International Journal of Molecular Sciences, Nutrients, Frontiers of Computer Science, Computers in Biology and Medicine, Applied Sciences, Current Issues in Molecular Biology, Frontiers in Genetics, and The AAPS Journal</i>	2023-Present
Assistant Editor <i>Rapid Reviews: COVID-19 (RR:C19)</i>	2022-2023

Professional Organizer 2020-2023  
*Bay Area Microfluidics Network: Responsible for organizing seminar series with the goal of disseminating latest scientific developments happening in the bioengineering field*

Member, Logistics Committee 2016-2018  
*Expanding Your Horizon (EYH), UC Berkeley: Logistical planning of a daylong conference, serving to introduce middle school girls to female STEM role models*

Coordinator 2011-2016  
*Technology Robotix Society, IIT Kharagpur: Coordinated a team of 31 people for promoting the culture of robotics in India by organizing workshops, DIY tutorials, and national competitions*

## **Teaching & Mentorship**

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Completed Responsible Conduct in Bioengineering Research and in Practice Course (UC Berkeley) 2020

### Teaching

Graduate Student Instructor, BioMEMS and Bio-Nanotechnology Laboratory 2020  
*UC Berkeley, USA* *Course Instructor: Aaron Streets*

Teaching Assistant, Reaction Engineering Laboratory 2015  
*IIT Kharagpur, India* *Course Instructor: Parag Deshpande*

### List of mentored students

Lorita Boghospor 2024  
*Scientist, 10x Genomics, USA*

Debashish Chitnis 2024  
*Sr. Research Associate, 10x Genomics, USA*

Nicole Luk, Kevin Joslin, and Lauren Kim 2018 & 2020  
*PhD Student, UC Berkeley, USA*

Mansi Zalavadia and Xinyi Zhang 2019-2020  
*Undergraduate Student, UC Berkeley, USA*

Andre Van den Berg and Maria Diaz de Leon Derby 2014  
*Undergraduate Student, University of British Columbia, Canada*