# David M. Truong, PhD

Assistant Professor @ **New York University** | Department of Biomedical Engineering
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I am a synthetic biologist and genome engineer working at the intersection of cell programming, regenerative immunology, and chromatin-scale genome design. My lab develops human iPSC-based systems for programmable immunity and tissue repair, leveraging large-scale, scar-minimized DNA rewriting to construct functional genomic architectures at the >100 kb scale. We use these technologies to engineer universal donor cell platforms, rewire immune recognition logic, and build therapeutic circuits for T cell education, macrophage reprogramming, and neuroimmune regeneration. Before joining NYU, I led mammalian genome engineering at Neochromosome Inc. (acquired by Opentrons Robotics). My research is currently supported by an NIAID DP2 New Innovator Award, and an NIA R61/R33 on neurodegenerative macrophage therapies.

## Education and Employment

Assistant Professor | NYU Tandon School of Engineering — 09/2021 – present
Department of Biomedical Engineering (core faculty)
Programmable Regenerative Immunity Lab
Program Director – MS in Bioinformatics – NYU Tandon Online
Member, NanoBioX Initiative

Assistant Professor | NYU Langone Health — 09/2021 – present
Department of Pathology (associated appt)
Member, Translational Immunology Center
Member, Perlmutter Cancer Center

Principal Investigator | Neochromosome, Inc, New York, NY — 04/2020 – 08/2021
Synthetic Genomics Company

Postdoctoral Fellow | NYU Langone Health — 06/2014 - 05/2020
Systems & Synthetic Biology - Advisor: Jef D. Boeke, Ph.D, NAS

PhD | The University of Texas at Austin — 09/2007 - 05/2014
Cell and Molecular Biology - Advisor: Alan M. Lambowitz, Ph.D., NAS

Postbacc | UC San Diego - School of Medicine — 06/2005 - 08/2007
Molecular Medicine - Advisor: Sanjay K. Nigam, M.D.

BS | University of California San Diego — 09/2001 - 06/2005
Molecular Biology - Advisor: Geoffrey M. Rosenfeld, M.D., NAS, HHMI

## Awards and Honors

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|---|---|
| Goddard Faculty Fellowship (NYU) | 2024 |
| Faculty Innovator Award - Northeast Bioengineering Conference (NEBEC) | 2024 |
| NIAID New Innovator Award (DP2) | 2021 |
| Breakout Labs Entrepreneurship Prize – Finalist | 2019 |
| Delil Nasser Award for Professional Development - Genetics Society of America | 2018 |
| Selected Talk and Travel Award - NYU Postdoc Research Day | 2017 |
| Best Poster - NYU Cancer Genome Dynamics | 2017 |
| Best Talk - NYU Postdoctoral Interdisciplinary Symposium | 2016 |
| NIGMS F32 - Ruth L. Kirschstein National Research Service Postdoctoral Award | 2015-18 |
| National Science Foundation Graduate Research Fellowship (Honorable Mention) | 2009 |

ICMB Graduate Research Fellowship 2007-08
Muir Provost's Honors 2002, 04

## In Preparation

in preparation

33. Generoso SF, Dara S, Larsen E, **Truong DM***. Total REWRITE of Human Antigen Processing.
32. Dara S, Phu SF, **Truong DM***. Self-Sustaining Macrophages with Autonomous Safety Gates.
31. Jaramillo SJ, Phu SF, Hu J, **Truong DM***. Genetically Programmed Neurotrophic Microglia in an Inducible Brain Assembloid Model.
30. Pankowicz J, Jaramillo SJ, **Truong DM*, Sadowski MJ***. HMC3 CAR-Microglia Engineered to Clear Amyloid-Beta.
29. Dara S, Yanagi T, Phu SF, **Truong DM***. Synthetic Engineering of a Universal Thymic Epithelium Reveals Modular Control of T-Cell Development.
28. Levovitz S[#], Jaramillo SJ[#], Generoso SF, **Truong DM***. Rational Design of a Universal Donor Cell by Deconstructing the Rules of NK-Cell Tolerance.
27. Phen SF[#], Levovitz S[#], Dara S[#], Generoso SF **Truong DM***. Sequential REWRITE Enables Additive Human Cell Engineering.
26. Phen SF[#], Yanagi T[#], Dara S, Jaramillo SJ, **Truong DM***. Synthetic Tuning of CEBPA Isoform Ratios Resolves a Fate-Fitness Conflict in Human Macrophage Programming.

## Preprints *corresponding author (lab member) #co-first author

25. Generoso SF[#], Levovitz S[#], Jaramillo SJ, Kim M, Dara S, Phen SF, Yi B, Yanagi T, DesMairis TL, Agmon N, Hogan M, Mitchell LA, **Truong DM***. (2025). *bioRxiv*. Human Genome REWRITE Enables Off-the-Shelf Stem Cells Revealing an "Epigenetic Ghost". under review at *Science Advances*

## Publications *corresponding author (lab member) #co-first author

24. Yanagi T, Phen SF, Ayala J, Aydin ED, **Truong DM***. (2025). *Journal of Biological Engineering* (IF 5.7). Termination sequence between an inducible promoter and ubiquitous chromatin opening element (UCOE) reduces gene expression leakage and silencing. contribution: corresponding author.
23. Chaikof EL, Chen J, Gillette MU, Boyer LA, Deans TL, Li P, Hilton IB, Daniels K, Goyal Y, Mei Y, Linghu C, Loveless TB, **Truong DM**, Blatchley MR, Gu M, Bashor CJ, Yang JH, Raman R, Reddy AB, Saha K, Davis J, Gupta K, Gao XJ, Galloway KE. (2025). *Cell Systems* (IF 7.7). Integrating synthetic biology to understand and engineer the heart, lung, blood, and sleep systems. review
22. Haase MAB, Lazar-Stefanita L, Olafsson G, Shen MJ, **Truong DM**, Boeke JD. (2024). *Cell Reports* (IF 9.9). macroH2A1 drives nucleosome dephasing and genome instability in histone humanized yeast. contribution: mentored first author, performed research, and wrote NSF grant funding the work.

