CURRICULUM VITAE
JEFFERSON KNIGHT, PH.D.

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Education

2001 – 2006, Ph.D., Yale University, Pharmacology
Thesis title: "Interactions of Islet Amyloid Polypeptide with Phospholipid Membranes"

1996 – 2000, B.S. with Highest Honors, University of North Carolina, Chapel Hill, Chemistry

1998-1999, no degree, Friedrich Schiller University, Jena, Germany
Chemistry Study Abroad via Trans-Atlantic Science Student Exchange Program

Professional Experience

2017 - present Associate Professor
University of Colorado Denver
Department of Chemistry

2020 – present Affiliate Faculty
University of Colorado Denver
Department of Integrative Biology

2019 (Spring/Summer)
Visiting Scholar
German Center for Neurodegenerative Diseases, Göttingen, Germany
Max Planck Institute for Biophysical Chemistry
Laboratory of Prof. Markus Zweckstetter

2018 (Fall) Visiting Scholar
University of Colorado Anschutz Medical Campus
School of Pharmacy, Department of Pharmaceutical Sciences
Laboratory of Dr. Colin Shearn

2010 - 2017 Assistant Professor
University of Colorado Denver
Department of Chemistry

2006 - 2010 Postdoctoral Research Associate, University of Colorado, Boulder
Department of Chemistry and Biochemistry
Laboratory of Prof. Joseph Falke

2001 - 2006 Graduate Student, Yale University
Department of Molecular Biophysics and Biochemistry
Laboratory of Prof. Andrew Miranker

2000 Research Summer Associate, Pfizer Global Research and Development
Laboratory of Dr. Roger C. Adami

1997 – 2000 Undergraduate Research, University of North Carolina
Chemistry Department
Laboratory of Prof. Dorothy A. Erie

1999 Undergraduate Visiting Research Student, Institute for Molecular Biotechnology, Jena, Germany
Laboratory of Prof. Frank Grosse

Publications

Refereed research articles (supervised students underlined; corresponding author in bold)

1. Alnaas, A.A., Watson-Siriboe, A., Tran, S., Negussie, M., Henderson, J.A., Osterberg, J.R., Chon, N.L., Harrott, B.M., Oviedo, J., Lyakhova, T., Michel, C., Reisdorph, N., Reisdorph, R., Shearn, C.T., **Lin, H., and Knight, J.D.** (2021) Multivalent lipid targeting by the calcium-independent C2A domain of synaptotagmin-like protein 4/granuphilin. *J Biol Chem* 296, 100159. https://doi.org/10.1074/jbc.RA120.014618
2. Tran, H.T., Anderson, L.A., and **Knight, J.D**. (2019) Membrane Binding Cooperativity and Co-insertion by C2AB Tandem Domains of Synaptotagmins 1 and 7. *Biophysical Journal* 116, 1025-1036. doi: 10.1016/j.bpj.2019.01.035
3. Schenk, N.A., Dahl, P.J., Hanna, M.G., Audhya, A., Tall, G.G., **Knight, J.D., and Anantharam, A.** (2018) A simple supported tubulated bilayer system for evaluating protein-mediated membrane remodeling. *Chemistry and Physics of Lipids* 215, 18-28. doi: 10.1016/j.chemphyslip.2018.06.002
4. Bendahmane, M., Bohannon, K.P., Rao, T.C., Schmidtke, M.W., Bradberry, M.M., Abbenini, P., Chon, N.L., Tran, S., Lin, H., Chapman, E.R., Knight, J.D., and **Anantharam, A.** (2018) The synaptotagmin C2B domain calcium-binding loops modulate the rate of fusion pore expansion. *Mol Biol Cell* 29, 7, 834-845. doi: 10.1091/mbc.E17-11-0623
5. Hamilton, D., Coffman, M., **Knight, J.D., and Reed, S.M.** (2017) Lipid-Coated Gold Nanoparticles and FRET Allow Sensitive Monitoring of Liposome Clustering Mediated by the Synaptotagmin-7 C2A Domain. *Langmuir* 33, 9222-9230. http://pubs.acs.org/doi/10.1021/acs.langmuir.7b01397
6. Osterberg, J.R., Chon, N.L., Boo, A., Maynard, F.A., Lin, H., and **Knight, J.D.** (2015) Membrane Docking of the Synaptotagmin 7 C2A Domain: Electron Paramagnetic Resonance Measurements Show Contributions from Two Membrane Binding Loops. *Biochemistry* 54, 5684-5695. http://pubs.acs.org/doi/abs/10.1021/acs.biochem.5b00421
7. Chon, N.L., Osterberg, J.R., Henderson, J., Khan, H.M., Reuter, N., **Knight, J.D., and Lin, H.** (2015) Membrane Docking of the Synaptotagmin 7 C2A Domain: Computation Reveals Interplay between Electrostatic and Hydrophobic Contributions. *Biochemistry* 54, 5696-5711. http://pubs.acs.org/doi/abs/10.1021/acs.biochem.5b00422
8. Vasquez, J.K., Chantranuvatana, K., Giardina, D.T., Coffman, M.D., and **Knight, J.D.** (2014) Lateral diffusion of proteins on supported lipid bilayers: Additive friction of synaptotagmin 7 C2A-C2B tandem domains. *Biochemistry* 53, 7904–7913. http://pubs.acs.org/doi/abs/10.1021/bi5012223
9. Lyakhova, T.A. and **Knight, J.D.** (2014) The C2 domains of granuphilin are high-affinity sensors for plasma membrane lipids. *Chemistry and Physics of Lipids,* 182, 29-37. Invited submission for

special issue on phosphoinositides. http://www.sciencedirect.com/science/article/pii/S0009308413001370

