#### THE UNIVERSITY OF TEXAS AT AUSTIN Cockrell School of Engineering Standard Resume

FULL NAME: Jeanne Casstevens Sta	chowiak TITLE: Profe	<u>essor</u> (effecti	ve 09/01/23)			
DEPARTMENT: Biomedical Engineering						
EDUCATION:						
University of Texas at Austin University of California, Berkeley University of California, Berkeley	Mechanical Engineering Mechanical Engineering Mechanical Engineering	BSME MS Ph.D.	Spring 2002 Spring 2004 Spring 2008			

Masters Advisor: Arun Majumdar Doctoral Advisor: Prof. Daniel Fletcher Doctoral Dissertation Title: "High Reynolds Number Microfluidic Systems for Drug Delivery"

# CURRENT AND PREVIOUS ACADEMIC POSITIONS:

50/50 Joint appointment in Biomedical and Chemical Engineering

University of Texas at Austin	Full Professor (tenured)	Effective Fall 2023
University of Texas at Austin	Associate Professor (tenured)	Fall 2018-Fall 2023
University of Texas at Austin	Assistant Professor	Spring 2012-Fall 2018

# OTHER PROFESSIONAL EXPERIENCE:

Sandia National Laboratories	Senior Member of Technical Staff	Aug. 2008-Jan. 2012
Sandia National Laboratories	Member of Technical Staff	July 2004 - Sept. 2005

### HONORS AND AWARDS:

- 2014 National Science Foundation CAREER Award, Division of Materials Research
- 2016 "New and Notable" Lecturer at the Annual Meeting of the Biophysical Society
- 2017 Selected for the "Future of Biochemistry" special issue of the journal, *Biochemistry*, a publication of the American Chemical Society edited by Prof. Alana Shepartz, published January 2018.
- 2017 Young Innovator of the Biomedical Engineering Society, awarded at the Annual Meeting of the Biomedical Engineering Society (BMES) in October, 2017.
- 2017 Annual "Student Selected Speaker" of the *Structural and Quantitative Biology Seminar Series at the* University of California, Berkeley
- 2018-present Banks McLaurin Fellow in Engineering, Cockrell School of Engineering, University of Texas at Austin.
- 2019 Keynote Speaker at the inaugural conference honoring National Science Foundation CAREER awardees, NSF BIO division.
- 2020-2022 Elected to the UT Austin Faculty Council.
- 2021-2026 National Institutes of Health NIGMS MIRA Established Investigator Award

- 2021-2022 Awarded a Fellowship by the William H. Tonn Professorial Assistance Fund, in recognition of outstanding contributions to the University (UT Austin Provost's office)
- 2022 Elected a Fellow of the American Institute for Medical and Biological Engineering (AIMBE)
- 2023 Michael and Kate Bárány Award of the Biophysical Society, which recognizes one outstanding researcher each year at the Associate Professor level

### Honors and Awards Prior to Joining UT Austin

- 2002 Bachelor's of Science in Mechanical Engineering with highest honors, The University of Texas at Austin, TX
- 2002 National Defense Science and Engineering Graduate Fellowship Program Awardee
- 2002 ARCS Foundation Graduate Research Fellow
- 2002 National Science Foundation Graduate Research Fellow
- 2005 Sandia National Laboratories, Team Excellence Recognition Award
- 2005 Sandia National Laboratories, Award for Individual Employee Excellence
- 2008 Soroptimist Founder Region Dissertation Fellowship Award
- 2011 Cornell University Distinguished Honor for Faculty Mentoring of Co-op Students

# MEMBERSHIPS IN PROFESSIONAL AND HONORARY SOCIETIES:

- Biophysical Society, 2010-Present
- Biomedical Engineering Society, 2011-Present
- Society for Biomaterials, 2015-Present
- Americal Society for Cell Biology, 2012-Present
- American Chemical Society, 2010-Present
- American Physical Society, 2014-Present
- Tau Beta Pi, 2002-Present

# UNIVERSITY COMMITTEE ASSIGNMENTS:

# Departmental Committee Service

- Member, Graduate Student Recruiting Committee, 2012-2013, 2021-2022
- Co-Chair, Graduate Student Recruiting Committee, 2014-2015
- Chair, Graduate Student Recriting Committee, 2015-2021
- Faculty Recruiting Committee, 2012-2014, 2017-2018, 2018-2019, 2021-2022
- Undergraduate Laboratory Curriculum Committee, 2013-2014
- UT BME Grant Review Committee for Texas 4000 Foundation Seed Grants, 2013-2014
- Chair of the BME Staff Excellence Committee, 2014
- T32 NIH Training Grant Executive Committee, 2016-present

# Cockrell School of Engineering Service

• New faculty orientation panel member, 2013, 2014

Biomedical Engineering Chemical Engineering

- CSE Accreditation and Assessment Committee, 2014-2016
- Faculty careers panel for graduate students, 2016
- Inaugural member of College of Engineering Diversity, Equity, and Inclusion Committee, 2019-2020
- College of Engineering Awards Committee, 2020-2021

### University Service

- NSF CAREER Panel Member for the Office of the Vice President of Research, 2016
- George H. Mitchell Award Selection Committee, 2016, 2017, 2019, 2020
- UT Austin Faculty Council Member, 2020-2022
- Member of the Faculty Advisory Committee on the University Budget, 2020-2022

### Service Related to Diversity/Equity/Inclusion

- Inaugural member of College of Engineering Diversity, Equity, and Inclusion Committee, 2019-2020
- DEI Panel Member, FASEB Protein Aggregates Meeting, Summer 2021
- As Chair of the UT Austin BME Graduate Admission Committee: worked with committee members (Markey, Cosgriff-Hernandez) to implement holistic recruiting and admissions processes. Participated in interviews for minority and first-generation applications. Sat on information panel for applicants in, which sought to welcome diverse applicants. Participated in outreach events at scientific meetings that target diverse groups. Collectively these activities were correlated with a marked increase in the diversity of our applicant pool, admitted student pool, and graduate class.

### PROFESSIONAL SOCIETY/GOVERNMENT SERVICE AND TECHNICAL COMMITTEES:

- Chair, Biophysical Society Subgroup, Intrinsically Disordered Proteins, 2022-2023
- Member, Biophysical Society Early Careers Committee, 2021-2024
- Member, American Society for Cell Biology Annual Meeting Organizing Committee, 2021-2023
- Associate Editor, Science Advances, 2022-present
- Editorial Board Member, Biophysical Journal, 2022-2024
- National Science Foundation Grant Review Panelist for Division of Molecular and Cellular Biosciences, 2015, 2021, 2022
- National Institutes of Health Grant Review Panelist for Member Conflicts in the Biological Chemistry and Macromolecular Biophysics, 2016
- National Science Foundation Mail-in Grant Reviewer for Division of Molecular and Cellular Biosciences, 2016
- National Science Foundation Grant Review Panelist for Division of Molecular and Cellular Bioscience, 2017
- National Institutes of Health Grant Review Service for Study Section: Biochemistry and Biophysics of Membranes (BBM), 2017
- National Institutes of Health Grant Review Service for Study Section: Gene and Drug Delivery (GDD), 2019
- National Institutes of Health Grant Review Service for Study Section: Membrane Biology and Protein Processing (MBPP), 2019, 2020

- National Institutes of Health Grant Review Service for Study Section: NIGMS MIRA Special Emphasis Panel, 2020, 2021
- Standing Member of the National Institutes of Health MRAE Review Group, 2023-2027
- Editor, iScience (Cell Press, Elsevier), Special Issue on Cell-like Systems, 2022
- Journal Peer Review (alphabetical): ACS Applied Materials and Interfaces, BBA Biomembranes, Biophysical Journal, eLife, IEEE Transactions of Biomedical Engineering, iScience, Journal of the American Chemical Society, Journal of the Federation of American Societies for Experimental Biology (FASEB), Lab on a Chip, Langmuir, Materials Chemistry B, Materials Science and Engineering C, Nature, Nature Cell Biology, Nature Communications, Physical Review Letters, PLOS One, Royal Society of Chemistry Advances, Science Advances, Soft Matter

### **RESEARCH SYNOPSIS: Laboratory of Jeanne C. Stachowiak**



Through quantitative molecular-scale measurements in reconstituted systems and living cells, research in my laboratory aims to elucidate the physical mechanisms that organize and shape membranes during dynamic cellular processes. Curved membranes are an essential feature of diverse cellular structures including endocytic pits, trafficking vesicles, and most organelles. These and other curved membrane structures play important roles in numerous human diseases, motivating the study of the molecular-level mechanisms that drive membrane curvature. When I started my independent lab, the general consensus was that proteins induce curvature through two primary mechanisms: (i) membrane scaffolding by curved proteins or complexes, and (ii) insertion of wedge-like amphipathic helices into the membrane. Notably, both of these mechanisms require proteins to have specific structural features. In contrast, my lab's early work demonstrated a new general mechanism of membrane bending, which is independent of protein structure – <u>membrane bending by protein crowding</u>. Here we used a combination of quantitative *in vitro* assays, live cell imaging experiments, and physical modeling to show that lateral pressure generated by collisions among crowded, membrane bound proteins provides a surprisingly potent driving force for membrane curvature and fission by proteins of arbitrary structure (Stachowiak et al. *PNAS* 2010, *Nature Cell Biology* 2012, 2013).

Building on these findings, a key insight that shaped the next stage of our work was that intrinsically disordered domains, ubiquitous among the endocytic protein machinery, are surprisingly potent drivers of membrane crowding owing to their large hydrodynamic radii (Busch, *NComms*, 2015). Our work in this area has demonstrated that crowding effects, rather than previously hypothesized membrane insertions, are responsible for membrane fission by several endocytic proteins (Snead, *PNAS*, 2017), and that disordered proteins, despite their lack of structure, are highly sensitive to membrane curvature (Zeno, *NComms*, 2018, *JACS 2019*). Collectively this work has shown that repulsive interactions among disordered proteins drives the membrane to curve outward, forming protein-coated tubules and buds.

Interestingly, rather than repelling one another, many disordered proteins have recently been found to assemble together via weak, multi-valent interactions, forming networks that have the physical properties of liquids. How might liquid-liquid phase separation of proteins at membrane surfaces impact membrane

curvature? Our recent work has used synthetic and cell-derived membranes to show that liquid-liquid phase separation of membrane-associated disordered proteins creates a substantial compressive stress in the plane of the membrane, which drives the membrane to bend away from the protein layer, creating protein-lined membrane tubules, (Yuan, *PNAS* 2021).

Looking more broadly at the possible role of protein liquids in membrane biology, our recent work has examined the role of protein phase separation during endocytosis. During clathrin-mediated endocytosis, dozens of proteins assemble into an interconnected network at the plasma membrane. Early initiators of endocytosis concentrate downstream components, while permitting dynamic rearrangement within the budding vesicle. Our work showed that these initiators rely on weak, liquid-like interactions to catalyze endocytosis. These findings suggest that liquid-like assembly of initiator proteins provides an optimal catalytic platform for endocytosis (Day, *Nature Cell Biology, 2021*).

