



January 15, 2026

Motivation letter for the CMBE Council Nomination of Ahmet F Coskun, PhD

Service to Professional Societies

My dedication to the bioengineering community is demonstrated through active engagement and leadership in professional groups, notably BMES. Following the receipt of the CMBE Young Rising Star Faculty Award, I have gained a deeper appreciation for the Special Interest Groups' (SIGs) contribution to advancing excellence at the crossroads of physical forces and biological systems. Beyond participating in annual conferences, I have contributed as a [Session Chair/Abstract Reviewer] and mentored graduate students in my university's bioengineering chapter. These activities have clarified the administrative and collaborative efforts required to maintain a dynamic scientific community. I am enthusiastic about assuming a formal leadership position to support the society that has been instrumental in my career development.

Motivation to Serve on the CMBE Council

I am interested in joining the CMBE Council because I believe the vitality of our field relies on having strong, engaged, and diverse leaders. My main goal is to support early-career faculty and researchers by providing them with the resources and networking opportunities they need to translate their cellular and molecular research into clinical practice. The CMBE SIG is well-placed to connect fundamental mechanobiology with real-world medical advances; I wish to be part of the council to help guide this goal. I am dedicated to serving the full two-year term, including overseeing the junior award and communications committees, and I am eager to contribute my energy to our monthly strategic discussions.

Vision for CMBE

My vision for the future of CMBE is to incorporate societal needs-driven research into our core scientific approach. I believe our SIG can showcase how cellular-level bioengineering directly addresses global health challenges, ranging from regenerative medicine to disease diagnostics. If elected, I intend to enhance our "Strategic Engagement" initiatives to better communicate the significance of our work to the public and industry stakeholders. I also plan to promote a more inclusive community that supports researchers from various backgrounds, ensuring that the next generation of CMBE leaders mirrors the international scope of the issues we aim to solve. Through focused communication and inclusive growth, we can solidify CMBE's position as the premier center for innovation in molecular bioengineering.

Best Regards, Ahmet F Coskun [Associate Professor, Georgia Tech & Emory University]

Ahmet Faruk Coskun, Associate Professor
Wallace H. Coulter Department of Biomedical Engineering
College of Engineering

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Ahmet Faruk Coskun, Associate Professor
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College of Engineering

I. Earned Degrees

- Ph.D. in Electrical Engineering, University of California Los Angeles, 2013.
Advisor: Aydogan Ozcan
- M.S. in Electrical Engineering, University of California Los Angeles, 2009.
Advisor: Aydogan Ozcan
- B.S. in Physics and Electrical Engineering, Koc University, Turkey, 2008.
Advisor: Alper Kiraz

II. Employment History

- Associate Professor, Biomedical Engineering & Bioengineering Graduate Program, Georgia Institute of Technology, Atlanta, GA, 2025-present. (Tenured)
- Visiting Research Associate, Ludwig Cancer Institute, Princeton University, July-December 2024.
- Assistant Professor, Biomedical Engineering & Bioengineering Graduate Program, Georgia Institute of Technology, Atlanta, GA, 2019-2025.
- Instructor, Department of Radiology, Stanford University, Stanford, CA, 2018 -2019.
(Advisor: Garry Nolan)
- Postdoctoral Scholar, Department of Microbiology and Immunology, Stanford University, Stanford, CA, 2017 -2018. (Advisor: Garry Nolan)
- Postdoctoral Fellow, Department of Immuno-Oncology, Beckman Research Institute, City of Hope, Duarte, CA, 2016-2017. (Advisor: Peter P. Lee)
- Postdoctoral Fellow, Division of Chemistry & Chemical Engineering, California Institute of Technology, Pasadena, CA, 2013 - 2016. (Advisor: Long Cai)

III. Honors and Awards

A. International or National Awards

1. *2024 NSF Faculty Early Career Development Program (CAREER) Award.*
2. *2024 Young Innovator*, Cellular and Molecular Bioengineering Special Interest Group, Biomedical Engineering Society, 2024. (the first person from Georgia Tech to receive the Young Innovator honor from CMBE, a leading research journal, in more than a decade)
3. *2023 Rising Star Award*, Cellular and Molecular Bioengineering Special Interest Group, Biomedical Engineering Society, 2023. (The first Georgia Tech faculty member to win the CMBE-BMES Rising Star Award in more than a decade).
4. *Healthy Longevity Award*, Interstellar Initiative, The Japan Agency for Medical Research and Development (AMED), and the New York Academy of Sciences, 2020.
5. *Career Award at the Scientific Interface (CASI)*, Burroughs Wellcome Fund, a distinction given to the 10 most innovative cross-disciplinary investigators in the nation per year, 2018-2023.
6. *Kenan Sahin Award*, Turkish American Scientists & Scholars Association, 2018.
7. *Career Development Program (CDP) Fellow*, Leukemia & Lymphoma Society, 2015-2018.

B. Institute or School Awards

1. *Sigma Xi Young Faculty Award*, 2025.

2. Selected as a *1969 Teaching Fellow* by the Center for Teaching and Learning (CTL), Fall 2024.
3. *Student Recognition of Excellence in Teaching: Spring Semester 2025 CIOS Honor Roll*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 8813: Biomedical Data Visualization, Spring 2025.
4. *Student Recognition of Excellence in Teaching: Fall Semester 2024 CIOS Honor Roll*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 4783: Introduction to Medical Image Processing, Fall 2024.
5. *Student Recognition of Excellence in Teaching: Spring Semester 2023 CIOS Honor Roll*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 3520: Biomedical systems and modeling, Spring 2024.
6. *Student Recognition of Excellence in Teaching: CIOS Award*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 4783: Introduction to Medical Image Processing, Fall 2023.
7. *Student Recognition of Excellence in Teaching: Spring Semester 2023 CIOS Honor Roll*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 3520: Biomedical systems and modeling, Spring 2023.
8. *Student Recognition of Excellence in Teaching: Spring Semester 2022 CIOS Honor Roll*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 3520: Biomedical systems and modeling, Spring 2022.
9. *Student Recognition of Excellence in Teaching: Class of 1934 CIOS Award*, Center for Teaching and Learning (CTL), Georgia Institute of Technology, for BMED 4783: Introduction to Medical Image Processing, Fall 2021.
10. *Thank A Teacher Certificate* for BMED 4783, Center for Teaching and Learning, Fall 2021.

IV. **Research, Scholarship, and Creative Activities**

An **asterisk (*)** indicates scholarship that resulted from work done at Georgia Tech; the names of student/trainee co-authors are in **boldface**.

A. **Published Book Chapters and Edited Volumes**

A1. **Refereed Book Chapters**

1. * **T. Hu, N. Zhang, M. Venkatesan**, C. M. Schürch, G. P. Nolan, and A. F. Coskun, “*High-Definition CODEX for 3D Multiplex Cell Spatial Phenotyping*” in *Revealing Uncharted Biology with Single-Cell Proteomic Technologies: Current Available Platforms*, W. Fantl Ed. Elsevier Inc., 191-216, 2024.
2. * **A. Kumar, S. Cai, M. Allam, S. Henderson, M. Ozbeyler, L. Saiontz**, and A. F. Coskun, “*Single Cell and Spatial Analysis of Emergent Organoid Platforms*” in *Cancer Systems and Integrative Biology Edition*, U. Kasid and R. Clarke Eds; Springer Nature, 311–344, 2023.
3. A.F. Coskun, T. Su, I. Sencan, and A. Ozcan, “*Lensless Fluorescent Imaging On a Chip: A new Method Toward High-throughput Screening of Rare Cells*” in *Biosensors and Biodetection Technologies*, Keith E. Herold & Avi Rasooly Eds; CRC Press, ISBN 9781138198531, 2016.
4. A.F. Coskun, H. Zhu, O. Mudanyali and A. Ozcan, “*Lab on a Cellphone,*” in *Mobile Point-of-Care Monitors and Diagnostic Device Design*, Dr. Walter Karlen and Dr. Kris Iniewski Eds, CRC Press, 2014.

5. A.F. Coskun, S.A. Arpali, C. Arpali, T. Su, I. Sencan, D. Herman, Y. Suh and A. Ozcan, “*Lensfree On-Chip Fluorescence Microscopy for High-throughput Imaging of Bio-Chips*” in *Proceedings of the Italian National Conference on Sensors*, Dr. Francesco Baldini Ed., Springer, 2013.

B. Refereed Publications and Submitted Articles

B1. Published and Accepted Journal Articles

1. * **S. Cai, T. Hu, A. Venkataraman, F. G. Rivera Moctezuma, E. Ozturk, N. Zhang, M. Wang, T. Zvidzai, S. Das, A. Pillai**, F. Schneider, S. S. Ramalingam, Y. Oh, S.Y. Sun, and A. F. Coskun, “Spatially resolved subcellular protein–protein interactomics in drug-perturbed lung-cancer cultures and tissues,” *Nature Biomedical Engineering*, 9, 1039–1061, 2025.
2. * S. Sater, C. B. Bifulco, J. Rodriguez-Canales, J. Yeong, G. Akturk, M. Angelo, C. Ballesteros-Merino, P. Bankhead, S. Basu, J. M. Blando, S. Brajkovic, M. Cassano, B. J. Chen, A. F. Coskun, T. R. Cottrell, C. E. De Andrea, R. H. Edwards, C. Egelston, L. L. Engle, M. S. Ernstoff, R. Fan, M. Feldman, B. A. Fox, J. Galon, R. Gartrell, S. Gnjatic, B. F. Green, J. L. Gulley, A. Hellebust, S. Hewitt, T. J. Hollmann, L. A. Horn, W. J. Howat, C. C. Hoyt, S. M. Jensen, A. Kulasinghe, W. Lassoued, S. Lott, J. Mansfield, S. Marwitz, G. Netto, D. B. Page, E. Parra, D. L. Rimm, S. J. Rodig, R. Salgado, D. Schapiro, K. A. Schalper, J. C. Sunshine, M. J. Surace, A. S. Szalay, M. Thurin, J. C. Villasboas, K. Wharton, I. I. Wistuba, J. H. Yearley, Y. Yuan, G. Zaki, J. Ziai, and J. M. Taube, “Society for Immunotherapy of Cancer: Standards for Reporting of Multiplex Immunohistochemistry/Immunofluorescence Assays (STORMI),” *Journal for ImmunoTherapy of Cancer*, 13, e012280, 2025.
3. * **S. Dembowitz, F. R. Moctezuma, N. Zhang, A. Venkataraman**, and A. F. Coskun, “Untangling the Fusion of Spatial Omics and Mechanobiology,” *Progress in Biomedical Engineering*, 2025.
4. * **H. Torres, E. Ozturk, Z. Fang, N. Zhang, S. Cai, N. Sarkar**, and A. F. Coskun, “What is a “Good” figure: Scoring of biomedical data visualization,” *PLoS One*, 20(11): e0336917, 2025.
5. * **N. Zhang, Z. Fang, P. Kadakia, J. Guo, D. Vijay**, M. Thapa, **S. Dembowitz**, A. Grakoui, and A. F. Coskun, “Modular, Open-Sourced Multiplexing for Democratizing Spatial Omics,” *Lab on a Chip*, 2025.
6. * R. Ringquist, E. Bhatia, P. Chatterjee, D. Maniar, **Z. Fang**, P. Franz, L. Kramer, D. Ghoshal, N. Sonthi, E. Downey, J. Canlas, A. Ochal, S. Agarwal, V. Cuellar, G. Harrigan, A. F. Coskun, A. Singh, K. Roy, “Modeling the Human Immune Response to Severe Influenza Infection in an Immunocompetent Lung-on-Chip,” *Nature Biomedical Engineering*, 2025.
<https://doi.org/10.1038/s41551-025-01491-9>
7. * Y. Qiu, J. Lin, A. Wang, **Z. Fang**, Y. Sakurai, H. Choi, E. K. Williams, E. T. Hardy, K. Maher, A. F. Coskun, G. Woods, W. A. Lam, “Clinically relevant clot resolution via a thromboinflammation-on-a-chip,” *Nature*, 641, 1298–1308 (2025).
<https://doi.org/10.1038/s41586-025-08804-7>
8. * **T. Hu, E. Ozturk, M. Allam, N. Nishkala, V. Kaushik**, S. L. Goudy, Q. Xu, P. Mudd, K. Manthiram, and A. F. Coskun, “Spatial Morphoproteomic Features Predict Uniqueness of Immune Microarchitectures and Responses in Lymphoid Follicles,” *iScience*, 28, 8, 113204, 2025.
9. * **Z. Fang, K. Krusen, H. Priest, M. Wang**, S. Kim, **A. Sriram, A. Yellaki**, A. Singh, E. Horwitz, A. F. Coskun, “Graph-based 3D spatial gene neighborhood networks of single cells in gels and tissues,” *BME Frontiers*, 6, 0110, 2025.