21. **Truong DM*.** (2024). *Synthetic Biology* (IF 3.2). Writing the Dark Matter of the Human Genome into Mice to better replicate human disease. https://doi.org/10.1093/synbio/ysae003. News & Views.

20. **Truong DM*.** (2023). *Synthetic Biology* (IF 3.2). An artificial protein translation language makes bacteria virus resistant. https://doi.org/10.1093/synbio/ysad011. News & Views.

19. Haase MAB, Olafsson G, Flores RL, Boakye-Ansah E, Zelter A, Dickinson MS, Lazar-Stefanita L, **Truong DM,** Asbury CL, David TN, Boeke JD. (2023). *EMBO J* (IF 14). DASH/Dam1 complex mutants stabilize ploidy by weakening kinetochore-microtubule attachments. https://doi.org/10.15252/embj.2022112600. contribution: mentored first author, performed research, and wrote NSF grant funding the work.

18. **Truong DM*.** (2022). *Synthetic Biology* (IF 3.2). Mouse chromosomes get supersized but find their limits. https://doi.org/10.1093/synbio/ysac024. News & Views.

**pre-NYU**

17. Brosh R, Laurent JM, Ordonez R, Huang E, Hogan MS, Hitchcock AM, Mitchell LA, Pinglay S, Cadley JA, Luther RD, Truong DM, Boeke JD, Maurano MT. (Mar 2021). *PNAS* (IF 12.8). A versatile platform for locus-scale genome rewriting and verification.

16. Valencia-Sánchez MI, De Ioannes P, Wang M, Truong DM, Lee R, Armache JP, Boeke JD, Armache KJ. (Jan 2021). *Science* (IF 63). Regulation of Dot1 histone H3K79 methyltransferase by histone H4K16 acetylation.

15. Adney EM, Ochmann MT, Sil S, Truong DM, Mita P, Wang X, Kahler DJ, Fenyo D, Holt L, Boeke JD. (2019). *Genetics* (IF 4.4). Comprehensive scanning mutagenesis of human retrotransposon LINE-1 identifies motifs essential for function. 213(4):1401-1414

14. Haase MAB, Truong DM, Boeke JD. (2019). *G3:Genes|Genomes|Genetics* (IF 3.5). Superloser: a plasmid shuffling vector for Saccharomyces cerevisiae with exceedingly low background. g3. 400325.2019

13. Truong DM and Boeke JD. (2017). *Cell* (IF 66). Resetting the yeast epigenome using human nucleosomes. 171(7): 1508-19.e13.

12. Truong DM, Hewitt FC, Hanson JH, Cui X, Lambowitz AM. (2015). *PLOS Genetics* (IF 6.6). Retrohoming of a mobile group II intron in human cells suggests how eukaryotes limit group II intron proliferation. 11(8):e1005422.

11. Mitchell LA, Chuang J, Agmon N, Khunsriraksakul C, Phillips NA, Cai Y, Truong DM, Veerakumar A, Wang Y, Mayorga M, Blomquist P, Sadda P, Trueheart J, Boeke JD. (2015). *Nucleic Acids Research* (IF 14.9). Versatile genetic assembly system (VEGAS) to assemble pathways for expression in *S. cerevisiae*. 43(13) 6620-6630.

10. Truong DM, Sidote DJ, Russell R, Lambowitz AM. (2013)**.** *PNAS* (IF 12.8). Enhanced group II intron retrohoming in magnesium deficient *Escherichia coli* via selection of mutations in the ribozyme core. 110(40):E3800-E3809.

9. Yao J, Truong DM, Lambowitz AM. (2013). *PLOS Genetics* (IF 6.6). Genetic screens and biochemical assays reveal a key role for restart replication in group II intron retrohoming. 9(4):e1003469.

8. Nagle M, Truong DM, Dnyanmote AV, Eraly SA, Wu W, Nigam SK. (2011). *The Journal of Biological Chemistry*. Analysis of 3-dimensional systems for developing and maturing kidney clarifies the role of OAT1 and OAT3 in antiviral handling. 286(1):243-51.

