**EDUCATION**

**University of Michigan**, Ann Arbor, MI **June 2029**

*Medical Scientist Training Program*

*Parker Lab, Department of Computational Medicine and Bioinformatics*

**Dartmouth College**, Hanover, NH **June 2018**

*Bachelor of Arts: Major in Engineering Physics* **GPA: 3.69/4.00**

*Minor in Arabic Language and Literature, Pre-Health, James O. Freedman Presidential Scholar*

**Arabic LSA+ 2015**, Rabat, Morocco

**Wellesley High School**, Wellesley, MA **June 2014**

4.92/5.00; Honors in English, Earth Sciences, Calculus

**RESEARCH EXPERIENCE**

**Raychaudhuri Lab**, Harvard Medical School/Brigham and Women’s Hospital, MA

*Data Analyst I* **August 2018-March 2020**

* Conducted single-cell RNA-seq analyses, bulk RNA-seq analyses, genotypic (eQTL) analyses, sequence alignment, genome reference creation, etc.
* Provided analysis for and guided the AMP-SLE consortium through the process of determining the optimal disaggregation and sequencing pipeline for 150+ Phase II kidney samples

*Data Analyst II* **March 2020-March 2024**

* Analyzed neutrophils and their transition to neutrophil-derived APCs under the guidance of Tanya Mayadas PhD., identifying a key transcriptional regulator of the process
* Led the analysis of genotyped individuals collected as part of a clinical trial run by the Immune Tolerance Network (ITN), discovering eQTLs associated with treatment of psoriasis

**Kahlenberg Lab**, University of Michigan, Ann Arbor **January 2022-December 2024**

*Collaborator*

* Analyzed bulk RNA-seq on lesional skin from CLE patients pre- and post-treatment with mupirocin vs. Vaseline

**Parker Lab**, University of Michigan, Ann Arbor **April 2024-Current**

*PhD pre-candidate*

* Conducted eQTL and caQTL power analyses on skeletal muscle from FUSION patients to determine relationships between number of samples or nuclei/sample and expected hits
* Developed pipelines for accurate identification of TSS and isoform expression from long-read ONT sequencing on 10X multi-ome 3’ constructed libraries in patients with HFpEF

**PUBLICATIONS**

1. Zhang, F., Wei, K., Slowikowski, K., Fonseka, C.Y., Rao, D.A., Kelly, S., Goodman, S.M., Tabechian, D., Hughes, L.B., Salomon-Escoto, K., Watts, G.F.M., Jonsson, A.H., Rangel-Moreno, J., Meednu, N., Rozo, C., Apruzzese, W., Eisenhaure, T.M., Lieb, D.J., Boyle, D.L., Mandelin II, A.M., Accelerating Medicines Partnership Rheumatoid Arthritis and Systemic Lupus Erythematosus (AMP RA/SLE) Consortium [including **Mears, J.**], Boyce, B.F., DiCarlo, E., Gravallese, E.M., Gregersen, P.K., Moreland, L., Firestein, G.S., Hacohen, N., Nusbaum, C., Lederer, J.A., Perlman, H., Pitzalis, C., Filer, A., Holers, V.M., Bykerk, V.P., Donlin, L.T., Anolik, J.H., Brenner, M.B., Raychaudhuri, S. Defining inflammatory cell states in rheumatoid arthritis joint synovial tissues by integrating single-cell transcriptomics and mass cytometry. *Nat Immunol* **20**, 928-942 (2019).
2. Wei, K., Korsunsky, I., Marshall, J.L., Gao, A., Watts, G.F.M., Major, T., Croft, A.P., Watts, J., Blazar, P.E., Lange, J.K., Thornhill, T.S., Filer, A., Raza, K., Donlin, L.T., Accelerating Medicines Partnership Rheumatoid Arthritis and Systemic Lupus Erythematosus (AMP RA/SLE) Consortium [including **Mears, J.**], Siebel, C.W., Buckley, C.D., Raychaudhuri, S., Brenner, M.B. Notch signalling drives synovial fibroblast identity and arthritis pathology. Nature 582, 259-264 (2020).