Going forward, the idea of a transition between a stochastic, disordered protein network toward a more ordered structure that is capable of deterministic outcomes provides a template for understanding many processes in membrane biology. At present my group is focused on characterizing these "disorder to order" transitions using a diverse toolset, which includes in vitro biochemistry, engineered live cells, diverse modalities of quantitative and single molecule light microscopy, and deep collaborations with theorists who work across a range of length scales. Specific areas of our ongoing work include the role of protein networks in viral budding, actin bundling, and multiple pathways of membrane remodeling and traffic. Looking toward the future, <u>our broad vision is to use the principles and methods of biophysics to explain how functional protein complexes emerge dynamically and efficiently from the staggering complexity of cellular membrane surfaces.</u> This work, which crosses boundaries between many fields, requires a collaborative and adaptive laboratory, which integrates individuals from diverse backgrounds.

# PUBLICATIONS:

A. Refereed Journal Papers Italics indicate Stachowiak Lab trainees; bold indicates former mentors of Stachowiak

Currently under review or accepted/in press

- J. Clarke, F. Cavanna, A. D. Crowell, *J. R. Houser, K. D. Graham*, A. Green, J. C. Stachowiak, T. M. Truskett, D. J. Millioron, A. M. Rosales, J. Alvarado, "Depletion-driven morphological control of bundled actin networks," *arXiv*, 05/2022. https://doi.org/10.48550/arXiv.2205.01864
- 2. Y. Lee, S. Park, F. Yuan, C. C. Hayden, L. Wang, E. M. Lafer, S. Q. Choi, J. C. Stachowiak, "Lateral compression of lipids drives transbilayer coupling of liquid-like protein condensates," biorXiv, 12/22. https://doi.org/10.1101/2022.12.21.521462 *In revision, Nature Communications.*
- 3. K. Graham, A. Chandrasekaran, L. Wang, N. Yang, E. M. Lafer, P. Rangamani, J. C. Stachowiak, "Liquid-like condensates mediate competition between actin branching and bundling," 06/23, *In revision, PNAS.*
- 4. A. Chandrasekaran, K. Graham, J. C. Stachowiak, P. Rangamani, "Kinetic trapping organizes actin filaments within liquid-like protein droplets," 06/23, *In revision, Nature Communications.*
- F. Yuan, S. Gollapudi, K. J. Day, G. Ashby, A. Sangani, B. T. Malady, L. Wang, E. M. Lafer, J. M. Huibregtse, J. C. Stachowiak, "Ubiquitin-driven protein condensation promotes clathrin-mediated endocytosis," *Under Review, Nature Cell Biology. Posted to biorxiv:* https://doi.org/10.1101/2023.08.21.554139
- 6. F. Wilfling, M. Kaksonen, J. C. Stachowiak, "Protein condensates as flexible platforms for membrane traffic," *Accepted In Press, Current Opinion in Cell Biology.*

# Published at UT Austin

- A. C. M. DeGroot, D. J. Busch, C. C. Hayden, S. Mihelic, M. Behar, J. C. Stachowiak, "Entropic Control of Receptor Recycling Using Engineered Ligands," *Biophysical Journal*, vol. 114, p. 1377-1388, 01/2018.
- 8. *W. T. Snead*, J. C. Stachowiak, "Structure versus Stochasticity The role of Molecular Crowding and Intrinsic Disorder in Membrane Fission," *Journal of Molecular Biology*, vol. 430, p. 2293-2308, 04/2018.
- P. Bassereau, R. Jin, R. Baumgart, M. Deserno, R. Dimova, V. A. Frolov, P. V. Bashkirov, H. Grubmuller, R. Jahn, H. J. Risselada, L. Johannes, M. M. Kozlov, R. Lipowsky, T. J. Pucadyil, W. F. Zeno, J. C. Stachowiak, D. Stamou, A. Breuer, L. Lauritsen, C. Simon, C. Sykes, G. A. Voth, T. R. Weikl, "The 2018 Biomembrane Curvature and Remodeling Roadmap," Journal of Physics D: Applied Physics, vol. 51, 07/2018.
- 10. *W. T. Snead*, J. C. Stachowiak, "A tethered vesicle assay of membrane fission," *Methods in Enzymology*, vol. 611, p. 559-582, 08/2018.
- 11. *H. Alimohamadi, R. Vasan, J. E. Hassinger, J. C. Stachowiak*, *P. Rangamani*, "The role of traction in membrane curvature generation," *Molecular Biology of the Cell*, 29, p. 2024-2035, 08/2018.
- W. F. Zeno, U. Baul, W. T. Snead, G. Kago, A. C. M. DeGroot, L. Wang, E. M. Lafer, D. Thirumalai, J. C. Stachowiak, "Synergy between intrinsically disordered domains and structured proteins amplifies membrane curvature sensing," *Nature Communications*, 9, 4152, 08/2018.
- W. T. Snead, W. F. Zeno, G. Kago, R. W. Perkins, J. B. Richter, C. Zhao, E. M. Lafer, J. C. Stachowiak, "BAR scaffolds drive membrane fission by crowding disordered domains," *Journal of Cell Biology*, 218, 664-682, 02/2019.
- 14. *W. F. Zeno, A. Thatte*, L. Wang, *W. T. Snead*, E. M. Lafer, J. C. Stachowiak, "Molecular mechanisms of membrane curvature sensing by a disordered protein," *Journal of the American Chemical Society*, 141, 10361-10371, 07/2019.
- 15. C. Zhao, A. C. M. DeGroot, C. C. Hayden, J. R. Houser, H. A. Ali, M. F. LaMonica, J. C. Stachowiak, "Receptor heterodimerization modulates endocytosis through collaborative and competitive mechanisms," *Biophysical Journal*, 117, 646-658, 08/2019.
- A. C. M. DeGroot, C. Zhao, M. F. LaMonica, C. C. Hayden, J. C. Stachowiak, "Molecular thermodynamics of receptor competition for endocytic uptake," *Soft Matter*, 15, 7448-7461. 09/2019.
- 17. A. N. Trementozzi, Z. I Imam, M. Mendicino, C. C. Hayden, J. C. Stachowiak, "Liposomemediated chemotherapeutic delivery is synergistically enhanced by ternary lipid compositions and cationic lipids," *Langmuir*, 35, 12532-12542, 09/2019.
- 18. *W. F. Zeno, W. T. Snead, A. S. Thatte*, J. C. Stachowiak, "Structured and intrinsically disordered domains within Amphiphysin1 work together to sense and drive membrane curvature," *Soft Matter,* 15, 8716-8717, 11/2019.
- 19. W. F. Zeno, K. Y. Day, V. D. Gordon, J. C. Stachowiak, "Principles and Applications of Biological Membrane Organization," Annual Review of Biophysics, 49, 19-39, 01/2020.
- 20. K. J. Day, J. C. Stachowiak "Biophysical forces in membrane bending and traffic," Current Opinion in Cell Biology, 65, 72-77, 01/2020.
- A. N. Trementozzi, A. Hufnagel, H. Xu, M. S. Hanafy, F. Rosero Castro, H. D. C. Smyth, Z. Cui, J. C. Stachowiak, "Gap junction liposomes for efficient delivery of chemotherapeutics to solid tumors," ACS Biomaterials Science and Engineering, 6, 4851-4857, 08/2020.
- 22. J. R. Houser, C. C. Hayden, D. Thirumalai, J. C. Stachowiak, "A Forster resonance energy transfer-based sensor of steric pressure on membrane surfaces," *Journal of the American Chemical Society*, 142, 20796-20805, 11/2020.
- 23. W.F. Zeno, J.B. Hochfelder, A.S. Thatte, L. Wang, A.K. Gadok, C.C. Hayden, E.M. Lafer, J.C. Stachowiak, "Clathrin senses membrane curvature," *Biophysical Journal*, 120, 818-828, 01/2021.

- M. S. Hanafy, S. Hufnagel, A. N. Trementozzi, W. Sakran, J. C. Stachowiak, J. J. Koleng, Z. Cui, "PD-1 siRNA-encapsulated solid lipid nanoparticles downregulate PD-1 expression by macrophages and inhibit tumor growth," AAPS PharmSciTech, 22, 1-8, 02/2021.
- 25. F. Yuan, H. Alimohamadi, B. Bakka, A.N. Trementozzi, N.L. Fawzi, P. Rangamani, J.C. Stachowiak, "Membrane bending by protein phase separation," *PNAS*, 118 (1), 03/2021.
- K.J. Day, G.K. Kago, L. Wang, J.B. Richter, C.C. Hayden, E.M. Lafer, J.C. Stachowiak, "Liquidlike protein interactions catalyze assembly of endocytic vesicles," *Nature Cell Biology*, 23, 366-376, 04/2021.
- 27. A.C.M. DeGroot, S. Gollapudi, C. Zhao, M. F. LaMonica, J. C. Stachowiak, "Weakly internalized receptors use coated vesicle heterogeneity to evade competition during endocytosis," *Biochemistry*, 60, 2195, 06/2021.
- V. Le, L. Mei, P. L. Voyvodic, C. Zhao, D. J. Busch, J. Stachowiak, A. B. Baker, "Molecular tension in syndecan-1 is regulated by extracellular mechanical cues and fluidic shear stress," *Biomaterials*, 275, 120497, 06/2021.
- 29. Y. Fu, W. F. Zeno, J. C. Stachowiak, M. E. Johnson, "A continuum membrane model predicts curvature sensing by helix insertion," Soft Matter, 17, 10649, 11/2021.
- 30. A. N. Trementozzi, C. Zhao, H. Smyth, Z. Cui, J. C. Stachowiak, "Gap junction-mediated delivery of polymeric macromolecules", ACS Biomaterials Science and Engineering, 8, 1566-1572, 02/2022.
- 31. J. C. Stachowiak, "Clathrin bender or bystander?", Journal of Cell Biology, 221,7, 06/2022.
- 32. W. F. Zeno, F. Yuan, K. D. Graham, J. C. Stachowiak, "Disordered protein networks as mechanistic drivers of membrane remodeling and endocytosis," *Structure and Intrinsic Disorder in Enzymology*, 11/2022.
- J. R. Houser, H. W. Cho, C. C. Hayden, *N. X. Yang,* L. Wang, E. M. Lafer, D. Thirumalai, J. C. Stachowiak, "Molecular mechanisms of steric pressure generation and membrane remodeling by intrinsically disordered proteins," *Biophysical Journal, 121, 3320-3333, 10/2022.*
- J. C. Stachowiak, T. Kirchhausen, "The beauty of simplicity in membrane biology," *Nature Cell Biology*, Invited Perspective, *Nature Cell Biology*, 08/2022. https://doi.org/10.1038/s41556-022-01015-6
- A. Z. Sihorwala, A. J. Lin, J. C. Stachowiak, B. Belardi, "Light-activated assembly of connexon nanopores in synthetic cells," *Journal of the American Chemical Society*, 145, 3561-3568, 01/2023.
- S. Boeynaems, S. Chong, J. Gsponer, L. Holt, D. Milovanovic, D. M. Mitrea, O. Mueller-Cajar, B. Pertz, J. F. Reilly, C. D. Reinkemeier, B. R. Sabari, S. Sanulli, J. Shorter, E. Sontag, L. Strader, J. C. Stachowiak, S. C. Weber, M. White, H. Zhang, M. Zweckstetter, S. Elbaum-Garfinkle, R. Kriwacki, "Phase separation in biology and disease; current perspectives and open questions," *Journal of Molecular Biology*, 435, 167971, 2023. doi: 10.1016/j.jmb.2023.167971.
- K. D. Graham, A. Chandrasekaran, L. Wang, *A. Ladak*, E. M. Lafer, P. Rangamani, J. C. Stachowiak, "Liquid-like assembly of VASP drives actin polymerization and bundling," *Nature Physics*, 19, 574-578, 01/2023.
- S. Gollapudi, S. Jamal, A. Kamatar, F. Yuan, L. Wang, E. M. Lafer, B. Belardi, J. C. Stachowiak, "Steric pressure between glycosylated transmembrane proteins inhibits internalization by endocytosis," *PNAS*, 120, e2215815120, *03/2023*.
- D. Maltseva, S. Chatterjee, C. Yu, M. Brzezinski, Y. Nagata, G. Gonella, A. C. Murthy, J. C. Stachowiak, N. L. Fawzi, S. Parkeh, M. Bonn, "Fibril formation and ordering of disordered FUS LC driven by hydrophobic interactions," *Nature Chemistry*, 15, 1146-1154, 05/2023.
- 40. F. Yuan, J. Houser, A. Sangani, L. Wang, E. M. Lafer, P. Rangamani, J. C. Stachowiak, "The ins

