

## **CURRICULUM VITAE**

Danielle Tullman-Ercek

Website: dtelab.northwestern.edu

## **EDUCATION**

2006 PhD Chemical Engineering, University of Texas at Austin, Supervisor: George Georgiou

2000 BS Chemical Engineering, Biotechnology Specialization, Illinois Institute of Technology

## **CURRENT POSITION**

2021-present Professor, Chemical and Biological Engineering, Northwestern University  
Co-Director, Center for Synthetic Biology  
Director, MS Biotechnology Program

## **PREVIOUS POSITIONS**

2016-2021 Associate Professor, Chemical and Biological Engineering, Northwestern University  
2009-2016 Assistant Professor, Chemical Engineering, University of California Berkeley  
2011-2016 Staff Scientist, Lawrence Berkeley National Laboratory  
2008-2009 Postdoctoral Researcher, Lawrence Berkeley National Laboratory  
2007-2008 Postdoctoral Researcher, University of California, San Francisco

## **HONORS, AWARDS, AND FELLOWSHIPS**

2023 American Institute of Medical and Biological Engineering, Inducted to College of Fellows for “Developing new methods to engineer supramolecular protein assemblies and for fostering a diverse, inclusive synthetic biology community”  
2022 Equalize Pitch Competition, MedTech Division, First Place  
2020 Biochemical Engineering Journal Young Investigator Award  
2018 Outstanding Young Alumna Award, ChBE Illinois Institute of Technology  
2015 Searle Leadership Award  
2015-16 Merck Chair in Biochemical Engineering  
2015-16 Exxon Knowledge Build Award  
2012 NSF CAREER Award  
2012 Hellman Family Faculty Award  
2010 Paper of the Year, Journal of the Taiwan Institute of Chemical Engineers  
2009-14 Charles Wilke Endowed Chair in Chemical Engineering  
2002-05 National Science Foundation Graduate Research Fellow  
2002 Howard Hughes Medical Institute Predoctoral Fellowship Alternate  
2001-02 National Institute of Health Predoctoral Training Grant  
1997-00 Illinois Institute of Technology Camras/NEXT Scholarship  
1996 Rensselaer Polytechnic Institute Medalist

## **RESEARCH SUPERVISION**

2008-present 12 Current PhD students  
20 PhD Students Graduated (7 Northwestern, 13 UC Berkeley): current 1 professor, 2 consultants, 1 government lab, 12 industry, 2 startup executives, 2 postdocs  
2009-present 2 Current Postdocs  
6 Postdocs Supervised (3 Northwestern, 3 UC Berkeley): current positions - 2 professors, 1 academic staff scientist, 1 national lab, 1 consultant, 1 government policy  
2013-present 18 MS Students Graduated (17 Northwestern, 1 UC Berkeley): 3 PhD, 2 regulatory/policy, 1 science communication, 12 industry  
2009-present 75 BS Students Mentored (24 Northwestern, 44 UC Berkeley): 22 graduate school (1 professor)

## TEACHING ACTIVITIES

- 2009-2016 Undergraduate courses in thermodynamics, biochemical engineering upstream and downstream processes, protein engineering.
- 2016-2023 Undergraduate courses in thermodynamics, biochemical engineering upstream processes, protein engineering. Graduate courses in biochemical engineering upstream processes, molecular folding and function. Summer short courses in synthetic biology in England, Italy, US (guest lecturer).

## ORGANIZATION OF SCIENTIFIC MEETINGS (SELECTED)

- 2021-2022 American Chemical Society, 263rd National Meeting Division Programming Chair, Biochemical Technology Division (BIOT)
- 2020 Central US Synthetic Biology Workshop, Co-Chair of Organizing Committee
- 2014-2021 American Chemical Society, 3xNational Meeting BIOT Area Coordinator
- 2019 Organizing Committee, International Conference on Biomolecular Engineering
- 2017 American Society of Microbiology, Annual Meeting Plenary Session Organizer
- 2013 American Chemical Society, Theme Committee
- 2012 American Society of Microbiology, Annual Meeting Plenary Session Organizer

## EXTERNAL LEADERSHIP ACTIVITIES (SELECTED)

- 2025 Chair-Elect for ACS BIOT (to hold position in 2026)
- 2022-present Opera Bioscience, Chief Scientific Advisor and Co-Founder
- 2021-2022 Opera Bioscience, Chief Technology Officer and Co-Founder
- 2020-present Trends in Biotechnology, Advisory Board Member
- 2017-present ASM mSystems, Editor
- 2011-2023 ACS Synthetic Biology, Editorial Board Member
- 2017-2021 Current Opinion in Biotechnology, Editor, special issues
- 2017-2023 Engineering Biology Research Consortium, Council Member; Education Chair and Steering Committee Member (2017-2021)