10. S.L. Goudy, H.L. Bradley, C.A. Gacasan, A. Toma, K.P.C. Sekar, W.M. Wuest, M. Tomov, V. Serpooshan, A. F. Coskun, R.M. Jones, “Microbial Changes Occurring During Oronasal Fistula Wound Healing”. *Microorganisms*, 13, 327, 2025.
11. * **A. Venkataraman, I. Kordic, J. Li, N. Zhang, N. S. Bharadwaj, Z. Fang, S. Das**, and A. F. Coskun, “Decoding senescence of aging single cells at the nexus of biomaterials, microfluidics, and spatial omics,” *npj Aging* **10**, 57, 2024
12. * **M Allam, T Hu, Z Fang**, A Singh**, A F Coskun**, “Spatial Immunophenotyping using Multiplexed Imaging of Immune Follicles in Secondary Lymphoid Tissues,” *PNAS Nexus*, 3, 8, pgae285, 2024.
13. * **M Allam** and A F Coskun, “Combining spatial metabolomics and proteomics profiling of single cells,” *Nature Reviews Immunology*, 24, 701, 2024.
14. * Z. Zhong, M. Quiñones-Pérez, Z. Dai, V. M. Juárez, E. Bhatia, C. R. Carlson, S. B. Shah, A. Patel, **Z. Fang, T. Hu, M. Allam**, S. L. Hicks, M. Gupta, S. L. Gupta, E. Weeks, S. D. Vagelos, A. Molina, A. Mulero-Russe, A. Mora-Boza, D. J. Joshi, R. P. Sekaly, T. Sulchek, S. L. Goudy, J. Wrammert, K. Roy, J. M. Boss, A. F. Coskun, C. D. Scharer, A. J. García, J. L. Koff, and A. Singh, “Human immune organoids to decode B cell response in healthy donors and patients with lymphoma,” *Nature Materials*, doi: 10.1038/s41563-024-02037-1, 2024.
15. * **N. Zhang, S. Cai, M. Wang, T. Hu**, F. Schneider, S.Y. Sun, and A. F. Coskun, “Graph-based spatial proximity of super-resolved protein-protein interactions predicts cancer drug responses in single cells,” *Cellular and Molecular Bioengineering (CMBE)*, doi: 10.1007/s12195-024-00822-1, 2024.
16. * **N. Zhang, M. Wang, D. Nambiar, S. Iyer, P. Kadakia, Q. Luo, S. Pang, A. Qu, N. S. Bharadwaj**, P. Qiu, and A. F. Coskun, “High cell throughput, programmable fixation reveals the RNA and protein co-regulation with spatially resolved NFκB pseudo-signaling,” *APL Bioengineering*. 8 (4): 046108, 2024.
17. * D. Ghoshal, I. Petersen, R. Ringquist, L. Kramer, E. Bhatia, **T. Hu**, A. Richard, R. Park, J. Corbin, S. Agarwal, A. Thomas, S. Ramirez, J. Tharayil, E. Downey, F. Ketchum, A. Ochal, N. Sonthi, S. Lonial, J.N. Kochenderfer, R. Tran, M. Zhu, W.A. Lam, **A.F. Coskun**, K. Roy, “Multi-niche human bone marrow on-a-chip for studying the interactions of adoptive CAR-T cell therapies with multiple myeloma,” *Biomaterials*, May; 316:123016, 2024.
18. * **T. Hu, M. Allam, S. Cai**, W. Henderson, B. Yueh, A. Garipcan, A. Ievlev, M. Afkarian, S. Beyaz, and A. F Coskun, “Single-cell spatial metabolomics with cell-type specific protein profiling for tissue systems biology,” *Nature Communications*, 14, 8260, 2023.
19. * **N. Zhang**, D. Ohlstrom, **S. Pang, N. Bharadwaj, A. Qu**, H. Grossniklaus, and A. F. Coskun, “Tissue Spatial Omics Dissects Organoid Biomimicry,” *GEN Biotechnology*, 2:5, 372-383, 2023.
20. * D. Li, **Z. Fang**, Q. Shi, **N. Zhang**, B. Gong, W. Tong, A. F. Coskun, and J. Xu, “Single-cell RNA-sequencing and subcellular spatial transcriptomics facilitate the translation of liver microphysiological systems for regulatory application,” *Journal of Pharmaceutical Analysis*, 13(7): 691-693, 2023.
21. * **Z. Fang, A. Ford, T. Hu, N. Zhang**, A. Mantalaris, and A. F. Coskun, “Subcellular spatially resolved gene neighborhood networks in single cells,” *Cell Reports Methods*, 100476, 2023.
22. * **M. Venkatesan, N. Zhang**, B. Marteau, **Y. Yajima, N. Garcia, Z. Fang, T. Hu, S. Cai**, A. Ford, H. Olszewski, A. Borst, and A. F. Coskun, “Spatial subcellular organelle networks in single cells,” *Scientific Reports*, 13, 5374, 2023.
23. * S. Shah, C. Carlson, K. Lai, Z. Zhong, G. Marsico, K. Lee, N. Félix-Velez, E. Abeles, **M. Allam, T. Hu**, L. Walter, K. Martin, K. Gandhi, S. Butler, R. Puri, A. McCleary-Wheeler, W. Tam, O. Elemento, K. Takata, C. Steidl, D. Scott, L. Fontan, H. Ueno, B. Cosgrove, G. Inghirami, A.

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24. * I. Yanai, E.J. Fertig, M. Li, F. Coscia, J. Klughammer, Q. Nie, J. Chen, and A. F. Coskun, “What do you most hope spatial molecular profiling will help us understand? Part 2,” *Cell Systems*, vol. 14, no. 7, p. 543–546, 2023.
 25. * **M. Allam, T. Hu, J. Lee**, J. Aldrich, S. Badve, Y. Polar, M. Bhave, S. Ramalingam, F. Schneider, and A. F. Coskun, “Spatially variant immune infiltration scoring in human cancer tissues,” *npj Precision Oncology*, vol. 6, no. 1, p. 60, 2022.
 26. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, F. Schneider, S. S. Ramalingam, S.Y. Sun, and A. F. Coskun, “Multiplexed protein profiling reveals spatial subcellular signaling networks,” *iScience*, vol. 25, no. 9, p. 104980, 2022.
 27. * M.J. Mosquera, S. Kim, R. Bareja, **Z. Fang, S. Cai**, H. Pan, M. Asad, M.L. Martin, M. Sigouros, F. M. Rowdo, S. Ackermann, J. Capuano, J. Bernheim, C. Cheung, A. Doane, N. Brady, R. Singh, D. S. Rickman, V. Prabhu, J.E. Allen, L. Puca, A.F. Coskun, M.A. Rubin, H. Beltran, J. M. Mosquera, O. Elemento, A. Singh, “Extracellular Matrix in Synthetic Hydrogel-Based Prostate Cancer Organoids Regulate Therapeutic Response to EZH2 and DRD2 Inhibitors,” *Advanced Materials*, vol. 34, no. 2, p. e2100096, 2022.
 28. * **S. Ganesh, T. Hu**, E. Woods, **M. Allam, S. Cai**, W. Henderson, and A. F. Coskun, “Spatially resolved 3D metabolomic profiling in tissues,” *Science Advances*, vol. 7, no. 5, p. eabd0957, 2021.
 29. * **M. Allam, T. Hu, S. Cai**, K. Laxminarayanan, R. B. Hughley, and A. F. Coskun, “Spatially visualized single-cell pathology of highly multiplexed protein profiles in health and disease,” *Commun. Biol.*, vol. 4, no. 1, p. 632, 2021.
 30. * Y. Guo, H. Lee, **Z. Fang**, A. Velalopoulou, J. Kim, M.B. Thomas, J. Liu, **R.G. Abramowitz**, Y. Kim, A.F. Coskun, D.P. Krummel, S. Sengupta, T.J. MacDonald, and C. Arvanitis, “Single-cell analysis reveals effective siRNA delivery in brain tumors with microbubble-enhanced ultrasound and cationic nanoparticles,” *Science Advances*, vol. 7, no. 18, p. eabf7390, 2021.
 31. * A.F. Coskun, G. Han, **S. Ganesh**, S.Y. Chen, X.R. Clavé, S. Harmsen, S. Jiang, C.M. Schürch, Y. Bai, C. Hitzman, and G.P. Nolan. “Nanoscope subcellular imaging enabled by ion beam tomography,” *Nature Communications*, vol. 12, no. 1, p. 789, 2021.
 32. X. Rovira-Clavé, S. Jiang, Y. Bai, B. Zhu, G. Barlow, S. Bhate, A.F. Coskun, G. Han, C.K. Ho, C. Hitzman, S.Y. Chen, F.A. Bava, and G.P. Nolan. “Subcellular localization of biomolecules and drug distribution by high-definition ion beam imaging,” *Nature Communications*, vol. 12, no. 1, p. 4628, 2021.
 33. * **M. Venkatesan, H. Mohan**, J.R. Ryan, C.M. Schürch, G.P. Nolan, D.H. Frakes, and A.F. Coskun. “Virtual and augmented reality for biomedical applications,” *Cell Reports Medicine*, vol. 2, no. 7, p. 100348, 2021.
 34. * **S. Ganesh, B. Utebay, J. Heit**, and A. F. Coskun, “Cellular sociology regulates the hierarchical spatial patterning and organization of cells in organisms,” *Open Biology*, vol. 10, no. 12, p. 200300, 2020,
 35. * **M. Allam, S. Cai**, and A. F. Coskun, “Multiplex bioimaging of single-cell spatial profiles for precision cancer diagnostics and therapeutics,” *npj Precision Oncology*, vol. 4, p. 11, 2020.
 36. * **S. Cai, M. Allam**, and A. F. Coskun, “Multiplex Spatial Bioimaging for Combination Therapy Design,” *Trends Cancer*, vol. 6, no. 10, pp. 813–818, 2020.
 37. * **M. Allam, S. Cai, S. Ganesh, M. Venkatesan, S. Doodhwala, Z. Song, T. Hu, A. Kumar, J. Heit**, COVID-19 Study group, A.F. Coskun, “COVID-19 Diagnostics, Tools, and Prevention,” *Diagnostics*, vol. 10, no. 6, p. E409, 2020.

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39. * **M. Venkatesan** and A. F. Coskun, "Digital posters for interactive cellular media and bioengineering education," *Communications Biology*, vol. 2, p. 455, 2019.
40. A. F. Coskun, S. N. Topkaya, A. K. Yetisen, and A. E. Cetin, "Portable Multiplex Optical Assays," *Advanced Optical Materials* vol. 7, p. 1801109, 2019.
41. S. Knowlton, A. Joshi, P. Syrrist, A. F. Coskun, and S. Tasoglu, "3D-printed smartphone-based point of care tool for fluorescence- and magnetophoresis-based cytometry," *Lab. Chip*, vol. 17, no. 16, pp. 2839–2851, 2017.
42. A. F. Coskun, U. Eser, and S. Islam, "Cellular identity at the single-cell level," *Mol. Biosyst.*, vol. 12, no. 10, pp. 2965–2979, 2016.
43. A. F. Coskun and L. Cai, "Dense transcript profiling in single cells by image correlation decoding," *Nat. Methods*, vol. 13, no. 8, pp. 657–660, 2016.
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48. A. F. Coskun, A. E. Cetin, B. C. Galarreta, D. A. Alvarez, H. Altug, and A. Ozcan, "Lensfree optofluidic plasmonic sensor for real-time and label-free monitoring of molecular binding events over a wide field-of-view," *Sci. Rep.*, vol. 4, p. 6789, 2014.
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71. A. Kiraz, Y. Karadağ, and A. F. Coskun, "Spectral tuning of liquid microdroplets standing on a superhydrophobic surface using electrowetting," *Appl. Phys. Lett.*, vol. 92, no. 19, p. 191104, 2008.

B2. Conference Presentation with Proceedings (Refereed)

1. * H. E. Grossniklaus, **N. Zhang**, **C. M. Garcia**, A. F. Coskun, J. T. Sellers, Y. Yan, K. Bostwick, and H. Yang, "The Role of Macrophages in Vascular Formation in Uveal Melanoma," *Invest. Ophthalmol. Vis. Sci.* 64(8):900, New Orleans, LA, April 23 – 27, 2023.
2. * A. De Janon, M. Stout, D. Fridlyand, **Z. Fang**, A. F. Coskun, D. K. Graham, A. Mantalaris, D. DeRyckere, N. Panoskaltzis, "A Dynamic Personalized Human 3D Organoid for the Study of the Tumor Microenvironment and Metabolism in Acute Myeloid Leukemia Using Patient-

- Derived Xenografts,” *Blood*, 15;140 (Supplement 1):1203–4. New Orleans, LA November 15, 2022
3. A. F. Coskun, R. Nagi, K. Sadeghi, S. Phillips, and A. Ozcan, “Smart-phone based albumin testing in urine,” SPIE Photonics West, *Frontiers in Biological Detection: From Nanosensors to Systems: Novel Imaging Technologies*, San Francisco, CA, paper #8933-21, 1-6 February 2014.
 4. A. F. Coskun, J. Wong, D. Khodadadi, R. Nagi, A. Tey, and A. Ozcan, “Cell-Phone Based Food Allergen Testing,” OSA Conference on Lasers and Electro-optics (CLEO ’13), San Jose, California, Paper # CTu2M.7, 9–14 June, 2013.
 5. S. A. Arpali, C. Arpali, A. F. Coskun, H. H. Chiang, and A. Ozcan, “High-throughput screening of blood samples based on structured illumination on-chip imaging,” OSA Conference on Lasers and Electro-optics (CLEO ’13), San Jose, California, Paper # CTh3I.1, 9–14 June 2013.
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 7. A. F. Coskun, I. Sencan, T. Su, and A. Ozcan, “Lensless fluorescent microscopy on a chip using a tapered fiber optic faceplate and compressive decoding,” SPIE Optics and Photonics, San Diego, CA, Paper # 8165A-9, August 21-25, 2011.
 8. A. F. Coskun, I. Sencan, T. Su, and A. Ozcan, “Wide-field Lensless Fluorescent Imaging of Transgenic *Caenorhabditis Elegans* On a Chip,” OSA Conference on Lasers and Electro-optics (CLEO ’11), Baltimore, Maryland, Paper # AMF4, May 1-6, 2011.
 9. A. F. Coskun, I. Sencan, T. Su and A. Ozcan, “Compressive decoding enabled lensless fluorescent imaging on a chip” SPIE Defense, Security, and Sensing, *Scanning Microscopies 2011: Advanced Microscopy Technologies for Defense, Homeland Security, Forensic, Life, Environmental, and Industrial Sciences*, Orlando, paper # 8036-3525-29, April 25-29 2011.
 10. A. F. Coskun, I. Sencan, T. Su and A. Ozcan, “Ultra-wide-field lensfree fluorescent imaging of *caenorhabditis elegans* on a chip” SPIE Photonics West, *Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues IX*, San Francisco, CA, paper # 7902-42, 24 January, 2011.
 11. A. F. Coskun, T. Su, and A. Ozcan, "Lensless On-chip Fluorescent Imaging over an Ultra-Wide Field-of-view" In *American Society of Mechanical Engineers Digital Collection*; 2013 [cited 2024 Apr 30]. p. 51–2. Available from: <https://dx.doi.org/10.1115/BioMed2010-32016>, California, USA, September 20–21, 2010.