and outs of membrane bending by intrinsically disordered proteins," 9, 27, *Science Advances*, 07/2023.

### Published before tenure

- J. C. Stachowiak, E. M. Schmid, C. J. Ryan, H. S. Ann, D. Y. Sasaki, M. B. Sherman, P. L. Geissler, D. A. Fletcher, C. C. Hayden, "Membrane bending by protein-protein crowding," *Nature Cell Biology*, vol. 9, p. 944-949, 09/2012.
- 42. C. S. Scheve, P. Gonzales, N. Momin, J. C. Stachowiak, "Protein-protein crowding resists membrane phase separation," *Journal of the American Chemical Society*, vol. 135, p. 1185-1188, 01/2013.
- D. Y. Sasaki, N. Zawada, S. F. Gilmore, P. Narasimmaraj, M. A. Sanchez, J. C. Stachowiak, C. C. Hayden, H. L. Wang, A. N. Parikh, A. P. Schreve, "Lipid Membrane Domains for the Selective Adsorption and Surface Patterning of Conjugated Polyelectrolytes,", *Langmuir*, vol. 29, p. 5214-5221, 04/2013.
- 44. J. C. Stachowiak, F. Brodsky, E. Miller "A Cost-Benefit Analysis of the Physical Mechanisms of Membrane Curvature", *Nature Cell Biology*, vol. 15, p. 1019-1027, 09/2013.
- C. W. Coyne, K. Patel, J. Heureaux, J. C. Stachowiak, D. A. Fletcher, A. P. Liu, "Lipid Bilayer Vesicle Generation Using Microfluidic Jetting" *Journal of Visualized Experiments*, DOI: 10.3791/51510, p. e51510-e51510, 2014.
- N. Momin, S. Lee, A. K. Gadok, D. J. Busch, G. D. Bachand, C. C. Hayden, J. C. Stachowiak, D. Y. Sasaki "Designing Lipids for Selective Partitioning Into Liquid Ordered Membrane Domains", *Soft Matter, vol.* 11, p. 3241-3250, 03/2015.
- 47. D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, J. C. Stachowiak, "Crowding Among Intrinsically Disordered Proteins Modulates the Curvature and Content of Clathrin-Coated Vesicles", *Nature Communications*, vol. 6, doi:10.1038/ncomms8875, 07/2015.
- J. R. Houser, D. J. Busch, D. R. Bell, B. Li, P. Ren, J. C. Stachowiak, "The Impact of Physiological Crowding on the Diffusivity of Membrane Bound Proteins", *Soft Matter*, vol. 12, p. 2127-2134, 01/2016.
- Z. I. Imam, L. E. Kenyon, A. Carrillo, I. Espinoza, F. Nagib, J. C. Stachowiak, "Steric Pressure Among Membrane-bound Polymers Opposes Lipid Phase Separation", *Langmuir*, vol. 32, p. 3774-3784, 04/2016.
- C. Zhao, D. J. Busch, C. P. Vershel, J. C. Stachowiak, "Multi-functional Transmembrane Protein Ligands for Cell-Specific Targeting of Plasma Membrane-derived Vesicles", Small, vol. 12, p. 3837-3848, 07/2016
- S. S. Bordovsky, C. S. Wong, G. D. Bachand, J. C. Stachowiak, D. Y. Sasaki, "Engineering Lipid Structure for Recognition of the Liquid Ordered Membrane Phase", *Langmuir*, vol. 32, p. 12527-12533, 10/2016.
- A. K. Gadok, D. J. Busch, S. Ferrati, B. Li, H. D. C. Smyth, J. C. Stachowiak, "Connectosomes for Direct Molecular Delivery to the Cellular Cytoplasm", *Journal of the American Chemical Society*, vol. 128, p 12833-12840, 09/2016.
- 53. M. Chabanon, J. C. Stachowiak, P. Rangamani, "Systems biology of cellular membranes: a convergence with biophysics" *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, DOI: 10.1002/wsbm.1386, 04/2017.
- 54. *W. T. Snead*, C. C. Hayden, *A. K. Gadok*, P. Rangamani, *C. Zhao*, E. M. Lafer, J. C. Stachowiak, "Membrane Fission by Protein Crowding", *PNAS*, vol. 114, p E3258-E3267, 03/2017.
- 55. Z. I. Imam, L. E. Kenyon, G. Ashby, F. Nagib, M. Mendicino, C. Zhao, A, K. Gadok, J. C.

Stachowiak, "Phase Separating Liposomes Enhance the Efficiency of Macromolecular Delivery to the Cellular Cytoplasm," *The Journal of Cellular and Molecular Bioengineering,* 2017 BMES Young Innovator Award Special Issue, vol. 10, p. 387-403, 05/2017.

- S. Ferrati, A. K. Gadok, L. A. Heersema, A. D. Brunaugh, C. Zhao, H. D. C. Smyth<sup>\*</sup>, J. C. Stachowiak, "Connexin Membrane Materials as Potent Inhibitors of Breast Cancer Cell Migration," *The Journal of the Royal Society Interface*, vol. 14, 08/2017.
- A. K. Gadok, C. Zhao, A. I. Meriwether, S. Feratti, J. Zoldan, H. D. C. Smyth, J. C. Stachowiak, "Display of Single-Domain Antibodies on the Surfaces of Connectosomes Enables Gap Junction Mediated Drug Delivery to Specific Cell Populations," *Biochemistry*, vol. 57, p. 81-90, 2018.

#### Published prior to joining UT Austin

- 58. M. Yue, J. C. Stachowiak, **A. Majumdar**, "A 2-D microcantilever array for multiplexed biomolecular analysis," *Mechanics and Chemistry of Biosystems*, vol. 1, p. 211-220, 09/2004.
- 59. J. C. Stachowiak, M. Yue, K. Castelino, A. Chakraborty, **A. Majumdar**, "Chemomechanics of Surface Stresses Induced by DNA Hybridization," *Langmuir*, vol. 22, p. 263-268, 01/2006.
- J. C. Stachowiak, et al., "Autonomous Microfluidic Sample Preparation System for Protein Profile-Based Detection of Aerosolized Bacterial Cells and Spores," *Analytical Chemistry*, vo. 79, p. 5763-5770, 08/2007.
- J. C. Stachowiak, M. G. von Muhlen, T. H. Li, L. Jalilian, S. H. Parekh, D. A. Fletcher, "Piezoelectric Control of Needle-Free Transdermal Drug Delivery," *Journal of Controlled Release*, vol. 124, p. 88-97, 12/2007.
- 62. M. Yue, J. C. Stachowiak, H. Lin, R. Datar, R. Cote, **A. Majumdar**, "Label-free Protein Recognition 2D Array Using Nanomechanical Sensors," *Nano Letters, vol.* 8, p. 520-524, 02/2008.
- J. C. Stachowiak, D. L. Richmond, T. H. Li, A. P. Liu, S. H. Parekh, D. A. Fletcher, "Unilamellar Vesicle Formation and Encapsulation by Microfluidic Jetting," *Proceedings of the National Academy of Sciences of the United States of America, vol.* 105, p. 4697-4702, 03/2008.
- 64. J. C. Stachowiak, T. H. Li, A. A. Arora, S. Mitragotri, **D. A. Fletcher**, "Dynamic control of needlefree jet injection," *Journal of Controlled Release, vol.* 135, p. 104-112, 04/2009.
- J. C. Stachowiak, D. L. Richmond, T. H. Li, F. Brochard-Wyart, D. A. Fletcher, "Inkjet Formation of Unilamellar Lipid Vesicles for Cell-like Encapsulation," *Lab on a Chip*, vol. 9, p. 2003-2009, 06/2009.
- T. H. Li, J. C. Stachowiak, D. A. Fletcher, "Mixing Solutions in Inkjet Formed Vesicles," *Methods in Enzymology*, vol. 465, p. 75-94, 12/2009.
- 67. J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Steric confinement of proteins on lipid membranes can drive curvature and tubulation," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 107, p. 7781-7786, 04/2010.
- 68. J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Targeting proteins to liquid ordered domains in lipid membranes," *Langmuir*, vol. 27, p. 1457-1462, 12/2010.
- D. L. Richmond, E. M. Schmid, S. Martens, J. C. Stachowiak, N. Liska, D. A. Fletcher, "Forming giant vesicles with controlled membrane composition, asymmetry, and contents," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 108, p. 9431-9436, 06/2011.
- F. J. Zendejas, R. J. Meagher, J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Orienting lipid domains in giant vesicles using an electric field," *Chemical Communications*, vol. 47, p. 7320-7322, 04/2011.

