Adam J. Trexler, Ph.D.

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Current position

Data Scientist, Elder Research Inc.
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Professional Experience

2018- **Data Scientist**, Elder Research Inc.

- Supporting Office of People Analytics Data Science team with focus on force resilience modeling.

2017-2018 **Data Scientist**, Northrop Grumman Corporation.

- Engineered production ensemble models for predicting very low baserate targets within personnel security risk problemspace.
- Core developer on small team building data science pipeline and processing tools.
- Lead author on two year-end technical reports delivered to client. Primary author on two funding proposals winning over $500K in research funding.

2013-2017 **Postdoctoral Fellow**, National Heart Lung and Blood Institute, National Institutes of Health.

- Studied molecular details of insulin release using high-resolution fluorescence microscopy, automated image processing, and clustering techniques.
- Work resulted in one first-author peer-reviewed publication and four total publications.

Education

2007-2013 Ph.D., Biophysics, Yale University, New Haven, CT.
Dissertation: Exploring the disordered state and folding of alpha-synuclein using single molecule fluorescence spectroscopy.
Advisor: Dr. Elizabeth Rhoades

2003-2007 B.A., Biology, McDaniel College, Westminster, MD.

Publications & talks

Journal articles

2018 Guo M, Chandris P, Giannini JP, **Trexler AJ**, Fischer R, Chen J, Vishwasrao HD, Rey-Suarez I, Wu Y, Waterman C, Patterson GH, Upadhyaya A, Taraska JW, Shroff H (2018) Single-shot super-resolution total internal reflection fluorescence microscopy: Nature Methods.

2017 **Trexler AJ**, Taraska JW. Regulation of insulin exocytosis by calcium-dependent protein kinase C in beta cells. Cell Calcium.

2016 **Trexler AJ**, Sochacki KA, Taraska JW. 2016. Imaging the recruitment and loss of proteins and lipids at single sites of calcium-triggered exocytosis. Molecular Biology of the Cell 27: 2423-2434.

2016 **Trexler AJ**, Taraska JW. Two-color total internal refection fluorescence microscopy of exocytosis in endocrine cells. Methods in Molecular Biology: Light Microscopy 151-165.

2016 Rezgui R, Blumer K, Yeoh-Tan G, **Trexler AJ**, Magzoub M. Precise quantification of cellular uptake of cell-penetrating peptides using fluorescence activated cell sorting and fluorescence correlation spectroscopy. Biochimica et Biophysica Acta 1858: 1499-1506.

2012 **Trexler AJ**, Rhoades E. N-terminal acetylation is critical for forming structured oligomer of alpha-synuclein. Protein Science 21(5): 601-605.

2012 **Trexler AJ**, Rhoades E. Function and Dysfunction of -Synuclein: Probing Conformational Changes and Aggregation by Single Molecule Fluorescence. Molecular Neurobiology 47(2): 622-631.

2012 Ciubotaru M, **Trexler AJ**, Spiridon L, Surleac M, Rhoades E, Petrescu A, Schatz D. RAG and HMGB1 create a large bend in the 23RSS in the V(D)J recombination synaptic complex. Nucleic Acids Research 41(4): 2437-2454.

2012 Nath A, Sammalkorpi M, Dewitt D, Schreck C, **Trexler AJ**, Rhoades E, O'Hern C. The conformational ensembles of alpha-synuclein and tau: combining single-molecule FRET and simulations. Biophysical Journal 103(9): 1940-1949.

2011 Sevcsik E, **Trexler AJ**, Dunn JM, Rhoades E. Allostery in a disordered protein: oxidative modifications to alpha-synuclein act distally to regulate membrane binding. Journal of the American Chemical Society 133(18): 7152-7158.

2010 **Trexler AJ**, Rhoades E. Single molecule characterization of alpha-synuclein in aggregation-prone states. Biophysical Journal 99(9): 3048-2055.

2010 Nath A, **Trexler AJ**, Koo P, Miranker AD, Atkins WM, Rhoades E. Single-molecule fluorescence spectroscopy using phospholipid bilayer nanodiscs. Methods in Enzymology 472: 89-117.

2009 **Trexler AJ**, Rhoades E. Alpha-synuclein binds large unilamellar vesicles as an extended helix. Biochemistry 48(11): 2304-2306.

2007 **Trexler AJ**, Nilsson MR. The formation of amyloid fibrils from proteins in the lysozyme family. Current Protein and Peptide Science 8(6): 537-557.

Technical Reports

2018 GHER v2.0 and Insider Threat Stress Study, Research Facilication Lab, Northrop Grumman Corporation.

2017 GOTS Hybrid Ensemble Risk Rating Tool (GHER) v1.0, Research Facilitation Lab, Northrop Grumman Corporation.

Selected Talks

2016 "Probing the lipid environment at single sites of exocytosis" FASEB Summer Research Conference, Molecular Biophysics of Membranes.

2015 "Temporally resolving protein and lipid colocalization at exocytic sites" 59th Annual Meeting of the Biophysical Society. Platform Speaker in Exocytosis, Endocytosis, and Membrane Fusion.

2012 "Alpha-synuclein aggregation and conformational behavior in the cytoplasm and crowded environments" FASEB Summer Research Conferences, Protein Folding in the Cell.

2012 "Characterization of alpha-synuclein in intracellular and crowded environments" Gordon Research Seminar: Protein Folding Dynamics.

2011 "Towards understanding alpha-synuclein conformation within toxic oligomeric states" 55th Annual Meeting of the Biophysical Society. Platform Speaker in Protein Aggregates.

2009 "Single-molecule FRET on alpha-synuclein membrane-bound conformational states" 53rd Annual Meeting of the Biophysical Society. Platform Speaker in Protein Folding and Stability.

Selected Posters

2015 "Temporally resolving protein and lipid dynamics at single sites of exocytosis" Gordon Research Conference: Molecular Membrane Biology

2014 "Investigating the regulation of pulmonary surfactant secretion using fluorescence microscopy" American Society for Cell Biology Annual Meeting.

2012 "Towards the native state of the intrinsically disordered protein alpha-synuclein" Cellular and Molecular Biology Training Grant Research Symposium, Yale University.

2012 "Characterization of alpha-synuclein in intracellular and crowded environments" Gordon Research Conference: Protein Folding Dynamics.

2010 "Nature of the low pH alpha-synuclein state revealed with smFRET" 54th Annual Meeting of the Biophysical Society.

Teaching

2009-2012 Graduate Teaching Fellow, Yale University, New Haven, CT.

2010-2011 Writing tutor, Residential College Math and Science Tutoring, Yale University, New Haven, CT.

2005-2007 Teaching Assistant, Organic Chemistry Laboratory, McDaniel College, Westminster, MD.

2004-2007 Writing Tutor, McDaniel College, Westminster, MD.

Grants, honors & awards

2018 Primary author for two PACPMO research proposals in personnel security and vetting, RFL & Northrop Grumman Corporation.
2015 Fellows Award for Research Excellence (FARE) Travel Award Winner, NIH
2013 Mary Ellen Jones Dissertation Prize, Molecular Biophysics and Biochemistry, Yale University
2010-2012 Ruth L. Kirschstein National Research Service Award F31 Predoctoral Fellowship

Memberships

2008-2017 Biophysical Society
2014-2016 American Society for Cell Biology
2007- Phi Beta Kappa

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