B3. Other Refereed Material

1. * J. Aldrich, T. Hu, J. Switchenko, A. F. Coskun, Y. Gokmen-Polar, S. Badve, and M. Bhave, “Abstract P1-04-14: Predicting the likelihood of response in PDL-1 positive metastatic triple negative breast cancer treated with an immune checkpoint inhibitor,” *Cancer Research*, 83 (5_Supplement): P1-04–14, *Proceedings of the 2022 San Antonio Breast Cancer Symposium*, San Antonio, TX, December 6-10, 2022 (Poster).

B4. Preprints and Working Journal Articles

1. * E. Ozturk, F. G. Rivera Moctezuma, A. F. Coskun, “MetaboFM: A Foundation Model for Spatial Metabolomics,” *BioRxiv*, 2025.
2. * E. Ozturk, A. Venkataraman, F. G. Rivera Moctezuma, A. F. Coskun, “Super Resolved Single-Cell Spatial Metabolomics from Multimodal Mass Spectrometry Imaging guided by Imaging Mass Cytometry,” *Biorxiv*, 2024. <https://doi.org/10.1101/2024.10.21.619323>

3. * **M. Allam, M. Pi, M. Wang, T. Hu, B. Enfaradi, T. Mahfouz**, Y. Alapan, S. Thomas, A. F. Coskun “Deciphering spatial immunometabolism in a 3D co-culture of murine T cells and lung cancer cells using multiplexed imaging tools,” *Under review, APL Bioengineering, 2025.*
4. * **F. Rivera Moctezuma, I. Kordic, T. Neuman**, A. Holberton, L. Wood, and A.F. Coskun, “Spatial multi-omics Dissect Alzheimer’s Disease and Aging,” *Under review, ACS Omega, 2025.*

C. Other Publications and Creative Products

1. * A. F. Coskun, M. Allam, and S. Cai, “Spatial multi-omics analysis in single cells for precision oncology,” *Nature Research Cancer Community, Behind the Paper Story, 2020.*

C1. Non-refereed Conference Presentations with Proceedings

No data

C2. Software

1. S. Cai, T. Hu, E. Ozturk and A. F. Coskun, “iseqPLA,” accessible at GitHub and FigShare, Software and Dataset Open Access, October 30, 2024.

- a. <https://github.com/coskunlab/iseqPLA>
- b. <https://figshare.com/s/d58cb4376bb235c74ee6>

This software allows the study of spatial subcellular protein interactomics datasets.

2. N. Zhang and A. F. Coskun, “pSigOmics,” accessible at GitHub, Zenodo, and FigShare, Software and Dataset Open Access, November 8, 2024.

- a. <https://github.com/coskunlab/pSigOmics>
- b. <https://zenodo.org/records/11321594>
- c. https://figshare.com/articles/figure/NFkB_Video_S8/25898560?file=46535068

This software allows the study of spatial and temporal NFkB signaling dynamics.

3. N. Zhang and A. F. Coskun, “GSR-PPI,” accessible at GitHub and FigShare, Software and Dataset Open Access, October 6, 2024.

- a. <https://github.com/coskunlab/GSR-PPI/tree/main>
- b. https://figshare.com/projects/Signaling_Project_PLA/195958

This software allows the study of super-resolved spatial protein interactions in single cells.

4. T. Hu and A. F. Coskun, “scSpaMet,” accessible at GitHub and Zenodo, Software and Dataset Open Access, September 29, 2023.

- a. <https://github.com/coskunlab/scSpaMet>
- b. <https://zenodo.org/records/6784251>

This software allows the study of single cell spatial metabolomics integrating TOF-SIMS and IMC data.

5. T. Hu, M. Allam, and A. F. Coskun, “SpatialViz,” accessible at GitHub and Zenodo, Software and Dataset Open Access, April 5, 2021.

- a. <https://github.com/coskunlab/SpatialViz>
- b. <https://zenodo.org/record/4662854>

This software allows the study of spatially visualized single-cell pathology of highly multiplexed protein profiles in health and disease

6. T. Hu, M. Allam, and A. F. Coskun, “SpatialVizScore,” accessible at GitHub and Zenodo, Software and Dataset Open Access, June 30, 2022.

- a. <https://github.com/coskunlab/SpatialVizScore>

b. <https://zenodo.org/record/6784253>

This software allows the study of spatially variant immune infiltration scoring in human cancer tissues.

7. Z. Fang, N. Zhang, T. Hu, and A. F. Coskun, “SpaGNN,” accessible at GitHub, Software Open Access, August 6, 2022.

a. <https://github.com/coskunlab/spaGNN>

This software allows the study of spatial gene neighborhood network analysis of subcellular spatial transcriptomics.

C3. Patents

C3.a. Patents Awarded

1. L. Cai and A. F. Coskun, “Multiplex analysis of molecules in single cells by image correlation,” U. S. Patent US-10872679-B2, December 22, 2020.
2. L. Cai, E. Lubeck, T. Zhiyentayev, A. F. Coskun, T.-F. He, C. H. Sohn, and S. Shah, “Multiplex labeling of molecules in single cells by sequential hybridization barcoding,” U. S. Patent US-10457980-B2, October 29, 2019.
3. A. Ozcan, A. F. Coskun, I. Sencan, and T.W. Su, “Wide-field lensless fluorescent imaging on a chip,” U. S. Patent US-9331113-B2, May 3, 2016.

C3.b. Provisional Patents, Applications, and Invention Disclosures

4. A. F. Coskun, A. Kumar, F. Rivera, and N. Zhang, “Multimodal staining and analysis platform for spatial single-cell biomarker discovery in renal and brain tissues,” Georgia Tech Invention Disclosure Number: GTRC ID 2026-149, October 1, 2025.
5. A. F. Coskun and E. Ozturk, “Super Resolved Single Cell Spatial Metabobarcoding and Metabotyping for Unlimited Chemical Maps,” Georgia Tech Invention Disclosure Number: GTRC ID 2026-015, July 7, 2025.
6. A. F. Coskun and N. Zhang, “Automated Robotic Platform for Programmable Fixation and Time-Series Spatial Omics to Decode Multimodal Translational Dynamics in Inflammation,” Georgia Tech Invention Disclosure Number: GTRC ID 2025-297, May 2, 2025.
7. A. F. Coskun, Z. Fang, and N. Zhang, “Spatially resolved planar and volumetric gene neighborhood networks for functional mapping of cell identity, communication, and potency,” Georgia Tech Invention Disclosure Number: GTRC ID 9458, January 9, 2024.
8. A. F. Coskun and T. Hu, “Single cell spatial metabolomics for multiplexed chemical analysis,” Georgia Tech Invention Disclosure Number: GTRC ID 9023, Provisional patent application 63/401,294, US Patent App. 18/456,768, February 29, 2024.
9. A. F. Coskun, S. Cai, and T. Hu, “Spatial signaling networks for multiplexed drug response measurement and modeling,” Georgia Tech Invention Disclosure Number: GTRC ID 9022, Provisional patent application 63/399,427, US Patent App. 18/452,178, February 22, 2024.
10. S. Harmsen and A. F. Coskun, “Isotopically-encoded nanoparticles for multimodal high-order multiplexed detection and imaging,” U. S. Patent Application 20210311069-A1, Feb 7, 2022.
11. A. Ozcan, A. F. Coskun, and J. Wong “Allergen testing platform for use with mobile electronic devices,” U. S. Patent Application 20140120563-A1, May 1, 2014.

C4. Other Creative Products

1. Director, *BioEngineering Media Lab*, Georgia Tech (<http://bioemedia.bme.gatech.edu>)
BioE Media Lab started in 2019 in the Biomedical Engineering Department of Georgia Institute of Technology and Emory University. The mission of this interactive studio lab is to integrate emerging digital technologies with cellular imaging and analysis tools for unconventional scientific explorations and innovative educational teaching platforms. The interactive bio-engineering projects will enhance collaboration among interdisciplinary scientists. Digital visualizations will enhance the sensitivity and specificity of molecular and cellular analysis in patient samples. The experimental datasets and resources are based on scientific research endeavors in the Coskun Laboratory at Georgia Tech.

D. Presentations

D1. Invited Conference and Workshop Presentations

1. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," American Spatial Biology Congress, San Diego, CA, May 9, 2024.
2. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," Spatial Biology East Coast, Boston, MA, June 9, 2024.
3. A. F. Coskun, "Multi-scale data analysis for multiplexed single cell imaging," Contextualized Cellular Physiology Workshop, Organized by National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), Washington, DC, June 11, 2024.
4. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," CMB-Winship Cancer Institute Retreat, Emory University, Atlanta, GA, August 26, 2024.
5. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," Cell Press Webinar on Spatial Transcriptomics, September 17, 2024.
6. 4. A. F. Coskun, "Multimodal and Super Resolved Single-Cell Spatial Metabolomics," Single Cell Metabolomics (iSCMS), Copenhagen, Denmark, October 27, 2024
7. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," Single Cell Proteomics, Frontline Genomics, February 6, 2024. (Virtual)
8. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism Neighbors of Immunity and Cancer," 3rd International Conference on Biomedical Engineering Instrumentation (BEI), Boston, MA, November 17, 2023. (Virtual)
9. A. F. Coskun, "Subcellular Spatial Omics Decode RNA and Protein Networks and Neighborhoods in Single Cells," The Society of Biomolecular Imaging and Informatics (SBI2) Conference, Boston, MA, November 1, 2023.
10. A. F. Coskun, "Single cell spatial proteomics journey in situ," Single Cell Proteomics Symposium, May 21, 2023. (Virtual)
11. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," AI Oncology, Mayo Clinic, Jacksonville, FL, April 22, 2023.
12. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Molecular & Precision Med Tri-Con, 1 Park Boulevard, San Diego, CA, March 6-8, 2023. (Virtual)

13. A. F. Coskun, "Single cell spatial metabolomics reveals immunometabolism in tissues," BMES CMBE Conference 2023, Indian Wells, CA, January 2-6, 2023. (Given BMES CMBE Rising Faculty Star Award 2023)
14. A. F. Coskun, "Multiplexed Imaging of Signaling and Metabolism at the Single Cell Level," 2022 NCI Junior Investigator Meeting, August 25-26, 2022 (Virtual)
15. A. F. Coskun, "Single-cell spatial omics journey to signaling and metabolism in situ," Biomarker Precision Oncology Symposium, June 21, 2022. (Virtual)
16. A. F. Coskun, "Single-cell spatial omics journey to signaling and metabolism in situ," Spatial Biology Symposium, April 27, 2022. (Virtual)
17. A. F. Coskun, "Single-cell spatial omics journey to signaling and metabolism in situ," MCBIOS 2022, April 25, 2022. (Virtual)
18. A. F. Coskun, "Single-cell spatial omics journey to signaling and metabolism in situ," DigiBase, April 7, 2022. (Virtual)
19. A. F. Coskun, "Spatial Single Cell Profiling for Precision Medicine," Next Gen Omics, March 26, 2022. (Virtual)
20. A. F. Coskun, "Multi-scale Spatial Omics for Precision Medicine," Molecular & Precision Med Tri-Con, Spatial Biology & Single-Cell Analysis, February 21 – 23, 2022. (Virtual)
21. A. F. Coskun, "Spatial Single Cell Profiling for Precision Medicine," Oxford Global's Spatial Biology US: Online December 3, 2021. (Virtual)
22. A. F. Coskun, "Spatial Single Cell Profiling for Precision Medicine," BMES – Biomedical Engineering Annual Meeting, October 8, 2021. (Virtual)
23. A. F. Coskun, "Spatial Bioengineering of Single Cells for Visually Encoded Precision Medicine," BEIS Bioengineering Conference, April 19, 2021. (Virtual)
24. A. F. Coskun, "Spatial Bioengineering of Single Cells for Visually Encoded Precision Medicine," BEIS Bioengineering Conference, July 22, 2020. (Virtual)

D2. Conference and Workshop Presentations

1. * **Z. Fang, Y. He, S. McCoy, and A. F. Coskun**, "Graph-based domain adversarial neural network enabling chemical parallel processing to improve the discovery capability of imaging-based spatial transcriptomics," Biomedical Engineering Society Annual Meeting, San Diego, CA, October 8-11, 2025.
2. * **Z. Fang, Y. He, S. McCoy, and A. F. Coskun**, "Spatial Multi-omics Analysis of Minor Salivary Gland of Sjogren's Disease," Biomedical Engineering Society Annual Meeting, San Diego, CA, October 8-11, 2025.
3. * **Y. He, Z. Fang, and A. F. Coskun**, "A statistical approach for quantifying cytokine-mediated cell-cell communication in the lymphatic system," Biomedical Engineering Society Annual Meeting, San Diego, CA, October 8-11, 2025.
4. * **A. A. Kumar, N. Zhang, H. Torres, F. G. Rivera Moctezuma, A. B. Farris III, and A. F. Coskun**, "Spatial renal biomarker profiling using multiplexed immunofluorescent and colorimetric staining," Biomedical Engineering Society Annual Meeting, San Diego, CA, October 8-11, 2025.
5. * **E. Ozturk, F. G. Rivera Moctezuma, A. Venkataraman, F. Fernandez, and A. F. Coskun**, "Super Resolution Mass Spectrometry Imaging, Multimodal Integration, & Metabolic Barcoding," Biomedical Engineering Society Annual Meeting, San Diego, CA, October 8-11, 2025.