#### **REFEREED CONFERENCE PROCEEDINGS AT UT AUSTIN:**

- 1. C. S. Scheve, J. C. Stachowiak, "Steric pressure between proteins opposes membrane phase separation," Annual meeting of the Biophysical Society, Philadelphia, PA, February **2013**.
- D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, J. C. Stachowiak, "Molecular crowding by intrinsically disordered proteins drives membrane bending," *Gordon Research Conference on Lysosomes and Endocytosis*, Andover, NH, June **2014**.
- 3. *W. T. Snead, N. Momin, V. Bora, J. C. Stachowiak*, "Helix insertion drives membrane bending by enabling protein crowding," *Annual Meeting of the Biomedical Engineering Society*, San Antonio, TX, October **2014**.
- 4. *K. Gadok, J. C. Stachowiak*, "Gap junction liposomes for direct therapeutic delivery to the cellular cytoplasm," *Annual Meeting of the Biomedical Engineering Society*, San Antonio, TX, October **2014**.
- 5. *W. T. Snead, N. Momin, V. Bora, J. C. Stachowiak*, "Helix insertion drives membrane bending by enabling protein crowding," *Annual Meeting of the Biophysical Society*, Baltimore, MD, February **2015**.
- 6. *K. Gadok, J. C. Stachowiak*, "Gap junction liposomes for direct therapeutic delivery to the cellular cytoplasm," *Annual Meeting of the Society for Biomaterials*, Charlotte, NC, April **2015**.
- D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, J. C. Stachowiak "Intrinsically disordered proteins drive membrane curvature and modulate the cargo content of coated vesicles," *Annual Meeting of the American Society of Cell Biology*, San Diego, CA, December 2015.
- D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, <u>J. C. Stachowiak</u>, "Intrinsically disordered proteins drive membrane curvature," *Annual Meeting of the Biophysical Society*, Los Angeles, CA, February **2016**.
- 9. C. Zhao, D. J. Busch C. P. Vershel, <u>J. C. Stachowiak</u>, "Plasma membrane-derived vesicles with engineered transmembrane protein ligands a new system for cellular targeting," *Annual Meeting of the American Chemical Society*, San Diego, CA, March **2016**.
- 10. K. Gadok, J. C. Stachowiak, "Connectosomes for direct intracellular drug delivery," Annual Meeting of the American Chemical Society, San Diego, CA, March **2016**.
- 11. W. T. Snead, C. C. Hayden, A. K. Gadok, P. Rangamani, J. C. Stachowiak, "Membrane fission by protein crowding," Annual Meeting of American Society for Cell Biology, San Francisco, CA, December **2016**.
- 12. W. T. Snead, C. C. Hayden, A. K. Gadok, P. Rangamani, J. C. Stachowiak, "Membrane fission by protein crowding," Annual Meeting of the Biophysical Society, New Orleans, LA, February **2017**.
- 13. Z. I. Imam, L. E. Kenyon, G. Ashby, F. Nagib, M. Mendicino, J. C. Stachowiak, "Lipid Phase Separation Enhances Fusion," Annual Meeting of the American Chemical Society, San Francisco, CA, April **2017**.
- 14. *Trementozzi, A. DeGroot, C. Zhao, J. C. Stachowiak*, "Controlling receptor recycling using engineered ligands," *Annual Meeting of the American Chemical Society*, New Orleans, LA, March **2018**.
- 15. Z. Imam, M. Mendicino, J. C. Stachowiak, "Membrane phase separation enhances liposomal delivery of chemotherapeutics," Annual Meeting of the American Chemical Society, New Orleans, LA, March **2018**.
- J. Hung, B. Dear, W. Zeno, C. Karouta, M. Nieto, L. Wilks, A. Sharma, J. C. Stachowiak, K. Johnston, "Understanding co-solute effects on viscosity and protein interactions in highly concentrated monoclonal antibodies through protein structure and dynamics," Annual Meeting of the American Chemical Society, New Orleans, LA, March 2018.
- 17. DeGroot, D. J. Busch, C. C. Hayden, S. A. Mihelic, A. T. Alpar, M. Behar, J. C. Stachowiak,

"Biophysical control of receptor recycling using engineered ligands," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February **2018**.

- G. Kago, K. J. Day, W. T. Snead, W. F. Zeno, J. B. Richter, L. Wang, C. C. Hayden, J. C. Stachowiak, "Protein networks as synergistic initiators of clathrin mediated endocytosis," Annual Meeting of the American Society for Cell Biology, San Diego, CA, December 2018.
- 19. Alimohamadi, R. Vasan, J. E. Hassinger,, J. C. Stachowiak, P. Rangamani, "The role of traction in membrane curvature generation," Annual Meeting of the American Society for Cell Biology, San Diego, CA, December **2018**.
- Trementozzi, Z. Imam, M. Mendicino, J. C. Stachowiak, "Phase-separated liposomes for enhanced chemotherapeutic delivery," Annual Meeting of the American Chemical Society, Orlando, FL, March 2019.
- 21. Zhao, A. DeGroot, H. Ali, M. LaMonica, C. C. Hayden, J. C. Stachowiak, "Receptor heterodimerization modulates endocytic uptake through both collaborative and competitive mechanisms," *Annual Meeting of the American Chemical Society*, Orlando, FL, March **2019**.
- DeGroot, C. Zhao, C. C. Hayden, S. Mihelic, L. LaMonica, J. C. Stachowiak, "Molecular thermodynamics of receptor competition for uptake by endocytosis," *Annual Meeting of the American Chemical Society*, Orlando, FL, March **2019**.
- 23. Zhao A. Meriwether, H. Ali, M. Wu,, J. C. Stachowiak, "Direct cytosolic delivery of macromolecules via connectosomes," Annual Meeting of the American Chemical Society, Orlando, FL, March 2019.
- 24. W. F. Zeno, U. Baul, W. T. Snead, A. DeGroot, L. Wang, E. M. Lafer, D. Thirumalai,, J. C. Stachowiak, "Intrinsically disordered proteins sense membrane curvature," Annual Meeting of the Biophysical Society, Baltimore, MD, March **2019**.
- 25. DeGroot, S. Gollapudi, C. Zhao, C. C. Hayden, J. C. Stachowiak, "Receptors utilize coated vesicle heterogeneity to evade competition during endocytosis" *Annual Meeting of the American Chemical Society*, virtual, March, **2020**.
- W. F. Zeno, W. T. Snead, L. Wang, A. S. Thatte, J. B. Hochfelder, E. M. Lafer, J. C. Stachowiak, "The role of disordered proteins in membrane curvature sensing during endocytosis" Annual Meeting of the American Chemical Society, virtual, March, 2020.
- K. D. Graham, W. T. Snead, L. Wang, E. M. Lafer J. C. Stachowiak, "Assembly of I-BAR containing protein IRSp53 enhances membrane bending," *Annual Meeting of the Biophysical Society*, San Diego, CA, February, **2020**
- G. Ashby. C. C. Hayden, J. C. Stachowiak, "Tracking dynamic interaction between therapeutic vesicles and endocytic structures" *Annual Meeting of the Biophysical Society*, San Francisco, CA, February, **2022**.
- 29. S. Gollapudi, C. C. Hayden, J. C. Stachowiak, "Impact of glycosylation on uptake of receptors by endocytosis" Annual Meeting of the Biophysical Society, San Francisco, CA, February, **2022**.
- 30. F. Yuan, J. R. Houser, A. Sangani, L. Wng, E. M. Lafer, J. C. Stachowiak, "A balance of attractive and repulsive forces controls the direction of membrane bending by intrinsically disordered proteins," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February, **2022**.
- Y. Fu, W. F. Zeno, J. C. Stachowiak, M. Johnson, "Predicting membrane curvature sensing and remodeling by protein domains and assemblies using continuum models," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February, **2022**.
- K. Graham, A. Ladak, L. Wang, A. Chandrasekaran, P. Rangamani, E. M. Lafer, J. C. Stachowiak, "Polymerization of actin inside liquid-like protein droplets drives spontaneous actin bundling" Annual Meeting of the Biophysical Society, San Francisco, CA, February, 2022.
- 33. S. Gollapudi, S. Jamal, J. C. Stachowiak, "Impact of glycosylation on uptake of receptors by endocytosis," Annual Meeting of the American Chemical Society, virtual, March, **2022**.

- 34. J. Houser, C. C. Hayden, H. W. Cho, D. Thirumalai, J. C. Stachowiak, "Intrinsically disordered proteins generate steric pressure through polymer-like crowding" Annual Meeting of the American Chemical Society, virtual, March, **2022**.
- 35. F. Yuan, J. Houser, A. Sangani, L. Wang, E. M. Lafer, J. C. Stachowiak, "Balance of attractive and repulsive forces controls the direction of membrane bending by intrinsically disordered proteins," *Annual Meeting of the American Chemical Society*, virtual, March, **2022**.

### **ORAL PRESENTATIONS:**

#### Oral Presentations since joining UT Austin

- 1. J. C. Stachowiak, "Biomechanics of membrane bending," Southwestern Biomedical Engineering Conference, Houston, TX, May **2012**.
- 2. C. S. Scheve, J. C. Stachowiak, "Steric pressure between proteins opposes membrane phase separation," Annual meeting of the Biophysical Society, Philadelphia, PA, February **2013**.
- 3. *J. C. Stachowiak, Invited Departmental Seminar*, **University of Texas at Austin**, Department of Physics, Center for Nonlinear Dynamics, Seminar Series, Spring **2012**.
- 4. *J. C. Stachowiak, Invited Departmental Seminar,* **University of Texas Health Sciences Center**, San Antonio, Department of Biochemistry, Seminar Series, Spring **2012**.
- 5. *J. C. Stachowiak, Invited Departmental Seminar,* **University of Texas at Austin**, Institute for Cellular and Molecular Biology, Seminar Series, Fall **2012.**
- 6. *J. C. Stachowiak, Invited Seminar,* **University of Texas at Austin**, Center for Systems and Synthetic Biology, Seminar Series, Fall **2013**.
- 7. D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, J. C. Stachowiak, "Molecular crowding by intrinsically disordered proteins drives membrane bending," *Gordon Research Conference on Lysosomes and Endocytosis*, Andover, NH, June **2014**.
- 8. J. C. Stachowiak, "Membrane bending by protein-protein crowding," Annual Meeting of the American Physical Society, Denver, CO, March **2014**.
- 9. *J. C. Stachowiak, Invited Departmental Seminar*, **University of Southern Illinois**, Departments of Chemistry and Biochemistry, Seminar Series, Spring **2014**.
- 10. J. C. Stachowiak, Invited Departmental Seminar, Duke University, Departments of Cell Biology and Molecular, Genetics and Microbiology, Seminar Series, Spring 2014.
- 11. *J. C. Stachowiak*, "Lipid rafts and membrane proteins collaborate to organize and shape biological membranes" *Annual Meeting of the Biophysical Society of Japan*, Sapporo, Japan, September **2014**.
- 12. *W. T. Snead, N. Momin, V. Bora, J. C. Stachowiak*, "Helix insertion drives membrane bending by enabling protein crowding," *Annual Meeting of the Biomedical Engineering Society*, San Antonio, TX, October **2014**.
- 13. A. K. Gadok, J. C. Stachowiak, "Gap junction liposomes for direct therapeutic delivery to the cellular cytoplasm," Annual Meeting of the Biomedical Engineering Society, San Antonio, TX, October **2014**.
- 14. *W. T. Snead, N. Momin, V. Bora, J. C. Stachowiak*, "Helix insertion drives membrane bending by enabling protein crowding," *Annual Meeting of the Biophysical Society*, Baltimore, MD, February **2015**.
- 15. *J. C. Stachowiak*, "Protein crowding modulates the shape and content of curved membranes and coated vesicles," *Annual Meeting of the Biophysical Society*, Baltimore, MD, February **2015**.
- 16. A. K. Gadok, J. C. Stachowiak, "Gap junction liposomes for direct therapeutic delivery to the cellular

cytoplasm," Annual Meeting of the Society for Biomaterials, Charlotte, NC, April 2015.