7. Wu W, Kitamura S, Truong DM, Rieg T, Vallon V, Sakurai H, Bush KT, Vera D, Ross RS, Nigam SK. (2009). *AJP Renal Physiology*. β1 integrin is required for kidney collecting duct morphogenesis and maintenance of renal function. 297(1):F210-7.
6. Vallon V, Eraly SA, Wikoff WR, Rieg T, Kaler G, Truong DM, Ahn SY, Mahapatra NR, Mahata SK, Gangoiti JA, Wu W, Barshop BA, Siuzdak G, Nigam SK. (2008). *Journal of the American Society of Nephrology*. Organic Anion Transporter 3 Contributes to the Regulation of Blood Pressure. 19(9):1732-40.
5. Truong DM, Kaler G, Khandelwal A, Swaan PW, Nigam SK. (2008). *The Journal of Biological Chemistry*. Multi-Level Analysis of Organic Anion Transporters 1, 3, and 6 reveals major differences in structural determinants of antiviral discrimination. 283(13): 8654-63.
4. Kaler G, Truong DM, Khandelwal A, Nagle M, Eraly SA, Swaan PW, Nigam SK. (2007). *The Journal of Biological Chemistry*. Structural Variation Governs Substrate Specificity for Organic Anion Transporter (OAT) homologs: Potential Remote Sensing By OAT Family Members. 282(33): 23841-53.
3. Kaler G, Truong DM, Sweeney DE, Logan DW, Nagle M, Eraly SA, Nigam SK. (2006). *Biochemical Biophysical Research Communications*. Olfactory mucosa-expressed organic anion transporter, Oat6, manifests high affinity interactions with odorant organic anions. 351(4): 872-876.
2. Bhatnagar V, Xu G, Hamilton BA, Truong DM, Eraly SA, Wu W, Nigam SK. (2006). *Journal of Human Genetics*. Analyses of 5' regulatory region polymorphisms in human SLC22A6 (OAT1) and SLC22A8 (OAT3). 51(6): 575-80.
1. Eraly SA, Vallon V, Vaughn DA, Gangioti J, Richter K, Nagle M, Monte JC, Rieg T, Truong DM, Kaler G, Long JM, Barshop B, Nigam SK. (2006)**.** *The Journal of Biological Chemistry*. Decreased renal organic anion secretion and plasma accumulation of endogenous organic anions in OAT1 knockout mice. 281(8): 5072-83.

## Book Chapters

2. Bush KT, Nagle M, Truong DM, Bhatnagar V, Kaler G, Eraly SA, Wu W, Nigam SK. (2014). Chapter 3: Organic Anion Transporters. *Drug Transporters: Molecular Characterization and Role in Drug Disposition,* Second Edition. p. 25-41 John Willey & Sons Inc.
1. Nagle M, Truong DM, Bhatnagar V, Kaler G, Bush KT, Wu W, Eraly SA, Nigam SK. (2007). Chapter 4: The Organic Anion Transporters. *Drug Transporters: Molecular Characterization and Role in Drug Disposition,* First Edition. p. 51-73 John Willey & Sons Inc.

## Patents

2. US/World Patent US20230295668A1. Methods and Compositions for Integration of a DNA construct. Inventor: Truong**.** filed 03/23/2022. published 09/23/2023
1. US Patent US20190023752A1. Budding Yeast with Human Chromatin. Inventors: Truong, Boeke. filed 07/21/2017, awarded 07/06/2021

## Media

4. NYU Office Hours, "Unlocking the Possibilities in the Human Genome". (2025)

3. IEEE Spectrum, "Megabase-scale Genetic Engineering". (2022)
2. Nature Methods 15, 96-97 (2018)
1. Cell Systems 6(1) p2-4 (2018)

## Conference Abstracts posters/talks *presenter (lab member)

25. Levovitz S*, Generoso S, Kim M, Jaramillo S, Dara S, Desmairis T, Agmon N, Hogan M, Mitchell LM, Truong DM. Cold Spring Harbor Meetings: Immune Engineering & Cellular Immunotherapy. *Cold Spring, NY*. (2025). Human iPSC Genome Engineering at 100+ kilobases for Universal-donor Cell Therapies. ***Oral Presentation**
24. Levovitz S*, Generoso S, Kim M, Jaramillo S, Dara S, Desmairis T, Agmon N, Hogan M, Mitchell LM, Truong DM. Northeast Bioengineering Conference. *Brooklyn, NY*. (2025). Human iPSC Genome Engineering at 100+ kilobases for Universal-donor Cell Therapies. ***Oral Presentation**
23. Dara S*, Williams B, Jaramillo S, Truong DM. Northeast Bioengineering Conference. *Brooklyn, NY*. (2025). Leveraging Endogenous and Engineered miRNA Systems to Enhance Gene Circuit Precision. Poster.
22. Phen SF*, Katari M, Truong DM. Northeast Bioengineering Conference. *Brooklyn, NY*. (2025). Computationally Identifying Master Transcription Factors of Cell Fate. Poster.
21. Jaramillo S*, Yanagi T, Jimenez F, Patel R, Truong DM. NY Stem Cell Foundation Meeting. *Brooklyn, NY*. (2025). Modeling the Brain Using Inducible Genetic Circuits. Poster.
20. Jaramillo S*, Yanagi T, Jimenez F, Patel R, Truong DM. Northeast Bioengineering Conference. *Brooklyn, NY*. (2025). Modeling the Brain Using Inducible Genetic Circuits. Poster.
19. Generoso S, Levovitz S, Kim M, Jaramillo SJ, Dara S, Yanagi T, DesMairis TL, Philips E, Shubin C, Agmon N, Hogan M, Truong DM*. SynBYSS meeting. *Honolulu, HW*. (2024). Genomic REWRITE Enables Designer Class-I HLA Off-the-Shelf Human iPSCs. ***Plenary Oral Presentation**
18. Levovitz S*, Generoso S, Kim M, Jaramillo S, Dara S, Desmairis T, Agmon N, Hogan M, Mitchell LM, Truong DM. AiChe Annual meeting. *San Diego, CA*. (2024). Human iPSC Genome Engineering at 100+ kilobases for Universal-donor Cell Therapies. ***Plenary Oral Presentation**
17. Levovitz S*, Kim M, Jaramillo S, Generoso S, Dara S, Yanagi T, Truong DM. Northeast Bioengineering Conference. *Hoboken, NJ.* (2024). Deletion and Sequential Insertion of Large DNA in the Human Genome for Cell Therapy Applications. Poster.
16. Kim M, Levovitz S, Generoso S, Jaramillo S, Dara S, Yanagi T, Desmairis T, Agmon N, Hogan M, Truong DM*. Northeast Bioengineering Conference. *Hoboken, NJ.* (2024). Human Genome Writing HLA-matched iPSCs for Off-the-shelf Smart Therapeutic Cells. ***Plenary Oral Presentation**
15. Levovitz S*, Kim M, Jaramillo S, Truong DM. ISCCR: International Society for Stem Cell Research. *Boston, MA*. (2023). Megabase Genome Engineering in Human iPSCs. Poster.
14. Kim M, Levovitz S, Jaramillo S, Desmairis T, Agmon N, Hogan M, Truong DM*. SEED, Synthetic Biology: Engineering, Evolution & Design. *DC, USA*. (2022). Programming Off-the-Shelf Human iPSCs Using Genome Writing. ***Plenary Oral Presentation**