6. * **E. Ozturk, T. Hu, S. Cai, S. Das, S. V. Anikhindi**, and A. F. Coskun, “Spatially resolved classification of kidney topography and multicellular composition with deep learning,” Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024.
7. * **S. Cai, T. Hu, A. Venkataraman**, and A. F. Coskun “Subcellular spatial signaling interactomics predict drug responses from multiplexed protein proximity maps,” Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024.
8. * **F. R. Moctezuma, I. Kordic**, and A. F. Coskun, “Decoding Spatial Mechanisms of Sex Differences in Alzheimer's Disease,” Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024.
9. * **Z. Fang, K. Krusen, H. Priest, M. Wang, S. Kim, A. Sriram, A. Yellaki**, A. Singh, E. Horwitz, A. F. Coskun, “Graph-based 3D spatial gene neighborhood networks of single cells in gels and tissues,” Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024.
10. * **E. Ozturk, T. Hu**, Z. Li, Y. Tao, Y. Ren, J. Liao, A. F. Coskun, “Expanding the Horizon: Visualizing Six Principal Components for Enhanced Interpretation of High-Dimensional Data,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, Atlanta, GA, April 11-12, 2024.
11. * **T. Hu, M. Allam**, and A. F. Coskun, “Spatial Morphoproteomic Features Predict Uniqueness of Immune Microarchitectures and Responses in Lymphoid Follicles,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, April 11-12, 2024. (Oral presentation by T. Hu)
12. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, and A. F. Coskun, “Deciphering Subcellular Signaling Networks Using Multiplexed Protein Profiling,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, April 11-12, 2024.
13. * **M. Allam, T. Hu, S. Cai**, and A. F. Coskun, “Using spatially variant immune infiltration score in lung cancer tissues for better patient classification,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, April 11-12, 2024.
14. * **I. Kordic, A. K. Venkataraman**, A. F. Coskun, “Spatial Gradients of Aging Gene Expressions Across Diverse Age Groups,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, April 11-12, 2024.
15. * **Z. Fang, A. Ford, T. Hu, N. Zhang**, and A. F. Coskun, “Subcellular spatially resolved gene neighborhood networks in single cells,” AWSOM - Atlanta Workshop on Single-cell Omics. AWSOM24 Conference | Featuring AI and Machine Learning. Georgia Institute of Technology, April 11-12, 2024.
16. * **Z. Fang, M. Allam, H. Priest**, E. Horwitz, and A. F. Coskun, “Spatially resolved 3D gene neighborhood networks for prediction of immunomodulatory potential of mesenchymal stem cells,” Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
17. * **Z. Fang, A. Ford, T. Hu, N. Zhang**, Athanasios Mantalaris, and A. F. Coskun, “Subcellular spatially resolved gene neighborhood networks in single cells,” Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
18. * **T. Hu, M. Allam**, W. Henderson, and A. F. Coskun, “Single-cell spatial metabolomics with cell-type specific protein profiling for tissue systems biology,” Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.

19. * **T. Hu, M. Allam**, A. Singh, and A. F. Coskun, "Spatial morpho proteomics analysis in lymphoid follicles," Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
20. * **N. Zhang**, P. Qiu, and A. F. Coskun, "High Throughput, Translational Dynamics in Single Cell Signaling," Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
21. * **M. Allam, T. Hu**, A. Singh, and A. F. Coskun, "Deciphering the immune microenvironment and the stromal network in lymphoid tissues using highly multiplexed, spatially resolved imaging mass cytometry," Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
22. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, and A. F. Coskun, "Revealing Spatial Subcellular Signaling Networks Using Multiplexed Protein Profiling," Biomedical Engineering Society Annual Meeting, Seattle, WA, October 11-14, 2023.
23. * **N. Zhang** and A. F. Coskun, "Uncovering the role of methylated nucleic acids in cancer cells with subcellular clustering," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 12-15, 2022.
24. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, and A. F. Coskun, "Deciphering subcellular signaling networks using image-based protein multiplexing," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 12-15, 2022.
25. * **M. Allam, T. Hu, S. Cai**, and Ahmet F. Coskun, "Graph-based Spatially Variant Immune Infiltration Scores in Lung Cancer Tissues," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 12-15, 2022.
26. * **T. Hu, M. Allam, S. Cai**, W. Henderson, and A. F. Coskun, "Correlative spatial metabolomics and protein in situ imaging in the lung tumor microenvironment," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 12-15, 2022.
27. * **Z. Fang, T. Hu, M. Allam, N. Zhang**, and A. F. Coskun, "Subcellular Gene Spatial Regulatory Network of Mesenchymal Stem Cells," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 12-15, 2022.
28. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, and A. F. Coskun, "Multiplexed immunofluorescence deciphers subcellular spatial signaling networks," Cell Symposium: Overcoming Therapy Resistance in Cancer, 2021. (Virtual)
29. * **Z. Fang, R. Abramowitz**, S. Kim, **T. Hu, M. Allam**, A. Singh, A. F. Coskun, "Subcellular Spatial Transcriptional Profiling of Mesenchymal Stem Cells in Hydrogel Multiplexed RNA Imaging," Society For Biomaterials Annual Meeting, Baltimore, MD, April 27, 2022.
30. * **M. Allam, T. Hu, S. Cai**, and Ahmet F. Coskun, "Deciphering tumor immunity continuum using spatially variant immune infiltration score in lung cancer tissues," Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
31. * **M. Allam, T. Hu, S. Cai**, and Ahmet F. Coskun, "Single-cell pathology of human tonsils by highly multiplexed protein profiling," Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
32. * **M. Venkatesan**, B. Marteau, **Y. Yajima, Z. Fang, T. Hu**, and A. F. Coskun, "Deciphering Spatial Organelle Networks using Multiplexed Immunofluorescence in Mesenchymal Stem Cells," Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
33. * **R. Abramowitz, Z. Fang, T. Hu, M. Allam**, L. Wood, and A. F. Coskun, "Subcellular Spatially Resolved Transcriptional Profiling of Cytokine Genes in Mesenchymal Stem Cells," Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.

34. * **S. Cai, T. Hu, M. Venkatesan, M. Allam**, and A. F. Coskun, “Deciphering Subcellular Spatial Signaling Networks Using Multiplexed Immunofluorescence,” Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
35. * **T. Hu, M. Allam, S. Cai**, W. Henderson, and A. F. Coskun, “Spatially resolved 3D Metabolomic Profiling in the Lung Tumor Microenvironment,” Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
36. * **Z. Fang, R. Abramowitz, T. Hu, M. Allam**, A. F. Coskun, “Subcellular Spatial Transcriptional Profiling of Mesenchymal Stem Cells by Multiplexed RNA Imaging,” Biomedical Engineering Society Annual Meeting, Orlando, FL, October 6-9, 2021.
37. * **Z. Fang**, E. S. Cooper, **M. Acharya, M. Ozbeyler**, A. Kumar, S. Mantalaris, and A. F. Coskun “Spatial Transcriptomics and Morphological Profiling of Donor and Source Variability of Single Mesenchymal Stem Cells,” CMAAT Annual Retreat, Atlanta, GA, 2020. (Virtual)
38. * **M. Allam, S. Cai**, and A. F. Coskun, “Comprehensive analysis of immune checkpoints in lung cancers by spatially resolved and multiplexed protein profiling at the single-cell level,” Biomedical Engineering Society Annual Meeting, San Diego, CA, 2020. (Virtual)
39. * **S. Ganesh, T. Hu, M. Allam, S. Cai**, E. Woods, and A. F. Coskun, “Spatially Resolved 3D Metabolomic Profiling of Single Immune Cells in Tissues,” Biomedical Engineering Society Annual Meeting, San Diego, CA, 2020. (Virtual)
40. * **S. Cai, M. Venkatesan, M. Allam**, and A. F. Coskun, “Decoding Signaling Networks by Rapid Multiplexed Protein Profiling in Single Cells,” Biomedical Engineering Society Annual Meeting, San Diego, CA, 2020. (Virtual)
41. * **M. Acharya, M. Ozbeyler, T. K. Hu** and A. F. Coskun, “Spatial Transcriptomic Profiling of Source Variability in Single Mesenchymal Stem Cells,” Biomedical Engineering Society Annual Meeting, San Diego, CA, 2020. (Virtual)
42. A. F. Coskun, “Single cell biotechnology lab,” Georgia Tech Research Expo, Atlanta, GA, August 4, 2020.
43. A. F. Coskun, “Single cell biotechnology lab,” Georgia Tech Research Expo, Atlanta, GA, August 12, 2019.
44. A. F. Coskun, “Single cell biotechnology lab,” Georgia Tech Rapid Fire Talk, Atlanta, GA, August 8, 2019.
45. A. F. Coskun and G. P. Nolan, “Three-dimensional subcellular profiling in single cells by multiplex ion beam nanoscopy” Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 17-20, 2018.
46. A. F. Coskun and L. Cai, “Profiling dense RNA molecules in single cells by correlation FISH” Biomedical Engineering Society Annual Meeting, Minneapolis, MN, October 5-8, 2016.
47. A. F. Coskun, M. A. Yui, L. Cai, and E. V. Rothenberg, “Single cell dissection of genomic site binding and regulatory factor function,” 3rd Single Cell Investigators Meeting, National Institute of Health, Bethesda, MD, USA, April 20-21, 2015.
48. M. A. Yui, H. Y. Kueh, A. F. Coskun, K. Ng, L. Cai, M. Elowitz, and E. V. Rothenberg, “Gene regulatory networks controlling Bcl11b activation and T-lineage commitment,” Venice Thymus meeting, San Servolo Island, Italy, April 9-13, 2015.
49. E. V. Rothenberg, H. Y. Kueh, M. Yui, A. F. Coskun, K. Ng, S. Pease, J. Zhang, L. Cai, and M. Elowitz, “Single-cell insights into transcriptional regulatory logic in the T-cell development system,” Single Cell Biology, Wellcome Genome Campus, Hinxton, UK, 08–10 March 2016.
50. A. F. Coskun, M. A. Yui, L. Cai, and E. V. Rothenberg, “Single cell dissection of transcriptional codes for T cell identity,” 4th Single Cell Investigators Meeting, National Institute of Health, NIH Campus, Bethesda, MD, USA, March 2, 2016.

51. A. F. Coskun and L. Cai, "Exploring cellular heterogeneity in development by single-cell transcript profiling," Biomedical Engineering Society Annual Meeting, Tampa, FL, October 07 – 10, 2015.
52. A. F. Coskun and L. Cai, "Fluorescent in-situ sequencing of single-cells by sequential FISH," Biomedical Engineering Society Annual Meeting, San Antonio, TX, October 22 - 25, 2014.
53. A. F. Coskun, J. Wong, D. Khodadadi, R. Nagi, A. Tey, and A. Ozcan, "Food Allergen Testing on a Smart Phone", 14th Annual UC Systemwide Bioengineering Symposium, University of California, San Diego, June 19-21, 2013.
54. A. F. Coskun, D. R. Gossett, A. J. Mach, D. Herman, Y. Suh, D. DiCarlo, and A. Ozcan, "Integration of Lensfree On-Chip Fluorescent Imaging with Lens-based Microscopy toward High-throughput Rare-cell Analysis", 13th Annual Systemwide Bioengineering Symposium, University of California, Berkeley, June 21-23, 2012.
55. P. A. Sandoz, A. F. Coskun, A. J. Chung, W. M. Weaver, O. Adeyiga, D. Khodadadi, A. Ozcan, Dino Di Carlo, "Digital readout platform for water-in-oil droplet immunoassays running on a cell-phone for point of care viral load sensing", 13th Annual Systemwide Bioengineering Symposium, the University of California, Berkeley, USA, June 21-23, 2012.
56. A. F. Coskun, T. Su, I. Sencan, and A. Ozcan, "Wide-field Lensless Fluorescent Microscopy," Biomedical Engineering Society Annual Meeting, Hartford, CT, Oct. 12-15, 2011.
57. A. F. Coskun, T. Su, I. Sencan, and A. Ozcan, "Lensless fluorescent microscopy," 12th Annual Systemwide Bioengineering Symposium, University of California, Santa Barbara, June 13-15, 2011.
58. A. F. Coskun, T. Su, and A. Ozcan, "Lensfree Fluorescent Imaging and Cytometry on a Chip" 11th Annual UC Systemwide Bioengineering Symposium, University of California, Santa Barbara, June 13-15, 2011.
59. A. F. Coskun, I. Sencan, T. Su and A. Ozcan, "Ultra high-throughput lensfree fluorescent imaging using compressive sampling" BMES – Biomedical Engineering Society Annual Meeting, Austin, TX, October 6-9, 2010.
60. A. F. Coskun, T. Su, and A. Ozcan, "Lensless On-chip Fluorescent Imaging over an Ultra-Wide Field-of-view" ASME 2010 5th Frontiers in Biomedical Devices Conference Newport Beach, California, September 20–21, 2010.

D3. Invited Seminar Presentations

1. A. F. Coskun, "Single Cell Spatial Interactomics and Metabolic Barcoding in Health and Disease," Spatial Profiling Data Analysis Workshop, EMBL-EBI Industry Programme, Sanofi, Cambridge, MA, September 24–25, 2025.
2. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," BME Seminar Series, Johns Hopkins Biomedical Engineering, Johns Hopkins University, Baltimore, MD, September 22, 2025.
3. A. F. Coskun, "Spatial interactomics to functionally decode super-resolved signaling and metabolism in single cells," Plenary Session: Measuring biology across scales, CZI Cell Science 2025 Annual Meeting, Chicago, IL, April 9, 2025.
4. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Mann School of Pharmacy and Pharmaceutical Sciences, University of Southern California (USC), Los Angeles, CA, April 3, 2025.
5. A. F. Coskun, "Single-cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer and Aging," Biostatistics and Computational Biology Branch DIR Seminar, National

Institute of Environmental Health Sciences (NIEHS), Research Triangle Park, Durham, NC, January 8, 2025.

6. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Rabinowitz Lab meeting, Ludwig Princeton Branch, Princeton University, Princeton, NJ, July 2, 2024.
7. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Pritykin Lab meeting, Department of Molecular Biology, Princeton University, Princeton, NJ, July 3, 2024.
8. N. Zhang, S. Cai, M. Wang, T. Hu, F. Schneider, S.Y. Sun, and A. F. Coskun, "Graph-based spatial proximity of super-resolved protein-protein interactions predicts cancer drug responses in single cells," Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024. (Invited to accept CMBE Young Innovator Award)
9. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Metabolism and Precision Health Symposium, Biomedical Engineering Department, University of Michigan, Ann Arbor, MI, July 25-26, 2024.
10. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Spatial Transcriptomics Symposium, Center for Translational & Computational Neuroimmunology, Neurology Department, Columbia University Medical Center, New York, NY, May 29, 2024.
11. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Computational Oncology Department, Memorial Sloan Kettering Cancer Center, New York, NY, May 21, 2024.
12. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Bioengineering Department, University of California, Riverside, CA, April 24, 2024. (Virtual)
13. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Cardiovascular Biology, Emory University, Atlanta, GA, April 15, 2024.
14. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, and Cancer," AI, Systems, and Spatial Biology in Human Disease Conference, Mayo Clinic, Jacksonville, FL, April 14, 2024.
15. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Joint Department of Biomedical Engineering, University of North Carolina and North Carolina State University, Chapel Hill, NC, April 12, 2024.
16. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Biomedical Engineering, Cornell University, Ithaca, NY, March 29, 2024.
17. A. F. Coskun, "Single-Cell Spatial Omics Journey to Signaling and Metabolism of Immunity, Cancer, and Aging," Immunology Center of Georgia, Augusta University, Augusta, GA, March 19, 2024.
18. A. F. Coskun, "Spatial Immunophenotyping using Multiplexed Imaging of Immune Follicles in Secondary Lymphoid Tissues," Welcome LEAP HOPE webinar, November 16, 2023. (Virtual)
19. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Emory Tuberculosis at TRAC, Atlanta, GA, September 8, 2023. (Virtual)

20. A. F. Coskun, "Single cell spatial metabolomics reveals immunometabolism in tissues," Controlled Release Society Immuno Delivery Group, Immunometabolism webinar, May 5, 2023. (Virtual)
21. A. F. Coskun, "Secrets of Healthy Life Hidden in Cell and Tissue Architecture," CF@Atlanta, The Emory+Children's Cystic Fibrosis Center of Excellence, Atlanta, GA, April 19, 2023.
22. A. F. Coskun, "Secrets of Healthy Life Hidden in Cell and Tissue Architecture," Bioinfocongress, March 18, 2023. (Virtual)
23. A. F. Coskun, "Spatial gene neighborhood networks by image-based single cell genomics," The 9th Annual Conference of the Arkansas Bioinformatics Consortium (AR-BIC) AR-BIC 2023; Bioinformatics, Big Data, AI, and Public Health: An Integrated World, North Little Rock, Arkansas, March 13-14, 2023. (Invited by FDA)
24. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," New York University (NYU), Melanoma Group; February 23, 2023. (Virtual)
25. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Department of Human Genetics, Spatial Metabolism Symposium, Emory University, April 22, 2022. (Virtual)
26. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Department of Bioengineering, University of California – San Diego, San Diego, CA, March 2022. (Virtual)
27. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Glenn Family Breast Center, Emory University, Atlanta, GA, April 6, 2022. (Virtual)
28. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Department of Molecular Physiology and Biophysics, Baylor College of Medicine, Houston, TX, April 5, 2022. (Virtual)
29. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Department of Biomedical Engineering, Michigan State University, East Lansing, MI, March 30, 2022. (Virtual)
30. A. F. Coskun, "Single cell spatial omics journey to signaling and metabolism in situ," Department of Computational Biology, St. Jude Children's Research Hospital, Memphis, TN, March 25, 2022.
31. A. F. Coskun, "Single Cell Spatial Omics for Precision Medicine," MCELS Kick-off Meeting, Atlanta, GA, December 2, 2021.
32. A. F. Coskun, "Spatially resolved omics for precision medicine," Department of Computational Biology, St. Jude Children's Research Hospital, Memphis, TN, October 27, 2021. (Virtual)
33. A. F. Coskun, "Spatially resolved single cell omics for precision medicine," Emory University, Eye Center, Morning Data Section Seminar, Atlanta, GA, September 21, 2021. (Virtual)
34. A. F. Coskun, "Multiplexed single-cell protein profiling in tumors for precision oncology," Clark Atlanta University, Prostate Cancer Symposium, Atlanta, GA, September 13, 2021. (Virtual)
35. A. F. Coskun, "Spatial Transcriptional Profiling of MSCs," Musculoskeletal Symposium, Atlanta, GA, August 27, 2021. (Virtual)
36. A. F. Coskun, "Spatial Subcellular Signaling Networks for Non-Small Cell Lung Cancer Therapies," Winship Cancer Institute, Lung SPORE meeting, Atlanta, GA, August 23, 2021. (Virtual)
37. A. F. Coskun, "Multiplexed single-cell protein profiling in tumors for precision oncology," Emory University, Prostate and GU Cancer Program, Atlanta, GA, August 5, 2021. (Virtual)

38. A. F. Coskun, "Spatially Resolved Multiplexed Single-Cell Profiling for Precision Oncology," Emory University, Cell and Molecular Biology Group, Atlanta, GA, June 24, 2021. (Virtual)
39. A. F. Coskun, "Spatial Single Cell Profiling for Precision Medicine," Emory Prostate Cancer Group, Atlanta, GA, September 3, 2020. (Virtual)
40. A. F. Coskun, "Image-based Spatial Omics," Spatial Omics Seminar Series – I, Host: Rong Fan, April 10, 2020. (Virtual)
41. A. F. Coskun, "Digital pathology in low-resource settings: Spatial single cell profiling technologies," Emory University, CHAMP Seminar Series, Atlanta, GA, November 12, 2019.
42. A. F. Coskun, "Spatial single-cell profiling for precision medicine," Emory University, Biomedical Engineering Seminar Series, Atlanta, GA, October 25, 2019.
43. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Biomedical Engineering Department. Georgia Institute of Technology and Emory University, Atlanta, GA, USA, February 25, 2019.
44. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Biomedical Engineering Department. Columbia University, New York City, NY, February 14, 2019.
45. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard Medical School, Boston, MA, February 7, 2019.
46. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Biomedical Engineering Department. Boston University, Boston, MA, February 5, 2019.
47. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Biomedical Engineering Department. University of California-Irvine, Irvine, CA, January 31, 2019.
48. A. F. Coskun, "Multiplex Imaging of Spatial Biology in Single Cells," Biomedical Engineering Department. Washington University, St-Louis, MO, January 29, 2019.

D4. Other Presentations

1. H. Torres, Z. Fang, N. Zhang, S. Cai, N. Sarkar, and A. F. Coskun, "What is a "Good" Figure: Scoring of Biomedical Data Visualization," Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024. (Poster)
2. S. Iyer, N. Zhang, and A. F. Coskun, "Decentralized crowd-sourced image-based biokits for distributed spatial biology and discovery," Biomedical Engineering Society Annual Meeting, Baltimore, MD, October 23-26, 2024. (Poster)
3. A. F. Coskun, "Subcellular Spatial Omics Decode RNA and Protein Networks and Neighborhoods in Single Cells," Single Cell Analyses, Cold Spring Harbor Laboratory, Laurel Hollow, New York, November 8-9, 2023. (Poster session presenter)
4. A. F. Coskun, "Systems ImmunoEngineering," *BMED 7101 Advanced Seminar: Biomaterials & Regenerative Medicine*, Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, September 7, 2023. (Lecture)
5. A. F. Coskun, "Multi-Omics technologies in Cell Manufacturing," *BMED 8813: Cell Biomanufacturing*, Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, April 12, 2022. (Virtual Lecture)
6. A. F. Coskun, "Imaging single cells in space and time," *GT-ESTEEM lunch talk*, Georgia Institute of Technology, Atlanta, GA March 15, 2022. (Virtual Lecture)
7. A. F. Coskun, "Systems ImmunoEngineering," *BMED 8813-IMM - ImmunoEngineering*, Biomedical Engineering, Georgia Institute of Technology, Atlanta, GA, October 21, 2021. (Lecture)

8. A. F. Coskun, “BioEngineering Media Lab at Georgia Tech: Interfacing digital tools with biotechnology,” Undergrad endowed Denning Technology and Management (T&M) Program and the Honors Program, February 13, 2020. (Lecture)

E. Grants and Contracts

E1. As Principal Investigator

1. Title of Project: CAREER: Predictive spatial omics by graph and generative learning
Agency/Company: NSF
Total Dollar Amount: \$807,697
Role: PI
Collaborators: N/A
Period of Contract: 04/01/2024 - 03/31/2029
Candidate’s Share: 100% (\$807K)
2. Title of Project: Spatial protein-protein interaction networks in situ by multiplexed proximity ligation
Agency/Company: NIH R33
Total Dollar Amount: \$900,000
Role: PI
Collaborators: Shi-Yong Sun, Frank Schneider, Jeffrey Switchenko, Jian Hu, Ticiana Leal, Suresh Ramalingam, Haian Fu
Period of Contract: 07/01/2024 - 06/30/2027
Candidate’s Share: 100% (\$900K)
3. Title of Project: Dissecting subcellular and cellular organization by spatial molecular neighborhood networks
Agency/Company: NIH R35
Total Dollar Amount: \$1,860,255 (Total) \$1,250,000 (Direct)
Role: PI
Collaborators: None
Period of Contract: 09/22/2023 - 08/31/2028
Candidate’s Share: 100% (\$1,860K)
4. Title of Project: Tissue systems biology of immune dysregulation in aging by single cell spatial metabolomics
Agency/Company: National Institute of Health (NIH) R21, National Institute of Aging (NIA)
Total Dollar Amount: \$ 373,367 (Total) \$262,500 (Indirect)
Role: PI
Collaborators: Ankur Singh (Collaborator), Facundo Fernandez (Collaborator), Yajun Mei (Collaborator), Sunil Badve (Collaborator), Rafi Ahmed (Collaborator), Daniela Frasca (Consultant), Hongbo Chi (Consultant), Daniel Goldstein (Consultant)
Period of Contract: 05/15/2023 – 02/28/2025
Candidate’s Share: 100% (\$373K)

5. Title of Project: Microphysiological systems to recapitulate and interrogate Sjögren's disease salivary gland pathogenesis
Agency/Company: NIH R21 NIDCR
Total Dollar Amount: \$432,209 (Total) \$319,248 (Direct)
Role: MPI
Collaborators: Sara Mccoy, University of Wisconsin Rheumatology (MPI),
Period of Contract: 08/01/2025 – 07/31/2027
Candidate's Share: ~33% (\$120K)
6. Title of Project: Spatial transcriptional phenotyping of Sjögren's disease tissue-resident mesenchymal stromal cells and neighbors in labial salivary glands
Agency/Company: NIH R21 NIDCR
Total Dollar Amount: \$334,174 (Total) \$304,654 (Direct)
Role: MPI
Collaborators: Sara Mccoy, University of Wisconsin Rheumatology (MPI), Xiuwei Zhang (Collaborator), Jacques Galipeau (Collaborator), and Rong Hu (Collaborator)
Period of Contract: 09/08/2023 – 08/31/2025
Candidate's Share: ~66% (\$220K)
7. Title of Project: Decoding Spatially Resolved Single Cell Metabolic Trajectory of Tonsil Tissues and Organoids
Agency/Company: NIH R21
Total Dollar Amount: \$432,850 (Total) \$275,000 (Direct)
Role: MPI
Collaborators: Ankur Singh (MPI), Xiuwei Zhang (Co-Investigator), Steven Goudy (Collaborator)
Period of Contract: 08/10/2023 – 07/31/2025
Candidate's Share: 80% (\$347K)
8. Title of Project: Tracing spatial organization of germinal centers in rhesus macaques
Agency/Company: NIH R21 (ESI special for HIV/OD)
Total Dollar Amount: \$632,800 (Total) \$400,000 (Direct)
Role: PI
Collaborators: Peng Qiu (Co-Investigator), Sudhir Kasturi (Collaborator)
Period of Contract: 09/01/2023 - 08/31/2025
Candidate's Share: ~ 95% (\$600K)
9. Title of Project: Spatial Epigenomic Profiling of Immune Cell Signatures at Subcellular Resolution in Health and Disease
Agency/Company: National Institutes of Health, 1K25AI140783-01
Total Dollar Amount: \$535,000
Role: PI
Collaborators: Wilbur Lam (Collaborator and Mentor)
Period of Contract: 07/01/2018 – 06/30/2023
Candidate's Share: 100% (\$535K)