10. Ziemba, B.P., Li, J., Landgraf, K.E., Knight, J.D., Voth, G.A., and **Falke, J.J.** (2014) Single-molecule studies reveal a hidden key step in the activation mechanism of membrane-bound protein kinase C-α. *Biochemistry* 53, 1697-1713. http://pubs.acs.org/doi/abs/10.1021/bi4016082
11. Yamamoto, T.M., Cook, J.M., Kotter, C.V., Khat, T., Silva, K.D., Ferreyros, M., Holt, J.W., Knight, J.D., and **Charlesworth, A.** (2013) Zar1 represses translation in *Xenopus* oocytes and binds to the TCS in maternal mRNAs with different characteristics than Zar2. *Biochimica et Biophysica Acta – Gene Regulatory Mechanisms,* 1829, 1034-1046.
12. Brandt, D.S., Coffman, M., Falke, J.J., and **Knight, J.D.** (2012) Hydrophobic contributions to the membrane docking of synaptotagmin 7 C2A domain: Mechanistic contrast between isoforms 1 and 7. *Biochemistry* 51, 7654-64. http://pubs.acs.org/doi/abs/10.1021/bi3007115
13. Ziemba, B.P., Knight, J.D., **Falke, J.J.** (2012) Assembly of Membrane-Bound Protein Complexes: Detection and Analysis by Single Molecule Diffusion. *Biochemistry* 51(8):1638-47.
14. Knight, J.D., Lerner, M.G., Marcano-Velázquez, J.G., Pastor, R.W., and **Falke, J.J**. (2010) Single molecule diffusion of membrane-bound proteins: Window into lipid contacts and bilayer dynamics. *Biophysical Journal* 99, 2879-87.
15. Knight, J.D. and **Falke, J.J.** (2009) Single-molecule fluorescence studies of a PH domain: new insights into the membrane docking reaction. *Biophysical Journal* 96, 566-82.
16. Knight, J.D., Williamson, J.A., and **Miranker, A.D**. (2008) Interaction of membrane-bound islet amyloid polypeptide with soluble and crystalline insulin. *Protein Science* 17, 1850-56.
17. Knight, J.D., Hebda, J.A., and **Miranker, A.D**. (2006) Conserved and cooperative assembly of membrane-bound α-helical states of islet amyloid polypeptide. *Biochemistry* 45, 9496-9508.
18. Knight, J.D. and **Miranker, A.D.** (2004) Phospholipid catalysis of diabetic amyloid assembly. *Journal of Molecular Biology* 341, 1175-1187.
19. Knight, J.D. and **Adami, R.C**. (2003) Stabilization of DNA utilizing divalent cations and alcohol. *International Journal of Pharmaceutics* 264,15-24.
20. Eakin, C.M., Knight, J.D., Morgan, C.J., Gelfand, M.A., **Miranker, A.D.** (2002) Formation of a copper specific binding site in non-native states of β-2-microglobulin. *Biochemistry* 41, 10646-56.

Non-refereed research articles (supervised students underlined, corresponding author in bold)

1. **Pan, D.**, Bruehl, M., Knight, J., and Resendiz M. (2017) Enduring Exposure: Methodology from Tracking Information Literacy in Science Students (TILISS). Proceedings from the 12th International Conference on Performance Measurement in Libraries. https://northumbria12.exordo.com/files/papers/37/final_draft/TILISS_proceedings.pdf

Refereed review articles (supervised students underlined; corresponding author in bold)

1. MacDougall, D.D., Lin, Z., Chon, N.L., Jackman S., Lin, H., **Knight, J.D., and Anantharam, A.** (2018) The high-affinity calcium sensor synaptotagmin-7 serves multiple roles in regulated exocytosis. *J. Gen. Physiol.* 150 (6), 783-807. http://jgp.rupress.org/content/150/6/783

Refereed presentations at meetings (**presenter** in bold, supervised students underlined)

1. **Bruehl, M.,** Knight, J., Pan, D., and Resendiz, M. (2018) Tracking information literacy in science students: Importance of early exposure in skills retention throughout the undergraduate curriculum. Abstract accepted for oral presentation at Biennial Conference on Chemical Education, South Bend, IN.
2. **Chon, N.L.**, Knight, J.D., and Lin, H. (2018) Computational and experimental insights on membrane binding properties of synaptotagmin isoforms. Abstract accepted for oral presentation at 1st Rocky Mountain Membrane Trafficking symposium, Aurora, CO.

