Jeffrey D. (JD) Tamucci, Ph.D., M.P.H.

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SUMMARY

Doctor of philosophy in molecular and cell biology with expertise in metabolic diseases, computer simulations, and drug optimization. Master of public health with research experience in effective strategies for public health communication to general audiences and health impacts of climate change. Experienced science communicator with a proven track record of translating complex topics into plain language for everyday people. Author of multiple publications in molecular biology and public health.

EDUCATION

University of Connecticut

- Ph.D., Molecular and Cell Biology; Concentration: Structural Bio., Biochem. and Biophysics **May 2024**
- Master of Public Health **May 2023**
- Graduate Certificate, Foundations of Public Health **December 2020**
- B.A., Spanish, Honors Scholar **August 2016**

RESEARCH EXPERIENCE

Postdoctoral/Ph.D. Research, University of Connecticut **2016-2025**

Supervisor: *Eric May*

- Dissertation: *Computational Investigation into Membrane-Mediated Mechanisms of Synthetic Peptide Therapeutics for Mitochondrial Disease and Dysfunction*
- Conducted molecular dynamics simulations of synthetic peptides for mitochondrial dysfunction, stratifying drugs based on molecular performance. This research will guide the design of future mitochondrial peptide therapeutics.
- Co-authored four papers (one in advanced preparation), presented at five conferences, mentored three undergraduates.

M.P.H. Research, University of Connecticut – Health Center **2020-2023**

Supervisor: *Zita Lazzarini*

- Capstone: *Expert Advice and Individualized Practice of Science Communication about Public Health to a General Audience*
  - Conducted key informant interviews with science journalists to collect guidance on effective science communication strategies, perceived gaps in lay audience's health literacy, ways to overcome common barriers, and best practices for scientists interacting with the media. Collated results into an accessible guide for public health workers.
- Secondary Project: *Quantifying the Loss & Damage from Severe Weather Events in Low-Income Countries*
  - Compiled global insurance data on the mortality and financial losses from extreme weather events to estimate the impact of climate change on low-income countries. Authored a policy white paper which was presented at COP27.

TEACHING & MENTORSHIP EXPERIENCE

- **Graduate Writing Tutor**, University of Connecticut (UConn) Writing Center **2023-2024**
  - Worked with graduate students to help them accomplish their writing goals. Provided hands-on assistance with grant proposals, journal articles, IRB applications, diversity statements, Ph.D. dissertations, M.S. theses, and more.
- **Graduate Writing Mentor**, UConn, McNair Scholars Program **2023**
  - Guided and mentored twelve first-generation undergraduate students from underrepresented backgrounds through the process of selecting schools and preparing application materials for graduate or professional degree programs.
- **Guest Lecturer**, UConn Pre-College Program on Public Health, *Public Health Advocacy* **2022**
  - Instructed on the role advocacy plays in improving public health. Concluded with students writing letters to congress on public health issues, referencing specific legislation and providing evidence-based recommendations.
- **Learning & Development Specialist**, UConn, Dept. of Molecular & Cell Biology **2017-2020**
- **Head/Admin. Teaching Assistant**, UConn, *Principles of Biology I* **2017-2020**

- **Teaching Assistant**, UConn, *Principles of Biology I* **2016-2017**
- **Co-Instructor**, UConn, *Introduction to Molecular Dynamics Simulations* **2019**
- **Instructor**, UConn Pre-Med Program, *MCAT Preparation Course: Biology and Physiology* **2017**
- **Tutor**, UConn Student-Athlete Success Program **2017**

PROFESSIONAL EXPERIENCE

- **Graduate Assistant System Administrator**, UConn: Storrs High Performance Computing (HPC) **2022-2024**
  - Created a library of documentation to facilitate HPC users in accomplishing their computational research objectives.
  - Performed software installations (source, Python, R), upgrades, and troubleshooting for Storrs HPC's 2,000+ users.
- **Graduate Student Representative**, UConn Community Resource Team **2018-2024**
  - Served as the sole graduate student representative on the Community Resource Team which aims to promote safety and wellness by addressing issues of discrimination, sexual assault, intimate partner violence, & stalking on campus.

