

CALEB LAREAU

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CURRENT APPOINTMENT

Assistant Member , Program in Computational and Systems Biology Memorial Sloan Kettering Cancer Center (New York, NY)	2023 - Present
Assistant Professor , Computational Biology and Medicine Weill Cornell Medical School (New York, NY)	2024 - Present

EDUCATION AND TRAINING

Postdoctoral Fellowship , Departments of Pathology and Genetics Stanford University (Palo Alto, CA)	2023
Doctor of Philosophy , Biological and Biomedical Sciences Harvard University (Cambridge, MA)	2020
Master of Arts , Biostatistics Harvard University (Cambridge, MA)	2017
Bachelor of Science , <i>summa cum laude</i> , Biochemistry and Mathematics University of Tulsa (Tulsa, OK)	2015

AWARDS AND HONORS

Michelson Medical Research Foundation: Next Generation Prize	2024
Clarivate Highly Cited Researcher (Cross-Field)	2024
Society for Immunotherapy of Cancer - Sparkathon Young Investigator Award	2023
Memorial Sloan Kettering Emerging Leader in Computational Oncology	2023
Gladstone Institutes Distinguished Achievement in Science Award (Genomic Immunology)	2023
National Human Genome Research Institute - Pathway to Independence Award (K99/R00)	2022
STAT Wunderkind	2022
Forbes 30 Under 30 - Science	2022
Parker Institute for Cancer Immunotherapy - Parker Scholar	2021
Broad Institute Next Generation in Biomedicine	2021
10x Genomics Featured Scientist in Innovator Series	2021
Stanford Science Fellowship	2020
Deutsche Forschungsgemeinschaft Mercator Fellowship	2020
Ruth L. Kirschstein National Research Service Award Individual Predoctoral Fellowship (F31)	2018
Harvard University Certificate of Distinction in Teaching	2017
National Science Foundation Graduate Research Fellowship (NSF-GRFP)	2015
Phi Kappa Phi Walter and Adelheid Hohenstein Fellow	2015
Pi Kappa Alpha Robertson Most Outstanding Undergraduate Student	2014
Jess Choteau Outstanding Senior	2014
Deutscher Akademischer Austauschdienst RISE Scholar	2013, 2014
Barry M. Goldwater Scholar	2013
University of Tulsa Presidential Scholar	2011
Oklahoma Medical Research Foundation Sir Alexander Fleming Scholar	2011

PUBLICATIONS

* Denotes equal contributions; ‡ Denotes corresponding author(s); **5 highlighted research articles**

CORRESPONDING AUTHOR

1. T. Abay, R. Stickels, ... , R. Chaligne[‡], A.T. Satpathy[‡], **C.A. Lareau[‡]**. (2025) Transcript-specific enrichment enables profiling of rare cell states via scRNA-seq. *Nature Genetics*. DOI: 10.1038/s41588-024-02036-7.
2. A. Chow, **C.A. Lareau[‡]**. (2024) Concepts and new developments in droplet-based single cell multi-omics. *Trends in Biotechnology*. DOI: 10.1016/j.tibtech.2024.07.006.
3. L. Nitsch, **C.A. Lareau[‡]**, L.S. Ludwig[‡] (2024) Mitochondrial genetics through the lens of single-cell multi-omics. *Nature Genetics*. DOI: 10.1038/s41588-024-01794-8.
4. S. Boscenco, ..., **C.A. Lareau[‡]**, E. Reznik[‡] (2024) Single-cell technologies for studying the evolution and function of mitochondrial DNA in cancer. *Ann Rev of Cancer Bio* DOI: 10.1146/annurev-cancerbio-080124-102241.
5. **C.A. Lareau[‡]**, *et al.* (2023) Latent human herpesvirus 6 is reactivated in CAR T cells. *Nature*. DOI: 10.1038/s41586-023-06704-2.
6. **C.A. Lareau[‡]**, *et al.* (2023) Single-cell multi-omics reveals dynamics of purifying selection of pathogenic mitochondrial DNA across human immune cells. *Nature Genetics*. DOI: 10.1038/s41588-023-01433-8.
7. **C.A. Lareau[‡]**, *et al.* (2023) Mitochondrial single cell ATAC-seq for high-throughput multi-omic detection of mitochondrial genotypes and chromatin accessibility. *Nature Protocols*. DOI: 10.1038/s41596-022-00795-3.
8. **C.A. Lareau[‡]**, K.R. Parker[‡], A.T. Satpathy[‡]. (2021) Charting the tumor antigen maps drawn by single-cell genomics. *Cancer Cell*. DOI: 10.1016/j.ccell.2021.11.005.
9. **C.A. Lareau^{*,‡}**, L.S. Ludwig^{*,‡}, C. Muus, *et al.* (2021) Massively parallel single-cell mitochondrial DNA genotyping and chromatin profiling. *Nature Biotechnology*. DOI: 10.1038/s41587-020-0645-6.
10. **C.A. Lareau[‡]**, S. Ma, F.M. Duarte, J.D. Buenrostro[‡]. (2020) Inference and effects of barcode multiplets in droplet-based single-cell assays. *Nature Communications*. DOI: 10.1038/s41467-020-14667-5.