3. **Tran, H.T**., Anderson, L., and Knight, J.D. (2017) Comparing the cooperativity of membrane insertion between C2AB tandem domains of synaptotagmin-7 and synaptotagmin-1. Abstract accepted for oral presentation at 2017 American Chemical Society Rocky Mountain Regional Meeting, Loveland, CO.
4. **Knight, J.D**., Dahl, P., Schenk, N., Ranski, A., Hanna, M., Audhya, A., Anantharam, A. (2017) Supported Tubulated Bilayers (STuBs): an experimental platform for monitoring protein-mediated membrane remodeling. Abstract accepted for oral presentation at 2017 American Chemical Society Rocky Mountain Regional Meeting, Loveland, CO.
5. **Chon, N.L.**, Tran, S., Knight, J., Lin, H. (2017) Calcium Binding to C2B domains of Synaptotagmin 1, Synaptotagmin 7, and chimeric Synaptotagmin 1/7: A Computational Study. Abstract accepted for oral presentation at 2017 American Chemical Society Rocky Mountain Regional Meeting, Loveland, CO.
6. **Spotts, T.**, Watson-Siriboe, A., Knight, J.D. (2017) Divalent metal cation effects on the membrane binding of the Slp-2 C2A domain. Abstract accepted for oral presentation at 2017 American Chemical Society Rocky Mountain Regional Meeting, Loveland, CO.
7. **Pan, D.**, Bruehl, M., Knight, J., and Resendiz M. (2017) Enduring Exposure: Methodology from Tracking Information Literacy in Science Students (TILISS). Abstract accepted for oral presentation at the 12th International Conference on Performance Measurement in Libraries, Oxford, United Kingdom.
8. **Knight, J.,** Giardina, D.T., Bonham, A.J., and Maroń, M.K. (2015) Incorporation of Single-Molecule FRET Measurements into an Undergraduate Physical Biochemistry Laboratory Course. Abstract accepted for oral presentation at American Chemical Society National Meeting, Denver, CO.
9. Watson-Siriboe, A., Lyakhova, T., **Knight, J**. (2015) Molecular basis of high-affinity membrane binding by the C2A domain of granuphilin. Abstract accepted for oral presentation at American Chemical Society National Meeting, Denver, CO.
10. **Osterberg, J.R.,** Chon, N.L., Boo, A., Maynard, F., Lin, H., Knight, J. (2015) Docking model of synaptotagmin 7 C2A via electron paramagnetic resonance. Abstract selected for oral presentation at American Chemical Society National Meeting, Denver, CO.
11. **Vasquez, J**., Chantranuvatana, K., Knight J. (2014) Frictional Additivity of Lateral Diffusion on Supported Bilayers: Influence of Linker Length in Synaptotagmin 7 C2A-C2B Tandem Domains. Abstract accepted for oral presentation at American Chemical Society 247th National Meeting, Dallas, TX.
12. Lyakhova, T.A. and **Knight, J.** (2014) Molecular mechanisms of high-affinity phosphoinositide binding by the tandem C2 domains of Granuphlilin/Slp-4. Abstract selected for oral presentation, Biophysical Society 57th Annual Meeting, San Francisco, CA.
13. Salazar, B., Brandt, D.S., Coffman, M.D, Osterberg, J.R., Chantranuvatana, K., Falke, J.J., and **Knight, J.D.** (2013) Probing the structural origins of unusually strong target membrane affinity of synaptotagmin 7 C2A and C2AB domains. Abstract selected for oral presentation, Biophysical Society 56th Annual Meeting, Philadelphia, PA.
14. Brandt, D.S., Coffman, M.D, Falke, J.J., and **Knight, J.D.** (2012) Hydrophobic contributions to the membrane docking of synaptotagmin 7 C2A domain: Mechanistic contrast between isoforms 1 and 7. Abstract selected for oral presentation, American Chemical Society 2012 Rocky Mountain Regional Meeting, Westminster, CO.
15. **Liakhova, T.**, and Knight, J.D. (2012) Molecular interactions and membrane targeting of granuphilin C2 domains: a preliminary study. Poster presentation, Beta Beta Beta Honors Society National Meeting, Mayaguez, Puerto Rico. ***Earned 2nd place in national undergraduate poster competition.***
16. Brandt, D.S., Coffman, M., Falke, J.J., and **Knight, J.D.** (2012) Synaptotagmin C2 Domain Membrane Targeting: Kinetic and Mechanistic Diversity Among Isoforms from Different Cell Types. Abstract selected for oral presentation. Biophysical Society 55th Annual Meeting, San Diego, CA.
17. Knight, J.D., **Brandt, D.S.**, and Falke, J.J. (2011) Mechanistic diversity in membrane binding by C2A domains of synaptotagmin isoforms. Abstract selected for oral presentation. American Chemical Society

241st National Meeting, Anaheim, CA.

18. **Knight, J.D.,** Lerner, M.G., Marcano-Velasquez, J.G., Pastor, R.W., Falke, J.J. (2011) New Insights into Protein-Membrane Interaction from Single-Molecule TIRF Microscopy. Abstract selected for oral presentation. American Chemical Society 241st National Meeting, Anaheim, CA.
19. **Knight, J.D.** and Falke, J.J. (2009) Single molecule fluorescence studies of membrane targeting proteins: lateral diffusion in supported bilayers reveals additional lipid binding sites. Abstract selected for oral presentation. Biophysical Society 53rd Annual Meeting, Boston, MA.
20. **Knight, J.D.** and Miranker, A.D. (2005) Structural transitions of membrane-bound islet amyloid polypeptide. Abstract selected for oral presentation. 8th Yale Graduate Student Research Symposium, New Haven, CT.
21. **Knight, J.D.** and Miranker, A.D. (2004) Phospholipid catalysis of diabetic amyloid assembly. Abstract selected for oral presentation. NIDDK Conference: Protein Misfolding and Misprocessing in Disease, Rockville, MD.

Non-refereed presentations at meetings (**presenter** in bold, supervised students underlined)

