curriculum vitae

Shahar Sukenik

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Education:

Oct. 2014-now: Postdoctoral Associate, University of Illinois at Urbana-Champaign. Advisor: Prof. Martin Gruebele
2010-2014: Ph.D. Chemistry, Hebrew University of Jerusalem, Israel.
Dissertation Topic: Cosolute effects on protein folding and aggregation. Thesis Advisors: Prof. Assaf Friedler and Prof. Daniel Harries, Dept. of Chemistry.
2008-2009: M.Sc. Chemistry, *Magna cum Laude*, Hebrew University of Jerusalem.
Dissertation Topic: Cosolute effects on amyloid aggregation. Thesis Advisors: Prof. Assaf Friedler and Prof. Daniel Harries, Dept. of Chemistry.
2005-2008: B.Sc. Chemistry, Hebrew University of Jerusalem.

Publications:

1. M. Gruebele, C.M. Davis, **S. Sukenik**, *How does solvation in the cell affect protein folding and binding?* In press, Curr. Opin. Struct. Biol. (2018)
2. **S. Sukenik**, S. Dunsky, A. Barnoy, I. Shumilin, D. Harries, *TMAO mediates effective attraction between lipid membranes by partitioning unevenly between bulk solution and lipid domains*. Phys. Chem. Chem. Phys. 19, 29862-29871 (2017)
3. **S. Sukenik**, P. Ren, M. Gruebele, *Weak protein-protein interactions in live cells quantified by cell volume modulation*, Proc. Nat. Acad. Sci. USA, 114(26), 6776-6781 (2017)
4. **S. Sukenik**, T.V. Pogorelov, M. Gruebele, *Can Local Probes Go Global? A Joint Experiment-Simulation Analysis of $\lambda_{6\text{-}85}$ Folding*, J. Phys. Chem. Let., 7, 1960-1965 (2016)
5. M. Dwivedi, **S Sukenik**, A. Friedler, E. Padan, *The Ec-NhaA antiporter switches from antagonistic to synergistic antiport upon a single point mutation*, Sci. Rep., 6, 23339 (2016)
6. I. Portnaya, S. Avni, E. Kesselman, Y. Boyarski, **S. Sukenik**, D. Harries, N. Dan, U. Cogan, D. Danino, *Competing processes of micellization and fibrillization in native and reduced casein proteins*, Phys. Chem. Chem. Phys. 18 (32), 22516-22525 (2016)
7. M. Gruebele, K. Dave, **S. Sukenik**, *Globular Protein Folding In Vitro and In Vivo*, Ann. Rev. Biophys. 45, 233-251 (2016)
8. **S. Sukenik**, L. Sapir, D. Harries, *Osmolyte induced changes to peptide conformational ensemble correlate with slower amyloid aggregation: a coarse-grained simulation study*, J. Chem. Theor. Comput., 11 (12), 5918-5928 (2015)
9. M.B. Prigozhin, S.-H. Chao, **S. Sukenik**, T.V. Pogorelov, M. Gruebele, *Mapping fast protein folding with multiple-site fluorescent probes*, Proc. Nat. Acad. Sci., 112 (26), 7966-7971 (2015)
10. **S. Sukenik** and D. Harries, *Effects of salt on salt-bridging in a β-hairpin peptide*, Chem. Comm, 50 (60), 8193-6 (2014)
11. **S. Sukenik**, L. Sapir, D. Harries, *Thermodynamic fingerprints of cosolute effects reveal general mechanisms*, Curr. Op. Col. Int. Sci. 18 (6), 495-501 (2013)

12. **S. Sukenik**, D. Harries,A. Friedler, *Biophysical Chemistry*. Reference Module in Chemistry, Molecular Sciences and Chemical Engineering, Elsevier. (2013)
13. **S. Sukenik**, L. Sapir, R. Gilman-Politi, D. Harries, *Diversity in the mechanisms of cosolute action on biomolecular processes.* Faraday Disc. 160, 225-237 (2013)
14. R. Gabizon, T. Brandt, **S. Sukenik**, N. Lahav, M. Lebendiker, D.E. Shalev, D. Veprintsev, A. Friedler. *Specific Recognition of p53 Tetramers by Peptides Derived from p53 Interacting Proteins.* PLoS ONE 7(5): e38060 (2012)
15. **S. Sukenik**, and D. Harries, *Insights into the disparate action of osmolytes and macromolecular crowders on amyloid formation*. Prion **6**, (2012)
16. T.H. Reingewertz, D.E. Shalev, **S. Sukenik,** O. Blatt, B.S. Rotem, M. Lebendiker, S. Larisch, A. Friedler, *Mechanism of the Interaction between the Intrinsically Disordered C-Terminus of the Pro-Apoptotic ARTS Protein and the Bir3 Domain of XIAP*. PLoS ONE, 6(9): e24655 (2011)
17. **S. Sukenik**, R. Politi, L. Ziserman, D. Danino, A. Friedler, D. Harries, *Crowding Alone Cannot Account for Cosolute Effect on Amyloid Aggregation*. PLoS ONE, 6(1): e15608 (2011)

In preparation:

1. **S. Sukenik**, M. Salam, Y. Wang, M. Gruebele, *Changes to intracellular solute composition alter protein structure and stability*
2. D. Cai, D. Feliciano , **S Sukenik**, M. Gruebele, J. Lippincott-Schwartz, *Phase Separation of YAP Regulates its Transcription under Hyperosmotic Stress*
3. A. Holehouse, **S. Sukenik,** *Specificity through non-specific interactions: Solution composition tunes protein conformational ensembles*

Patents:

A.Friedler, R. Gabizon, D.B. Veprintsev, **S. Sukenik**, T. Brandt. Peptides that Bind the p53 C-Terminal Domain Modulate the Oligomerization Equilibrium of p53, US provisional patent application 61/380,591 (2010)

Awarded research grants:

1. Cottrell SEED award, Co-PI. Project title: Revealing whole-cell diffusion and reaction using fluorescence correlation-anticorrelation microscopy. (2016) Awarded sum: 50,000 USD.
2. XSEDE research grant, PI. Project title: Revealing changes induced to protein folding landscape by chemical chaperones. (2015) Allocated resource: 685,000 SUs (equivalent to 23,000 USD)
3. European Soft Matter Infrastructure Computational Resource Grant, PI. Project title: Amyloid protofibril interaction with lipid membranes: a multiscale approach. (2014) Allocated resource: 7500 Tflop-hr.
4. European Soft Matter Infrastructure Computational Resource Grant, PI. Project title: Modeling the effect of osmolyte and crowder cosolutes on peptide self-assembly. (2012) Allocated resource: 9090 Tflop-hr.

Prizes and awards:

1. UIUC School of Chemical Science Image Challenge – Finalist (2016)
2. The Israel Chemical Society Levine-Jortner prize for excellent graduate student (2013)

3. The Hebrew University Center for Nanoscience and Nanotechnology Prize for excellent students (2013)
4. Selected to attend the 63rd Lindau Nobel Laureate Meeting (2013)
5. Biophysical Society Student Research Achievement Award (2013)
6. Biophysical Society International Travel Award (2013)
7. The Greta Pifat-Mrzljak Award for Scientific Achievement (2012)
8. Katzir travel fellowship (2012)
9. EBSA travel grant (2012)
10. Best poster award in Hebrew University Science Faculty Day (2012)
11. Selected to attend the 4th HOPE Nobel Laureate meeting in Tsukuba, Japan. Won best poster award. (2012)
12. Received M.Sc. *Magna cum laude* (2009)

Teaching Experience:

2013- 2014: Advanced chemistry lab for pharmacology majors, TA, Jerusalem College of Engineering.
2010-2013: Organic chemistry for biology majors, TA, Hebrew University.
2009-2013: General chemistry for biology majors, TA, Hebrew University.
2009-2010: General chemistry lab for chemistry majors, TA, Hebrew University.
2008-2010: Physical chemistry lab, TA, Hebrew University.

Talks and seminars:

1. Gordon Research Conference on Protein Folding Dynamics, Galveston TX 2018. Changing the Cellular Solute Composition to Alter Protein Structure and Stability
2. Institute for Genomic Biology, Urbana-Champaign IL 2017, The Cell as a Test Tube: Using the Environmental Adaptation of the Cell to Measure and Control Protein Dynamics in situ
3. Center for Physics of Living Cells symposium, Urbana-Champaign IL 2017, Changing cell volume to reveal weak protein interactions
4. Protein Folding Consortium Meeting, Berkley CA, 2015, TMAO uptake by mammalian cells and its protein stabilization effects imaged in real-time
5. Midwest Stress Response and Molecular Chaperone Meeting, Evanstone IL, 2015, Faces in the Crowd: Disparate Mechanisms of Protein Stabilization by Crowding and Chemical Chaperones
6. Center for Physics of Living Cells symposium, Urbana-Champaign IL 2014, Faces in the crowd: The effects of chemical identity challenge molecular crowding theory
7. 79th Israeli Chemical Society Meeting, Tel Aviv, Israel, 2014. Cosolute effects on protein folding and interactions.
8. Proteins – from Birth to Death meeting, Jerusalem, 2013. Cosolute effects on protein processes.
9. Max Planck Institute for Molecular Cell Biology seminar, Dresden, Germany 2013. New Insights into the nature of molecular crowding: How cosolutes affect protein folding and aggregation
10. HUJI Center for Nanoscience and Nanotechnology annual conference, Ein Gedi 2013. Cosolutes control peptide self-assembly into fibrils.
11. Symposium on Hybrid and Multi-Component Systems, Jerusalem, Israel, 2012. Control of peptide self-assembly into fibrils by cosolutes.
12. 11th Greta Pifat-Mrzljak International School of Biophysics, Primosten, Croatia, 2012. Diversity in the mechanisms of cosolute action on peptide folding.

13. 26th ECIS conference, Malmo, Sweden, 2012. Control of peptide self-assembly into fibrils by cosolutes.

Poster presentations

1. Gordon Research Conference on Proteins, Holderness NH, 2017
2. Midwest Protein Folding Conference, Durham NC, 2017
3. Biophysical Society Meeting, New Orleans LA, 2017
4. Protein Folding Consortium Meeting, St. Louis MI, 2016
5. Gordon Research Conference on Protein Folding Dynamics, Galveston TX, 2016
6. Biophysical Society Meeting, Philadelphia, PA, 2013.
7. Europian Biophysical Society Biophysics Summerschool, Primosten, Croatia 2012.
8. Science Faculty Day in Hebrew University, 2012.
9. HOPE Nobel Laureate Meeting, Tsukuba, Japan, 2012.
10. CECAM Biomolecular Coarse-Graining Workshop, Lausanne, Switzerland, 2012.
11. Biophysical Society Meeting, Baltimore, MD, 2011.
12. International p53 Workshop, Philadelphia, PA, 2010.
13. Israel Chemical Society, Jerusalem, Israel, 2009.

Referee activity for the following publications:

Proc. Natl. Acad. Sci. USA; J. Am. Chem. Soc.; Mol. Biosys.; J. Phys. Chem.; PROTEINS: Struct. Fun. Bio.; Sci. Rep.; BBA: Biomembranes