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11. L.S. Ludwig^{*}, **C.A. Lareau^{*}**, *et al.* (2022) A Congenital Anemia Dissociates the Pleiotropic Functions of Master Transcription Factor GATA1. *Blood*. DOI: 10.1182/blood.2021013753.
12. J. Wang^{*}, **C.A. Lareau^{*}**, *et al.* (2021) Single-Cell Multiomics Defines Tolerogenic Extrathymic Aire-Expressing Populations with Unique Homology to Thymic Epithelium. *Science Immunology*. DOI: 10.1126/sciimmunol.abl5053.
13. E. Mimitou^{*}, **C.A. Lareau^{*}**, K.Y. Chen^{*} *et al.* (2021) Scalable, multimodal profiling of chromatin accessibility, RNA, and protein levels in single cells. *Nature Biotechnology*. DOI: 10.1038/s41587-021-00927-2
14. N. Schmidt^{*}, **C.A. Lareau^{*}**, H. Keshishian^{*} *et al.* (2021) A direct RNA-protein interaction atlas of the SARS-CoV-2 RNA in infected human cells. *Nature Microbiology*. DOI: 10.1101/2020.07.15.204404.
15. M. A. Walker^{*}, **C.A. Lareau^{*}**, L.S. Ludwig^{*}, *et al.* (2020) Purifying Selection against Pathogenic Mitochondrial DNA in Human T cells. *New England Journal of Medicine*. DOI: 10.1056/NEJMoa2001265.
16. D. Vuckovic^{*}, E. Bao^{*}, P. Akbari^{*}, **C.A. Lareau^{*}**, *et al.* (2020) The Polygenic and Monogenic Basis of Blood Traits and Diseases. *Cell*. DOI: 10.1101/2020.02.02.20020065.
17. L.S. Ludwig^{*}, **C.A. Lareau^{*}**, J.C. Ulirsch^{*}, *et al.* (2019) Lineage tracing in humans enabled by mitochondrial mutations and single cell genomics. *Cell*. DOI: 10.1016/j.cell.2019.01.022.

18. **C.A. Lareau**,* F.M. Duarte,* J.G. Chew,* *et al.* (2019) Droplet-based combinatorial indexing for massive-scale single-cell chromatin accessibility. *Nature Biotechnology*. DOI: 10.1038/s41587-019-0147-6.
19. **C.A. Lareau**, L.S. Ludwig, V.G. Sankaran. (2019) Longitudinal assessment of clonal mosaicism in human hematopoiesis via mitochondrial mutation tracking. *Blood Advances*. DOI: 10.1182/bloodadvances.2019001196.
20. J.C. Ulirsch,* **C.A. Lareau**,* E.L. Bao,* *et al.* (2019) Interrogation of human hematopoiesis at single-cell and single-variant resolution. *Nature Genetics*. DOI: 10.1038/s41588-019-0362-6.
21. E.L. Bao,* **C.A. Lareau**,* C. Brugnara, I.R. Fulcher, *et al.* (2019) Heritability of fetal hemoglobin, white cell count, and other clinical traits from a sickle cell disease family cohort. *American Journal of Hematology*. DOI: 10.1002/ajh.25421.
22. L.S. Ludwig,* **C.A. Lareau**,* *et al.* (2019) Transcriptional States and Chromatin Accessibility Underlying Human Erythropoiesis. *Cell Reports*. DOI: 10.1016/j.celrep.2019.05.046.
23. **C.A. Lareau**,* K. Clement,* J.Y. Hsu,* *et al.* (2018) Response to "Unexpected mutations after CRISPR-Cas9 editing *in vivo*." *Nature Methods*. DOI: 10.1038/nmeth.4541.
24. **C.A. Lareau** and M.J. Aryee. (2018) hichipper: A preprocessing pipeline for assessing library quality and DNA loops from HiChIP data. *Nature Methods*. DOI: 10.1038/nmeth.4583.
25. **C.A. Lareau**, C.F. DeWeese *et al.* (2017) Polygenic risk assessment reveals pleiotropy between sarcoidosis and inflammatory disorders in the context of genetic ancestry. *Genes and Immunity*. DOI: 10.1038/gene.2017.3
26. **C.A. Lareau** and M.J. Aryee. (2017) diffloop: a novel computational framework for identifying and functionalizing differential topological features in DNA. *Bioinformatics*. DOI: 10.1093/bioinformatics/btx623.
27. **C.A. Lareau**, B.C. White, *et al.* (2016) An interaction quantitative trait loci tool implicates epistatic functional variants in an apoptosis pathway in smallpox vaccine eQTL data. *Genes and Immunity*. DOI: 10.1038/gene.2016.15.
28. **C.A. Lareau**, B.C. White, C.G. Montgomery, and B.A. McKinney. (2015) Common Variants Modulate Differential Correlation Structures in Gene Expression Data. *Frontiers in Genetics*. DOI: 10.3389/fgene.2015.00312.
29. **C.A. Lareau**, I.A. Adrianto, *et al.* (2015) Fine mapping of Chromosome 15q25 in Sarcoidosis Implicates Zinc Finger Protein 592 in Patients with Neurological Involvement. *Annals of Translational and Clinical Neurology*. DOI: 10.1002/acn3.229.
30. **C.A. Lareau**, B.C. White, A.L. Oberg, and B.A. McKinney. (2015) Differential co-expression network centrality and machine learning feature selection for identifying susceptibility hubs in networks with scale-free structure. *BioData Mining*, DOI: 10.1186/s13040-015-0040-x.
31. N.A. Davis,* **C.A. Lareau**,* *et al.* (2013) Encore: Genetic association interaction network centrality pipeline and application to SLE exome data. *Genetic Epidemiology*. DOI: 10.1002/gepi.21739.