1. **Knight, J.,** Giardina, D.T., Huynh, T.H., Alansari, N., Urban, A. (2021) Total internal reflection fluorescence microscopy and single-molecule kinetics modules for an undergrad lab course. Poster presentation at Biophysical Society 64th Annual Meeting, online.
2. **Chon, N.L.,** Tran, S., Miller, C.S., Lin, H., and Knight, J.D. (2021) Structure prediction and molecular phylogenetic analysis of membrane interactions in synaptotagmin-like proteins. Poster presentation at Biophysical Society 64th Annual Meeting, online.
3. **Beauchamp-Pérez, C.,** Michel, C., Reisdorph, R., Reisdorph, N., Fritz, K., Shearn, C.T., and Knight, J. (2020) Non-enzymatic post-translational modification of lysine clusters in C2 domains. Oral flash presentation at American Chemical Society Rocky Mountain Regional Meeting, online.
4. **Chon, N.L.,** Tran, S., Miller, C.S., Lin, H., and Knight, J. (2020) Mapping electrostatic protein-membrane interactions of Slp-4 C2 domain using molecular phylogenetic analysis and structure prediction. Oral flash presentation at American Chemical Society Rocky Mountain Regional Meeting, online.
5. **Knight, J.**, Bruehl, M., and Pan, D. (2020) Tracking information literacy in science students: a longitudinal study of skills retention through the chemistry curriculum. Oral flash presentation at American Chemical Society Rocky Mountain Regional Meeting, online.
6. **Negussie, M.,** Tran, S., Chon, N., Oviedo, J., Alnaas, A., Knight, J. and Lin, H. (2020) Membrane Interaction of Synaptotagmin-Like Protein 4: Simulations of Mutant C2A Domains. Poster presentation at Biophysical Society 63rd Annual Meeting, San Diego, CA.
7. **Chon, N.L.,** Tran, S., Miller, C.S., Lin, H., and Knight, J.D. (2020) Using high-throughput structure prediction and evolutionary alignment to map electrostatic protein-membrane interactions. Poster presentation at Biophysical Society 63rd Annual Meeting, San Diego, CA.
8. Spotts, T., Flores, D., Watson-Siriboe, A., Jones, D.N.M., Zweckstetter, M. and **Knight, J.** (2020) Biophysical origins of calcium-inhibited membrane binding by the C2A domain of synaptotagmin-like protein 2. Poster presentation at Biophysical Society 63rd Annual Meeting, San Diego, CA.
9. **Chon, N.L.** (2020) Multivalent lipid targeting by the Ca^{2+}-independent C2A domain of synaptotagmin-like protein 4. Oral presentation at Colorado Single Molecules and Membranes Meeting, Denver, CO (J. Knight, organizer).
10. **Knight, J.** (2020) A simple system for making supported tubulated bilayers (Stubs). Oral presentation at Colorado Single Molecules and Membranes Meeting, Denver, CO (J. Knight, organizer).
11. **Negussie, M.,** Tran, S., Chon, N., Oviedo, J., Alnaas, A., Lin, H., and Knight, J. (2019) Synaptotagmin-Like Protein 4: Membrane Binding Simulations of Single and Triple Mutants. Poster presentation at Rocky Mountain Membrane Trafficking Meeting, Denver, CO.

12. Tran, H., Anderson, L., and **Knight, J.** (2019) Biophysical features underlying the extreme calcium sensitivity of synaptotagmin-7. Poster presentation at Biophysical Society Thematic Meeting: Quantitative Aspects of Membrane Fusion and Fission, Padua, Italy.
13. **Alnaas, A.**, Oviedo, J., Watson-Siriboe, A., Tran, S., Negussie, M., Lin, H., and Knight, J. (2019) Membrane binding by synaptotagmin-like protein 4: site-directed mutagenesis of the lipid interaction surface. Poster presentation at Biophysical Society 62nd Annual Meeting, Baltimore, MD.
14. **Negussie, M.**, Tran, S., Chon, N.L., Oviedo, J., Alnaas, A., Knight, J., and Lin, H. (2019) Membrane binding of synaptotagmin-like protein 4: insight from molecular dynamics simulations. Poster presentation at Biophysical Society 62nd Annual Meeting, Baltimore, MD.
15. **Knight, J.D.**, Schenk, N.A., Dahl, P.J., Hanna, M., Audhya, A., Tall, G.G., Anantharam, A. (2018) A Supported Tubulated Bilayer System Shows Ability of Sar1B to Remodel Membranes. Poster presentation at 1st Rocky Mountain Membrane Trafficking Symposium, Aurora, CO.
16. **Tran, H.T.**, Anderson, L., and Knight, J. (2018) Cooperativity in membrane binding by C2AB tandem domains of synaptotagmin-7 and synaptotagmin-1: a comparative study. Poster presentation at Biophysical Society 61st Annual Meeting, San Francisco, CA.
17. **Spotts, T.**, Willstead, S., Watson-Siriboe, A., and Knight, J. (2018) Toward understanding the mechanism of calcium-inhibited membrane binding of the Slp-2 C2A domain. Poster presentation at Biophysical Society 61st Annual Meeting, San Francisco, CA.
18. Watson-Siriboe, A., **Alnaas, A.**, Henderson, J., Tran, S., Osterberg, J.R., Chon N.L., Lyakhova, T., Oviedo, J., Lin, H. and Knight, J. (2018) Multivalent membrane lipid targeting by the calcium-independent C2A domain of Slp-4/granuphilin. Poster presentation at Biophysical Society 61st Annual Meeting, San Francisco, CA.
19. **Bendahmane, M.**, Bohannon, K., Rao, T., Schmidtke, M.W., Abbineni, P., Ranski, A., Bradberry, M., Tran, S., Chon N.L., Knight, J., Lin, H., Chapman, E.R., Anantharam, A. (2018) The synaptotagmin calcium-binding loops modulate the rate of fusion pore expansion. Poster presentation at Biophysical Society 61st Annual Meeting, San Francisco, CA.
20. **Schenk, N.,** Dahl, P., Ranski, A., Hanna, M., Audhya, A., Tall, G., Knight, J., Anantharam, A. (2018) A supported tubulated bilayer system shows ability of Sar1B to remodel membranes. Poster presentation at Biophysical Society 61st Annual Meeting, San Francisco, CA.
21. **Knight, J.** (2018) From diffusion on planar supported bilayers to membrane fission with tubulated bilayers. Oral presentation at Colorado Single Molecules and Membranes Meeting (Jeff Knight, organizer), Denver, CO.
22. **Alnaas, A.**, Watson-Siriboe, A., Henderson, J.A, Tran, S., Lyakhova, T., Oviedo, J., Lin, H., and Knight, J. (2018) Multivalent membrane lipid targeting by the calcium-independent C2A domain of Slp-4/granuphilin. Poster presentation at Colorado Single Molecules and Membranes Meeting (Jeff Knight, organizer), Denver, CO.
23. **Tran, S.M.**, Negussie, M., Chon, N.L., Henderson, J., Knight, J., and Lin, H. (2018) Regions of Granuphilin C2A Domain Involved in Membrane Docking. Poster presentation at Colorado Single Molecules and Membranes Meeting (Jeff Knight, organizer), Denver, CO.
24. **Knight, J.** (2017) Supported Tubulated Bilayers (STuBs): an experimental platform for monitoring curvature sensing and vesiculation. Invited oral presentation at meeting entitled Biological Membranes and Membrane Proteins: Challenges for Theory and Experiment (Greg Voth and Scott Feller, organizers), Santa Fe, NM.
25. **Dahl, P.**, Vasquez, J.; Tran, H.; Knight, J.; and Anantharam, A. (2017) A supported tubulated bilayer system shows effects of synaptotagmin-7 on membrane curvature. Poster presentation at Biophysical Society 60th Annual Meeting, New Orleans, LA.
26. **Knight, J.** (2016) Molecular mechanisms of protein-membrane interactions central to insulin secretion. Poster presentation at Gordon Conference: Protein Processing, Trafficking & Secretion, New London, NH. ***Poster Award winner.***