13. Kim M, Levovitz S, Jaramillo S, Desmairis T, Agmon N, Hogan M, Truong DM*****. American Chemical Society Annual Meeting. *San Diego, CA*. (2022). Programming off-the-shelf personalized human iPSCs using genome writing. ***Oral Presentation**
12. Levovitz S*****, Kim M, Jaramillo S, Truong DM. Northeast Bioengineering Conference. *NY, NY.* (2022). Megabase Genome Engineering in Human iPSCs. Poster.
11. Truong DM*****, Haase MB, Boeke JD. Gordon Research Conference: Chromatin Structure and Function. Newry, ME. (2018). Towards total conversion of yeast-to-human chromatin architecture.
10. Truong DM*****, Haase MB, Boeke JD. Genome Integrity Meeting - New York Academy of Sciences. New York, NY. (2018). Towards total conversion of yeast-to-human chromatin architecture.
9. Truong DM*****, Boeke JD. (2018). Cold Spring Harbor Meetings: The Biology of Genomes. Cold Spring, NY. Resurrection of histone H3 K27 methylation in brewer's yeast by human PRC2 and plant ATXR6.
8. Truong DM*****, Boeke JD. Cancer Genome Dynamics Symposia. New York, NY. (2017). Resetting the yeast epigenome using human nucleosomes. ***Winner**: Best Poster Prize.
7. Truong DM*****, Boeke JD. (2017). Gordon Research Seminar: Mechanisms of Epigenetic Inheritance Through Taxa. Holderness, NH. Resetting the yeast epigenome using human nucleosomes.
6. Truong DM*****, Boeke JD. (2017). Keystone Symposia: Epigenetics and Human Disease. Seattle, WA. Resetting the yeast epigenome using human nucleosomes.
5. Truong DM*****, Boeke JD. Gordon Research Conference: Chromatin Structure and Function. Les Diablerets, Switzerland. (2016). A yeast that packages its DNA using human histones.
4. Truong DM*****, Lambowitz AM. Keystone Symposia: Precision Genome Engineering and Synthetic Biology. Breckinridge, CO. (2013). Directed evolution of mobile group II introns at low magnesium concentrations for eukaryotic genome engineering.
3. Eraly SA*****, Vallon V, Kaler G, Rieg T, Truong DM, Swaan P, Nigam SK. Journal of Investigative Medicine Conference: Annual Combined Meeting. Washington DC. (2009). Discovery of Novel Anti-Hypertensives Via Pharmacophore-Based Screens For Organic Anion Transporter Inhibitors.
2. Truong DM***,** Eraly SA, Vallon V, Kaler G, Rieg T, Swaan P, Nigam SK. The West Coast Salt and Water Club. Morro Bay, CA. (2007). Analyses of Organic Anion Transporters in Adult and Embryonic Kidney Tisssue.
1. Truong DM*****, Eraly SA, Nigam SK. The American Society of Nephrology Conference. San Diego, CA. (2006). The mouse olfactory-mucosa expressed organic anion transporter, Oat6, handles a distinct set of organic anions and odorants from its homolog Oat1.

## Talks

23. Invited Seminar, (2025). Department of Biomedical Engineering, Johns Hopkins University. Baltimore, MA.
22. Plenary Talk, (2024). SynBYSS. Honolulu, HI
21. Lightning Talk, (2024). NHLBI Synthetic Biology Workshop. *online*.
20. Plenary Talk, (2024). NEBEC Faculty Innovator presentation. Hoboken, NJ
19. Panel Talk (2024. GOGEC conferences (online).

18. Invited Talk, (2023). NYU Immunology retreat. Bronx, NY
17. Selected Talk, (2023). Biomedical Engineering Society (BMES) Annual Meeting. Seattle.
16. Invited Talk, (2022). Synthetic Biology Young Speaker Series (SynBYSS) - *online*
15. Selected Talk, (2022). SEED, Synthetic Biology: Engineering, Evolution & Design. DC.
14. Invited Seminar, (2022). Dept of Pathology, NYU School of Medicine.
13. Invited Talk, (2022). American Chemical Society Annual Meeting. BioT. San Diego, CA.
12. Invited Seminar, (2022). BME colloquium. NYU Tandon School of Engineering.
11. Invited Seminar, (2021). Translational Immunology Institute, NYU School of Medicine.
10. Invited Seminar, Honorarium (2021). Dept of Molecular Pathobiology, NYU Dentistry.
9. Invited Seminar, Honorarium (2021). Lauffer Center, Stony Brook University.
8. Talk winner, (2018). Gordon Research Seminar: Chromatin Structure and Function. Newry, ME. ***Winner:** Best Poster – upgraded to Talk.
7. Invited Seminar, (2018). Icahn School of Medicine at Mount Sinai.
6. Talk, (2018). Cold Spring Harbor Meetings: The Biology of Genomes. Cold Spring, NY.
5. Talk winner, (2017). NYU Postdoctoral Research Day. New York, NY. ***Winner:** Travel Award.
4. Talk (2017). Gordon Research Seminar: Mechanisms of Epigenetic Inheritance Through Taxa. Holderness, NH.
3. Invited Talk, (2017). ISG Social Hour. New York, NY.
2. Invited Talk, (2017). Keystone Symposia: Epigenetics and Human Disease. Seattle, WA.
1. Talk winner, (2017). NYU Postdoctoral Interdisciplinary Symposium. New York, NY. ***Winner:** Best Oral Presentation.