PUBLICATIONS

1. Tamucci, J. D.; Zweifach, A.; Alder, N. N.; May, E. R. SS-31 Alters Ion Distributions, Membrane Pore-Formation, and Ion Leakage Under the Influence of High Transmembrane Potentials. *(in advanced preparation)* 2025.

2. Tamucci, J. D.; Alder, N. N.; May, E. R. Peptide Power: Mechanistic Insights into the Effect of Mitochondria-Targeted Tetrapeptides on Membrane Electrostatics from Molecular Simulations. *Mol. Pharmaceutics* 2023, 20 (12), 6114–6129. https://doi.org/10.1021/acs.molpharmaceut.3c00480.

3. Mitchell, W.; **Tamucci, J. D.;** Ng, E. L.; Liu, S.; Birk, A. V.; Szeto, H. H.; May, E. R.; Alexandrescu, A. T.; Alder, N. N. Structure-Activity Relationships of Mitochondria-Targeted Tetrapeptide Pharmacological Compounds. *eLife* 2022, 11, e75531. https://doi.org/10.7554/eLife.75531.

4. Mitchell, W.; Ng, E. A.; **Tamucci, J. D.;** Boyd, K. J.; Sathappa, M.; Coscia, A.; Pan, M.; Han, X.; Eddy, N. A.; May, E. R.; Szeto, H. H.; Alder, N. N. The Mitochondria-Targeted Peptide SS-31 Binds Lipid Bilayers and Modulates Surface Electrostatics as a Key Component of Its Mechanism of Action. *J. Biol. Chem.* 2020, 295 (21), 7452–7469. https://doi.org/10.1074/jbc.RA119.012094.

OTHER PUBLICATIONS

5. Ahmed, A. K.; Chapman, A. R.; **Tamucci, J. D.;** Carew, J. W.; Badeer, J. D. The Impact of Global Climate Change on Vulnerable Communities: Climate-Related Loss & Damage and Financial Reparations, a Policy White Paper. *Global Council for Science and The Environment* 2022. https://doi.org/10.17605/OSF.IO/48WDM.

6. Ahmed, A. K.; **Tamucci, J. D.** What Is the Financial Cost of Loss and Damage from Climate Change? *Land & Climate Review*. London June 12, 2022. https://www.landclimate.org/what-is-the-financial-cost-of-loss-and-damage-from-climate-change/

7. Tamucci, JD. "Lab Report Format." *Biology 1107: Principles of Biology-Laboratory Manual*, by Chris Malinoski, Hayden-McNeil, 2018-2021, pp. xiv-xx. (Book chapter)

PRESENTATIONS

Invited Talks:

Pfizer Chemistry Spotlight (2024). "Probing SS-31's Potential: Investigating a Mitochondria-Targeted Peptide's Effects on Membrane Pore Formation and Ion Redistribution under Elevated Transmembrane Potentials." MA.

Molecular Biophysics in the Northeast (2024). "Powering the Powerhouse: MD Simulations Illustrate how Mitochondria-targeted Tetrapeptides Alter Membrane Electrostatics and have the Potential to Improve Mitochondrial Bioenergetics." MA.

Posters:

Annual Biophysical Society Meeting (2025). "Mitochondria-targeted Peptides and Bilayer Composition Modulate Membrane Electroporation Under Elevated Electrochemical Stress." CA.

Annual Biophysical Society Meeting (2024). "Powering the Powerhouse: MD Simulations Illustrate how Mitochondria-targeted Tetrapeptides Alter Membrane Electrostatics and have the Potential to Improve Mitochondrial Bioenergetics." PA.

Annual Biophysical Society Meeting (2022). "QSAR investigation into SS peptides' interaction with lipid bilayers and their effects on transmembrane ion leakage in the presence of transmembrane potentials." CA.

Annual Biophysical Society Meeting (2021). "Computational Investigation into the Effect of SS-31 on Membrane Ion Distributions, Pore Formation, and Ion Leakage in the Presence of Transmembrane Potentials." CA (remote).