1. Mysore, V., Cullere, X., **Mears, J.**, Rosetti, F., Okubo, K., Liew, P.X., Zhang, F., Madera-Salcedo, I., Rosenbauer, F., Stone, R.M., Aster, J.C., von Andrian, U.H., Lichtman, A.H., Raychaudhuri, S., Mayadas, T.N. FcγR engagement reprograms neutrophils into antigen cross-presenting dendritic cells that elicit acquired anti-tumor immunity. Nature Communications 12, 4791 (2021).
2. Zhang, F., **Mears, J.**, Shakib, L., Beynor, J.I., Shanaj, S., Korsunsky, I., Nathan, A., Accelerating Medicines Partnership Rheumatoid Arthritis and Systemic Lupus Erythematosus (AMP RA/SLE) Consortium, Donlin, L.T., Raychaudhuri, S. IFN-𝛾 and TNF-𝛼 drive a CXCL10+ CCL2+ macrophage phenotype expanded in severe COVID-19 and inflammatory diseases with tissue inflammation. Genome Medicine 13, 64 (2021).
3. Jonsson, A.H., Zhang, F., Dunlap G., Gomez-Rivas, E., Watts, G.F.M., Faust, H.J., Rupani, K.V., **Mears, J.R.**, Meednu, N., Wang, R., Keras, G., Coblyn J.S., Massarotti, E.M., Todd, D.J., Anolik, J.H., McDavid, A., Accelerating Medicines Partnership RA/SLE Network, Wei, K., Rao, D.A., Raychaudhuri, S., Brenner, M.B. et al. Granzyme K+ CD8 T cells form a core population in inflamed human tissue. Sci Transl Med 14, 649 (2022).
4. Zhang, F., Jonsson, A.H., Nathan, A., Millard, N., Curtis, M., Xiao, Q., Gutierrez-Arcelus, M., Apruzzese, W., Watts, G.F.M., Weisenfeld, D., Nayar, S., Rangel-Moren, J., Meednu, N., Marks, K.E., Mantel, I., Kang, J.B., Rumker, L., **Mears, J.**, Slowikowski, K., Weinand, K., Orange, D.E., Geraldino-Pardilla, L., Deane, K.D., Tabechian, D., Ceponis, A., Firestein, G.S., Maybury, M., Sahbudin, I., Ben-Artzi, A., Mandelin II, A.M., Nerviani, A., Lewis, M.J., Rivellese, F., Pitzalis, C., Hughes, L.B., Horowitz, D., DiCarlo, E., Gravallese, E.M., Boyce, B.F., Accelerating Medicines Partnership: RA/SLE Network, Moreland, L.W., Goodman, S.M., Perlman, H., Holers, V.M., Liao, K.., Filer, A., Bykerk, V.P., Wei, K., Rao, D.A., Donlin, L.T., Anolik, J.H., Brenner, M.B., Raychaudhuri, S. Deconstruction of rheumatoid arthritis synovium defines inflammatory subtypes. Nature 623, 616–624 (2023).
5. Xiao, Q.\*, **Mears, J.**\*, Nathan, A., Ishigaki, K., Baglaenko, Y., Lim, N., Cooney, L.A., Harris, K.M., Anderson, M.S., Fox, D.A., Smilek, D.E., Krueger, J.G., Raychaudhuri, S. Immunosuppression causes dynamic changes in expression QTLs in psoriatic skin. Nat Communications 14, 6268 (2023).
6. Abernathy-Close, L.\*, **Mears, J.**\*, Billi, A.C.\*, Sirobhushanam, S., Berthier, C., Lu, A., Zhang, Z., Hurst, A., Gudjonsson, J.E., Kahlenberg, J.M. Topical mupirocin treatment reduces interferon and myeloid signatures in cutaneous lupus erythematous lesions through targeting of staphylococcus species. Arthritis Rheumatol (2024).
7. Varshney, A., Manickam, N., Orchard, P., Tovar, A., Ventresca, C., Zhang, Z., Feng, F., **Mears, J.**, Erdos, M.R., Narisu, N., Nishino, K., Rai, V., Stringham, H.M., Jackson, A.U., Tamsen, T., Gao, C., Yang, M., Koues, O.I., Welch, J.D., Burant, C.F., Koeki Willliams, L., Jenkinson, C., DeFronzo, R.A., Norton, L., Saramies, J., Lakka, T.A., Laakso, M., Tuomilehto, J., Mohlke, K.L., Kitzman, J.O., Koistinen, H.A., Liu, J., Boehnke, M., Collins, F.S., Scott, L.J., Parker. S.C.J. Population-scale skeletal muscle single-nucleus multi-omic profiling reveals extensive context specific genetic regulation. bioRxiv (2024).

