

## Steven T. Whitten

Associate Professor, Department of Chemistry and Biochemistry, Texas State University, San Marcos, Texas 78666

### a. Professional Preparation

University of Nebraska - Omaha	Physics	B.S., 1994
Johns Hopkins University	Biophysics	Ph.D., 2000
Florida State University (Post-doc)	NMR, Biocalorimetry	2000
Univ. of Texas Medical Branch (Post-doc)	Computational Methods	2001-2006

### b. Appointments

2015-Present	Associate Professor	Texas State University
2009-2015	Assistant Professor	Texas State University
2006-2009	Research Assistant Professor	Univ. of Texas Medical Branch, Galveston

### c. Recent Honors and Awards

2022	Texas State Transfer Champion Honorable Mention, Transfer Center, Texas State University
2020-2021	Academic Standards Committee, Texas State University, College of Science & Engineering
2020	Presidential Distinction Award for Excellence in Teaching, Texas State University, College of Science & Engineering
3/2019-3/2020	Secretary-Treasurer, Intrinsically Disordered Protein (IDP) Subgroup, Biophysical Society
7/2019	Organizer, Intrinsically Disordered Protein (IDP) Symposium, 74 <sup>th</sup> Annual Calorimetry Conference
3/2019	Co-chair of the platform session on Protein Structure and Conformation I, 63 <sup>rd</sup> Annual Meeting of the Biophysical Society

### d. Selected Publications (10 recent of 35 articles and 2 chapters; \* corresponding author)

1. Colorado, W.; Lewis, K. A.; Fitzkee, N. C.; Hough, L. E.; Whitten, S. T.\* (2023) ParSe 2.0: A web tool to identify drivers of protein phase separation at the proteome level. *Protein Sci.*, 32, e4756.
2. Yarawsky, A. E.; Ori, A. L.; English, L. R.; Whitten, S. T.; Herr, A. B.\* (2023) “Convergent behavior of extended stalk regions from staphylococcal surface proteins with widely divergent sequence patterns.” *Protein Sci.*, 32, e4707.
3. Ibrahim, A. Y.; Khaodeuanepheng, N. P.; Amarasekara, D. L.; Correia, J. J.; Lewis, K. A.; Fitzkee, N. C.; Hough, L. E.\*; Whitten, S. T.\* (2023) Intrinsically disordered regions that drive phase separation form a robustly distinct protein class. *J. Biol. Chem.*, 299, 102801.
4. Paiz, E. A.; Allen, J. H.; Correia, J. J.; Fitzkee, N. C.; Hough, L. E.\*; Whitten, S. T.\* (2021) Beta turn propensity and a model polymer scaling exponent identify intrinsically disordered phase-separating proteins. *J. Biol. Chem.*, 297, 101343.
5. Paiz, E. A.; Lewis, K. A.; Whitten, S. T.\* (2021) “Structural and energetic characterization of the denatured state from the perspectives of peptides, the coil library, and intrinsically disordered proteins.” *Molecules*, 26, 634.
6. Tischer A.; Brehm, M. A.; Machha, V. R.; Moon-Tasson, L.; Benson, L. M.; Nelton, K. J.; Leger, R. R.; Obserm, T.; Martinez-Vargas, M.; Whitten, S. T.; Chen, D.; Pruthi, R. K.;

- Bergen, H. R.; Cruz, M. A.; Schneppenheim, R.; Auton, M.\* (2020) “Evidence for the Misfolding of the A1 Domain within Multimeric von Willebrand Factor in Type 2 von Willebrand Disease.” *J. Mol. Biol.*, 432, 305-323.
7. English, L. R.; Voss, S. M.; Tilton, E. C.; Paiz, E. A.; So, S.; Parra, G. R.; Whitten, S. T.\* (2019) “Impact of heat on coil hydrodynamic size yields the energetics of denatured state conformational bias.” *J. Phys. Chem. B*, 123, 10014-10024.
  8. English, L. R.; Tischer, A.; Demeler, A. K.; Demeler, B.; Whitten, S. T.\* (2018) “Sequence reversal prevents chain collapse and yields heat-sensitive intrinsic disorder.” *Biophys J.*, 115, 328-340.
  9. English, L. R.; Tilton, E. C.; Ricard, B. J.; Whitten, S. T.\* (2017) “Intrinsic  $\alpha$  helix propensities compact hydrodynamic radii in intrinsically disordered proteins.” *Proteins*, 85, 296-311.
  10. Yarawsky, A. E.; English, L. R.; Whitten, S. T.; Herr, A. B.\* (2017) “The proline/glycine-rich region of the biofilm adhesion protein aap forms an extended stalk that resists compaction.” *J. Mol. Biol.*, 429, 261-279.