INVITED COMMENTARY

32. **C.A. Lareau**[‡]. (2023). Resolving subtle cell states in sparse single-cell data. *Nature Biotechnology* DOI: 10.1038/s41587-023-01797-6.
33. **C.A. Lareau**[‡], C. Romagnani, L. Ludwig. (2022) Lineage tracing, hematopoietic stem cell and immune cell dynamics. *Frontiers in Immunology* DOI: 10.3389/fimmu.2022.1062415.
34. **C.A. Lareau** and A.T. Satpathy. (2020) An old BATF's new T-ricks. *Nature Immunology*. DOI: 10.1038/s41590-020-0796-0.

BOOK CHAPTERS

35. E.P. Mimitou[‡], P. Smibert[‡], and **C.A. Lareau[‡]** (2022) Massively parallel profiling of accessible chromatin and proteins with ASAP-seq. *Methods in Molecular Biology - Chromatin Accessibility: Methods and Protocols*. DOI: 10.1007/978-1-0716-2899-7_13.
36. L.S. Ludwig and **C.A. Lareau[‡]** (2022) Concomitant sequencing of accessible chromatin and mitochondrial genomes in single cells using mtsCATAC-seq. *Methods in Molecular Biology - Chromatin Accessibility: Methods and Protocols*. DOI: 10.1007/978-1-0716-2899-7_14.
37. **C.A. Lareau**, et al. (2019) Preprocessing and computational analysis of single-cell epigenomic datasets. *Methods in Molecular Biology - Computational Methods for Single-Cell Data Analysis*. DOI: 10.1007/978-1-4939-9057-3.
38. **C.A. Lareau** and B.A. McKinney. (2015) Network Theory for Data-Driven Epistasis Networks. *Methods in Molecular Biology– Epistasis: Methods and Protocols*, DOI: 10.1007/978-1-4939-2155-3.

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39. M.A. Nix, **C.A. Lareau**, et al. (2024) Identifying optimal tumor-associated antigen combinations with single-cell genomics to enable multi-targeting therapies. *Frontiers in Immunology*. DOI: 10.3389/fimmu.2024.1492782
40. D. Luan, S. DeWolf, T. Fei, S. Raj, G. Shah, **C.A. Lareau**, et al. (2024) Dynamics of Immune Reconstitution and Impact on Outcomes Across CAR-T Cell Products in Large B-Cell Lymphoma. *Blood Cancer Discovery*. DOI: 10.1158/2643-3230.BCD-24-0163.
41. A. Obers, ..., **C.A. Lareau**, et al. (2024) Retinoic acid and TGF- β orchestrate organ-specific programs of tissue residency; *Immunity*. DOI: 10.1016/j.immuni.2024.09.015.
42. L.Penter, ..., **C.A. Lareau**, et al. (2024) Tracking rare single donor and recipient immune and leukemia cells after allogeneic hematopoietic cell transplantation using mitochondrial DNA mutations. *Blood Cancer Discovery*. DOI: 10.1158/2643-3230.BCD-23-0138.
43. F.A. Buquicchio, ... **C.A. Lareau**, A.T. Satpathy, L. Mackay. (2024) Distinct epigenomic landscapes underlie tissue-specific memory T cell differentiation. *Immunity*. DOI: 10.1016/j.immuni.2024.06.014
44. IGVF Consortium, including **C.A. Lareau**. (2024) Deciphering the impact of genomic variation on function. *Nature*. DOI: 10.1038/s41586-024-07510-0.
45. K. Nuno, A. Azizi, T. Kohnke, **C.A. Lareau**, et al. (2024) Convergent Epigenetic Evolution Drives Relapse in Acute Myeloid Leukemia. *eLife*. DOI: 10.7554/eLife.93019.
46. C. Liu, H. Nagashima, P. Wang, A. Lim, S. Signorella, W. Montgomery, N. Fernando, V. Bass, L. Reich, Z. Tang, O. Harrison, C. Yao, H. Sun, S. Brooks, J. Kan, V. Nagarajan, R. Phillips, Y. Mikami, **C.A. Lareau**, et al. (2023) CTCF-mediated topologically associated domains delineates super-enhancer territories and selective cytokine expression at the Mdm1-II22-Ifng. *Immunity* DOI: 10.1016/j.immuni.2024.04.007.
47. A. Doan, et al., **C.A. Lareau**, J. Fraietta, E. Sotillo, A. Satpathy, C. Mackall, E. Weber (2024). FOXO1 is a master regulator of CAR T memory programming. *Nature*. DOI: 10.1038/s41586-024-07300-8.
48. N Schmidt, S. Ganskih, Y. Wei, A. Gabel, S. Zielinski, H. Keshishian, **C.A. Lareau**, et al. (2023). The host protein SND1 binds SARS-CoV-2 negative-sense RNA and promotes nascent viral RNA synthesis. *Cell*. DOI: 10.1016/j.cell.2023.09.002
49. A.M Tousley, M.C. Rotiroti, L Labanieh, L.W. Rysavy, W. Kim, **C.A. Lareau**, et al. (2023). Co-opting T cell proximal signaling molecules enables Boolean logic-gated CAR T cell control. *Nature*. DOI: 10.1038/s41586-023-05778-2.