## Current Grant Support

NYU Discovery Research Fund for Human Health — direct costs $300,000
Early Research Award
**Truong** (PI), Sadowski (Co-PI)
Aug 2025 - Aug 2027
Project: Programmable Macrophage–Neuron Interfaces for Neuroimmune Repair in Alzheimer's Disease

National Institute of Aging (NIA)
R61/R33 - Phased Research Project Grant
**Truong** (MPI), Sadowski (MPI, contact), Mathews (MPI)
#1R61AG090384-01 — total costs $4,257,045
Feb 2025 - Feb 2030 — Truong total costs $1,519,197
Status: currently in 2y R61 phase. total costs include 3y R33 add-on.
Project: Off-the-shelf CAR-Engineered Macrophage Therapy for Alzheimer's Disease

National Institute of Allergy and Infectious Diseases (NIAID)
NIH New Innovator Award (DP2)
**Truong** (PI)
#1DP2AI154417-01 — total costs $1,795,000
Sep 2021 - Aug 2026 — direct costs $1,350,000
Project: Programmable Off-the-Shelf Dendritic Cells as an Immunotherapy Discovery Platform

National Institute of Allergy and Infectious Diseases (NIAID)

NIH Director's New Innovator Award (DP2) - Diversity Supplement
**Truong** (PI)
#1DP2AI154417-01S1 total costs $213,584
Jan 2023 - Aug 2026 direct costs $132,800
Project: Programmable Off-the-Shelf Dendritic Cells as an Immunotherapy Discovery Platform
Diversity Supplement Trainee: Susanna Jaramillo.

## Completed Grant Support

Clinical & Translational Science Institute (CTSI) NYU Grossman School of Medicine
CTSI Pilot Project
**Truong** (PI), Kirsch (PI)
Jan 2025 - Dec 2025 total costs $66,200
Project: Engineering Human iPSC-derived Regenerative Macrophages to Resolve Post-traumatic Osteoarthritis (PTOA) after Joint Injury

National Institute of Biomedical Imaging and Bioengineering (NIBIB)
R13 - Conference Support Grant
#1R13EB036915-01
Moon (PI), **Truong** (Co-PI) total costs $10,000
Dec 2024
Project: The 1st International SynBYSS Conference

NYU Mega Grants
Seed Funding
**Truong** (PI)
Oct 2023 - July 2024 direct costs $35,000
Project: Smart CAR-microglia for treating Alzheimer's
**Seeded funding for successful NIA R61/R33 award in 2025

National Institute of Allergy and Infectious Diseases (NIAID)
R43 Small Business Innovative Research, Phase I Award
**Truong** (PI)
#1R43AI148008-01A1 total costs $100,000
Sep 2021 - Apr 2022 direct costs $72,200
Project: Plug-and-Play HLA for Safer and Personalized Off-the-Shelf Cell Therapies using Big-DNA Tech
**Subcontract Award of below to NYU / Truong Lab

National Institute of Allergy and Infectious Diseases (NIAID)
R43 Small Business Innovative Research, Phase I Award
**Truong** (PI)
#1R43AI148008-01A1
May 2020 - Apr 2022 total costs $600,000
Project: Plug-and-Play HLA for Safer and Personalized Off-the-Shelf Cell Therapies using Big-DNA Tech
**Award to Neochromosome Inc a biotech startup company

National Science Foundation (NSF)

Understanding the Rules of Life: Epigenetics
Boeke (PI)
#1921641
Sep 2019 - Sep 2024 total costs $2,999,996
Project: Reverse Engineering Human Epigenetic Machinery in Budding Yeast
****Led writing and conceptualization of successful grant — Senior Personnel*

National Institute of General Medical Sciences (NIGMS)
F32 Ruth L. Kirschstein National Research Service Award Postdoctoral Fellowship
**Truong** (PI)
#1F32GM116411
Jul 2015 - Jul 2018 direct costs $156,000
Project: Humanized Synthetic Chromosomes Built in Yeast for Organ Xenotransplantation

## Pending Grant Support

National Science Foundation (NSF)
CAREER - Molecular Cell Biology (Genetic Mechanisms)
**Truong** (PI)
#xxxxxxxxx total costs $1,647,767
Sep 2026 - Aug 2031
Status: Pending Review
Project: CAREER: SynTACS - Testing Rules for Engineering Genome Architecture in Human iPSCs

National Institute of Allergy and Infectious Diseases (NIAID)
R01 - Research Project Grant
**Truong** (PI)
#1R01AI201842-01 total costs $3,583,980
Sep 2026 - Aug 2031
Status: Pending Review
Project: Engineering a Human Platform to Model HLA-Driven TCR Selection and Central Tolerance

National Institute of Aging (NIA)
R01 - Research Project Grant
**Truong** (MPI, contact), Sadowski (MPI)
#1R01AG102749-01 total costs $4,095,207
Sep 2026 - Aug 2031 Truong total costs $2,500,000
Status: Pending Review
Project: REPHRESH: Programmable Macrophages for Adaptive Synapse Protection in Alzheimer's Disease

## Education Innovation

3. Engineering Tissue Regeneration - BEGY9453. Developed course from first principles without aid of a textbook. This ensures we stay up to date with the latest research.
2. UGSRP. *New York, NY.* (2021 - present). Developed stem cell differentiation methods accessible for undergraduates and master's students to learn and work with.

