Sairaj Sajjath
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Sairaj Sajjath

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Education

2019–2026 PhD in Biological Sciences
The Rockefeller University (New York, NY)
Thesis defense: April 24, 2026
Degree conferral: June 4, 2026

2015–2019 B.A. in Biology
Columbia University (New York, NY)
GPA: 3.94/4.0 (*magna cum laude*)

Research Experience

Jul. 2026 - Sep. 2026 *Title*: Postdoctoral Associate
Institute: The Rockefeller University, Howard Hughes Medical Institute
Department: Laboratory of Mammalian Cell Biology & Development
Supervisor: Elaine Fuchs, PhD
Projects: Continuation of thesis research.

Sep. 2020 - Jun. 2026 *Title*: Graduate Fellow
Institute: The Rockefeller University, Howard Hughes Medical Institute
Department: Laboratory of Mammalian Cell Biology & Development
Supervisor: Elaine Fuchs, PhD
Thesis projects: 1) Distinctive DNA sequence features define epigenetic longevity of inflammatory memory (*Science* 2026). 2) Systemic training of tissue stem cells by localized acute type 2 skin inflammation (in preparation).

Sep. 2019 - Dec. 2019 *Title*: Graduate Fellow (Rotation)
Institute: The Rockefeller University
Department: Laboratory of Lymphocyte Dynamics
Supervisor: Gabriel Victora, PhD
Rotation project: Designed, cloned, and performed *in vitro* testing of genetic constructs to temporally track individual cell-cell interactions.

Jan. 2019 – May 2019 *Title*: Undergraduate Researcher
Institute: The Rockefeller University, Howard Hughes Medical Institute
Department: Laboratory of Human Genetics of Infectious Diseases
Supervisors: Jean-Laurent Casanova, MD, PhD & Kang Liu, PhD
Summary: Investigated how germline mutation in GATA2 alters hematopoietic output in humans (included in Oleaga-Quintas et al., *JCI* 2021).

Sep. 2017 – May 2019 *Title*: Undergraduate Researcher
Institute: Columbia University
Department: Department of Microbiology & Immunology
Supervisors: Kang Liu, PhD
Summary: Investigated how the transcription factor IRF8 functions throughout dendritic cell fate specification from early-stage hematopoietic stem cells.

Dec. 2015 - Sep. 2016 *Title*: Undergraduate Researcher

Institute: Columbia University
Department: Department of Systems Biology
Supervisor: Milan Stojanovic, PhD
Summary: Identified RNA and DNA aptamers targeting various small molecule compounds (included in Yang et al., *Science* 2023).

Publications (Submitted & In Press)

2026 Vincent Liu†, Katalin Sandor, Patrick K. Yan, Zhuang Miao, Yajie Yin, Robert R. Stickels, Andy Y. Chen, Kamir Hiam-Galvez, Jacob Gutierrez, Wenxi Zhang, **Sairaj M. Sajjath**, Raeline Valbuena, Steven Wang, Bence Daniel, Leif S. Ludwig, Brooke E. Howitt, Caleb A. Lareau†, Ansuman T. Satpathy†. Clonal lineage racing of innate immune cells in human cancer. ***Cancer Cell*** (2026). †Co-corresponding authors.

2026 Christopher J. Cowley*, **Sairaj M. Sajjath***, Luis F. Soto-Ugaldi*, Mara Steiger, Samantha B. Larsen, Kevin Li, Thomas S. Carroll, Douglas Barrows, Alexandra Mattei, Kevin A.U. Gonzales, Wei Wang, Alexander Meissner, Helene Kretzmer, Dana Pe'er†, and Elaine Fuchs†. Distinctive DNA sequence features define epigenetic longevity of inflammatory memory. ***Science*** 391 (6792), eadz6830. *Authors contributed equally. †Co-corresponding authors.

2026 Sara M. Parigi, **Sairaj M. Sajjath**, Charlotte Bell, Matthew R. Kudelka, Shaopeng Yuan, Vitoria Murakami-Olyntho, Tatiana Omelchenko, Lisa Polak, Daniel Mucida, Gabriel D. Victora, and Elaine Fuchs. Immune cells adapt to distinct stem cell niches to govern tissue homeostasis. ***In revision***.

2026 Anita Gola, Rohith Srinivas*, Elias G. Rodig*, Marina Schernthanner, Merve D. Abdusselamoglu, Matthew T. Tierney, Natalie J. Alexander, Kevin A.U. Gonzales, **Sairaj M. Sajjath**, Luis F. Soto-Ugaldi, Alain R. Bonny, and Elaine Fuchs. A commensal-immune rheostat fine-tunes skin barrier fitness. ***In revision*.** *Authors contributed equally.

2025 Elizabeth A.N. Thompson, Clara Schimmer, Tatiana Omelchenko, Alain R. Bonny, **Sairaj M. Sajjath**, Katherine Stewart, Marina Schernthanner, Jesse S.S. Novak, Sara M. Parigi, Stephanie J. Ellis†, and Elaine Fuchs†. Local neighbourhood mechanics influence cell competition to dictate pre-malignant outcomes. ***In revision***. †Co-corresponding authors.

2023 **Sairaj M. Sajjath**, Anita Gola, and Elaine Fuchs. Designer bugs as cancer drugs? ***Science*** **(perspective piece)** 380 (6641), p. 132-133.