50. R. Fonseca, T. Burn, L. Gandolfo, S. Devi, S. Park, A. Obers, M Evrard, S. N. Christo, F. A. Buquicchio, **C.A. Lareau**, *et al.* (2022). Runx3 drives a tissue residency program that is absent in CD4+ T cells. *Nature Immunology*. DOI: 10.1038/s41590-022-01273-4.
51. T. Ruckert, **C.A. Lareau**, *et al.* (2022) Clonal expansion and epigenetic inheritance of long-lasting NK cell memory. *Nature Immunology*. DOI: 10.1038/s41590-022-01327-7.
52. T. Miller, **C.A. Lareau**, *et al.* (2022) Mitochondrial variant enrichment from high-throughput single-cell RNA-seq resolves clonal populations. *Nature Biotechnology*. DOI: 10.1101/2021.03.08.434450v1.
53. L. Penter, E. ten Hacken, J. Southard, **C.A. Lareau**, *et al.* (2022) Mitochondrial DNA mutations as natural barcodes for lineage tracing of murine tumor models. *Cancer Research*. DOI: 10.1158/0008-5472.CAN-22-0275.
54. J. Rosenberg, J. Peters, T. Hughes, **C.A. Lareau** *et al.* (2022) JAK-inhibition in a patient with a STAT1 gain-of-function variant reveals dysregulation as a common feature of aplastic anemia. *Med*. DOI: 10.1016/j.medj.2021.12.003.
55. S. Bucktrout, N. Banovich, L. Butterfield, C. Cimen-Bozkus, J. Giles, Z. Good, D. Goodman, V. Jonsson, **C.A. Lareau**, *et al.* (2022) Advancing T cell based cancer therapy with single-cell technologies. *Nature Medicine*. DOI: 10.1038/s41591-022-01986-x.
56. V.K. Kartha, F.M. Duarte, Y. Hu, S. Ma, J.G. Chew, **C.A. Lareau**, *et al.* (2022) Functional Inference of Gene Regulation using Single-Cell Multi-Omics. *Cell Genomics*. DOI: 10.1016/j.xgen.2022.100166.
57. R. Kedmi, T. Najjar, K. Mesa, A. Grayson, L. Kroehling, Y. Hao, S. Hao, M. Pokrovskii, M. Xu, J. Talbot, J. Wang, J. Germino, **C.A. Lareau**, *et al.* (2022). Microbiota-instructed regulatory T cell differentiation is mediated by a distinct RORgt+ antigen presenting cell subset. *Nature*. DOI: 10.1038/s41586-022-05089-y.
58. E. Panditharatna, J. Marques, T. Wang, M. Trissal, I. Liu, L. Jiang, A. Beck, A. Groves, N. Dharia, D. Li, S. Hoffman, G. Kugener, M. Shaw, H. Mire, O. Hack, J. Dempster, **C.A. Lareau**, *et al.* (2022) BAF complex maintains glioma stem cells in pediatric H3K27M-glioma. *Cancer Discovery*. DOI: 10.1158/2159-8290.CD-21-1491.
59. T. Zhao, Z. Chiang, J. Morriss, L. LaFave, E.M. Murray, I. Del Priore, K. Meli, **C.A. Lareau** *et al.* (2022). Spatial genomics enables multi-modal study of clonal heterogeneity in tissues. *Nature*. DOI: 10.1038/s41586-021-04217-4.
60. R. Ajore, A. Niroula, M. Pertesi, C. Cafaro, M. Thodberg, M. Went, E. Bao, L. Duran-Lozano, A. de Lapuente Portilla, T. Olafsdottir, N. Ugidos-Damboriena, O. Magnusson, M. Samur, **C.A. Lareau**, *et al.* (2022) Functional dissection of inherited non-coding variation influencing multiple myeloma risk. *Nature Communications*. DOI: 10.1038/s41467-021-27666.
61. T. Stuart, A. Srivastava, S. Madad, **C.A. Lareau**, R. Satija. (2021) Multimodal single-cell chromatin analysis with Signac. *Nature Methods*. DOI: 10.1101/2020.11.09.373613.
62. E. Fiskin, **C.A. Lareau**, *et al.* (2021) Single-cell multimodal profiling of proteins and chromatin accessibility using PHAGE-ATAC. *Nature Biotechnology*. DOI: 10.1038/s41587-021-01065-5.
63. H. King, K. Wells, Z. Shipony, A. Kathiria, L. Wager, **C.A. Lareau**, *et al.* (2021) Integrated single-cell transcriptomics and epigenomics reveals strong germinal center-associated etiology of autoimmune risk loci. *Science Immunology*. DOI: 10.1126/sciimmunol.abh3768.
64. L. Penter, S. Gohil, **C.A. Lareau**, *et al.* (2021) Longitudinal single-cell dynamics of chromatin accessibility and mitochondrial mutations in chronic lymphocytic leukemia mirror disease history. *Cancer Discovery*. DOI: 10.1158/2159-8290.CD-21-0276.
65. R. Kawakami, Y. Kitagawa, K. Chen, M. Arai, D. Ohara, Y. Nakamura, K. Yasuda, M. Osaki, N. Mikami, **C.A. Lareau**, *et al.* (2021) Distinct Foxp3 enhancer elements coordinate development, maintenance, and function of regulatory T cells. *Immunity*. DOI: 10.1016/j.immuni.2021.04.005