27. **Hamilton, D.J.**; Knight, J.D.; and Reed, S.M. (2016) Lipid coated gold nanoparticles for ultra-sensitive label free detection of protein adsorption to membranes. Poster presentation at Royal Society of Chemistry conference: Nanoparticles with Morphological and Functional Anisotropy: Faraday Discussion, Glasgow, Scotland.
28. **Dahl, P.;** Vasquez, J.; Knight, J.; and Anantharam, A. (2016) A supported tubulated bilayer system for evaluating synaptotagmin effects on membrane curvature. Poster presentation at Society for Neuroscience annual meeting, San Diego, CA.
29. **Maynard, F.A**.; Salazar, B; and Knight, J. (2016) Mechanism of strong membrane binding by synaptotagmin 7 C2A domain: Insight from mutation and lipid composition dependence. Poster presentation at Biophysical Society 59h Annual Meeting, Los Angeles, CA. ***Education Committee Travel Award Recipient.***
30. **Tran, H.T**.; Giardina, D.T.; Coffman, M.D.; Chantranuvatana, K.; and Knight, J. (2016) Differences in Membrane Binding Cooperativity between the Tandem C2 Domains of Synaptotagmin 1 and Synaptotagmin 7. Poster presentation at Biophysical Society 59h Annual Meeting, Los Angeles, CA.
31. Watson-Siriboe, A.; Henderson, J.; Osterberg, J.R.; Giardina, D.T.; DeLima, M.; Lin, H.; and **Knight, J**. (2016) Multivalent membrane lipid targeting by the calcium-independent C2 domains of granuphilin: evidence from computation and experiment. Poster presentation at Biophysical Society 59h Annual Meeting, Los Angeles, CA.
32. **DeLima, M.;** Giardina, D.T.; and Knight, J. (2016) Contribution of low-affinity sites to strong multivalent protein-membrane binding: detection using single-molecule TIRF microscopy. Poster presentation at Biophysical Society 59h Annual Meeting, Los Angeles, CA.
33. **Dahl, P.;** Vasquez, J.; Knight, J.; and Anantharam, A. (2016) The synaptotagmin-7 C2AB domain alters membrane morphology in a Ca^{2+}-dependent manner. Poster presentation at Biophysical Society 59h Annual Meeting, Los Angeles, CA.
34. **Chon, N.L.,** Henderson, J., Osterberg, J.R., Knight, J., and Lin, H. (2015) Ca^{2+}-Induced Membrane Association of C2A Domains from Synaptotagmin 1 and 7: Insight from Molecular Dynamics Simulations. Poster presentation at Butcher Symposium, Westminster, CO.
35. **Knight, J.** (2015) Comparing and contrasting membrane binding by synaptotagmins 1 and 7. Invited oral presentation at meeting entitled Biological Membranes and Membrane Proteins: Challenges for Theory and Experiment (Greg Voth and Scott Feller, organizers), Telluride, CO.
36. **Chon, N.L., Henderson, J**., Reuter, N., Knight, J., Lin, H. (2015) Comparisons of synaptotagmin 1 and synaptotagmin 7 C2A domains in membrane associations by molecular dynamic simulations. Abstract for poster presentation. American Chemical Society National Meeting, Denver, CO. ***Winner of Undergraduate Poster Award for Computational Chemistry division***.
37. **Giardina, D.T.,** Vasquez, J.K., Knight, J.D. (2015) Lateral Diffusion of Synaptotagmin 1 and 7 on Supported Lipid Bilayers: Assessing the Frictional Additivity of C2A-C2B Tandem Domains. Abstract accepted for oral presentation but presented as a poster at American Chemical Society National Meeting, Denver, CO.
38. **Watson-Siriboe, A**., Lyakhova, T., Knight, J. (2015) Granuphilin C2A domain as a coincidence detector for phosphatidylserine and phosphoinositides. Poster presentation at Biophysical Society 58h Annual Meeting, Baltimore, MD.
39. **Chon, N.L**., Henderson, J., Osterberg, J.R., Khan, H., Reuter, N., Knight, J., Lin, H. (2015) Membrane Association of Synaptotagmin 7 C2A Domain by Molecular Dynamics Simulations. Poster presentation at Biophysical Society 58h Annual Meeting, Baltimore, MD.
40. Vasquez, J., Chantranuvatana, K., Giardina, D., **Knight J.** (2015) Single-Molecule Diffusion Measurements Indicate Independent Membrane Insertion by the Tandem C2 Domains of Synaptotagmin 7. Poster presentation at Biophysical Society 58h Annual Meeting, Baltimore, MD.
41. Vasquez, J., Chantranuvatana, K., Giardina, D., **Knight J.** (2015) Independent Membrane Binding by Synaptotagmin-7 C2A-C2B Tandem Domains Evidenced by Additive Friction in Single-Molecule