Northeastern Structure Symposium (2018). **"**Characterizing the Binding Mechanism to Lipid Bilayers and Effects on Local Lipid Dynamics of SS-31, a Tetrapeptide Therapeutic Agent for Mitochondrial Disorders." CT. ***Won Poster Award***

HONORS, AWARDS & FELLOWSHIPS

Academic/Professional

2024	**DEMI Pre-doctoral Fellowship**, UConn Dept. of Molecular and Cell Biology
2023	**Charles G. Huntington Best Poster Award**, UConn Dept. of Applied Public Health Sciences
2023	**Mulvihill Medal for Academic and Research Excellence**, UConn Dept. of Applied Public Health Sciences
2023	**Sigma Xi Scientific Research Honor Society,** Full Member
2022	**Richard C. Crain Jr. Memorial Fellowship**, UConn Dept. of Molecular and Cell Biology
2021	**Summer Doctoral Dissertation Fellowship**, UConn (university-wide)
2021	**Conference Travel Award**, UConn (university-wide)
2019	**Teaching Commendation**, UConn (university-wide)
2018	**Outstanding Poster Award**, Northeastern Structure Symposium
2018	**Summer Research Fellowship**, UConn Dept. of Molecular & Cell Biology
2017	**Outstanding Teaching Assistant Award**, UConn Dept. of Molecular & Cell Biology
2017	**Phi Beta Kappa Honor Society**, UConn Phi Beta Kappa chapter, Epsilon of Connecticut
2016	**Excellence in Spanish** (Awarded to 2 students), UConn Dept. of Literatures, Cultures & Languages
2014	**New England Scholar**, UConn Honors Program
2012-2016	**Academic Excellence Scholarship**, UConn (university-wide)

Military-Related

2016	**Honorable Discharge** (medical), U.S. Air Force
2016	**National Defense Industrial Association** (Top Cadet Overall), UConn Air Force ROTC
2015	**Scottish Rite of Freemasonry Medal** (Top Junior), UConn Air Force ROTC
2014	**Society of the War of 1812 Medal** (Top Sophomore), UConn Air Force ROTC
2012-2016	**Commander's Excellence Award** (Top 5% Every Semester), UConn Air Force ROTC
2012-2016	**Full Tuition Scholarship**, U.S. Air Force

SCIENCE COMMUNICATION EXPERIENCE

- **Writer**, Complexly: SciShow, Crash Course and more **2019-Present**
  - Co-authored a 20-episode YouTube series for the American Public Health Association covering topics like health equity, why climate change is a public health issue, pandemic preparedness and more.

- Pitched and wrote 11 episodes for *SciShow*, a science YouTube show with 8M subscribers, on topics including the birth of epidemiology, astronaut health, cancer overdiagnosis, COVID-19 and more.

- **Science Advisor/Project Manager**, UConn Dept. of Digital Media and Design **2017-2018**
  - Served as a mock "client" in a "Science Visualization" course for undergrads majoring in illustration or animation.
  - Pitched ideas, fact-checked drafts, & mentored students who collectively produced 25 animations on biology topics.

CAREER DEVELOPMENT

- **Science Policy Skills Training Course**, National Science Policy Network, Virtual, (In Progress) **2025**
- **Introduction to Science Diplomacy**, National Science Policy Network, Virtual, (Link to Credential) **2025**
- **Scientific Computing with Python Developer Certification**, freeCodeCamp, (Link to Credential) **2024**
- **Media Training for Scholars**, International Studies Association, Virtual **2024**
- **Unlocking the Art of Moderation**, UConn: Democracy & Dialogues Initiative; Storrs, CT **2023**
- **Policy Action Institute**, American Public Health Association, Washington D.C. **2023**
- **Improv Science Communication Workshop**, UConn, Storrs, CT **2018**
- **Men's Project**, UConn: Women's Center & Violence Against Women Prevention Program, Storrs, CT **2017**

TECHNICAL SKILLS

OS/Software: Windows, Mac, Linux; Microsoft Office (Word, Excel, PowerPoint, Outlook, Teams); Google Suite; Canva
Programming: Python, Bash; HPC, Spack; NumPy, SciPy, Matplotlib, Seaborn, Pandas, Jupyter, Anaconda