2023 Kyungae Yang, Noelle M. Mitchell, Saswata Banerjee, Zhenzhuang Cheng, Steven Taylor, Aleksandra M. Kostic, Isabel Wong, **Sairaj M. Sajjath**, Yameng Zhang, Jacob Stevens, Sumit Mohan, Donald W. Landry, Tilla S. Worgall, Anne M. Andrews, and Milan N. Stojanovic. A functional group–guided approach to aptamers for small molecules. ***Science*** 380 (6648), p. 942-948.

2021 Samantha B. Larsen*, Christopher J. Cowley*, **Sairaj M. Sajjath**, Douglas Barrows, Yihao Yang, Thomas S. Carroll, and Elaine Fuchs. Establishment, maintenance, and recall of inflammatory memory. ***Cell Stem Cell*** 28 (10), p. 1758-1774. *Authors contributed equally.

2021 Carmen Oleaga-Quintas, Edgar Borges de Oliveira-Júnior, Jérémie Rosain, Franck Rapaport, Caroline Deswarte, Antoine Guérin, **Sairaj M. Sajjath**, Yu J. Zhou, Stéphane Marot, Claire Lozano, Lidia Branco, Nuria Fernández-Hidalgo, Dukhee B. Lew, Anne-Sophie Brunel, Caroline Thomas, Elise Launay, Andrés A. Arias, Alexis Cuffel, Vanesa C. Monjo, Anna-Lena Neehus, Laura Marques, Manon Roynard, Marcela Moncada-Vélez, Bengü Gerçeker, Roger Colobran, Marie-Gabrielle Vigué, Gabriela Lopez-Herrera, Laura Berron-Ruiz, Nora H.S. Méndez, Patricia O. Romanillos, Tom Le Voyer, Anne Puel, Christine Bellanné-Chantelot, Kacy A. Ramirez, Lazaro Lorenzo-Diaz, Noé R. Alejo, Rebeca P. de Diego, Antonio Condino-

Neto, Fethi Mellouli, Carlos Rodriguez-Gallego, Torsten Witte, José F. Restrepo, Mariana Jobim, Stéphanie Boisson-Dupuis, Eric Jeziorski, Claire Fieschi, Guillaume Vogt, Jean Donadieu, Marlène Pasquet, Julia Vasconcelos, Fatma O. Ardeniz, Mónica Martínez-Gallo, Regis A. Campos, Luiz F. Jobim, Rubén Martínez-Barricarte, Kang Liu, Aurélie Cobat, Laurent Abel, Jean-Laurent Casanova, and Jacinta Bustamante. Inherited GATA2 deficiency is dominant by haploinsufficiency and displays incomplete clinical penetrance. ***Journal of Clinical Immunology*** 41, p. 639-657.

Manuscripts in Preparation

2026 **Sairaj M. Sajjath***, Christopher J. Cowley*, Jaejin Kim, Natalie J. Alexander, Felipe S. Rodrigues, Merve D. Abdusselamoglu, Sara M. Parigi, Marina Schernthanner, Shaopeng Yuan, and Elaine Fuchs. Systemic training of tissue stem cells by localized acute type 2 skin inflammation. *In preparation*. *Authors contributed equally.

2026 **Sairaj M. Sajjath**, Luis F. Soto-Ugaldi, Elaine Fuchs. Good Times and Bad: How, what and why tissues learn from prior inflammatory experiences (review article). *In preparation*.

Fellowships

2023–2026 NIAMS Ruth F. Kirschstein Pre-Doctoral Individual National Research Service Award (F31)
2019 Rockefeller University Anderson Fellow
2018 Summer Undergraduate Research Fellowship (SURF), Columbia University

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Presentations

Oral Presentations (invited or selected from among submitted abstracts)

2025 Rockefeller University Greenberg Center Young Investigators Forum
2024 Rockefeller University Stavros Niarchos Foundation Young Scientists Forum
2021 Keystone Symposium on Innate Immune Memory

Poster Presentations

2024 Howard Hughes Medical Institute Science Meeting
2024 Rockefeller University Stavros Niarchos Foundation Forum
2023 18th International Congress of Immunology
2021 Keystone Symposium on Innate Immune Memory

Mentoring Experience

2022–Present Graduate student, Fuchs Laboratory
2024–Present Graduate student, joint between Fuchs and Dr. Dana Pe'er Laboratories

Teaching

2017-2019 Teaching Assistant, Introductory Biology at Columbia University (Dr. Deborah Mowshowitz)

Outreach

2024 Guest Lecturer, RockEDU. The Rockefeller University.
2022 Mentor, Afterschool STEM Mentoring Program. New York Academy of Sciences.
2021 Mentor, Junior Academy. New York Academy of Sciences.
2021 Guest Lecturer, Junior Academy. New York Academy of Sciences.

Skills

Animal: Handling, treatment, and microsurgery of rodents. Collection and processing of skin, airway, and blood tissues.

Bioinformatics: End-to-end processing and analysis of ATAC-seq (bulk and single-cell), RNA-seq (bulk and single-cell), Cut&Run, and MINT-ChIP. Proficiency in R and scripting for Linux and macOS.

Cellular and molecular biology: Flow cytometry and cell sorting; organoid culture; bacterial and mammalian cell cloning and culture; extraction and processing of DNA/RNA (RT-qPCR, RNA-seq, ATAC-seq, Cut&Run, MINT-ChIP); extraction and processing of tissue and blood protein (ELISA); immunofluorescence microscopy and analysis with ImageJ.