Diffusion Measurements. Poster presentation at Colorado Single Molecule Membrane Meeting, Denver, CO.

42. **Maynard, F**., Osterberg, J.R., Chon, N., Boo, A., Lin, H., Knight, J. (2014) Investigating the effects of methanethiosulfonate spin labeling on the behavior of the synaptotagmin 7 C2A domain. Poster presentation at Society for Neuroscience Annual Meeting, Washington, DC.
43. **Maynard, F**., Salazar, B., Knight, J. (2014) Investigating the Differences in Lipid-Binding Affinities and Kinetics Between C2A Domains of Synaptotagmins 1 and 7**.** Poster presentation at American Chemical Society National Meeting, San Francisco, CA. ***Eli Lilly Travel Award Recipient***.
44. **Vasquez, J.**, Chantranuvatana, K., Knight J. (2014) Frictional Additivity of Lateral Diffusion on Supported Bilayers: Influence of Linker Length in Synaptotagmin 7 C2A-C2B Tandem Domains. Poster presentation at Biophysical Society 57th Annual Meeting, San Francisco, CA.
45. **Knight, J.D.** (2014) Using single-molecule TIRF to track intramolecular protein contacts induced by membranes. Oral presentation at Colorado Single Molecule Membrane Meeting (Jeff Knight and Scott Reed, organizers), Denver, CO.
46. Chantranuvatana K., **Vasquez J.**, Knight J. (2014) Effect of inter-domain linker length on lateral diffusion of the synaptotagmin 7 C2AB domain. Poster presentation at Colorado Single Molecule Membrane Meeting (Jeff Knight and Scott Reed, organizers), Denver, CO.
47. **Knight J**., Brandt D., Coffman M., Lyakhova T., Salazar B. (2013) Protein-membrane interactions in insulin secretory vesicle docking and fusion. Poster presentation at Butcher symposium, Westminster, CO.
48. **Vasquez, J.**, Chantranuvatana, K., Knight J. (2013) Frictional Additivity of Lateral Diffusion on Supported Bilayers: Influence of Linker Length in Synaptotagmin 7 C2A-C2B Tandem Domains. Poster presentation at Gamma Sigma Epsilon Chemistry Honor Society 45th Biennial Meeting, Frostburg, MD. ***Awarded 1st prize at undergraduate poster competition***.
49. **Knight, J.D.** (2013) Membrane targeting by synaptotagmin C2 domains. Invited oral presentation at meeting entitled Biological Membranes and Membrane Proteins: Challenges for Theory and Experiment (Greg Voth and Scott Feller, organizers), Snowmass Village, CO.
50. **Liakhova, T.**, and Knight, J.D. (2013) Molecular interactions and membrane targeting of granuphilin C2 domains. Poster presentation, Beta Beta Beta Honors Society Regional Meeting, Alamosa, CO; and National Meeting, Mayaguez, PR. ***1st place in Regional Undergraduate Poster Competition.***
51. **Knight, J.D.** (2012) Effect of inter-domain linker length on lateral diffusion of synaptotagmin C2AB domains. Invited oral presentation at Colorado Single Molecule Membrane Meeting (Diego Krapf, organizer), Fort Collins, CO.
52. **Salazar, B.**, Brandt, D.S., Coffman, M.D, Falke, J.J., and Knight, J.D. (2012) Probing the structural origins of membrane affinity differences between C2A domains from synaptotagmins 1 & 7. Poster presentation, Society for Neuroscience Annual Meeting, New Orleans, LA.
53. **Chantranuvatana, K.** and Knight, J.D. (2012) Effect of interdomain linker length on lateral diffusion of synaptotagmin C2AB domains. Poster presentation, American Chemical Society 2012 Rocky Mountain Regional Meeting, Westminster, CO.
54. Brandt, D.S., Coffman, M.D., Falke, J.J., and **Knight, J.D.** (2012) Synaptotagmin C2 Domain Membrane Targeting: Kinetic and Mechanistic Diversity Among Isoforms from Different Cell Types. Poster presentation. 2nd Annual University of Denver Biophysics Symposium, Denver, CO.
55. **Liakhova, T**., and Knight, J.D. (2012) Molecular interactions and membrane targeting of granuphilin C2 domains: a preliminary study. Poster presentation. Biophysical Society 55th Annual Meeting, San Diego, CA.
56. **Knight, J.D.** (2011) Lateral Diffusion of Proteins with Two Membrane-targeting Domains. Invited oral presentation at Colorado Single Molecule Membrane Meeting (Joe Falke, organizer), Boulder, CO.