1. Middle School Outreach. *Bronx, NY.* (2022 - present). Visiting middle schools and bringing students in to play with genetically engineered “yeast art”.

## Teaching Experience

Instructor – NYU Tandon School of Engineering — Fall 2025
Biology and Biotechnology for Bioinformatics (Graduate) – 21 students
teaching evaluation: 4.x / 5

Instructor – NYU Tandon School of Engineering — Spring 2025
Engineering Tissue Regeneration (Graduate) – 26 students
teaching evaluation: 4.75 / 5

Instructor – NYU Tandon School of Engineering — Fall 2024
Biology and Biotechnology for Bioinformatics (Graduate) – 31 students
teaching evaluation: 4.6 / 5

Instructor – NYU Tandon School of Engineering — Spring 2024
Engineering Tissue Regeneration (Graduate) – 21 students
teaching evaluation: 5.0 / 5

Instructor – NYU Tandon School of Engineering — Fall 2023
Biology and Biotechnology for Bioinformatics (Graduate) – 29 students
teaching evaluation: 4.9 / 5

Instructor – NYU Tandon School of Engineering — Spring 2023
Engineering Tissue Regeneration (Graduate) – 16 students
teaching evaluation: 4.7 / 5

Instructor – NYU Tandon School of Engineering — Fall 2022
Biology and Biotechnology for Bioinformatics (Graduate) – 32 students
teaching evaluation: 4.6 / 5

Instructor – NYU Tandon School of Engineering — Fall 2021
Biology and Biotechnology for Bioinformatics (Graduate) – 24 students
teaching evaluation: 4.8 / 5

Teaching Assistant - The University of Texas at Austin — Spring 2012
Graduate Genetics - Instructor: Jeff Gross Ph.D. and Jeff Chen Ph.D.
Led doctoral level discussion sections on current literature and topics in Genetics

Teaching Assistant - The University of Texas at Austin — Fall 2008
Undergraduate Genetics - Instructor: Jennifer Moon Ph.D.
Led discussion sections on Genetics, graded exams, and produced weekly quizzes

## Other teaching

Guest Lecture: Fall 2023 - General Engineering (Undergrad) - “Health Engineering”
Guest Lecture: Spring 2023 - General Engineering (Undergrad) - “Health Engineering”
Guest Lecture: Fall 2022 - General Engineering (Undergrad) - “Health Engineering”
Guest Lecture: Spring 2022 – Engineering Tissue (Grad) - “Gene Edited Stem Cells”
Guest Lecture: Fall 2021 – Biomaterials (Grad) - “Genome Writing”

## Mentoring

### Primary Mentor

## Postdoctoral Scholars

3. Tomoki Yanagi, MD, PhD. 04/23' – 11/25'
2. Serena Generoso, PhD. 09/22' – present
1. Minjoo Kim, PhD. 12/21' – 11/24'
   - after: research scientist at UCSF

## PhD students

4. Shean Fu Phen, MS. NYU Tandon BME PhD student. 09/25' – present
3. Susanna Jaramillo, MS. NYU Tandon BME PhD student. 09/23' – present
2. Sumanth Dara, MS. NYU Tandon BME PhD student. 09/22' – present
1. Sarah Levovitz, MS. NYU Tandon BME PhD student. 09/21' – present

## MS students

12. Emily Larsen, NYU Tandon Biotechnology. 09/25' – present
11. Deniz Ece Aydin, NYU Tandon BME. 09/25' – present
10. Bryan Yi, NYU Tandon Bioinformatics. Capstone. 01/25' – present
    - working at Universal Cells
9. Brianna Williams, NYU Tandon BME. Guided Studies. 09/24' – 05/25'
    - after: AstraZeneca
8. Alasia Miller, NYU Tandon Bioinformatics. Guided studies. 01/23' – 05/23'
    - after: working at Columbia University
7. Daniela Quijano, NYU Tandon Bioinformatics. Guided studies. 09/22' – 12/22'
    - after: working at Tempus Labs
6. Charlee Cobb, NYU Tandon Bioinformatics. Guided studies. 09/22' – 05/23'
    - after: working at Pfizer
5. Sruthi Metukuru, NYU Tandon Biotech. Volunteer. 06/22' – 01/23'
    - after: working at Mt Sinai
4. Sheila Atieno, NYU Tandon BME. Guided studies. 01/22' – 05/23'
    - after: working at Duke University
3. Eunice Chai, NYU Tandon Biotech. Guided studies. 01/22' – 05/22'
2. Robert Moebius, NYU Tandon BME. Guided studies. 01/22' – 05/22'
    - after: working at Stem Cell Technologies
1. Susanna Jaramillo, NYU Tandon Biotech. Lab assistant. 10/21' – 08/23'
    - after: PhD student in Truong lab