66. B. Adane, G. Alexe, B Seong, D. Lu, E. Hwang, D. Hsinz, **C.A. Lareau, et al.** (2021) STAG2 Loss Rewires Oncogenic and Developmental Programs to Promote Metastasis in Ewing Sarcoma. *Cancer Cell*. DOI: 10.1016/j.ccell.2021.05.007
67. S. Ma, B. Zhang, L. LaFave, Z. Chiang, Y. Hu, J. Ding, A. Brack, V. Kartha, T. Law, **C.A. Lareau, et al.** (2020) Chromatin potential identified by shared single cell profiling of RNA and chromatin. *Cell*. DOI: 10.1016/j.cell.2020.09.056.
68. E. Bao, S. Nandakumar, X. Liao, A. Bick, J. Karjalainen, M. Tabaka, O.I. Gan, A. Havulinna, T. Kiiskinen, **C.A. Lareau, et al.** (2020) Genetic predisposition to myeloproliferative neoplasms implicates hematopoietic stem cell biology. *Nature*. DOI: 10.1038/s41586-020-2786-7.
69. M. Chen, L. Raffield, A. Mousas, S. Sakaue, J. Huffman, T. Jiang, P. Akbari, D. Vuckovic, E. Bao, A. Moscati, X. Zhong, R. Manansala, V. Laplante, M. Chen, K. Lo, H Qian, **C.A. Lareau, et al.** (2020) Trans-ethnic and ancestry-specific blood-cell genetics in 746,667 individuals from 5 global populations. *Cell*. DOI: 10.1016/j.cell.2020.06.045.
70. S. Johnstone, A. Reyes, Y. Qi, E. Hegazi, K. Pelka, J. Chen, L. Zou, Y. Drier, V. Hecht, N. Shores, **C.A. Lareau, et al.** (2020) A topological atlas reveals layers of genome reorganization in colorectal cancer. *Cell*. DOI: 10.1016/j.cell.2020.07.030.
71. L. Garman, R. Pelikan, A. Rasmussen, **C.A. Lareau, et al.** (2020) Single cell transcriptomics implicate novel T cell and monocyte immune dysregulation in sarcoidosis. *Frontiers in Immunology*. DOI: 10.3389/fimmu.2020.567342.
72. J. Grünewald, R. Zhao, **C.A. Lareau, et al.** (2020) A dual-deaminase CRISPR base editor enables concurrent adenine and cytosine editing. *Nature Biotechnology*. DOI: 10.1038/s41587-020-0535-y.
73. L.M. LaFave, V.K. Kartha, S. Ma, K. Meli, I. Del Priore, **C.A. Lareau, et al.** (2020) Epigenetic state transitions characterize tumor progression in lung adenocarcinoma. *Cancer Cell*. DOI: 10.1016/j.ccell.2020.06.006.
74. A.L. Basak, M. Munschauer, **C.A. Lareau, et al.** (2020) Control of human hemoglobin switching by LIN28B-mediated regulation of BCL11A translation. *Nature Genetics*. DOI: 10.1038/s41588-019-0568-7.
75. J. Ray, C. de Boer, C. Fulco, **C.A. Lareau, et al.** (2020) Prioritizing disease and trait causal variants at the TNFAIP3 locus using functional and genomic features. *Nature Communications*. DOI: 10.1038/s41467-020-15022-4.
76. ImmGen Consortium, 149 authors including **C.A. Lareau.** (2020) ImmGen at 15. *Nature Immunology*. DOI: 10.1038/s41590-020-0687-4.
77. H. Yoshida, **C.A. Lareau**, R.N. Ramirez, S.A. Rose, *et al.* (2019) The cis-regulatory atlas of the mouse immune system. *Cell*. DOI: 10.1016/j.cell.2018.12.036.
78. J. Grünewald, R. Zhao, S. Garcia,* S. Iyer,* **C.A. Lareau,* et al.** (2019) Transcriptome-wide off-target RNA editing induced by CRISPR-guided DNA base editors. *Nature*. DOI: 10.1038/s41586-019-1161-z.
79. H. Chen, **C.A. Lareau**, T. Andreani, *et al.* (2019) Assessment of computational methods for the analysis of single-cell ATAC-seq data. *Genome Biology*. DOI: 10.1186/s13059-019-1854-5.
80. H. Chen, L. Albergante, J.Y. Hsu, **C.A. Lareau, et al.** (2019) STREAM: Single-cell Trajectories Reconstruction, Exploration And Mapping of omics data. *Nature Communications*. DOI: 10.1038/s41467-019-09670-4.
81. J. Grünewald, R. Zhao, S. Iyer,* **C.A. Lareau,* S. Garcia,* et al.** (2019) CRISPR adenine and cytosine base editors with reduced RNA off-target activities. *Nature Biotechnology*. DOI: 10.1038/s41587-019-0236-6.
82. C. Fulco, J. Nasser, T. Jones, G. Munson, D. Bergman, V. Subramanian, S. Grossman, R. Anyoha, B. Doughty, T. Patwardhan, T. Nguyen, M. Kane, E. Perez, N. Durand, **C.A. Lareau, et al.** (2019) Activity-by-Contact model of enhancer-promoter regulation from thousands of CRISPR perturbations. *Nature Genetics*. DOI: 10.1038/s41588-019-0538-0.