- 17. J. C. Stachowiak, Invited Departmental Seminar, University of Washington, Department of Chemistry, Seminar Series, Spring 2015.
- D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, J. C. Stachowiak "Intrinsically disordered proteins drive membrane curvature and modulate the cargo content of coated vesicles," *Annual Meeting of the American Society of Cell Biology*, San Diego, CA, December 2015.
- 19. J. C. Stachowiak, "Role of Molecular Crowding in Organizing Cellular Membranes," American Chemical Society Pacifichem Meeting, Honoloulu, HI, December **2015**.
- D. J. Busch, J. R. Houser, C. C. Hayden, M. B. Sherman, E. M. Lafer, <u>J. C. Stachowiak</u>, "Intrinsically disordered proteins drive membrane curvature," *Annual Meeting of the Biophysical Society*, Los Angeles, CA, February **2016**.
- 21. C. Zhao, D. J. Busch C. P. Vershel, <u>J. C. Stachowiak</u>, "Plasma membrane-derived vesicles with engineered transmembrane protein ligands a new system for cellular targeting," *Annual Meeting of the American Chemical Society*, San Diego, CA, March **2016**.
- 22. A. K. Gadok, J. C. Stachowiak, "Connectosomes for direct intracellular drug delivery," Annual Meeting of the American Chemical Society, San Diego, CA, March **2016**.
- 23. J. C. Stachowiak, Invited Departmental Seminar, University of California, San Diego, Department of Mechanical Engineering, Seminar Series, Spring 2016.
- 24. J. C. Stachowiak, "Intrinsically Disordered Proteins as Physical Drivers of Membrane Traffic," *American Chemical Society National Meeting*, Philadelphia, PA, August **2016**.
- 25. J. C. Stachowiak, "Stochastic Mechanisms in Membrane Traffic," Gordon Research Conference on Active, Adaptive, and Responsive Biointerfaces, Les Diableretes, Switzerland, June **2016**.
- 26. J. C. Stachowiak, Invited Seminar, Max Planck Institute of Biophysics, Frankfurt Germany, August 2016.
- 27. J. C. Stachowiak, Invited Departmental Seminar, University of Michigan, Department of Biophysics, October 7, 2016.
- 28. J. C. Stachowiak, Invited Departmental Seminar, University of Washington in St. Louis, Department of Bioengineering, October 13, 2016.
- 29. J. C. Stachowiak, Invited Departmental Seminar, University of Maryland, Department of Bioengineering, December 5, 2016.
- 30. W. T. Snead, C. C. Hayden, A. K. Gadok, P. Rangamani, J. C. Stachowiak, "Membrane fission by protein crowding," Annual Meeting of American Society for Cell Biology, San Francisco, CA, December **2016**.
- 31. W. T. Snead, C. C. Hayden, A. K. Gadok, P. Rangamani, J. C. Stachowiak, "Membrane fission by protein crowding," Annual Meeting of the Biophysical Society, New Orleans, LA, February **2017**.
- 32. J. C. Stachowiak, Invited Departmental Seminar, University of Texas Health Sciences Center, San Antonio, Department of Biochemistry, Seminar Series, Spring 2017.
- 33. J. C. Stachowiak, "Stochastic Molecular Mechanisms in Membrane Traffic," American Chemical Society National Meeting, San Francisco, CA, April **2017**.
- Z. I. Imam, L. E. Kenyon, G. Ashby, F. Nagib, M. Mendicino, J. C. Stachowiak, "Lipid Phase Separation Enhances Fusion," Annual Meeting of the American Chemical Society, San Francisco, CA, April 2017.
- 35. J. C. Stachowiak, Invited Seminar, Steenbock Symposium on Protein in the Secretory Pathway, University of Wisconsin, Madison, June **2017**.
- 36. J. C. Stachowiak, Invited Seminar, Telluride Workshop on Intrinsically Disordered Proteins, July

**2017**.

- 37. J. C. Stachowiak, Invited Departmental Seminar, Lehigh University, Department of Chemistry, Seminar Series, Fall 2017.
- 38. J. C. Stachowiak, Invited Departmental Seminar, Johns Hopkins University, Department of Biophysics, Seminar Series, Fall 2017.
- 39. J. C. Stachowiak, Annual Student Selected Speaker in the Structural and Quantitative Biology Seminar Series, University of California, Berkeley, Fall 2017.
- 40. J. C. Stachowiak, Invited Departmental Seminar, University of Texas Health Science Center at Houston, Department of Physiology, Seminar Series, Spring 2018.
- 41. J. C. Stachowiak, Invited Speaker, Symposium on Membrane Curvature, Annual Meeting of the Biophysical Society, San Francisco, CA, February **2018**.
- A. Trementozzi, A. DeGroot, C. Zhao, J. C. Stachowiak, "Controlling receptor recycling using engineered ligands," Annual Meeting of the American Chemical Society, New Orleans, LA, March 2018.
- 43. Z. Imam, M. Mendicino, J. C. Stachowiak, "Membrane phase separation enhances liposomal delivery of chemotherapeutics," Annual Meeting of the American Chemical Society, New Orleans, LA, March **2018**.
- 44. J. Hung, B. Dear, W. Zeno, C. Karouta, M. Nieto, L. Wilks, A. Sharma, J. C. Stachowiak, K. Johnston, "Understanding co-solute effects on viscosity and protein interactions in highly concentrated monoclonal antibodies through protein structure and dynamics," Annual Meeting of the American Chemical Society, New Orleans, LA, March **2018**.
- A. DeGroot, D. J. Busch, C. C. Hayden, S. A. Mihelic, A. T. Alpar, M. Behar, J. C. Stachowiak, "Biophysical control of receptor recycling using engineered ligands," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February **2018**.
- C. Zhao, A. DeGroot, J. C. Stachowiak, "Low affinity receptors can enter endocytic pits by binding to high affinity receptors," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February 2018.
- G. Kago, J. Houser, W. T. Snead, C. C. Hayden, E. M. Lafer, J. C. Stachowiak, "Eps15 forms membrane bound networks that promote localized assembly of the clathrin coat," *Annual Meeting* of the Biophysical Society, San Francisco, CA, February 2018.
- 48. J. C. Stachowiak, Invited Speaker, Gordon Research Conference on "Lysosomes and Endocytosis", Proctor Academy, Andover, NH, June **2018**.
- 49. J. C. Stachowiak, Invited Speaker, Gordon Research Conference on "Intrinsically Disordered Proteins", Les Diableretes, Switzerland, July **2018**.
- 50. *J. C. Stachowiak, Invited Departmental Seminar,* **University of Pennsylvania**, Department of Chemistry, Seminar Series, Fall **2018**.
- 51. J. C. Stachowiak, Invited Departmental Seminar, University of Wisconsin, Madison, Department of Chemistry, Physical Chemistry Seminar Series, Fall **2018**.
- 52. J. C. Stachowiak, Invited Departmental Seminar, University of Washington, Department of Biochemistry, Seminar Series, Fall **2018**.
- 53. G. Kago, K. J. Day, W. T. Snead, W. F. Zeno, J. B. Richter, L. Wang, C. C. Hayden, J. C. Stachowiak, "Protein networks as synergistic initiators of clathrin mediated endocytosis," Annual Meeting of the American Society for Cell Biology, San Diego, CA, December **2018**.
- 54. A. Alimohamadi, R. Vasan, J. E. Hassinger,, J. C. Stachowiak, P. Rangamani, "The role of traction in membrane curvature generation," Annual Meeting of the American Society for Cell Biology, San Diego, CA, December **2018**.

- 55. J. C. Stachowiak, Invited Departmental Seminar, Weill Cornell Medical School, Seminar Series, Fall **2018**.
- 56. J. C. Stachowiak, Invited Speaker, American Society for Cell Biology Annual Meeting, Special Interest Subgroup meeting on "Bottom-Up Cell Biology", San Diego, CA, December, **2018**.
- 57. J. C. Stachowiak, Invited Departmental Seminar, National Institutes of Health Intramural Program, Department of Biophysics, Seminar Series, Spring 2019.
- 58. J. C. Stachowiak, Invited Departmental Seminar, **UT Southwestern Medical Center**, Department of Biophysics, Seminar Series, Spring **2019**.
- 59. A. Trementozzi, Z. Imam, M. Mendicino, J. C. Stachowiak, "Phase-separated liposomes for enhanced chemotherapeutic delivery," Annual Meeting of the American Chemical Society, Orlando, FL, March **2019**.
- 60. C. Zhao, A. DeGroot, H. Ali, M. LaMonica, C. C. Hayden, J. C. Stachowiak, "Receptor heterodimerization modulates endocytic uptake through both collaborative and competitive mechanisms," *Annual Meeting of the American Chemical Society*, Orlando, FL, March **2019**.
- A. DeGroot, C. Zhao, C. C. Hayden, S. Mihelic, L. LaMonica, J. C. Stachowiak, "Molecular thermodynamics of receptor competition for uptake by endocytosis," *Annual Meeting of the American Chemical Society*, Orlando, FL, March 2019.
- 62. C. Zhao A. Meriwether, H. Ali, M. Wu,, J. C. Stachowiak, "Direct cytosolic delivery of macromolecules via connectosomes," Annual Meeting of the American Chemical Society, Orlando, FL, March **2019**.
- 63. W. F. Zeno, U. Baul, W. T. Snead, A. DeGroot, L. Wang, E. M. Lafer, D. Thirumalai,, J. C. Stachowiak, "Intrinsically disordered proteins sense membrane curvature," Annual Meeting of the Biophysical Society, Baltimore, MD, March **2019**.
- 64. J. C. Stachowiak, Invited Speaker, Biophysical Society Meeting on "Quantitative aspects of membrane fusion and fission", Padova, Italy, May **2019**.
- 65. J. C. Stachowiak, Invited Plenary Speaker, University of Utah "What's the big idea?" symposium, Salt Lake City, Utah, May **2019**.
- 66. J. C. Stachowiak, Invited Departmental Seminar, Wayne State University Medical School, Center for Molecular Medicine and Genetics, Seminar Series, Summer **2019**.
- 67. J. C. Stachowiak, Invited Speaker, Protein Society Annual Meeting, Seattle, WA, July 2019.
- 68. J. C. Stachowiak, Invited Speaker, European Molecular Biology Organization (EMBO) Meeting on "The physics and chemistry of endocytosis on multiple scales", Ischia Island, Italy, September **2019**.
- 69. J. C. Stachowiak, Invited Departmental Seminar, Case Western Reserve University Medical School, Department of Biochemistry, Seminar Series, Fall 2019.
- 70. J. C. Stachowiak, Keynote Speaker, National Science Foundation Conference for CAREER Awardees, BIO/MCB Program, October 2019.
- 71. J. C. Stachowiak, Invited Speaker, Max Planck Society, "Membrane Days", Berlin, Germany, December **2019**.
- 72. J. C. Stachowiak, Invited Departmental Seminar, University of Chicago, Department of Biophysics, Seminar Series, Spring **2020**.
- 73. A. DeGroot, S. Gollapudi, C. Zhao, C. C. Hayden, J. C. Stachowiak, "Receptors utilize coated vesicle heterogeneity to evade competition during endocytosis" Annual Meeting of the American Chemical Society, virtual, March, **2020**.
- 74. W. F. Zeno, W. T. Snead, L. Wang, A. S. Thatte, J. B. Hochfelder, E. M. Lafer, J. C. Stachowiak, "The role of disordered proteins in membrane curvature sensing during endocytosis" Annual

Meeting of the American Chemical Society, virtual, March, 2020.