## MS Thesis students

3. Federico Jimenez, NYU Biomedical Engineering 01/24' – 12/24'
    - interned at Endless Frontiers Lab
2. Shean Fu Phen, NYU Biology. 09/23' – 12/24'
    - interned at Thermofisher, now PhD Student Truong Lab
1. Sinuo (Alice) Yu, NYU Biomedical Engineering 01/23' – 05/24'
    - after: PhD student University of Hong Kong

## Undergraduates

12. Jing Hu, NYU Tandon. Biomolecular Sciences. 09/25' – present
11. Denys Vasyutyn, NYU Tandon. Chemical & Biomolecular Eng. 09/25' – present
10. Heesung Tae, NYU Abu Dhabi. Bioengineering. 09/25' – 12/25'
9. Darin Kim, Brown University. UGSRP. 05/25' – 08/25'
8. Sabina Phanova, NYU Tandon Biomolecular Sciences. UGSRP. 05/25' – 08/25'
7. Riya Patel, NYU Tandon Biomolecular Sciences. UGSRP. Thesis 06/24' – 05/25'
6. Jonah Ayala, UT El Paso, Biomedical Engineering, UGSRP 06/24' – 08/24'

- after: MS at Cornell University

5. Brianna Williams, NYU Tandon Biomolecular Sciences. UGSRP. Thesis 06/23' – 08/24'
   - interned at AstraZeneca, best senior thesis award
4. Kacie Carrier, NYU Tandon Chemical & Biomolecular Eng. UGSRP 06/23' – 08/23'
   - interned at Eli Lilly, now PhD student Carnegie Mellon Chemical Engineering
3. Aarushi Varshney, NYU Tandon Biomolecular Sciences. Thesis 09/22' – 05/23'
   - working at Johnson and Johnson, now PhD student UVA
2. Iris Bibolli, NYU Tandon Biomolecular Sciences. UGSRP. 06/22' – 08/23'
   - interned at Eli Lilly, now associate researcher Mt Sinai - Wu lab
1. Deniz Ece Aydin, NYU Tandon Biomolecular Sciences. UGSRP. Thesis 06/22' – 05/25'
   - best senior thesis award

### Student Awards

10. Deniz Ece Aydin, NYU Tandon, Senior Thesis Award 05/25'
9. Riya Patel, Jonah Ayalah, Deniz Ece Aydin. NYU Tandon undergraduates. 2nd place Most Creative Health. 08/24'
8. Shean Fu Phen, NYU Biology MS. Thesis Award 05/24'
7. Brianna Williams, NYU Tandon. Senior Thesis Award 05/24'
6. Brianna Williams, Iris Bibolli, Deniz Ece Aydin, Kacie Carrier. NYU Tandon undergraduates. 1st place Most Creative Health. 1st place People's Choice 08/23'
5. Susanna Jaramillo, MS. PhD student. School of Engineering Fellowship. 09/23'
4. Susanna Jaramillo, MS/technician. NIH Diversity Supplement Award 01/23'
3. Sumanth Dara, MS. PhD student. School of Engineering Fellowship. 09/22'
2. Deniz Ece Aydin, NYU Tandon, sophomore. 1st place Innovative Health 08/22'
1. Sarah Levovitz, MS. PhD student. Future Leaders Fellowship. 09/21'

## Other students

### PhD Dissertation Committees

6. Maxwell La Forest, NYU Tandon BME PhD student. advisor: Ruggles 08/25' – present
5. Caichen Duan, NYU Tandon BME PhD student. advisor: Schluter 05/25' – present
4. Rachel Pollard, NYU Tandon BME PhD student. advisor: Pinkerton 05/25' – present
3. Shaza Karaman, NYU Abu Dhabi BME PhD student. advisor: Teo 04/24' – present
2. Catherosette Meas, NYU Tandon BME PhD student. advisor: Boeke 11/22' – present
1. Kate Luu, NYU Tandon BME PhD student. advisor: Chen 11/22' – present

### PhD Qualifying Exams

22. Yue Xiao, NYU Tandon BME. advisor: Haogong Cao 2025
21. Noura Sayed, NYU Tandon BME. advisor: Jeremy Teo 2025
20. Helberth Quysbert, NYU Tandon BME. advisor: Teresa Davoli 2025
19. James Li, NYU Tandon BME. advisor: Andras Gyorgy 2025
18. Xingyu Liu, NYU Tandon BME. advisor: Wosczyna 2024
17. Nongyun Wang, NYU Tandon BME. advisor: Lionnet/Holt 2024
16. Maxwell LaForest, NYU Tandon BME. advisor: Ruggles 2024
15. Eleni Miliotou, NYU Tandon BME. advisor: De Lazaro 2024
14. Yiren Zhou, NYU Tandon BME. advisor: Andras Gyorgy 2024
13. Ruiqi Chen, NYU Tandon BME. advisor: Weiqiang Chen 2024
12. Susanna Jaramillo, NYU Tandon BME. advisor: Truong 2024
11. Brian Quartey, NYU Tandon BME. advisor: Teo 2024
10. Caichen Duan, NYU Tandon BME. advisor: Schluter 2023
9. Dominika Wawrzyniak, NYU Tandon BME. advisor: Boeke 2023

8. Nanzhong Deng, NYU Tandon BME. advisor: Cai 2023
7. Rachel Pollard, NYU Tandon BME. advisor: Pinkerton 2023
6. Sumanth Dara, NYU Tandon BME. advisor: Truong 2023
5. Minghan Yang, NYU Tandon BME. advisor: Lionnet 2023
4. Benteng Ma, NYU Tandon BME. advisor: Chen 2022
3. Kate Luu, NYU Tandon BME. advisor: Chen 2022
2. Catherosette Meas, NYU Tandon BME. advisor: Boeke 2022
1. Sarah Levovitz, NYU Tandon BME. advisor: Truong 2022