83. S.K. Nandakumar, S.K. McFarland, L.M. Mateyka,* **C.A. Lareau,* et al.** (2019) Gene-centric functional dissection of human genetic variation uncovers regulators of hematopoiesis. *eLife*: DOI: 10.7554/eLife.44080.
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89. B. Michel, A. D'Avino, S. Cassel, N. Mashtalir, Z. McKenzie, M. McBride, A. Valencia, Q. Zhou, M. Bocker, L. Soares, J. Pan, D. Remillard, **C.A. Lareau, et al.** (2018) A non-canonical SWI/SNF complex is a synthetic lethal target in cancers driven by BAF complex perturbation. *Nature Cell Biology*. DOI: 10.1038/s41556-018-0221-1.
90. A.T. Satpathy, N. Saligrama, J.D. Buenrostro, Y. Wei, B. Wu, A.J. Rubin, J.M. Granja, **C.A. Lareau, et al.** (2018) Transcript-indexed ATAC-seq reveals paired single-cell T cell receptor identity and chromatin accessibility for precision immune profiling. *Nature Medicine*. DOI: 10.1038/S41591-018-0008-8.
91. J.C. Ulirsch, **C.A. Lareau, et al.** (2017) Confounding in *ex vivo* models of Diamond-Blackfan anemia. *Blood*. DOI: 10.1182/blood-2017-05-783191.
92. T. Carrillo-Roa, C. Labermier, P. Weber, D.P. Herzog, **C.A. Lareau, et al.** (2017) Common Genes Associated With Antidepressant Response In Mouse And Man Identify Key Role Of Glucocorticoid Receptor Sensitivity. *PLoS Biology*. DOI: 10.1371/journal.pbio.2002690.
93. R.J.H. Ryan, J. Petrovic, D.M. Rausch, Y. Zhou, **C.A. Lareau et al.** (2017) AB Cell Regulome Links Notch to Downstream Oncogenic Pathways in Small B Cell Lymphomas. *Cell Reports*. DOI: 10.1016/j.celrep.2017.09.066.
94. Q. Tang, S. Iyer, R. Lobbardi, J. C. Moore, H. Chen, **C.A. Lareau, et al.** (2017) Dissecting hematopoietic and renal cell heterogeneity in adult zebrafish at single-cell resolution using RNA sequencing. *Journal of Experimental Medicine*. DOI: 10.1084/jem.20170976.
95. B.A. McKinney, **C.A. Lareau, et al.** (2016) The Integration of Epistasis Network and Functional Interactions in a GWAS Implicates RXR Pathway Genes in the Immune Response to Smallpox Vaccine. *PLoS One*. DOI: 10.1371/journal.pone.0158016.