10. Title of Project: Spatial Subcellular Signaling Networks for Non-Small Cell Lung Cancer Therapies
Agency/Company: Career Enhancement Program (CEP) Pilot Grant, Winship Lung Cancer (SPORE), National Institute of Health P50CA217691
Total Dollar Amount: \$100,000
Role: PI
Collaborators: Suresh Ramalingam (Collaborator and Mentor), Shih-Yong Sun (Collaborator), and Frank Schneider (Collaborator)
Period of Contract: 06/01/2021 – 05/30/2023
Candidate's Share: 100% (\$100K)
11. Title of Project: Elucidating predictive potency of IFN- γ primed mesenchymal stromal cells in Graft vs Host Disease using Spatial Single Cell Transcriptomics
Agency/Company: 2022-2023 Regenerative Engineering and Medicine Center Call for Collaborative Grant Program
Total Dollar Amount: \$100,000
Role: PI
Collaborators: Edwin Horwitz, Emory University (Co-PI)
Period of Contract: 09/01/2022 - 8/31/2023
Candidate's Share: 50% (\$50K)
12. Title of Project: Spatial Lipid Immunometabolism of Stem Cell-like T-cells for Novel NSCLC Immunotherapies
Agency/Company: Winship's American Cancer Society Institutional Research Grant (ACS-IRG)
Total Dollar Amount: \$40,000
Role: PI
Collaborators: Suresh Ramalingam (Collaborator), Hongbo Chi (Collaborator), Ankur Singh (Collaborator)
Period of Contract: 03/01/2022 – 12/31/2022
Candidate's Share: 100% (\$40K)
13. Title of Project: Deciphering Single Cell Immunometabolism of T-Cell Differentiation in Lung Tumor Organoid on a Chip
Agency/Company: AMERICAN LUNG ASSOCIATION/NEW YORK, NY
Total Dollar Amount: \$150,000
Role: PI
Collaborators: Suresh Ramalingam (Collaborator), Ankur Singh (Collaborator), and Hongbo Chi (Collaborator)
Period of Contract: 07/01/2022 – 06/30/2024
Candidate's Share: 100% (\$150K)
14. Title of Project: Bernie Marcus Early-Career Professorship in Therapeutic Cell Characterization and Manufacturing
Agency/Company: Marcus Foundation
Total Dollar Amount: \$100,000
Role: PI
Collaborators: None

Period of Contract: 2020-2024
Candidate's Share: 100% (\$100K)

15. Title of Project: Correlative 3D metabolic and structural in situ imaging of human tissues
Agency/Company: Georgia Tech IEN SEED grant
Total Dollar Amount: \$6,000
Role: PI
Collaborators: None
Period of Contract: 06/01/2021 – 05/30/2022
Candidate's Share: 100% (\$6K)
16. Title of Project: Correlative 3D metabolic and structural in situ imaging of human tissues
Agency/Company: Oak Ridge National Laboratory, Center for Nanophase materials sciences
Total Dollar Amount: ~20,000 (In-kind)
Role: PI
Collaborators: Anton Levlev, ORNL (Collaborator)
Period of Contract: 01/01/2022-12/31/2022
Candidate's Share: 100% (\$20K)
17. Title of Project: Spatial Epigenomic Profiling of Immune Cell Signatures at Subcellular Resolution in Health and Disease
Agency/Company: Instructor K Award Support, Maternal and Child Health Research Institute, Stanford University
Total Dollar Amount: \$100,000
Role: PI
Collaborators: None
Period of Contract: 08/01/2028-7/31/2019
Candidate's Share: 100% (\$100K)

E2. As Co-Principal Investigator

1. Title of Project: Decoding specificity between antibodies and vaccines using integrated human Lymphoid, Gut, and Lung organoids
Agency/Company: Welcome LEAP
Total Dollar Amount: \$ 7,736,200
Role: Co-PI
Collaborators: Ankur Singh (PI), Andres Garcia (Co-PI), and Krishnendu Roy (Co-PI)
Period of Contract: 04/01/2021 – 03/31/2024
Candidate's Share: ~7% (\$609K)
2. Title of Project: Single cell spatial nuclear mapping of epigenetic heterogeneity
Agency/Company: National Science Foundation Multi-cellular engineered living systems (M-CELS) at Georgia Tech
Total Dollar Amount: \$10,000
Role: Co-PI
Collaborators: Yuhong Fan (Co-PI)
Period of Contract: 01/01/2022-6/28/2022

Candidate's Share: ~50% (\$ 5K)

3. Title of Project: Spatial Expression Profiling in a 3-D model of Drug Resistant Breast Cancer
Agency/Company: National Science Foundation Multi-cellular engineered living systems (M-CELS) at Georgia Tech
Total Dollar Amount: \$10, 000
Role: Co-PI
Collaborators: Karmella Haynes (Co-PI)
Period of Contract: 01/01/2022-6/28/2022
Candidate's Share: ~50% (\$ 5K)
4. Title of Project: Exploring Spatial Temporal Multiomics of 3D Brain Organoids
Agency/Company: National Science Foundation Multi-cellular engineered living systems (M-CELS) at Georgia Tech
Total Dollar Amount: \$10, 000
Role: Co-PI
Collaborators: Hang Lu (Co-PI)
Period of Contract: 01/01/2022-6/28/2022
Candidate's Share: ~50% (\$ 5K)
5. Title of Project: Deciphering heterogeneity of mesenchymal stem cells using high-throughput precise cellular printing and single-cell spatial transcriptomic analysis (MSC-scPTA)
Agency/Company: National Science Foundation CMat Seed Grant
Total Dollar Amount: \$ 68,000
Role: Co-PI
Collaborators: Sakis Mantalaris (Co-PI)
Period of Contract: 02/01/2020 – 01/31/2021
Candidate's Share: ~50% (\$ 34K)

E3. As Senior Personnel or Contributor

1. Title of Project: Hydrogel-based Organoids of African-American Lymphomas to Study B Cell Receptor Pathway Inhibitors
Agency/Company: National Institute of Health (NIH) R01, National Cancer Institute (NCI)
Total Dollar Amount: \$ 3,160,851.00
Role: Co-Investigator
Collaborators: Ankur Singh (PI)
Period of Contract: 8/01/2022 – 7/31/2027
Candidate's Share: ~11% (\$ 366K)
2. Title of Project: Hydrogel-based lymphoid tissues for generation of activated human B cells and delivery in vivo
Agency/Company: National Institute of Health (NIH) R01, NIAID
Total Dollar Amount: \$ 3,876,702.00
Role: Co-Investigator
Collaborators: Ankur Singh (PI), Andres Garcia (Co-Investigator)
Period of Contract: 6/1/2024 – 5/31/2029

Candidate's Share: ~10% (\$390K)

3. Title of Project: Hydrogel-based Aged Immune Organoids to Study Epigenetics and Trajectory of B Cells
Agency/Company: National Institute of Health (NIH) R01, NIAID
Total Dollar Amount: \$ 3,790,647.00
Role: Co-Investigator
Collaborators: Ankur Singh (PI), Todd Sulchek (Co-Investigator)
Period of Contract: 7/1/2024 – 6/30/2029
Candidate's Share: ~8% (\$ 314K)

4. Title of Project: Dissecting Spatial Heterogeneity to develop novel strategies in ER+ Breast Cancer
Agency/Company: Winship Invest\$ Winter 2022 Application – Breast Cancer Research Domain
Total Dollar Amount: \$50,000
Role: Co-Investigator
Collaborators: Yesim Gokmen-Polar, Emory University (PI), and Sunil Badve (Co-Investigator)
Period of Contract: 8/01/2022 – 7/31/2023
Candidate's Share: 50% (\$ 25K)

18. Title of Project: Defining Sjögren's pathogenesis by endotype: maladaptive responses of endogenous salivary gland mesenchymal stromal cells
Agency/Company: NIH R01 NIDCR
Total Dollar Amount: \$3,827,830 (Total) \$ 2,500,000 (Direct)
Role: Co-Investigator
Collaborators: McCoy, Sara (PI) and U. Wisconsin Salivary group
Period of Contract: 08/01/2024-07/31/2029
Candidate's Share: 16% (\$627K)

19. Title of Project: Defining Translating molecular profiles into treatment approaches to target disparities in lymphoma
Agency/Company: Leukemia & Lymphoma Society (LLS), Specialized Center of Research Program (SCOR)
Total Dollar Amount: \$5,000,000
Role: Co-Investigator
Collaborators: Jean Koff (PI) and Lymphoma workgroup (MD Anderson Cancer Center, Weill Cornell Medicine)
Period of Contract: 08/01/2024-07/31/2029
Candidate's Share: 2% (\$150K)

F. Other Scholarly and Creative Accomplishments

- Recipient, Ignite Entrepreneurship Certificate in Graduate School of Business, Stanford University, 2018.

G. Societal and Policy Impacts

1. Allen, Leeanna, "Democratizing Discovery: Seeing Diseases Through PRISMS," Communications, Walter H. Coulter Department of Biomedical Engineering, December 2, 2025. [Online Article], Available: <https://bme.gatech.edu/news/democratizing-discovery-seeing-diseases-through-prisms> [Accessed January 3, 2026].
2. Petty, Kelly, "Coskun One of 36 Georgia Tech Faculty to Earn Tenure for Spring 2025," Communications, Walter H. Coulter Department of Biomedical Engineering, May 8, 2025. [Online Article], Available: <https://bme.gatech.edu/bme/news/coskun-one-36-georgia-tech-faculty-earn-tenure-spring-2025> [Accessed October 1, 2025].
3. Grillo, Jerry, "Spatial Interactomics: Mapping Protein Interplay to Fight Cancer," Communications, Walter H. Coulter Department of Biomedical Engineering, November 21, 2024. [Online Article], Available: <https://bme.gatech.edu/bme/news/spatial-interactomics-mapping-protein-interplay-fight-cancer> [Accessed January 20, 2025]. This online article featured our work that was published in *Nature Biomedical Engineering*, November 2024.
4. Williamson, Savannah "LLS Funds Immunoengineers and Cancer Specialists to Tackle Health Disparities," Communications, Research Georgia Tech, November 21, 2024. [Online Article], Available: <https://research.gatech.edu/lls-funds-immunoengineers-and-cancer-specialists-tackle-health-disparities> [Accessed January 20, 2025].
5. Grillo, Jerry, "Ahmet Coskun Named CMBE Young Innovator for 2024," Communications, Walter H. Coulter Department of Biomedical Engineering, October 24, 2024. [Online Article], Available: <https://bme.gatech.edu/bme/news/ahmet-coskun-named-cmbe-young-innovator-2024> [Accessed January 20, 2025]. This online article featured our work that was published in *Cellular and Molecular Bioengineering*, October 2024.
6. Grillo, Jerry, "Ahmet Coskun Wins NSF CAREER Award," Communications, Walter H. Coulter Department of Biomedical Engineering, July 22, 2024. [Online Article], Available: <https://bme.gatech.edu/bme/news/ahmet-coskun-wins-nsf-career-award> [Accessed January 20, 2025]. This online article featured our outstanding investigator grant that was funded by NSF, July 2024.
7. Grillo, Jerry, "Coskun Receives \$1.86 Million NIH MIRA Award to Map Spatial Molecular Neighborhoods," Communications, Walter H. Coulter Department of Biomedical Engineering, October 24, 2023. [Online Article], Available: <https://bme.gatech.edu/bme/news/coskun-receives-186-million-nih-mira-award-map-spatial-molecular-neighborhoods> [Accessed April 9, 2024]. This online article featured our outstanding investigator grant that was funded by NIH/NIGMS, September 2023.
8. Grillo, Jerry, "Coskun Lab Pioneering New Field of Research: Single Cell Spatial Metabolomics," Communications, Walter H. Coulter Department of Biomedical Engineering, December 20, 2023. [Online Article], Available: <https://bme.gatech.edu/bme/news/coskun-lab-pioneering-new-field-research-single-cell-spatial-metabolomics> [Accessed April 9, 2024]. This online article featured our work that was published in *Nature Communications*, December 2023.

9. Parmelee, Georgia, "A Look Inside Stem Cells Helps Create Personalized Regenerative Medicine," Communications, Georgia Tech Research, May 12, 2023. [Online Article], Available: <https://research.gatech.edu/look-inside-stem-cells-helps-create-personalized-regenerative-medicine> [Accessed April 9, 2024]. This online article featured our works that were published in *Scientific Reports and Cell Reports Methods*, May 2023.
10. SciTechDaily, "The Inner Workings of Stem Cells: A Game-Changer for Personalized Medicine," Hot Topics, Health News, May 12, 2023. [Online Article], Available: [The Inner Workings of Stem Cells: A Game-Changer for Personalized Medicine](#) [Accessed April 9, 2024]. This online article featured our works that were published in *Scientific Reports and Cell Reports Methods*, May 2023.
11. News Medical, "Using an intracellular toolkit to map organelle bio-geography in stem cells," Life Sciences, May 12, 2023. [Online Article], Available: [Using an intracellular toolkit to map organelle bio-geography in stem cells](#) [Accessed April 9, 2024]. This online article featured our works that were published in *Scientific Reports and Cell Reports Methods*, May 2023.
12. Paul Taylor, Nick, "Researchers map RNA to inform selection of stem cells for therapeutic applications," The Science Advisory Board contributing writer, May 12, 2023. [Online Article], Available: [Researchers map RNA to inform selection of stem cells for therapeutic applications](#) [Accessed April 9, 2024]. This online article featured our works that were published in *Scientific Reports and Cell Reports Methods*, May 2023.
13. EurekAlert, "A look inside stem cells helps create personalized regenerative medicine," AAAS News Release, May 12, 2023. [Online Article], Available: [A look inside stem cells helps create personalized regenerative medicine](#) [Accessed April 9, 2024]. This online article featured our works that were published in *Scientific Reports and Cell Reports Methods*, May 2023.
14. Grillo, Jerry, "Ahmet Coskun Wins 2023 BMES-CMBE Rising Star Award," Communications, Walter H. Coulter Department of Biomedical Engineering, December 22, 2022. [Online Article], Available: <https://bme.gatech.edu/bme/news/ahmet-coskun-wins-2023-bmes-cmbe-rising-star-award> [Accessed April 9, 2024]. This online article featured our award that was received in January 2023.
15. Grillo, Jerry, "Coskun Lab Zooming in on the Signals of Cancer," Communications, Walter H. Coulter Department of Biomedical Engineering, September 29, 2022. [Online Article], Available: <https://bme.gatech.edu/bme/news/coskun-lab-zooming-signals-cancer> [Accessed April 9, 2024]. This online article featured our works that were published in *npj Precision Oncology and iScience*, Sep-August 2022.
16. Stewart, Joshua, "5 Coulter BME Instructors Make Spring Honor Roll," Communications, Walter H. Coulter Department of Biomedical Engineering, May 31, 2022. [Online Article], Available: <https://bme.gatech.edu/bme/news/5-coulter-bme-instructors-make-spring-honor-roll> [Accessed April 9, 2024]. This online article featured our CIOS teaching award, May 2022.
17. Stewart, Joshua, "Best Teachers at Tech? Students Say Ahmet Coskun, Martin Jacobson," Communications, Walter H. Coulter Department of Biomedical Engineering, February 28, 2022. [Online Article], Available: <https://bme.gatech.edu/bme/news/best-teachers-tech-students-say-ahmet-coskun-martin-jacobson> [Accessed April 9, 2024]. This online article featured our Fall 2021 CIOS teaching award, February 2022.
18. Grillo, Jerry, "Coskun Gets Pilot Grant from SPORE to Study Cell Signaling in Lung Cancer," Communications, Walter H. Coulter Department of Biomedical Engineering,

August 25, 2021. [Online Article], Available: <https://bme.gatech.edu/bme/news/coskun-gets-pilot-grant-spore-study-cell-signaling-lung-cancer> [Accessed April 9, 2024]. This online article featured our grant that was funded by Winship Lung SPORE, August 2021.