- K. D. Graham, W. T. Snead, L. Wang, E. M. Lafer J. C. Stachowiak, "Assembly of I-BAR containing protein IRSp53 enhances membrane bending," *Annual Meeting of the Biophysical Society*, San Diego, CA, February, **2020**.
- J. C. Stachowiak, Invited Departmental Seminar, University of Washington in St. Louis, Medical School, Department of Neuroscience, Seminar Series, Fall 2020 (virtual).
- 77. J. C. Stachowiak, Invited Departmental Seminar, University of Toronto, Department of Chemistry, Seminar Series, Fall **2020 (virtual)**.
- 78. J. C. Stachowiak, Invited Departmental Seminar, Dartmouth University, Department of Molecular and Cell Biology, Seminar Series, Spring **2021 (virtual)**.
- 79. J. C. Stachowiak, Invited Talk, German Biophysical Society, Spring 2021 (virtual).
- 80. J. C. Stachowiak, Invited Keynote Speaker, "100 Years of Biophysics" Symposium, Max Planck Institute for Biophysics, Frankfurt, Spring **2021 (virtual)**.
- 81. J. C. Stachowiak, Invited Departmental Seminar, University of Texas, College of Pharmacy Seminar Series, Spring **2021** (virtual).
- J. C. Stachowiak, Invited Departmental Seminar, University of Texas, Molecular Biosciences Seminar Series, Spring 2021 (virtual).
- 83. J. C. Stachowiak, Invited Departmental Seminar, Wurzburg University (Germany), Spring **2021** (virtual).
- 84. J. C. Stachowiak, Invited Talk, FASEB Protein Aggregates Meeting, Summer 2021 (virtual).
- 85. J. C. Stachowiak, Invited Departmental Seminar, Princeton University Biophysics, Fall 2021.
- 86. J. C. Stachowiak, Invited Speaker, French Biophysical Society Annual Meeting, online, October **2021 (virtual).**
- 87. J. C. Stachowiak, Invited Speaker, International Union of Pure and Applied Biophysics, Annual Congress, Foz do Iguacu, Brazil, October **2021 (virtual).**
- 88. J. C. Stachowiak, Invited Speaker, American Society for Cell Biology (ASCB/EMBO), Annual Meeting, December 2021 (virtual).
- 89. J. C. Stachowiak, Invited Departmental Seminar, University of Virginia, Biochemistry, Fall **2021** (virtual).
- 90. J. C. Stachowiak, Invited Departmental Seminar, Vanderbilt University, Cell Biology and Biophysics, Spring 2022 (virtual).
- 91. J. C. Stachowiak, Invited Departmental Seminar, University of Pittsburgh, Cell Biology, Spring **2022** (virtual).
- 92. J. C. Stachowiak, International Keynote Speaker, Lorne Conference on Protein Structure and Function, Sydney, Australia, February **2022** (virtual).
- 93. J. C. Stachowiak, Invited Colloquium Speaker, Institute of Science and Technology, Vienna, Austria, Spring **2022** (virtual).
- G. Ashby. C. C. Hayden, J. C. Stachowiak, "Tracking dynamic interaction between therapeutic vesicles and endocytic structures" *Annual Meeting of the Biophysical Society*, San Francisco, CA, February, **2022**.
- 95. S. Gollapudi, C. C. Hayden, J. C. Stachowiak, "Impact of glycosylation on uptake of receptors by endocytosis" Annual Meeting of the Biophysical Society, San Francisco, CA, February, **2022**.
- 96. F. Yuan, J. R. Houser, A. Sangani, L. Wng, E. M. Lafer, J. C. Stachowiak, "A balance of attractive and repulsive forces controls the direction of membrane bending by intrinsically disordered

proteins," Annual Meeting of the Biophysical Society, San Francisco, CA, February, 2022.

- 97. Y. Fu, W. F. Zeno, J. C. Stachowiak, M. Johnson, "Predicting membrane curvature sensing and remodeling by protein domains and assemblies using continuum models," *Annual Meeting of the Biophysical Society*, San Francisco, CA, February, **2022**.
- 98. K. Graham, A. Ladak, L. Wang, A. Chandrasekaran, P. Rangamani, E. M. Lafer, J. C. Stachowiak, "Polymerization of actin inside liquid-like protein droplets drives spontaneous actin bundling" Annual Meeting of the Biophysical Society, San Francisco, CA, February, **2022**.
- 99. S. Gollapudi, S. Jamal, J. C. Stachowiak, "Impact of glycosylation on uptake of receptors by endocytosis," Annual Meeting of the American Chemical Society, virtual, March, **2022**.
- 100. J. Houser, C. C. Hayden, H. W. Cho, D. Thirumalai, J. C. Stachowiak, "Intrinsically disordered proteins generate steric pressure through polymer-like crowding" Annual Meeting of the American Chemical Society, virtual, March, **2022**.
- 101. F. Yuan, J. Houser, A. Sangani, L. Wang, E. M. Lafer, J. C. Stachowiak, "Balance of attractive and repulsive forces controls the direction of membrane bending by intrinsically disordered proteins," *Annual Meeting of the American Chemical Society*, virtual, March, **2022**.
- 102. J. C. Stachowiak, Invited Speaker, Gordon Conference on Bioinspired Materials, Switzerland, Summer **2022**.
- 103. J. C. Stachowiak, Invited Speaker, Cell Le Vie Conference, Paris, France, Fall, 2022.
- 104. J. C. Stachowiak Invited Departmental Seminar, Georgia Tech, Mechanical and Biomedical Engineering, Fall **2022**.
- 105. J. C. Stachowiak, Invited Departmental Seminar, University of Pennsylviania, Chemical Engineering, Fall **2022**.
- 106. J. C. Stachowiak, Invited Speaker, SFB Membranes and Modules 2023, Berlin, Germany, Spring **2023**.
- 107. J. C. Stachowiak, Invited Departmental Seminar, University of California, Berkeley, Bioengineering, Spring **2023**.
- 108. J. C. Stachowiak, Invited Speaker, Gordon Conference on Molecular Membrane Biology, New Hampshire, Summer **2023**.
- 109. J. C. Stachowiak, Invited Speaker, EMBO meeting on endocytosis, Venice, Italy, Fall 2023.

Oral Presentations prior to joining UT Austin

- 1. *M. Yue, J. C. Stachowiak, A. Chakraborty, A. Majumdar*, "Nanomechanical sensor array for detection of biomolecular bindings," *ASME Integrated Nanosystems Conference*, Pasadena, CA, September, **2004**.
- 2. *J.C. Stachowiak, E.E. Fischer, P. Caton*, et. al., "Automated sample preparation system for rapid biological threat detection," *ASME Annual Meeting,* Orlando, FL, November, **2005**. (Talk)
- 3. J. C. Stachowiak, J. Rasooly, D. A. Fletcher, "Design of a piezoelectric microjet for needleless drug delivery," ASME Summer Bioengineering Conference, Amelia Island, FL, June **2006**. (Talk)
- 4. *J. C. Stachowiak, Invited Seminar Series,* University of California, Berkeley Sensor and Actuator Center, Seminar Series, Spring, **2006**.
- 5. *J. C. Stachowiak, Research Seminar,* University of California, San Francisco, NIH Nano Medicine Center Symposium, PI: Wendell Lim, Fall, **2007**.
- 6. J. C. Stachowiak, Research Seminar, SRI International, Menlo Park, CA, Spring, 2008.
- 7. J. C. Stachowiak, Research Seminar, Palo Alto Research Center, Palo Alto, CA, Spring, 2008.