**e. Selected Talks (5 recent of 39 as PI and 7 as post-doc; \* presenting author)**

1. Whitten, S.T.\* “Targeting aberrant protein phase separation in human disease.” 37<sup>th</sup> Texas Woman’s University, Department of Chemistry and Biochemistry, Denton, TX, Mar 22, 2024.
2. Whitten, S.T.\* “Intrinsically disordered regions that drive phase separation form a robustly distinct protein class.” 37<sup>th</sup> Annual Gibbs Conference on Biothermodynamics, Touch of Nature Outdoor Education Center, Carbondale, IL, Oct 15, 2023.
3. Ibrahim, A.Y., Lewis, K. A., Whitten, S.T.\* “ParSe 2.0: A second-generation sequence-based predictor of protein phase separation.” Annual Meeting of the Southeast Biophysical Consortium, Texas Woman’s University, Denton, TX, May 26, 2022.
4. Whitten, S.T.\* “The South Texas Doctoral Bridge Training Program.” HSI Symposium, Texas State University, LBJ Grand Ballroom, September 17, 2021.
5. Whitten, S.T.\* “Distinct Structural Features of IDPs Predict their Potential to Drive Liquid-Liquid Phase Separation.” Mississippi State University, Department of Chemistry, Research Seminar Series, September 18, 2020.

**f. Research Funding (as PI)**

1. 5/15/23-3/01/24, \$15,000; Translational Health Research Center, Texas State University (Whitten, PI (1 of 3)) Health research accelerator award.
2. 1/1/22-5/31/23, \$16,000; REP Texas State University (Whitten, PI) A Predictive Algorithm for Identifying Proteins that Phase Separate.
3. 8/1/15-7/31/18, \$335,562; National Institute of General Medical Sciences, National Institutes of Health (R15GM115603, Whitten PI) Quantitative Description of Phosphorylation Effects on Disordered Protein Structure.
4. 1/14/14-3/31/15, \$8,000; REP Texas State University (Whitten, PI) Sequence and Charge Contributions to the Structures of Intrinsically Disordered Proteins.
5. 11/15/2012-8/31/14, \$45,000; Texas Higher Education Coordinating Board, Norman Hackerman Advanced Research Program (NHARP #003615-003-2011, Whitten PI) Structural characterization of the protein ensemble by equilibrium unfolding methods.
6. 1/1/12-8/31/12, \$8,000; REP Texas State University - San Marcos (Whitten, PI) Structural characterization of the protein ensemble by equilibrium unfolding methods.

7. 7/01/11-6/31/14, \$35,000; Research Corporation for Scientific Advancement (#20039, Whitten PI) Role of unfolded protein in functional allostery: multi-domain control of DNA binding in the tumor suppressor protein p53.
8. 1/1/10-8/31/10, \$8,000; REP Texas State University - San Marcos (Whitten, PI) Multi-domain allosteric control of DNA binding in p53.
9. 9/26/07-2/28/09, \$121,820; SBIR NIH/NCI (#1 R43 CA128213-01, Whitten, PI) A Software Tool for Optimizing the Solubility of Therapeutic Proteins.
10. 6/1/03-5/31/05, \$497,876; SBIR NIH/NIAID (#R43 AI55110, Whitten, PI) Antiviral Agents Directed at West Nile Virus.

**g. Training grants**

1. 1/1/22-11/30/25, \$249,299 (\$168,453 to Texas State University); Sloan Foundation (G-2022-19553, K. A. Lewis, PI; Whitten, co-PI (1 of 4)) Creating Equitable Pathways to STEM Graduate Education: Texas-Colorado Physical Sciences.
2. 8/1/18-5/31/23, \$1,809,185 (\$1,505,205 to Texas State University); National Institute of General Medical Sciences, National Institutes of Health (2R25GM102783, Oyajobi, contact-PI, University of Texas Health Science Center at San Antonio; Whitten, PI, Texas State University) The South Texas Doctoral Bridge Program.
3. 6/1/12-6/30/18, \$3,138,000 (\$3,138,000 to Texas State University); National Science Foundation (DMR1205670, W. J. Brittain, PI; Whitten, co-PI (1 of 18)) Texas State University PREM: Center on Interfaces in Materials. A Partnership with the Research Triangle MRSEC.

**h. Equipment grants**

1. 9/7/22-8/31/25, \$262,280; National Science Foundation (2216145, K. A. Lewis, PI; Whitten, co-PI (1 of 2)) MRI: Acquisition of Automated Isothermal Titration Calorimeter for Biophysical Research at Texas State University.

**i. Courses Taught**

1. CHEM 5381, Physical Biochemistry (2010, 2012, 2014, 2017 – 2019, 2024 – current)
2. CHEM 3390, Physical Chemistry for Biochemists (2015 – current)
3. CHEM 3381, Biochemical Techniques (2018 – 2023)
4. CHEM 3275, Biochemical Techniques (2017)
5. CHEM 1342, General Chemistry II (2011, 2013)
6. CHEM 3276, Experimental Biochemistry (2011 – 2016)
7. CHEM 3380, Physical Methods in Biochemistry (2010)
8. CHEM 4375/5375, Fundamentals of Biochemistry (2009 – 2012)

**j. Additional Professional Activities**

2016-present	Program Coordinator, Biochemistry M. S. Degree Program, Texas State University, Department of Chemistry and Biochemistry
2021-present	Review Editor for Molecular Recognition, <i>Frontiers in Molecular Biosciences</i>
2022-present	Review Editor for Molecular Biophysics, <i>Frontiers in Molecular Biosciences</i>