H. Other Professional Activities

- Started “**SpatAllize**” company (<https://spatallize.com/>) for a single cell drug screening, and artificial intelligence company based on disclosures.
- Visiting Research Scholar, Ludwig Cancer Branch, Princeton University, June 24 – July 26, 2024.

V. Education

A. Courses Taught

Semester, Year	Course Number	Course Title	Number of Students
Fall 2025	BMED 4783 / ECE 4783	Introduction to Medical Image Processing – A (Lecture)	67
Spring 2025	BMED 8813	Biomedical Data Visualization (Lecture)	46
Fall 2024	BMED 4783 / ECE 4783	Introduction to Medical Image Processing – A (Lecture)	56
Spring 2024	BMED 3520	Biomedical Systems and Modeling – A (Lecture)	122
Spring 2024	BMED 3520	Biomedical Systems and Modeling – A02 (PSS)	43
Fall 2023	BMED 4783 / ECE 4783	Introduction to Medical Image Processing – A (Lecture)	50
Summer 2023	BMED 4783 (Galway, Ireland)	Introduction to Medical Image Processing – A (Lecture)	16
Spring 2023	BMED 3520	Biomedical Systems and Modeling – A (Lecture)	114
Spring 2023	BMED 3520	Biomedical Systems and Modeling – A03 (PSS)	47
Fall 2022	BMED 4783 / ECE 4783	Introduction to Medical Image Processing – A (Lecture)	46
Spring 2022	BMED 3520	Biomedical Systems and Modeling – A (Lecture)	107
Spring 2022	BMED 3520	Biomedical Systems and Modeling – A03 (PSS)	48
Fall 2021	BMED 4783 / ECE 4783	Introduction to Medical Image Processing – A (Lecture)	39
Spring 2021	BMED 3520	Biomedical Systems and Modeling – A (Lecture)	96
Spring 2021	BMED 3520	Biomedical Systems and Modeling – A01(PSS)	51
Fall 2020	BMED 3520	Biomedical Systems and Modeling – A (Lecture)	110
Fall 2020	BMED 3520	Biomedical Systems and Modeling – A01(PSS)	37

Spring 2020	BMED 2250	Problem-Based Learning	99
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B. Individual Student Guidance

B1.a. Graduated Ph.D. Students

1. Thomas Hu (ECE/Bioengineering)
 Period of Supervision: 2020 – 2024 (Co-advised for ECE with Prof. Omar Inan)
 Title of dissertation: *Spatial AI Analysis of Single-Cell Image-based Omics Data*
 Qualifying exam: Passed (05/06/2020)
 Thesis Proposal: Passed (03/11/2022)
 Thesis Defense: Passed (4/18/2024)
 Honors and Awards: IEN seed grant; Second best talk at 2024 AWSOM AI symposium
 Internship: Abbvie (Summer 2023)
 Current position: Digital Pathology Scientist, Frederick National Laboratory, National Cancer Institute

2. Shuangyi Cai (BME)
 Period of Supervision: 2019 – 2024
 Title of dissertation: *Deciphering subcellular signaling networks using image-based protein multiplexing*
 Qualifying exam: Passed (10/8/2020)
 Thesis Proposal: Passed (6/9/2022)
 Thesis Defense: Passed (06/5/2024)
 Internship: Genentech (Summer 2023)

3. Mayar Allam (BME)
 Period of Supervision: 2019 – 2024
 Title of dissertation: *Deciphering spatial immune interactions in health and disease using multiplexed imaging tools*
 Qualifying exam: Passed (10/23/2020)
 Thesis Proposal: Passed (05/25/2022)
 Thesis Defense: Passed (06/7/2024)
 Award: Suddath Honorable Mention (2024); Best poster at AWSOM AI (2024)
 Internship: Calico Labs (Summer 2022)
 Current position: 1) Field Application Scientist, Singular Genomics, and 2) Retro AI biotechnology scientist

B1.b. In Process Ph.D. Students

1. Samuel Dembowitz (BME)
 Period of Supervision: 2024 – Present
 Title of dissertation: *Spatial mechanomics for injury*
 Qualifying exam: Passed (11/03/2025)
 Thesis Proposal: Pending

2. Aditi Kumar (BME)
Period of Supervision: 2024– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
3. Aileen He (BME)
Period of Supervision: 2024– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
4. Efe Ozturk (ECE/ Bioengineering)
Period of Supervision: 2024– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
5. Abhijeet Venkataraman (BME)
Period of Supervision: 2023– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
Award: **National Science Foundation (NSF) Graduate Research Fellowship Program** (GRFP) Award, April 9, 2024.
6. Felix Rivera Moctezuma (ME/ Bioengineering)
Period of Supervision: 2023– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
Award: **NIH T32 Fellowship CTeng Program, May 2024.**
7. Ivan Kordic (ME/ Bioengineering)
Period of Supervision: 2023– Present
Title of dissertation: *Pending*
Qualifying exam: Pending
Thesis Proposal: Pending
8. Nicholas Zhang (BME/Bioengineering)
Period of Supervision: 2021– Present (Co-advised by Peng Qiu for T32)
Title of dissertation: *Super Resolution Spatial Multi-Omics*
Qualifying exam: Passed (1/23/2023)
Thesis Proposal: Pending

Honors and Awards: Inqubate T32 Fellow; GT President's Fellow; NSF Honorable Mention

9. Zhou Fang (BME/Machine Learning)
Period of Supervision: 2020 – Present
Title of dissertation: *Single cell spatial genomics for regenerative medicine*
Qualifying exam: Passed (4/22/2022)
Thesis Proposal: Pending

B2. M.S. Students (Indicate Thesis Option for Each Student)

B2. a. Graduated M.S. Students

1. Samuel Dembowitz (BME)
Date of Graduation: 06/2024
Title of thesis: Evaluation of Spatial Omics and Mechanotransduction in disease states
Current position: PhD student in Coskun Lab at Georgia Tech
2. Hector Torres (BME)
Date of Graduation: 06/2024
No thesis from the work in our lab.
Current position: VIP Preoperative Specialist, Arthrex
3. Dominique
4. Harrison Olszewski (BME)
Date of Graduation: 12/2022
No thesis from the work in our lab.
Publication: See section B.1. for [Paper # 5]
Current position: Research Technician, Dana-Farber Cancer Institute
5. Mythreye Venkatesan (ECE/Bioengineering Graduate Program)
Date of Graduation: 09/2021
Title of thesis: *Rapid Microfluidic Multiplexing of Proteins for Deciphering Spatial Organelle Networks*
Publications: See section B.1. for [Papers # 5, 9, 16, 20, and 22]
Current position: Data Scientist, Department of Computational Biomedicine, Cedars-Sinai, LA, USA
6. Ryan Abramowitz (ME)
Date of Graduation: 06/2021
Title of thesis: *Spatiotemporal Bioinformatic Analysis of Stem Cells by Spatial Genomics*
Publication: See section B.1. for [Paper # 13]
Current position: Bioinformatician at the University of Massachusetts Chan Medical School, MA, USA
7. Shambavi Ganesh (ECE)
Date of Graduation: 06/2020

No thesis from the work in our lab.

Publications: See section B.1. for [Papers # 11, 14, 17, 20, and 21]

Current position: Instructor for ECE 3710 and ECE PhD student at Georgia Tech

B2. b. In Process M.S. Students

1. Samuel Dembowitz (BS/MS)
Thesis Option: Spatial Mechano-Genomics
Period of Supervision: 2024- Present

2. Jiaxun Li (MS/BMED)
Thesis Option: Spatial Proteomics in Liver Diet Models
Period of Supervision: 2023- Present

3. Hector Torres (MS/BME)
Non-Thesis Option
Period of Supervision: 2023- Present

4. Dominique Rever (MS/BME)
Non-Thesis Option
Period of Supervision: 2024- Present

B3. Undergraduate Students

	Student Name	School	Research Credit	Dates	Job After undergrad GT
1	Ismail Abdulgader	BME	BMED 4699	Spring 2024	in process
2	Samyukta Iyer	BME	BMED 4699	Spring 2024	in process
3	Mingshuang Wang	BME	BMED 4699	Spring 2024	in process
4	Maxwell Ramos	BME	BMED 4699	Fall 2023 Spring 2024	in process
5	Uday Thakar		NEURO 4699		
6	Neel Sarkar <i>PURA award, Spring 2024</i>	BME	BMED 4699	Fall 2023	in process
7	Dhruv Nambiar	BME	BMED 4699	Fall 2023 Spring 2024	in process
8	Ashritha Yellanki	BME	BMED 4699	Fall 2023	in process
9	Sandip Das <i>Fullbright Canada-Mitacs Globalink Award, Summer 2024</i>	BME	BMED 4699	Fall 2023 Spring 2024	in process
10	Anirudh Sriram	BME	BMED 4699	Fall 2023	in process

	<i>PURA award, Summer 2024 (Declined)</i> <i>Memorial Sloan Kettering Computational Biology Summer Program (CBSP), Summer 2024</i>				
11	Sajid Hushna	BME	BMED 4699	Fall 2023 Spring 2024	in process
12	Yousouf Farooq	BME	BMED 4699	Fall 2023 Spring 2024	in process
13	Adya Verma	BME	BMED 4699	Fall 2023	in process
14	Vikram Kaushik	BME	BMED 4699	Summer 2023	MS Bioinformatics, GT
15	Abdur Arif	BME	BMED 4699	Summer 2023, Fall 2023	in process
16	Priyam Kadakia	BME	BMED 4699	Fall 2023 Spring 2024	in process
17	Beeta Enfaradi	BME	BMED 4699	Fall 2023 Spring 2024	in process
18	Hannah Priest	BME	BMED 4699	Spring 2023	in process
19	Thaddeus Mahfouz <i>Amgen Scholarship Summer Research at Columbia, Summer 2024</i>	BME	BMED 4699	Spring 2023, Fall 2023	in process
20	Frank F Middleton	BME	BMED 4699	Fall 2022	in process
21	Tatenda H Zvidzai	BME	BMED 4699	Fall 2022	in process
22	Aamir Mithaiwala	BME	BMED 2699; 4699	Fall 2021- Summer 2022	Consulting Industry
23	Santosh Nachimuthu	BME	BMED 4699	Summer 2022	in process
24	Adithya Pillai	BME	BMED 4699	Spring 2022- Summer 2022	in process
25	Yukina Yajima <i>Publication: Paper # 5 in Section B.1.</i>	BME	BMED 4699	Spring 2022	Technology Industry
26	Carlos Santos Mayo	Exchange BME	BMED 4699	Spring 2022	MS Bioengineering, ETH

27	Jeongjin Lee Publication: Paper # 8 in Section B.1.	BME	BMED 4699	Fall 2021 - Spring 2022	PhD student, Yonsei University, Korea
28	Evan S Mir	BME	BMED 4699	Spring 2022, Spring 2023	Industry
29	Nerea Ortiz De Zarate Garcia Publication: Paper # 5 in Section B.1.	Exchange BME	BMED 4699	Spring 2022	MS in Computational Neuroscience, University of Tubingen, Germany
30	Paula Gomez-Plana Rodriguez	Exchange BME	BMED 4699	Spring 2022	MSc Eng in Bioinformatics and Systems Biology Student @DTU, Denmark
31	Carmen Morote Garcia	Exchange BME	BMED 4699	Spring 2022	Technology Industry
32	Aaditya Anugu	BME	BMED 4699	Spring 2022	in process
33	Radhika Narula	BME	BMED 4699	Spring 2021- Spring 2022	MS at Columbia University
34	Raghav Manoharan Jayanthi		BMED 4699	Spring 2021- Spring 2022	MBA at MIT
35	Vishal Kobla	BME	BMED 4699	Fall 2021	Software Industry
36	Kevin Joseph	BME	BMED 4699	Fall 2021	Pharma Industry
37	Pushti Desai	BME	BMED 4699	Fall 2020	MS at Duke University
38	Allison Fister	CS	BMED 4699	Fall 2020	Software Industry
39	Aditi Kumar Publications: Book Chapter # 2 in Section A.2.	BME	BMED 4699	Fall 2020- Spring 2021	MSHA student at UAB
40	Harini Mohan Publications: Papers # 16 and 20 in Section B.1.	CS	BMED 4699	Fall 2020	MS BME at GT
41	Kira Pancha	CS	BMED 4699	Fall 2020	Software Industry
42	Shivam Patel	BME	BMED 4699	Fall 2020	in process
43	Aryender Singh	CS	BMED 4699	Fall 2020	Software Industry
44	Ethan Xie	CS	BMED 4699	Fall 2020	Software Industry
45	Carmen Booher	BME	BMED 2699	Fall 2020	Healthcare Industry
46	Andrew Borst	BME	BMED 2699; 4699	Fall 2020- Spring 2022	MS ECE at GT
47	Kiley Burton	BME	BMED 2699	Fall 2020	Industry
48	Samuel Henderson	BME	BMED 2699	Fall 2020- Spring 2021	Software Industry