- 8. *J. C. Stachowiak, Invited Research Seminar,* Stanford University, Professor Nicholas Melosh's and Steven Boxer's Laboratories, Spring, **2008**.
- 9. *J. C. Stachowiak,* Sandia National Laboratories Bioscience External Advisory Panel Symposium, Fall, **2009**.
- 10. *J. C. Stachowiak,* Research Presentation for Albert Romig, Chief Operations Officer, Sandia National Laboratories, Fall, **2010**.
- 11. *J. C. Stachowiak,* Research Presentation for Dr. Eric Moore, Division Chief, Basic and Supporting Science Division, DTRA, **2010**
- D. L. Richmond, E. M. Schmid, S. Martens, J. C. Stachowiak, N. Liska, D. A. Fletcher, "Engineering vesicle membranes for cellular reconstitutions," *Biophysical Society Annual Meeting*, San Francisco, CA, February 2010.
- J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Steric confinement of proteins in lipid domains can drive membrane curvature and tubulation," *Biophysical Society Annual Meeting*, San Francisco, CA, February **2010**.
- 14. D. Y. Sasaki, H. Liu, A. Carroll-Portillo, G. D. Bachand, C. C. Hayden, J. C. Stachowiak, "Formation of lipid nanotubular networks via surface affinity and pulling of giant vesicles with gliding microtubules," *American Chemical Society National Meeting*, San Francisco, CA, March **2010**.
- 15. J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Formation of lipid membrane domains and tubules using reversible metal and protein affinity," *American Chemical Society National Meeting*, San Francisco, CA, March **2010**.
- 16. J. C. Stachowiak, C. C. Hayden, D. Y. Sasaki, "Recognition-driven actuation of lipid domains, nanotubules, and self-assembled networks," *Materials Research Society National Meeting*, April **2010**.
- 17. D. Y. Sasaki, H. Liu, A. Carroll-Portillo, G. D. Bachand, C. C. Hayden, J. C. Stachowiak, "Inverted microtubule-kinesin activity in the formation of lipid nanotubular structures," *American Chemical Society Pacifichem Meeting*, Honoloulu, HI, December **2010**.
- 18. C. C. Hayden, J. C. Stachowiak, J. S. Hwang, E. A. Abate, M. S. Kent; D. Y. Sasaki, "Directed formation of lipid micro-domains functioning as high affinity His-tagged protein binding sites," *American Chemical Society Pacifichem Meeting*, Honolulu, HI, December **2010**.
- 19. J. Stachowiak, E. M. Schmid, M. B. Sherman, D. A. Fletcher, C. C. Hayden, D. Y. Sasaki, "Confinement of protein binding to lipid domains as a tool for directed assembly of 3-D architectures," *American Chemical Society Pacifichem Meeting*, Honolulu, HI, December **2010**.
- 20. *J. C. Stachowiak,* "Bio-based Future" workshop at UC Berkeley Synthetic Biology Institute, Spring **2011**.
- F. J. Zendejas, R. Meagher, J. C. Stachowiak, C. C. Hayden, J. Wang, D. Y. Sasaki, "Orientation of lipid domains in giant vesicles by electric field," *American Chemical Society National Meeting*, Anaheim, CA, March 2011.
- 22. E. M. Schmid, D. L. Richmond, J. C. Stachowiak, D. A. Fletcher, "Bending membranes with proteins: Lessons from cellular reconstitution," American Chemical Society National Meeting, Anaheim, CA, March 2011.
- 23. J. C. Stachowiak, C. C. Hayden, M. A. A. Sanchez, J. Wang, D. Y. Sasaki, "Selective protein affinity and structure transformation of domains in lipid membranes," *American Chemical Society* National Meeting, Anaheim, CA, March 2011.
- J. C. Stachowiak, E. M. Schmid, C. J. Ryan, H. S. Ann, D. Y. Sasaki, P. L. Geissler, D. A. Fletcher, C. C. Hayden, "Epsin1 bends membranes by molecular crowding," Gordon Research Conference on Molecular Membrane Biology, Andover, NH, July 2011. (Talk)
- 25. J. C. Stachowiak, Invited Departmental Seminar, University of Texas at Austin, Department of Biomedical Engineering, Seminar Series, Spring 2011.

- 26. J. C. Stachowiak, Invited Departmental Seminar, University of California, Berkeley, Department of Bioengineering, Seminar Series, Fall **2011**.
- 27. *J. C. Stachowiak, Invited Departmental Seminar,* **University of Pennsylvania**, Department of Bioengineering, Seminar Series, Spring **2011**.
- 28. *J. C. Stachowiak, Invited Departmental Seminar,* Lawrence Berkeley National Laboratory, Physical Biosciences Division, Spring 2011.
- 29. J. C. Stachowiak, Invited Departmental Seminar, Georgia Institute of Technology, Department of Mechanical Engineering, Seminar Series, Spring 2011.
- 30. *J. C. Stachowiak, Invited Departmental Seminar,* **Boston University**, Department of Bioengineering, Seminar Series, Spring 2011.
- 31. J. C. Stachowiak, Invited Departmental Seminar, University of Illinois Urbana-Champaign, Department of Mechanical Engineering, Seminar Series, Spring **2011**.
- 32. *J. C. Stachowiak, Invited Departmental Seminar,* **Tufts University**, Department of Chemical and Biological Engineering, Seminar Series, Spring **2011**.
- 33. *J. C. Stachowiak, Invited Departmental Seminar,* **University of Maryland**, Departments of Bioengineering and Chemical Engineering, Seminar Series, Spring **2011**.
- 34. J. C. Stachowiak, Invited Departmental Seminar, Institute for Bioscience and Biotechnology at the University of Maryland, Seminar Series, Spring 2011.

#### PATENT APPLICATIONS:

<u>J. C. Stachowiak</u>, D. A. Fletcher, T. H. Li, S. Parekh, A. P. Liu, D. L. Richmond, E. Schmid, "Forming an Artificial Cell with Controlled Membrane Composition, Asymmetry, and Contents," US Provisional Patent Pending, Application Number 20130028963. (*based on work prior to UT Austin*)

<u>J. C. Stachowiak</u>, H. D. C. Smyth, A. K. Gadok, S. Ferrati, C. Zhao, "Vesicles for Delivery of Functional Transmembrane Proteins," U.S. Provisional Patent Application No. 62/245,665 (*based on work done at UT Austin*)

### **GRANTS AND CONTRACTS:**

Highlighted cells in-rank

Role and Co-Investigators	Title	Agency	Grant Total (My Share)	Grant Period
PI Stachowiak Co-I: Lafer	R01GM112065: Probing the Energetic Cost of Cargo Encapsulation in Coated Vesicles	National Institutes of Health / NIGMS	\$1,548,846 (\$1,451,336)	08/01/2014- 07/31/2019
PI Stachowiak	Administrative Supplement to R01GM112065 for recruitment of diversity postdoctoral fellow, Dr. Wade Zeno	National Institutes of Health / NIGMS	\$196,250 (\$196,250)	08/01/2016- 07/31/2018
PI Stachowiak	CAREER (DMR1352487): Phase-Separating Membrane Materials for Efficient and Specific Molecular Delivery to Cells	National Science Foundation/DMR	\$499,136 (\$499,136)	07/01/2014- 06/30/2019

PI Stachowiak	Gap Junction Therapy, a Nano-particle Based Approach to Reversing Carcinogenesis	Texas 4000 Foundation	\$25,000 (\$25,000)	01/01/2013- 12/31/2013
PI Stachowiak	Permanent donation of confocal microscopy system components	Sandia National Laboratory Stevenson Wydler Gift Program	\$200,000 (\$200,000)	02/2015
PI Stachowiak Co-I: Lafer	R01GM120549: Intrinsically disordered proteins as physical drivers of membrane traffic	National Institutes of Health / NIGMS	\$1,211,808 (\$1,067,808)	04/01/2017- 01/31/2021
Dual-PI Stachowiak Dual-PI Smyth	R21EB025490: Harnessing the gap junction network for direct intracellular delivery of siRNA and Chemotherapeutics	National Institutes of Health / NIBIB	\$416,425 (\$316,425)	03/01/2018- 02/28/2020
PI Stachowiak	Administrative Supplement	National Science	\$21,597 (\$21,597)	05/22/2018-
PI Stachowiak Co-I: Lafer	R01GM112065 (renewal): Protein networks as synergistic drivers of membrane traffic	National Institutes of Health / NIGMS	\$1,489,713 (\$1,312,689)	08/01/2019- 07/31/2023
PI Stachowiak	Administrative Supplement to R01GM120549 for the purchase of equipment	National Institutes of Health / NIGMS	\$150,000 (\$150,000)	07/01/2019- 06/31/2020
PI Stachowiak	NSF MODULUS: Modeling and experimental investigation of protein crowding on lipid bilayers	National Science Foundation/BIO	\$421,948 (\$421,948)	10/01/2019- 09/30/22
PI Stachowiak	Welch Foundation Grant: Protein liquid droplets as dynamic supramolecular catalysts for in situ self- assembly in cells	Welch Foundation	\$240,000 (\$240,000)	06/01/20- 05/31/23
PI Stachowiak Co-I: Lafer	R35GM139531: Protein networks as synergistic drivers of membrane remodeling	National Institutes of Health / NIGMS	\$3,029,835 (\$2,929,835)	02/01/2021- 01/31/2026
PI Stachowiak	Administrative Supplement to R35GM139531 for recruitment of diversity graduate student, Ketsia Zinga	National Institutes of Health / NIGMS	\$153,512 (\$153,512)	02/02/2022- 01/31/2024
Dual-PI Stachowiak Dual-PI Belardi	Synthetic adhesome cells: engineering interfaces between synthetic and live cells for controlled delivery	National Science Foundation/BIO	\$1,500,000 (\$750,000)	06/01/2022- 05/31/2025
		Total Research Funding	\$11,104,070 (\$9,735,535)	Since joining UT Austin

# PH.D. SUPERVISIONS COMPLETED:

Gadok, Avinash	Overcoming the plasma membrane barrier to improve the efficiency of therapeutic delivery to the cellular cytoplasm	5/2017	Biomedical Engineering	UT Austin	Boston Consulting Group
Snead, Wilton	Elucidating the physical mechanisms of membrane fission	8/2018	Biomedical Engineering	UT Austin	Postdoctoral researcher, UNC Chapel Hill
Imam, Zachary	Phase-separated liposomes for efficient macromolecular delivery	08/2018	Biomedical Engineering	UT Ausitn	Research Engineer, Nanotein
Zhao, Chi	Designing chimeric transmembrane proteins to improve therapeutic delivery and to understand receptor trafficking	08/2019	Biomedical Engineering	UT Ausitn	Research Engineer, 10X Genomics
DeGroot, Andre	Biochemical and biophysical mechanisms in selecting receptors for uptake by endocytosis	05/2020	Biomedical Engineering	UT Austin	Research Engineer, Sana Biotechnology
Trementozzi, Andrea	Engineering liposomal particles for direct, intracellular delivery of therapeutic molecules	08/2021	Biomedical Engineering	UT Austin	Research Engineer, Via Therapeutics
Houser, Justin	A forster resonance energy transfer-based sensor of steric pressure on membrane surfaces	06/2022	Biomedical Engineering	UT Austin	Not yet determined

### **M.S. SUPERVISIONS COMPLETED:**

Scheve, Christine	Coursework based	05/2013	Biomedical Engineering	UT Austin	VP of business development, Oriel Stat A Matrix
Gadok, Avinash	Coursework based	05/2014	Biomedical Engineering	UT Austin	Continued for doctorate
Snead, Wilton	Coursework based	05/2015	Biomedical Engineering	UT Austin	Continued for doctorate
Imam, Zachary	Coursework based	05/2016	Biomedical Engineering	UT Austin	Continued for doctorate

# PH.D. IN PROGRESS:

A. Students admitted to candidacy

Justin Houser (August 2018) Sadhana Gollapudi (July 2019) Feng Yuan (July 2019) Kristin Graham (April 2020) Grant Asby (May 2020) Caleb Walker (August 2021) Brandon Malady (May 2022) Advika Kamatar (Co-advised with Sapun Parekh, June 2022) B. Students preparing to take Ph.D. qualifying exam

Ketsia Zinga (Co-advised with Pengyu Ren) Vidal Bejar-Padilla (Co-advised with John Wallingford)

### **POSTDOCTORAL RESEARCHERS:**

Busch, David (September 2012-September 2016) – Currently a Team Leader at Merck Inc.