57. **Knight, J.D**., Brandt, D.S., Liakhova, T., Chantranuvatana, K., Coffman, M., Snyder, J., Fulroth, B., Falke, J.J., and Stith, B.J. (2011) Protein-Membrane Interactions Involved in Insulin Secretion: Insight from Ensemble and Single Molecule Fluorescence Measurements. Poster presentation. Butcher Symposium, Westminster, CO.
58. **Knight, J.D.** (2011) Viewing protein-membrane interactions one molecule at a time. Invited oral presentation at meeting entitled Biological Membranes and Membrane Proteins: Challenges for Theory and Experiment (Greg Voth and Scott Feller, organizers), Snowmass Village, CO.
59. **Brandt, D.S.**, Chantranuvatana, K., Liakhova, T., **Coffman, M.**, Falke, J.J., and Knight, J.D. (2011) Protein-Membrane Interactions of C2 Domains Involved in Insulin Secretion. Poster presentation. University of Denver Biophysics Symposium, Denver, CO.
60. **Knight, J.D.** and Falke, J.J. (2010) Membrane diffusion of PH domain–PIP_3 complexes: The effects of target lipid stoichiometry on diffusion constant probed using single-molecule fluorescence microscopy. Poster presentation. Biophysical Society 54th Annual Meeting, San Francisco, CA.
61. **Knight, J.D.** and Falke, J.J. (2008) Single molecule studies of PH and C2 domain docking to model membranes. Oral presentation. American Chemical Society 235th National Meeting, New Orleans, LA.
62. **Knight, J.D.** and Falke, J.J. (2008) Single molecule fluorescence studies of protein domain docking and diffusion on model membrane surfaces. Poster presentation. Biophysical Society 52nd Annual Meeting, Long Beach, CA.
63. **Knight, J.D.**, Corbin, J.A., and Falke, J.J. (2007) Investigation of PH domain-membrane interactions using TIRFM: a feasibility study. Poster presentation. Biophysical Society 51st Annual Meeting, Baltimore, MD.
64. **Knight, J.D.** and Miranker, A.D. (2005) Cooperative binding and structural transitions in membrane-bound islet amyloid polypeptide. Poster presentation. Gordon Conference: Mechanisms of Membrane Transport, Tilton, NH.
65. **Knight, J.D.** and Miranker, A.D. (2003) Insights into the mechanism of islet amyloid polypeptide fibrillogenesis in lipid membranes. Poster presentation. Protein Society Annual Meeting, Boston, MA.
66. **Knight, J.D.** (2000) Practical opportunities for chemistry undergraduates in Jena, Germany. Oral presentation. American Chemical Society National Meeting, San Francisco, CA.

Invited Seminars

2019 University of Colorado Denver (Denver, CO) Nobel @ Noon seminar series
2019 University of Colorado Denver (Denver, CO) Department of Chemistry seminar series
2018 University of Michigan (Ann Arbor, MI), Biophysics Program seminar series
2017 German Center for Neurodegenerative Diseases (Göttingen, Germany), informal seminar
2016 University of Denver (Denver, CO) Department of Biology seminar series
2016 University of Colorado Denver (Denver, CO) Department of Chemistry seminar series
2015 Colorado State University (Fort Collins, CO) Biochemistry & Molecular Biology seminar series
2015 Wayne State University (Detroit, MI) Lipids@Wayne seminar series
2014 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Barbara Davis Center, Research in Progress Series
2013 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Dept. of Physiology and Biophysics
2012 Wichita State University (Wichita, KS) Dept. of Chemistry
2011 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Diabetes and Endocrinology Research Consortium, Research in Progress Series

2011 University of Northern Colorado, (Greeley, CO) Dept. of Chemistry
2011 Colorado State University (Fort Collins, CO) Biomedical Engineering Program
2011 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Diabetes and Endocrinology Research Consortium, Research in Progress Series
2010 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Dept. of Pharmacology
2010 University of Colorado Denver | Anschutz Medical Campus (Aurora, CO) Biophotonics seminar series

Courses Taught

Biochemistry
Biochemistry Laboratory
General Biochemistry I
General Biochemistry II
Graduate Biochemistry II
Physical Biochemistry Laboratory
Biochemistry of Metabolic Disease

Service

Scientific community:

Member, Biophysical Society Education Committee, 2019-2022
Ad hoc proposal reviewer: National Science Foundation, Research Corporation for Science Advancement
Panelist reviewer: National Science Foundation, National Laboratories
Ad hoc manuscript reviewer: *Nature Communications, Biophysical Journal, Chemistry and Physics of Lipids, Macromolecules, PLOS Computational Biology, Structure, BBA-Biomembranes, BBA-General Subjects, Biochemistry*, *Journal of Physical Chemistry*, *Proteins,* 2011-present
Organizer and host, Colorado Single Molecules and Membranes Meeting, 2018 and 2020
Co-organizer, Undergraduate Mixer and Poster Fest, Biophysical Society Annual Meeting, 2014-2016
Co-chair, platform session on protein-lipid interfacial interactions, Biophysical Society Annual Meeting, 2014
Co-organizer, Colorado Single Molecules and Membranes Meeting, 2014
Co-moderator, invited session on Physical Chemistry, Rocky Mountain Regional Meeting of the American Chemical Society, 2012
Co-chair, platform session on protein-lipid interfacial interactions, Biophysical Society National Meeting, 2012

University of Colorado Denver, Downtown Campus and College of Liberal Arts and Sciences:

Member, CLAS Non-Tenure-Track Personnel Committee, 2020-2023
Member, CLAS Budget and Planning Committee, 2019-2022
Member, Director of Undergraduate Research and Creative Activities (DURCA) Search Committee, 2017
Mentor, CU-Denver MARC U-STAR program (NIH-sponsored training program for undergraduates), 2017-present
Member, UROP proposal review committee, 2015, 2017-2018
Member, Masters of Integrated Science Advisory Committee, 2015-2016
Member, Undergraduate Research Opportunity Program (UROP) Steering Committee, 2013-2015
Mentor, CU-Denver Integrative and Systems Biology interdisciplinary Ph.D. program, 2012-2015