	Publications: Book Chapter # 2 in Section A.2.				
49	Kasfia Kazi	BME	BMED 2699	Fall 2020- Spring 2021	Healthcare Industry
50	Melissa Ozbeyler Publications: Book Chapter # 2 in Section A.2. PURA Award, Spring 2021	BME	BMED 2699	Spring 2020- Spring 2021	Engineering Industry
51	Josh Patel	CS	BMED 2699	Fall 2020	Software Industry
52	Lilly Saiontz Publications: Book Chapter # 2 in Section A.2.	BME	BMED 2699	Fall 2020	Healthcare Industry
53	Medha Acharya	BME	BMED 4699	Spring 2020	Healthcare Industry
54	Monica Tran	CHBE	BMED 4699	Spring 2020	Industry
55	Beliz Utebay Publications: Papers # 17 and 20 in Section B.1.	BME	BMED 2699	Spring 2020	PhD student at Northwestern University
56	Jeremy Heit Publications: Papers # 17 and 20 in Section B.1.	BME	BMED 4699	Spring 2020	Researcher in Medical School

B4. Service on Thesis or Dissertation Committees

B4.a. Internal

1	Student Name	School	Advisor	Dates
2	Ryan Zenhausern	BME-PhD	James Dahlman	2024-present
3	Victor R Menezes	BME-PhD	Costas Arvanitis	2024-present
4	Shwetha Sridhar	BME-MS	Costas Arvanitis	2024-present
5	Valeria Juarez	BME-PhD	Ankur Singh	2024-present
6	Arpit Aggarwal	BME- PhD	Anant Madabhushi	2024-present
7	Nischita Kaza	BioE-PhD	Paco Robles	2024
8	Ajay Rajaraman Subramanian	BME-MS	Francisco E Robles	2024-present
9	Liana Kramer	BME-PhD	Krishnendu Roy	2024
10	Rachel Ringquist	BME- PhD	Krishnendu Roy	2022-2023

11	Cristian Barrera	BME- PhD	Anant Madabhushi	2023-present
12	Aolani Colon	BME-MS	Ankur Singh	2022-2023
13	Bolin Song	BME- PhD	Anant Madabhushi	2023-present
14	Kathryn Castro-Quilang	BME- MS	Ankur Singh	2022-2023
15	Deepali Balasubramani	BME- MS	Ankur Singh	2022-2023
16	Joseph Lee Corstvet	CHEM - PhD	Facundo Fernandez	2022-present
17	Patrick Ledwig	BME- PhD	Francisco E Robles	2022-present
18	Delta Ghoshal	BME- PhD	Krishnendu Roy	2021-2023
19	Xuanwen Hua	BME- PhD	Shu Jia	2021-2023
20	Eunbi Park	BME- PhD	Melissa Kemp	2020-2023
21	Jason Wang	BME - PhD	Hang Lu	2019-2022

B5. Mentorship of Postdoctoral Fellows or Visiting Scholars

B5.b. Visiting Scholars

1. Kelsey Krusen, NSF CMAT REU Student, Summer 2023.
2. Adam Ford, NSF CMAT REU Student, Summer 2022.
Publication: Paper # 4 in Section B.1.
Job after graduation: Ph.D. student at the University of Michigan
3. Theresa Rosato, NSF CMAT REU Student, Summer 2021.

C. Educational Innovations and Other Contributions

1. Director and Founder, *Crowd-sourced learning for a women-in-STEM high-school outreach program*, Georgia Institute of Technology, 2022-present.

A large untapped source for innovative ideas is high school students. The goal of the Crowd-Sourced Bioresearch Workshop (Termed BioCrowd Studio, <https://biocrowd.bme.gatech.edu/>) is to create an environment that will engage high school students in research and learning about the organisms that are critical to advancing the world of biology research forward. The Crowd-Sourced Bioresearch Workshop will expose these high school students to the research process and encourage them to continue interacting with the research field in the future. This year we will focus on promoting Women in STEM to give female high school students research opportunities and reduce the gender gap in STEM. This BioCrowd Studio outreach program was approved by the Institutional Review Board (IRB).

2. Existing Course Development: Redesign of *BMED 4783 Introduction to Medical Image Processing*, 2021-present.

To increase student engagement, I incorporated project-based learning in medical image processing (<https://sites.gatech.edu/imipcourse/>); invited industry leaders to give seminars on real-life experience; and included organized lab tours in IBB (CT, MRI, and Microscopy) for active learning. I continue to make improvements to this course, which has received COIS honor roll recognition multiple times (See section on awards).

3. New course development: *BMED 8813 Biomedical Data Visualization*, Spring 2025 -present

To empower data science training for graduate students, the Biomedical Data Visualization course teaches students the value of data visualization in biomedical contexts and the principles behind data visualization to apply them for biomedical purposes. Interactive projects are developed using Tableau, R-studio, and Python coding tools. Extended reality will be employed for experiential learning in this class. I envision that any biomedical data deserves rigorous, aesthetic, and meaningful visualization. Graduate students will obtain unparalleled skills for their publications, presentations, and professional training.

4. Founder, "*Lab Coat Conversations*", 2023-present.

Link: <https://open.spotify.com/show/3iBTIPXX2pJysyUHbaWzib>

Lab Coat Conversations is a podcast that explores Biomedical Engineering and research at Georgia Tech. In coordination with both my lab and the Bioengineering Media Lab, the podcast features guest researchers discussing academic breakthroughs and the lab experience, making science more accessible to all.

5. Editor and Founder, "*Artificial Intelligence Tools for Spatial Omics*" Book to be published by Springer Nature, Co-Edited by *Tae Hyun Hwang and Thomas Hu*, 2024-2025.

This book sets out to furnish a thorough overview of the computation framework of Artificial Intelligence tailored for the analysis and quantification of spatial omics technologies.

VI. Service

A. Professional Contributions

A1. Editorial Board Memberships

1. Editorial Board, *Scientific Reports*, 2023-present
2. Guest Editor, *Human Genetics*, 2023- present
3. Associate Editor, *Frontiers in Oncology*, 2022-present.
4. Associate Editor, *Frontiers in Bioengineering and Biotechnology*, 2022-present.
5. Associate Editor, *Frontiers in Medical Technology*, 2021-present.
6. Member, Editorial Board, *Diagnostics*, 2020-present.

A2. Society Offices, Activities, and Membership

1. Member, Awards Coordination Committee, The American Society for Cell Biology (ASCB) 2023-2024.
2. Scientific Program Committee Member, Society for Biomolecular Imaging and Informatics (SBI2), 2024-2025.
3. Executive Board Member, Society for Biomolecular Imaging and Informatics, 2023-present.
4. Platinum Member, American Association for the Advancement of Science (AAAS), 2023-present.
5. Member, Optica, Advancing Optics and Photonics Worldwide, 2023-present.
6. Member, International Society for Optics and Photonics (SPIE), 2023-present.
7. Associate Member, Institute of Electrical and Electronics Engineers (IEEE), 2023-present.
8. Associate Member, Engineering in Medicine and Biology Society (EMBS), 2023-present.
9. Senior Member, The American Institute of Chemical Engineers (AIChE), 2023- present.

10. Member, International Society for Computational Biology (ISCB), 2023-present.
11. Member, American Society for Cell Biology (ASCB), 2023-present.
12. Member, Society for Laboratory Automation and Screening (SLAS), 2023- present.
13. Member, Society for Biomaterials (SfB), 2023- present.
14. Member, International Society of Cell & Gene Therapy (ISCT), 2023-present.
15. Member, Technical Committee on Biomedical Imaging and Image Processing (BIIP), IEEE EMBS, 2015-present.
16. Member, Biomedical Engineering Society (BMES), 2014-present.

A3. Organization and Chairmanship of Technical Sessions, Workshops, and Conferences

1. Organizer, Sunbelt Spatial Omics Seminar Series 1 (Virtual), March 2024-present. *This seminar series highlights early career and rising stars in Spatial Omics, a career development program.* sites.gatech.edu/sunbeltspatialomics/
2. Session Chair, Omics methods, modeling, and analysis, the Bioinformatics, Computational and Systems Biology track, Biomedical Engineering Society (BMES) Annual Meeting, Seattle, Washington October 12, 2023.
3. Poster Judge, Atlanta Workshop on Single-cell Omics (AWSOM) 2023, Atlanta Initiative for Single-Cell Omics and Analysis (AI-ScOmA), Emory University, Atlanta, GA, 27 - 28 April, 2023.
4. Session Chair, Imaging System Development & Emerging Imaging Technologies, Biomedical Engineering Society Annual Meeting, San Antonio, Texas, October 15, 2022.
5. Co-Organizer, Frontiers of Biomedical Imaging and Analysis, IEEE EMBS monthly webinar series organized by the Technical Committee on Biomedical Imaging and Image Processing, March 2021-2023. sites.google.com/view/ieee-biip-webinars/webinar-speakers
6. Member, Program Committee, ICML 2020 Thirty-seventh International Conference on Machine Learning, 2021-present.
7. Organizer, Spatial Omics Seminar Series 1-7 (Virtual), April 2020-2022. spatialomics.net

A4. Technical Journal or Conference Referee Activities

1. Reviewer, Genome Biology, 2023-present.
2. Reviewer, Science Advances, 2022-present.
3. Reviewer, BMES Annual Meeting, 2022-2023.
4. Reviewer, Nature Biotechnology, 2022-present.
5. Reviewer, Nature Methods, 2022-present.
6. Reviewer, BMES Annual Meeting, 2022.
7. Reviewer, Nature Communications, 2021-present.
8. Reviewer, Communications Biology, 2021-present.
9. Reviewer, Cell Reports Methods, 2021-present.
10. Reviewer, BMES Annual Meeting, 2021.
11. Reviewer, Lab on a Chip, 2020-present.
12. Reviewer, Diagnostics, 2020-present.
13. Reviewer, BMES Annual Meeting, 2020.

A5. Proposal Panels and Reviews

1. Reviewer, NIH ZCA1 TCRB-9 (M1) for Informatics Technologies for Cancer Research (ITCR), 2024

2. Reviewer, NIH 202405 Genomics, Computational Biology and Technology (GCAT), 2024
3. Reviewer, STS REGENERON, High-school competition by Science for Society, 2023.
4. Reviewer, National Institutes of Health P30 panel from NIAMS, 2023.
5. Reviewer, National Institutes of Health P01 panel from NCI, 2023.
6. Reviewer, National Research Foundation, Prime Minister's office, Singapore; Evaluations for Competitive Research Programme (CRP), 2023.
7. Reviewer, Einstein Center Proposals for Early Disease Interception, Einstein Foundation, Berlin, Germany, 2023
8. Winship Cancer Institute, Invest\$ Summer proposals, 2023.
9. Reviewer, RE: NWO, The Netherlands: Invitation to review a research proposal (National Roadmap for Large-Scale Research Facilities) 184.036.013, Netherlands, 2022.
10. Reviewer, Interdisciplinary approaches in oncogenic processes and therapeutic perspectives: Contributions of mathematics and informatics to oncology, Inserm, France, 2022.
11. External Reviewer, University of California-Irvine, California, 2022.
12. Reviewer, Georgia Tech IEN Seed grant, Atlanta, 2021.
13. Panelist, IMAT panel reviewer for Biospecimen calls, R21/R33, NIH, 2021.
14. Panelist, NIH SBIR/STTR panel, R41/R42/R43/R44, NIH, December 2021.
15. Panelist, NIH SBIR/STTR panel, R41/R42/R43/R44, NIH, June 2021.
16. Panelist, NIH SBIR/STTR panel, R41/R42/R43/R44, NIH, March 2021.
17. Panelist, NIH Shared Equipment panel, S10, ZRG1 CB-B (30) I study section, NIH, 2021.
18. Reviewer, Swiss National Science Foundation (SNSF), Sinergia, Switzerland, 2021.
19. Reviewer, National Research Foundation Prime Minister's Office, Singapore, 2021.
20. Panelist, Breast Cancer Panel, Department of Defense, 2020.

B. Public and Community Service

1. Consultant, The Human BioMolecular Atlas Program (HuBMAP), National Institutes of Health, Office of Strategic Coordination – The Common Fund, 2023-present. *Advised a fellowship program to enable student internships.*
2. Host, The Research Experiences for Teachers (RET) program, Institute for Electronics and Nanotechnology, Georgia Institute of Technology, 2023. *Hosted a high school teacher and student from Atlanta Public Schools as part of this reciprocal mentoring for K-12 teachers and students.*
3. Host, Coskun Lab Pre-College Immersion Program, 2022-present. *Hosted three high-school students from Atlanta and Memphis as part of research training.*
4. Host, BioCrowd Studio, 2021-2022, Hosted five high-school students remotely from North Carolina and Georgia for virtual meetings and activities.
5. Participant, Innovation Cores Working Group, Emory University, 2021-present. Develop virtual reality platforms for training teachers, K-12 students, and the public on multiplexed imaging. Currently expanding the VR-based education to our undergraduate student training.
6. Participant, Data Viz + Cancer, The National Cancer Institute, November 1-5, 2021. *As part of the Cancer Moonshot, hosted a five-day Innovation Lab intended to catalyze unconventional, interdisciplinary teams involving game designers, data visualization experts, and cancer researchers to spur novel methods of visualizing and interacting with cancer datasets.*
7. Director and Founder, Digital Posters Initiative, 2020-present.

Developing data conversion and management tools for digital poster development and providing educational platforms for community outreach.

C. Institute Contributions

C1. School Committee Service

1. Member, Awards Committee, 2024-present
2. Elected Member, Faculty Advisory Committee, 2023-2026
3. Member, Graduate recruitment and admissions committee, 2021-2022.
4. Member, Undergraduate Committee, 2020-2021.
5. Member, Graduate Committee, 2019-2020.
6. Member, BME curriculum sub-committee, 2019-2020.

C2. Program Development: Research

1. Associate Faculty, Emory's Empathetic AI for Health Institute, January 2024-present