OTHER PRE-PRINTS

96. **C.A. Lareau[‡], et al.** (2024) Artifacts in single-cell mitochondrial DNA mutation analyses misinform phylogenetic inference. *bioRxiv*. DOI: 10.1101/2024.07.28.605517.
97. **C.A. Lareau[‡], et al.** (2023) Codon affinity in mitochondrial DNA shapes evolutionary and somatic fitness. *bioRxiv*. DOI: 10.1101/2023.04.23.537997v1.

98. E. Fiskin, G. Eraslan, B. Alora-Palli, J.M. Leyva-Castillo, S. Kim, H. Choe, **C.A. Lareau**, *et al.* (2023) Multi-modal skin atlas associates a multicellular immune-stromal community with altered cornification and T cell expansion in atopic dermatitis. *bioRxiv*. DOI: 10.1101/2023.10.29.563503.
99. L. Siraj, R. Castro, H. Dewey, S. Kales, T. Nguyen, M. Kanai, D. Berenzy, K. Mouri, Q. Wang, Z. McCaw, S. Gosai, F. Aguet, R. Cui, C. Vockley, **C.A. Lareau**, *et al.* (2023) Functional dissection of complex and molecular trait variants at single nucleotide resolution. *bioRxiv*. DOI: 10.1101/2024.05.05.592437.
100. K. Hiam-Galvez, R. Debarge, **C.A. Lareau**, *et al.* (2022) Transient dendritic cell activation diversifies the T cell response to acute infection. *bioRxiv*. DOI: 10.1101/2021.09.26.461821v1.

PATENTS

GRANTED

1. **PCT/US2019/036583**; Lineage tracing using mitochondrial genome mutations and single-cell genomics
2. **PCT/US2021/035951**; Methods of detecting mitochondrial disease
3. **PCT/US2021/032702**; Lineage inference from single-cell transcriptomics
4. **PCT/US2023/030111**; Methods of genetically modifying cells for altered codon-anti-codon interactions

PENDING

5. **PPA 63/314,980**; Massively integrated analysis of single cell RNA sequencing data
6. **PPA 63/397,515**; Methods of assessing *in vitro* therapeutic T cells for latent and reactivated human herpesvirus 6B
7. **PPA 63/733,563**; NCR2 Targeted Immunotherapies

TEACHING EXPERIENCE

Gerstner Sloan Kettering Graduate School

Lecturer, Basic Science Module; Cancer Biology and Cancer Engineering Program

Fall 2024

Weill Cornell Medicine

Lecturer, Functional Interpretation of High-Throughput Data

Spring 2024

Faculty Moderator, Computational Biology and Medicine Journal Club

Fall 2023,2024

Stanford University

Course Head; Cell, Gene, and Immune Therapies

Spring 2023

Lecturer; Single-cell Immunogenomics

Spring 2022, 2023

Lecturer; Introduction to Applied Computational Tools in Immunology

Winter 2022,2023

Harvard University

Teaching Associate; Introduction to Computational Biology and Bioinformatics

Spring 2017, 2020

Teaching Associate; Introduction to Statistical Genetics

Fall 2016, 2017

Cold Spring Harbor Laboratory

Lecturer; Advanced Sequencing Technologies

Fall 2019

University of Tulsa

Teaching Associate; Molecular Modeling

Spring 2014, 2015

Teaching Associate; Energy Technology for the Future

Spring 2013

ACADEMIC SERVICE

SCIENTIFIC MENTORSHIP

Weill Cornell Computational Biology and Medicine PhD Students (2023-present)
Gerstner Sloan Kettering PhD Students (2023-present)
Stanford Institutes of Medicine Summer Research Program (2022-2023)
Stanford undergraduate and graduate students in: Genetics, Computer Science, and Immunology research (2020-2023)
MIT undergraduate research (2016-2020)

OUTREACH

Mentor, Computational Biology Summer Program (MSKCC) (2024-Present)
Mentor, Weill Cornell High School Catalyst Program (2024-Present)
Goldwater Scholar Mentorship Program (2016-Present)
Project SHORT Mentor (2020-2023)
Speaker, Gateway High School and Fremont High School, High School Career Day (2020-2023)
Mentor, Research Science Institute, MIT (2016-2019)
Volunteer computer science instructor, Will Rogers High School, Tulsa, OK (2014-2015)

GUEST EDITOR

Frontiers in Immunology

AD HOC PEER REVIEW - GRANTS

UK Medical Research Council, European Research Council (ERC), Dutch Research Council (NWO), Italian Science Fund, Austrian Science Fund, National Science Foundation, Simons Research Foundation