### MS thesis defenses

3. Federico Jimenez, NYU Tandon BME. advisor: Truong 2024
2. Chloe Geng, NYU Tandon BME. advisor: Kirsch 2024
1. Sinuo (Alice) Yu, NYU Tandon BME. advisor: De Lazaro/Truong 2024

### Prior to NYU

5. Laura McCulloch, NYU SoM MD/PhD student. 01/18' – 02/20'
4. Max Haase, NYU SoM PhD student. 06/18' – 02/20'
3. Emily M. Adney, Johns Hopkins PhD student. 10/17' – 12/18'
2. Yi Fu, MS, NYU SoM PhD rotation student. 04/16' – 07/16'
1. Tomoyuki Ohno, MS. Tokyo U PhD student intern. 11/15' – 03/16'

## BS and MS Theses (primary advisor)

7. Deniz Ece Aydin. NYU Tandon Biomolecular Sciences. (2025. Thesis title: Optimizing the Directed Differentiation of Human iPSCs into Microglia Through Inducible Expression of CEBPA and SPI1. *Best Senior Thesis Award
6. Riya Patel, BS. NYU Tandon Biomolecular Sciences. (2025). Thesis title: Engineering a Gene Circuit for Nerve Growth Factor Secretion in Human Induced Pluripotent Stem Cells
5. Shean Fu Phen, MS, NYU CAS Biology. (2025). Thesis title: Development of a Computational Pipeline for Profiling Human Cell Transcription Factors as Candidates for Direct Conversion.
4. Federico Jimenez, MS, NYU Tandon Biomedical Engineering. (2025). Thesis title: Development of a Tet-On System for Endothelial Forward Programming from Induced Pluripotent Human Stem Cells.
3. Brianna Williams, BS, NYU Tandon Biomolecular Sciences. (2024). Thesis title: A MicroRNA-based Logic Approach to Regulating Synthetic Gene Circuits. *Best Senior Thesis Award
2. Sinuo Yu, MS, NYU Tandon Biomedical Engineering. (2024). Thesis title: Modified mRNA for in vitro reprogramming.
1. Aarushi Varshney, BS, NYU Tandon Biomolecular Sciences. (2023). Thesis title: In vitro CRISPR/Cas9 RNPs for Capturing Human Genomic DNA.

## Internal Service and Leadership

NE BioE Conference committee 2025
BME Laboratory Manager hiring committee 2025

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|---|---|
| BME Faculty Search Committee | 2024–2025 |
| Chair*, BME PhD Graduate Studies Committee | 2023–2024 |
| Chair*, BME annual event | 2023 |
| Chair*, PhD student admissions | 2022–2024 |
| Tandon Undergraduate Summer Research Program | 2022–present |
| BME Faculty Search Committee | 2021-2022 |
| BME Department event organization | 2021 |
| PhD student admission committee | 2021–2022 |
| Assoc. Director of Facilities Operations search committee | 2021 |
| BME Faculty Meeting Scribe | 2021–2023 |
| ECR mentorship program (Wsq) | 2021–present |
| Tandon ECR mentorship program | 2021–present |
| Program Director*, MS in Bioinformatics | 2021–present |

## External Service and Leadership

### Grant Reviews

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|---|---|
| Alzheimer's Association - Grant Reviewer | 2023 |
| Biomedical Engineering Society (BMES) - Annual Meeting Abstract Reviewer | 2022-23 |
| Northeast Bioengineering Conference - Session Chair (Synthetic Biology) | 2022 |
| Grant Reviewer - NYU Pilot Project Program | 2022 |
| Technical Judge - Endless Frontiers Lab | 2020 |
| Grant Reviewer - Utah - University Technology Acceleration Grant Program | 2018 |

### Journal Reviews

*Peer Review - Nature* | *Cell* | *Science* | *Elife* | *PLOS Genetics* | *Epigen and Chrom* | *Mol Cell Bio* | *G3* | *Cell Reports Methods* | *Nature Methods* | iScience

Guest Editor - *Elife* 2019

### Committee Work

| | |
|---|---|
| Committee Member - Mammalian Synthetic Biology Workshop. Irvine, CA | 2025 |
| Co-Chair - SynBYSS Speaker Series Conference. Hawaii | 2023 - 2024 |
| Advanced Group II - Academy for Future Science Faculty | 2012 - 2022 |
| Chairman - Gottlieb Lecture Series, (hosted Dr. Mark Ptashne) | 2009-2010 |
| Logistics Officer - Scientists and Engineers for America | 2009-2010 |
| Table Facilitator - Clinton Global Initiative U., Global Health and Environment | 2009 |
| Student Committee - Gottlieb Lecture Series | 2008-2014 |
| Co-Chair - ICMB Graduate Student Recruitment | 2008 |

### Society Membership

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|---|---|
| Biomedical Engineering Society (BMES) | 2021-present |
| Engineering Biology Research Consortium (EBRC) | 2021-present |
| Society for Biological Engineering (SBE) | 2021-present |
| American Institute of Chemical Engineering (AiCHE) | 2021-present |
| American Chemical Society | 2021-2023 |
| New York Academy of Sciences | 2018-present |
| Genetics Society of America | 2017-2021 |
| NYU Postdoctoral Association | 2014-2020 |