

Evan Collins

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EDUCATION

Massachusetts Institute of Technology

Doctor of Philosophy (PhD) Candidate in Biological Engineering
Advised by Robert Langer ScD, Daniel Anderson PhD

2022 – ongoing
Cambridge, MA

Yale University

Master of Science (MS) in Biomedical Engineering
Bachelor of Science (BS) in Biomedical Engineering

2018 – 2022
New Haven, CT

Non-degree education:

Tsinghua University

Inter-University Program for Chinese Language Study (IUP 汉语培训项目)

2020
Beijing, China
(remote)

CORE WORK EXPERIENCE

Massachusetts Institute of Technology,

Koch Institute for Integrative Cancer Research

Doctoral Researcher

2022 – present
Cambridge, MA

Yale University

Student Investigator

2018 – 2022
New Haven, CT

Simplex Sciences

Chief Operating Officer & Chief Science Officer

2019 – 2022
New Haven, CT

D. E. Shaw & Co.

Risk Analyst Intern

2021
New York, NY

Click Therapeutics

Data Scientist

2020 – 2021
New York, NY

AWARDS

- MIT Wishnok Prize for Best Talk (2025)
- MIT Prize for Open Data Honorable Mention (2025)
- MIT Jameel Clinic Fellowship for Machine Learning in Health (2022)
- Yale D. Allan Bromley Prize for Highest GPA in Biomedical Engineering (2022)
- Yale SEAS Belle and Carl Morse Scholarship (2021)
- D. E. Shaw Nexus Fellowship (2021)
- Yale Richard U. Light Fellowship for Chinese Studies (2020)
- Tau Beta Pi Engineering Honor Society (2020 – 2022)
- Lockheed Martin STEM Scholarship (2019 – 2022)
- Yale Summer Research Fellowship (2019)
- Intel International Science and Engineering Fair Third Place Prize (2018)
- National Merit Finalist and Scholarship (2018)
- Valedictorian of Ridgeview High School (2018)

TEACHING

- Course Content Developer, MIT 3.C01/3.C51/10.C01/20.C01/20.C51 Machine Learning for Molecular Engineering (Spring 2024 with Rafael Gomez-Bombarelli, Connor Coley, and Ernest Fraenkel)
- Teaching Assistant, MIT 20.420[J] Principles of Molecular Bioengineering (Fall 2023 with Alan Jasanoff and Ernest Fraenkel)
- Tutor, Yale BENG 350 Physiological Systems (Fall 2020 with Mark Saltzman and Stuart Campbell)
- Tutor, Yale ENAS 194 Ordinary and Partial Differential Equations (Spring 2020 with Beth Anne Bennett)

PUBLICATIONS

- Collins E***, Ji J*, Kim SG*, Witten J, Kim S, Zhu R, Park P, Jung M, Park A, Manan R S, Rudra A, Jeang W J, Langer R, Anderson D G, Im W 2026
“Lipid Nanoparticle Database towards structure-function modeling and data-driven design for nucleic acid delivery”
Nature Communications
<https://doi.org/10.1038/s41467-026-68818-1>
- Chishti O, **Collins E**, McGrath H, Zhang T, Quraishi I H, Hirsch L J, Benjamin C, Damisah E C, Zaveri H P, Spencer D D, Sivaraju A 2025
“Multitask Language Mapping to Visualize the Spatial Configuration of Polyfunctional Language Cortex”
Neurology
<https://doi.org/10.1212/WNL.00000000000214256>
- Collins E**, Langer R, Anderson D G 2025
“Self-driving labs for biotechnology”
Nature Computational Science
<https://doi.org/10.1038/s43588-025-00885-8>
- Collins E**, Chishti O, McGrath H, Obaid S, King A, Qiu E, Gabriel E, Shen X, Arora J, Papademetris X, Constable T R, Spencer D D, Zaveri H P 2025
“Yale Brain Atlas to interactively explore multimodal structural and functional neuroimaging data”
Frontiers in Network Physiology
<https://doi.org/10.3389/fnnetp.2025.1585019>
- Jeang W J*, Wong B M*, Zhao Y, Manan R, Jiang A L, Bose S, **Collins E**, McMullen P, Rosenboom J, Lathwal S, Langer R, Anderson D G 2025
“Antifouling Immunomodulatory Copolymer Architectures that Inhibit the Fibrosis of Implants”
Advanced Materials
<https://doi.org/10.1002/adma.202414743>
- Witten J*, Raji I*, Manan R S*, Beyer E, Bartlett S, Tang Y, Ebadi M, Lei J, Nguyen D, Oladimeji F, Jiang A Y, MacDonald E, Hu Y, Mughal H, Self A, **Collins E**, Yan Z, Engelhardt J F, Langer R, Anderson D G 2024
“Artificial intelligence-guided design of lipid nanoparticles for pulmonary gene therapy”
Nature Biotechnology
<https://doi.org/10.1038/s41587-024-02490-y>
- Collins E**, Chishti O, Obaid S, King A, McGrath H, Shen X, Arora J, Papademetris X, Constable T R, Spencer D D, Zaveri H P 2024
“Mapping the structure-function relationship along macroscale gradients in the human brain”
Nature Communications
<https://doi.org/10.1038/s41467-024-51395-6>
- Sivaraju A, Quraishi I, **Collins E**, McGrath H, Ramos A, Turk-Browne N, Zaveri H P, Damisah E, Spencer D D, Hirsch L J 2024
“Systematic 1 Hz Direct Electrical Stimulation for Seizure Induction: A Reliable Method for Localizing Seizure Onset Zone and Predicting Seizure Freedom”
Brain Stimulation
<https://doi.org/10.1016/j.brs.2024.03.011>
- McGrath H, Zaveri H P, **Collins E**, Jafar T, Chishti O, Obaid S, Ksendzovsky A, Wu K, Papademetris X, Spencer D D 2022
“High-resolution cortical parcellation based on robust brain landmarks for precise localization of multimodal data”
Scientific Reports
<https://doi.org/10.1038/s41598-022-21543-3>