## INSTITUTIONAL ACTIVITIES (SELECTED)

- 2023-present Member, International Institute for Nanotechnology Steering Committee
- 2019-present Member, Chemistry of Life Processes Institute Faculty Executive Committee
- 2018-present Director, Synthetic Biology Research Experience for Undergraduates
- 2018-2021 Member, Institutional Biosafety Committee
- 2017-2023 Member, Faculty Search Committees (6)
- 2017-2019 Member, Graduate Admissions Committee

## PUBLICATIONS (SELECTED), \*indicates corresponding author

Burdette L.A., Leach S.A., Kennedy N.W., Ikwuagwu B.C., Summers J.S., Tullman-Ercek D. (2024) "Characterization and Engineering of the Type 3 Secretion System Needle Monomer from Salmonella Through the Construction and Screening of a Comprehensive Mutagenesis Library" mSphere (in press).

Karim A.S., Brown D.M., Archuleta C.M., Grannan S., Aristilde L., Goyal Y., Leonard J.N., Mangan N.M., Prindle A., Rocklin G.J., Tyo K.J., Zoloth L., Jewett M.C., Calkins S., Kamat N.P., Tullman-Ercek D., Lucks J.B. "Deconstructing synthetic biology across scales: a conceptual approach for training synthetic biologists" (2024) Nat Commun. Jun 26;15(1):5425. doi: 10.1038/s41467-024-49626-x

Liang, J.M., Burdette L., Wong H.T., Tullman-Ercek D.\* (2023) "Construction of a constitutively active type III secretion system for heterologous protein secretion" Appl. Microbiol. Biotechnol. 107(5-6):1785-1800. doi: 10.1007/s00253-023-12411-9

Griffith J.E., Chen Y., Liu Q., Wang Q., Richards J.J., Tullman-Ercek D., Shull K., and Wang M.\* (2023) “Quantitative high-throughput measurement of bulk mechanical properties using commonly available equipment.” *Materials Horizons* 10: 97-106.

Mills C.E., Waltmann C. Archer A.G., Kennedy N.W., Abrahamson C.H., Jackson A.D., Roth E.W., Shirman S., Jewett M.C., Mangan N.M., Olvera de la Cruz M., Tullman-Ercek D.\* (2022) “Vertex protein PduN tunes encapsulated pathway performance by dictating bacterial metabolosome morphology.” *Nature Comm* 13: 3746.

Li Y., Kennedy N.W., Li S., Mills C.E., Tullman-Ercek D.\*, Olvera de la Cruz M.\* (2021) “Computational and experimental approaches to controlling bacterial microcompartment assembly.” *ACS Central Science* 7(4):658-670.

Chen Y., Wang Q., Mills C.E., Kann J.G., Shull KR, Tullman-Ercek D., Wang M.\* (2021) “High-Throughput Screening Test for Adhesion in Soft Materials Using Centrifugation.” *ACS Central Science* 7(7):1135-1143. doi: 10.1021/acscentsci.1c00414.

Brauer D.D., Hartman E.C., Bader D.L.V., Merz Z.N., Tullman-Ercek D.\*, Francis M.B.\* (2019) “Systematic engineering of a protein nanocage for high-yield, site-specific modification.” *J. Amer. Chem. Soc.* 141(9): 3875-84.

Hartman E.C., Jakobson C.M., Favor A.H., Benedicto E.A., Francis M.B.\*, Tullman-Ercek D.\* (2018) “Quantitative characterization of all single amino acid variants of a viral capsid-based drug delivery vehicle.” *Nature Comm.* 9(1): 1385.

Glasgow J.E., Asensio M.A., Jakobson C.M., Francis M.B., Tullman-Ercek D.\* (2015) “The influence of electrostatics on small molecule flux through a protein nanoreactor.” *ACS Synth. Biol.* 4(9):1011-9.

## **PATENTS**

“Recombinant Strains and Media Formulation For Enhancing Secretion Titer Using a Type III Secretion System.” D. Tullman-Ercek, L.A. Burdette, H.T. Wong (2019). United States Patent Application US2020/013963. (PCT application filed.)

“Inducible Feedback Promoter Systems and Uses Thereof.” K. E. Tyo, B. Biggs, D. Tullman-Ercek, J. Lucks, C. Glasscock (2018). United States Patent Application 62/730,720. (PCT application filed.)