**POSTERS**

1. Zhang, F., **Mears, J.** Integration of single cells from inflammatory disease tissues reveals common and unique pathogenic cell states. Poster presented at: Federation of Clinical Immunology Societies (FOCiS); 2019, Jun 18-21; Boston MA

**TALKS**

1. **Mears, J.**, Zhang, F. Cross tissue analysis of individual cell populations from AMP Phase 1. Oral presentation: Accelerating Medicines Partnership Face-to-Face Meeting; 2019, Sep 24-25; Washington, D.C.
2. **Mears, J.** Heterogeneity of renal epithelial and stromal cells in lupus nephritis. Oral presentation: ACR Convergence; 2021; virtual

**VOLUNTEER EXPERIENCE**

**University of Michigan Asylum Collaborative**, Ann Arbor, MI **September 2021-October 2022**

*Co-Director*

* Observed forensic evaluations of people seeking asylum in the U.S. and provided medical affidavits to the lawyers involved in the case
* Led weekly meetings and communicated activities to the board of advisory faculty
* Helped initiate and organize the 2023 National Physicians for Human Rights Student Conference

**UM-INSPIRE**, Ann Arbor, MI **August 2023-Current**

*Mentor*

* Guided undergraduate students from URiM backgrounds on their journey to medical school

**Admissions Office**, University of Michigan Medical School, Ann Arbor, MI **September 2023-Current**

*Interviewer*

* Conducted short-form and long-form interviews of medical school candidates discussing communication, teamwork, and approach to workplace conflict

**Michigan Journal of Medicine**, Ann Arbor, MI **November 2022-Current**

*Reviewer*

* Reviewed articles submitted to the journal and provided detailed comments to the authors on writing style, experimental set-up, and structure of paper

**Medical Scientist Training Program Retreat**, Ann Arbor, MI **September 2024-Current**

*Retreat Chair*

* Organized the 2025 MSTP retreat, booking local venues, setting the schedule of talks, and coordinating student committees
* Recruited faculty to attend retreat, including Dr. Anthony Fauci as one of two keynote speakers

**Michigan DNA Day**, Ann Arbor, MI **September 2024-Current**

*Finance Chair*

* Managed funds for travel and teaching materials associated with DNA Day
* Volunteered with local high schools to teach students about the role genetics/genomics plays in our everyday life

**Jewish Family Services**, Ann Arbor, MI **June 2024-Current**

*Volunteer*

* Coordinated sale of hand-made goods at local markets by recently resettled refugees

**Christian Love Pantry**, Ypsilanti, MI **January 2024-Current**

*Volunteer*

* Unloaded and packed food to be delivered to local families experiencing food insecurity

**SKILLS**

**Computer**: Python, R, Bash, Excel, LaTeX, and MATLAB

**Languages**: Intermediate Arabic, beginner French

**Interests:** Soccer, marathon training