"The Implied Truth Effect: Attaching Warnings to a Subset of Fake News Headlines Increases Perceived Accuracy of Headlines Without Warnings"

Management Science

<https://doi.org/10.1287/mnsc.2019.3478>

CONFERENCES

Collins E. "Data-driven approaches for understanding and improving mRNA lipid nanoparticles". Talk at *MIT Koch Institute for Integrative Cancer Research Retreat* (2025).

Collins E, Ji J, Kim SG, Witten J, Kim S, Zhu R, Park P, Jung M, Park A, Manan R S, Rudra A, Jeang W J, Im W, Langer R, Anderson D G. "LNPDB: structure-function dataset of lipid nanoparticles to advance data-driven design for nucleic acid delivery". Poster at *MIT Molecular Machine Learning Conference (MoML)* (2025).

Park P, **Collins E**, Kim S, Im W. "Improving Martini 3 Coarse-Grained Models for Ionizable Lipids in LNP Simulations". Poster at *American Chemical Society Fall 2025 conference* (2025).

Ji J, **Collins E**, Kim SG, Kim S, Im W. "LNPDB: structure-function database of lipid nanoparticles to advance data-driven design for nucleic acid delivery". Poster at *American Chemical Society Fall 2025 conference* (2025).

Collins E, Chen M, Langer R, Anderson D G. Poster at *MIT Department of Biological Engineering Retreat* (2024).

Watson E, **Collins E**, Chishti O, McGrath H, Sivaraju A, Zaveri H P, Spencer D D. "Yale Brain Atlas Parcellation of Overlapping Multimodal Functions in the Human Temporal Lobe". Poster at *American Epilepsy Society conference* (2024).

King A, Obaid S, Pu K, Chishti O, **Collins E**, McGrath H, King-Stephens D, Duckrow R, Spencer D D, Zaveri H P. "Use of the Yale Brain Atlas to Determine Signatures of Cortical Thinning". Poster at *American Epilepsy Society conference* (2024).

Pu K, Chen M, Chen C, King A, **Collins E**, Spencer D D, Zaveri H P. "PET Hypometabolism is Associated with Epileptogenesis at Multiple Spatial Resolutions Ranging from the Hemisphere of Seizure Onset to the Seizure Onset Area". Poster at *American Epilepsy Society conference* (2023).

Watson E, **Collins E**, Chishti O, McGrath H, Sivaraju A, Zaveri H P, Spencer D D. "The optimization of a high-resolution brain atlas as a tool for surgical planning by translating a review of language function to parcellation". Poster at *American Epilepsy Society conference* (2023).

Collins E, Chishti O, Obaid S, McGrath H, King A, Spencer D D, Zaveri H P. "Large-scale analysis of the relationship between structure and function in the human cortex". Poster at *American Society of Neuroradiology Annual Meeting* (2023).

Collins E, Chishti O, Obaid S, McGrath H, Jafar T, King A, Zaveri H P, Spencer D D. "Anatomical brain atlas for structure-function coupling: predicting surgical outcome from seizure spread and analyzing large-scale fMRI-connectome associations". Poster and presentation at *American Epilepsy Society conference* (2022).

Collins E, McGrath H, Zaveri H P, Papademetris X, Wu K, Spencer D D. "Systematic Parcellation of the Human Cortex for Comparison of Multimodal Neuroimaging Data". Poster at *American Epilepsy Society conference* (2021).

Jafar T, McGrath H, Ksendzovsky A, Zaveri H, Farooque P, **Collins E**, Sivaraju A, Damisah E, Papademetris X, Spencer D D. "A multimodal cortical atlas for clinical decision making and function-structure hypotheses in epilepsy surgery". Poster at *Society for Neuroscience conference* (2021).

PEER REVIEW

Brain Structure and Function (Springer Nature)

Brain and cognition (Elsevier)

Epilepsy & behavior (Elsevier)

Technology in society (Elsevier)