Member, CLAS Educational Policies and Curriculum Committee, 2012-2014
Mentor, CU-Denver Building Research Achievement in Neuroscience (BRAiN) program (NIH-sponsored training program for undergraduates), 2011-present
Mentor, CU-Denver LABCOATS program (NIH-sponsored training program for undergraduates), 2010-2012

University of Colorado Denver|Anschutz Medical Campus and cross-campus initiatives:
Member, Colorado Clinical and Translational Science Initiative, 2010-present
Member, CU-Denver Diabetes and Endocrinology Research Consortium, 2010-2014
Member, University of Colorado Diabetes Research Center, 2018-present

University of Colorado Denver, Department of Chemistry:
Director, B.S. Biochemistry program, 2019-present
Chair, Biochemistry Development Committee, 2015-2017
Member, Program Review Committee, 2015-2016
Chair, Faculty Search Committee, 2014-2015
Member, Faculty Search Committees: 2010-2011, 2011-2012, and 2015-2016
Member/Chair, Chemistry Curriculum Committee, 2012-2015 and 2018-present (Chair 2013-2014)
Member, ad hoc Graduate Program Committee, 2012-2013
Member, ad hoc Space Committee, 2011-present

Awards and Honors

Henry Dreyfus Teacher-Scholar Award, 2018-2023
Fulbright Scholar, 2018-2019
Outstanding Service Award, University of Colorado Denver Faculty Assembly, 2015
Predoctoral Fellowship, National Science Foundation, 2001 – 2004
Francis P. Venable Award for Undergraduate Excellence in Chemistry, 2000

Professional Memberships

2020-present Member, American Society for Biochemistry and Molecular Biology
2017-present Member, American Scientific Affiliation
2016-present Member, Council on Undergraduate Research
2008-present Member, American Chemical Society
2006-present Member, Biophysical Society
2003-2005 Member, Protein Society

Research Support

External:

"Chemistry of interfacial protein-membrane interactions central to insulin secretion." Camille and Henry Dreyfus Foundation, Henry Dreyfus Teacher-Scholar Award #TH-18-061. 8/1/2018 – 7/31/2023. PI: Jefferson Knight. Total award: $60,000.

"Ca^{2+}-independent and Ca^{2+}-inhibited membrane binding by synaptotagmin-like proteins." NIH/NIGMS, Award #2R15GM102866 - 02. 6/1/2017-5/31/2021. PI: Jefferson Knight. Total award: $448,560.

"Molecular mechanisms of protein-membrane interactions driving insulin secretion." NIH/NIGMS, Award #1R15GM102866 - 01A1. 2/1/2014-5/31/2017. PI: Jefferson Knight. Total award: $329,632.

"Hydrophobic and electrostatic driving forces for protein-membrane docking: A combined experimental and computational approach." Research Corporation for Science Advancement, Multi-Investigator Cottrell College Science Award #22399. 7/2013-6/2016. PIs: Jefferson Knight and Hai Lin. Direct costs: $75,000.

Internal:
"Identification of SARS-CoV-2 Spike Protein Binding Molecules for Molecular Diagnostics." UCD Office of Research Services. 7/1/2020-6/30/2021. PI: John Fisk. Role: co-investigator. Total award: $20,000.

"Deciphering the unusual calcium-inhibited membrane binding of a cancer signaling protein." UCD Office of Research Services. 1/15/2016 – 6/30/2017. PI: Jefferson Knight. Total award: $12,500.

"Molecular mechanisms of protein-membrane interactions driving insulin secretion." UCD Office of Research Services. 6/1/2014 – 6/30/2015. PI: Jefferson Knight. Total award: $10,000.

"Effects of long-term glucose elevation on the phospholipid compositions of insulin-secreting cells." UCD College of Liberal Arts and Sciences Research Innovation Seed Programs (CRISP) Award, 7/2011-6/2012. PIs: Jefferson Knight and Brad Stith. Total award: $10,000.

UCD College of Liberal Arts and Sciences Dissemination Grants: 2010, 2012, 2016

UCD College of Liberal Arts and Sciences Dean's Fund for Excellence: 2013

Teaching Support

UCD College of Liberal Arts and Sciences Capital Equipment Grant for purchase of a UV/Vis spectrophotometer to be used in undergraduate teaching and research ($23,481), 2020
UCD College of Liberal Arts and Sciences Capital Equipment Grant for purchase of a fluorescence/absorbance plate reader to be used in undergraduate teaching and research ($50,000), 2016
UCD College of Liberal Arts and Sciences Capital Equipment Grant for purchase of a circular dichroism spectrophotometer to be used in undergraduate teaching and research ($100,000), 2015
UCD College of Liberal Arts and Sciences Capital Equipment Grant for outfitting Biochemistry teaching laboratory ($51,332), 2011
UCD College of Liberal Arts and Sciences Capital Equipment Grant for purchase of a single-molecule Total Internal Reflection Fluorescence (TIRF) microscope to be used in undergraduate teaching and student research ($128,022), 2011
UCD College of Liberal Arts and Sciences Capital Equipment Grant for purchase of a fast protein liquid chromatography (FPLC) system to be used in undergraduate teaching and student research ($38,900), 2010

Research Students Mentored - totals
25 directly mentored students/trainees
7 co-mentored students

21 undergraduates
5 Masters students

3 postbaccalaureate students
1 visiting international student

8 from underrepresented minorities
2 veterans
13 women

6 continued to Ph.D. programs
6 continued to careers in scientific industry
8 continued to medical or D.O. school
1 continued to dental school
1 continued to veterinary school