AD HOC PEER REVIEW - JOURNALS

Nature, Cell, Science, PNAS, Nature Biotechnology, Nature Genetics, Nature Methods, Nature Communications, Nature Protocols, Science Advances, Cell Systems, Nature Structural and Molecular Biology, Genome Research, Nucleic Acids Research BMC Biology, BMC Bioinformatics, Cancers, Communications Biology, Life Science Alliance, The R Journal, BioData Mining, BMC Medical Genomics, BMJ Open, Molecular Cancer, Frontiers in Medicine, Frontiers in Cell and Development Biology, Frontiers in Immunology, Cell Reports Medicine, Oxford Bioinformatics

PROFESSIONAL MEMBERSHIP

Member, Society for Immunotherapy of Cancer
Trainee Member, American Society of Human Genetics; American Association for Cancer Research
Developer, Bioconductor Project
Supporting Member, R and Python Software Foundations

INVITED TALKS AND PRESENTATIONS

@MSKCC

FASEB: Mechanisms of mitochondrial DNA mutation and repair , Nashville, TN	June 2025
12th International Conference on HHV-6 and 7 , Himeji, Japan	March 2025
23rd Annual Workshop at Bellairs– Metagenomics Barbados	February 2025
University of Toronto, Medical Genetics Seminar Series , Houston, TX	November 2024
Baylor University, Genetics and Genomics Seminar Series , Toronto, ON	November 2024
Single-cell Genomics Conference 2024 , Corinthia, Greece	September 2024
Columbia University Intensive Workshop: Methods in Single-Cell Data , New York, NY	July 2024
Gordon Research Conference- Single-cell Cancer Biology , Hooksett, NH	June 2024

Innovations in Single Cell Omics , Barcelona, Spain	May 2024
PEGS - Antibody and Protein Engineering , Boston, MA	May 2024
Element Biosciences User Group Meeting , New York, NY	April 2024
New York Genome Center- Single-cell Genomics Day , New York, NY	March 2024
Single-cell Netherlands Seminar Series , Amsterdam, NL	March 2024
Immuno-Oncology 360 Summit , Brooklyn, NY	February 2024
2nd Annual Probing Human Disease Using Single-Cell Technologies , Cancun, Mexico	February 2024
Google DeepMind Invited Seminar Series , London, UK	November 2023
Society for Immunotherapy of Cancer , Chicago, IL	September 2023

@Stanford

Human Cell Atlas, General Meeting , Toronto, ON, Canada	July 2023
Memorial Sloan Kettering Institute, Emerging Leader Symposium , New York, NY	May 2023
Dana Farber Cancer Institute, Medical Oncology Seminar Series , Boston, MA	March 2023
Genentech, Distinguished Scientific Speaker Seminar Series , San Francisco, CA	February 2023
UCSF, Microbiology and Immunology Seminar , San Francisco, CA	February 2023
Sloan Kettering Institute, Computational and Systems Biology Seminar , New York, NY	February 2023
Fred Hutchinson Cancer Center, Translational Data Science Center Seminar , Seattle, WA	January 2023
Northwestern University, Biochemistry and Molecular Genetics Seminar , Chicago, IL	January 2023
University of Pennsylvania, Department of Pediatrics Seminar , Philadelphia, PA	January 2023
Massachusetts General Hospital, Department of Pathology Seminar Series , Boston, MA	January 2023
New York University, Department of Pathology Seminar Seminar Series , New York, NY	December 2022
Stanford University EpiBio Seminar Series , Stanford, CA	December 2022
Parker Institute for Cancer Immunotherapy, Winter Meeting , Santa Rosa, CA	November 2022
Stanford Cancer Institute Cell Therapy Seminar Series , Stanford, CA	October 2022
Max Planck Systems Immunology Seminar Series , Wurzburg, Germany	September 2022
Immunotherapy of Cancer Conference, Annual Meeting , Munich, Germany	September 2022
Stanford Center for Human Systems Immunology SAB Meeting , Stanford, CA	September 2022
Stanford Alzheimer's Disease Research Center Seminar Series , Stanford, CA	September 2022
Impact of Genomic Variation on Function Seminar Series , Bethesda, MD	June 2022
Probing Human Disease Using Single-Cell Technologies, Annual Meeting , Cancun, Mexico	May 2022
Parker Institute for Cancer Immunotherapy, Annual Meeting , Sonoma, CA	April 2022
Dana Farber Center for Functional Cancer Epigenetics Seminar Series , Boston, MA	April 2022
Immuni Visiting Scientist Seminar Series , New York, NY	January 2022
Broad Institute Next Generation Faculty Symposium , Cambridge, MA	November 2021
UCSF Single-cell Seminar Series San Francisco, CA	July 2021
10x Genomics Global Cancer Symposium , Pleasanton, CA	April 2021
Max Delbruck Medical Systems Biology Lecture , Berlin, Germany	April 2021
UCSF Diabetes Center Seminar , San Francisco, CA	February 2021