- Ferrati, Silvia (May 2014-February 2018), co-supervised with Dr. Hugh Smyth Currently Associate Director of Translational Medicine, Aeglea BioTherapuetics
- Zeno, Wade (August 2016-August 2020), NIH F32 fellow –Currently a Tenure Track Assistant Professor at the University of Southern California, Department of Chemical Engineering.
- Day, Kasey (January 2018-January 2022), NIH F32 fellow Decided during the pandemic to time off to raise young children
- Ghosh, Sumanta (September 2019-August 2020) Currently a postdoc at MD Anderson

Gil, Dan (April 2021-December 2021) - Currently working in Austin area biotechnology industry

Chatterjee, Sayantan (November 2021-present)

Lee, Yohan (April 2022-present)

### SENIOR RESEARCH FELLOWS:

Dr. Carl Hayden (March 2015-present)

Liping Wang (January 2021-present, supported by subcontract to UTHSC-San Antonio)

# **RESEARCH TECHNICIANS:**

Prasad Milner (May 2018-July 2019) – now a graduate student at Georgia Tech.

# UNDERGRADUATE STUDENT RESEARCHERS:

### \*indicates author of peer-reviewed publication

- 1. Kayla Keng, Biomedical Engineering (Summer 2022-present), continuing undergraduate
- 2. Ridda Siddiqi, Physics (Summer 2022-present), continuing undergraduate
- 3. Andrea Torres, Biomedical Engineering (Summer 2022-present), continuing undergraduate
- 4. Sabah Jamal, Biomedical Engineering (Summer 2021-present), continuing undergraduate
- 5. Arjun Sangani, Biomedical Engineering (Summer 2021-present), continuing undergraduate
- 6. \*Aly Ladak, Biomedical Engineering (Summer 2021-present), continuing undergraduate
- 7. \*Noel Yang, Biomedical Engineering (Fall 2019-Present), continuing undergraduate
- 8. **Gabriel Ortiz**, NSF REU Summer Student (Summer 2021)
- 9. **Beverly Red**, Biomedical Engineering (Summer 2019 Spring 2020)
- 10. \*Ajay Thatte, Biomedical Engineering (Summer 2018-Spring 2021), now a graduate student at UPenn, NSF GRFP

- 11. \*Jacob Hochfelder, Biomedical Engineering (Summer 2019-Spring 2021), now a graduate student at MIT
- 12. Sybrina Kerr, NSF REU Summer Student (Summer 2019)
- 13. Kolby Killion, Biomedical Engineering (Summer 2018-Summer 2019), continuing undergraduate
- 14. Daria Bentley, NSF REU Summer Student (Summer 2017), now attending graduate school
- 15. \*Minhao (Mike) Wu, Biomedical Engineering (Summer 2017-May 2019), now working in the biotech industry
- 16. \*Meghan LaMonica, Biomedical Engineering (Spring 2017-Present), now a grad student with UT Austin BME, Yankeelov Lab
- 17. \*Morgan Mendecino, Biomedical Engineering (Fall 2016-Summer 2018) now at UT Law student
- 18. \*Ryan Perkins, Biomedical Engineering (Summer 2016-May 2018)
- 19. \*Amanda Merriwether, Biomedical Engineering (Spring 2016-Summer 2018) now a UC Berkeley grad student, NSF Fellow
- 20. Natalie Miroballi, Biomedical Engineering (Fall 2015-Summer 2017)
- 21. \*Hisham Ali, Biomedical Engineering (Summer 2015-May 2019) now in medical school at UT San Antonio
- 22. \*Aaron Alpar, Biomedical Engineering (Summer 2015-Summer 2018) now a graduate student at U Chicago
- 23. \*Laura Kenyon, Biomedical Engineering (Spring 2015-May 2018) now in medical school at UT Southwestern
- 24. Belle Parizot, Biomedical Engineering (Fall 2015-Summer 2016)
- 25. \*Fatema Nagib, Biomedical Engineering (Summer 2015-Summer 2016)
- 26. \*Grant Ashby, NSF REU Summer Student (Summer 2016) now a graduate student at UT Austin
- 27. \*Stefan Bordovsky, Biomedical Engineering (Spring 2015-Spring 2016)
- 28. **Sydney Wendt**, Biomedical Engineering (Summer 2016-Fall 2016)
- 29. \*Brian Li, Biomedical Engineering (Spring 2014-Summer 2016) now a graduate student at UC Berkeley
- 30. \*Connor Vershel, Biomedical Engineering (Summer 2014-Spring 2016) now a medical student at UT Houston
- 31. Tu Cao, Biomedical Engineering (Summer 2015)
- 32. Sean Thomas, NSF REU Summer Student (Summer 2015)
- 33. Michael Bonahoom, Biomedical Engineering (Summer 2015)
- 34. Varun Bora, Biomedical Engineering (Fall 2013-Spring 2015)
- 35. **Katherine Ha**, Biomedical Engineering (Spring 2014-Spring 2015) Currently working at Smith and Nephew
- 36. \*Noor Momin, Biomedical Engineering (Summer 2012-Present) Currently a postdoc at Harvard, accepted position to start as a tenure-track Assistant Professor in the Department of Bioengineering at the University of Pennsylvania.
- 37. Mansi Raythatha, Biomedical Engineering (Fall 2013-Spring 2014) Currently working for Merck Inc.
- Saad Jafri, Biomedical Engineering (Summer 2013-Spring 2014) Currently a medical student at UNT Health Science Center

- 39. **Isac Lee**, Biomedical Engineering (Spring 2013-Spring 2014) Currently a graduate student at Johns Hopkins
- 40. \*Justin Houser, Biomedical Engineering (Summer 2012-Summer 2014) Currently a research assistant at Harvard Medical School
- 41. David Aguilar, Biochemistry (Fall 2012)
- 42. **Jerin Jose**, Biomedical Engineering (Spring 2012-Summer 2013) Currently a Medical Student at UT Southwestern Medical Center
- 43. **Jacob Sacks**, Biomedical Engineering (Fall 2012-Spring 2013) Currently a graduate student at the University of Pennsylvania
- 44. **Ansel George**, Biomedical Engineering (Spring 2012-Spring 2013) Currently a research assistant at Weill Cornell Medical College
- 45. \*Paul Gonzales, Biomedical Engineering (Spring 2012-Spring 2013) Currently working as a nurse practitioner

# Student and Trainee Awards

- Feng Yuan, UT Graduate School Continuing Student Fellowship, 2022-2023
- Ketsia Zinga, NIH/NIGMS, <u>Administrative Supplement</u> to support training of students from underrepresented backgrounds, 2022-2024
- Kasey Day, NIH/NIGMS NRSA F32 Postdoctoral Fellowship Award, 2019-2022
- Wade Zeno, NIH/NIGMS NRSA F32 Postdoctoral Fellowship Award, 2018-2020
- Grace Kago, NSF Graduate Research Fellowship Award, 2017-2020
- Wilton Snead, NIH/NIGMS NRSA F31 Graduate Research Fellowship Award, 2016-2018
- Andrea Trementozzi, UT Graduate School Continuing Student Fellowship, 2020-2021
- Andrea Trementozzi, American Chemical Society Outstanding Oral Presentation Award, Spring 2021 Annual Meeting
- Chi Zhao, UT Graduate School Continuing Student Fellowship, 2017-2018
- Chi Zhao, American Chemical Society Outstanding Oral Presentation Award, Spring 2019 Annual Meeting
- Andre DeGroot, American Chemical Society Outstanding Oral Presentation Award, Spring 2019 Annual Meeting
- Zachary Imam, American Chemical Society Outstanding Oral Presentation Award, Spring 2018 Annual Meeting
- Ajay Thatte, <u>NSF Graduate Research Fellowship Award</u>, 2021-2024 (plans to attend U Penn)
- Amanda Merriwether, NSF Graduate Research Fellowship Award, 2018-2021 (now at UC Berkeley)
- Wade Zeno, Travel Award to attend the 2017 Gordon Research Conference on Molecular Membrane Biology
- Wade Zeno, Travel Award to attend the 2017 meeting of the Biophysical Society
- Chi Zhao, Travel Award to attend the 2017 meeting of the Biophysical Society
- Wilton Snead, Travel Award to attend the 2016 meeting of the American Society for Cell Biology
- Amanda Meriwether, Undergraduate Research Fellowship, UT Austin Fall 2016

- Wade Zeno, NIH/NIGMS, <u>Administrative Supplement</u> to support training of students from underrepresented backgrounds, 2016-2018
- Avinash Gadok, Travel Award from the American Chemical Society to attend the 2016 Spring Meeting
- Wilton Snead, Honorable Mention in the National Science Foundation Graduate Research Fellowship Program Competition, 2015
- Andre DeGroot, University of Texas at Austin Graduate School Fellowship, 2015-2016
- Wilton Snead, Travel Award from the Biophysical Society to attend the 2016 National Meeting
- Zachary Imam, Travel Award from the Biophysical Society to attend the 2016 National Meeting
- Avinash Gadok, Travel Award to attend the NSF Summer School on Biocomplexity in Antalya, Turkey
- Brian Li, Undergraduate Research Fellowship, The University of Texas at Austin, 2015
- David Busch, Travel Award from Gordon Research Conferences to attend the conference on Lysosomes and Endocytosis, Andover, NH, 2014
- Avinash Gadok, Honorable Mention in the National Science Foundation Graduate Research Fellowship Program Competition, 2014
- Ryan Woodall, National Institutes of Health T32 Graduate Training Fellowship, 2014-2015
- Zachary Imam, University of Texas at Austin Graduate School Fellowship, 2014-2015
- Noor Momin, First Place in the Cockrell School Undergraduate Research Poster Competition, 2013
- Christine Scheve, Travel Award to attend the National Meeting of the Biophysical Soceity, Philadelphia, PA, 2013
- Justin Houser, Undergraduate Research Fellowship, the University of Texas at Austin, 2013
- Isac Lee, Undergraduate Research Fellowship, the University of Texas at Austin, 2013
- Avinash Gadok, National Institutes of Health T32 Graduate Training Fellowship, 2012-2013
- Wilton Snead, University of Texas at Austin Graduate School Fellowship, 2013-2014
- Justin Houser, Travel Award to attend the National Meeting of the American Society for Cell Biology, San Francisco, CA, 2012
- Jerin Jose, Undergraduate Research Fellowship, the University of Texas at Austin, 2012

# VITA:

Prof. Jeanne Stachowiak received a Doctorate from the University of California, Berkeley in 2008She served as a Senior Member of the Technical Staff at Sandia National Laboratories from 2008 to 2011. She has served as a faculty member at the University of Texas at Austin since January 2012, where she was promoted to Professor in 2023. Prof. Stachowiak is jointly appointed between the Departments of Chemical Engineering and Biomedical Engineering. Through quantitative molecular-scale measurements and the design of biomimetic materials, research in the Stachowiak Lab aims to elucidate the physical basis of cellular membrane organization and to design biologically-inspired materials and systems for biomedical applications. In 2022 Prof. Stachowiak was elected a Fellow of the American Institute of Medical and Biological Engineering. She currently serves on the Editorial Boards of the *Biophysical Journal* and *Science Advances*.