Viswanadham Sridhara, PhD

Bioinformatics Research Scientist,
Wilke Lab / Center for Computational Biology and Bioinformatics (CCBB),
The University of Texas at Austin.
Email: Viswanadham.Sridhara@gmail.com (@VishSridhara)

RESEARCH INTERESTS

1. *E. coli* modeling using systems biology approaches
    - Flux balance modeling (*MATLAB, Python, COBRA/SBML toolboxes)*
2. Mass-spectrometry based proteomics and metabolomics
    - Post-translational Modifications and metabolic flux analysis (Python, R, Mass-spec search algorithms)
3. Molecular dynamics simulations for Bio-electrics applications
    - nsPEF effects on lipid bilayers (MATLAB, GROMACS, VMD)

EDUCATION

2012, Post-doc, Computational Biology, [NCBI Structure Group], NIH

2007, PhD, Electrical and Computer Engineering

PUBLICATIONS (>350 citations, h-index=9)

1. Sridhara, V., Meyer AG, Rai P, Barrick JE, Ravikumar P, Segre D, and Wilke C.O. " Predicting bacterial growth conditions from bacterial physiology." (Submitted to PLoS One).

2. Sridhara, V., Joshi, R. P. "Evaluations of a mechanistic hypothesis for the influence of extracellular ions on electroporation due to high-intensity, nanosecond pulsing." Biochimica Biophysica Acta - Biomembranes, Vol. 1838, no. 7, Jul 2014, pp. 1793-1800.

3. Sridhara, V., Joshi, R. P. "Numerical study of lipid translocation driven by nanoporation due to multiple high-intensity, ultrashort electrical pulses." Biochimica Biophysica Acta - Biomembranes, Vol. 1838, no. 7, Mar 2014, pp. 902-909.

4. Sridhara, V., Dina L. Bai, An Chi, Jeffrey Shabanowitz, Donald F. Hunt, Stephen H. Bryant and Lewis Y. Geer "Increasing peptide identifications and decreasing search times for ETD spectra by pre-processing and calculation of parent precursor charge." Proteome Science 2012, 10:8.

5. Sridhara, V., Aron Marchler-Bauer, Stephen H. Bryant and Lewis Y. Geer, "Automatic annotation of experimentally derived, evolutionarily conserved post-translational

modifications onto multiple genomes." Database (Oxford), 2011, bar019.

6. Joshi, R.P., Sridhara, V., Song, J., Schoenbach, K.H "Aspects of Lipid Membrane Bio-Responses to Subnanosecond, Ultrahigh Voltage Pulsing." IEEE Trans. Dielectrics & Electrical Insulation, Vol. 16, no. 5, Oct 2009, pp. 1243-1250.

7. Allen L. Garner, George Chen, Nianyong Chen, Viswanadham Sridhara, Juergen F. Kolb, R. James Swanson, Stephen J. Beebe, Ravindra P. Joshi, and Karl H. Schoenbach "Changes in the Dielectric Properties of Jurkat Cells Induced by Ultrashort Electrical Pulses," Biochemical Biophysical Research Communications Vol. 362, Issue. 1, Oct. 2007, pp. 139-144.

8. Joshi, R.P., Nguyen, A., Sridhara, V., Nuccitelli, R., and Schoenbach, K.H., "Simulations of Calcium Release Dynamics in Response to a High-Intensity, Ultra-Short Electric Pulse," Physical review. E, Statistical, nonlinear, and soft matter physics 2007; 75(4 Pt 1):041920.

9. Pliquett, U., Joshi, R.P., Sridhara, V., Schoenbach, K.H. "High Electrical Field effects on Cell Membranes." Bioelectrochemistry Vol. 70, Oct. 2006, pp. 275-282.

10. Joshi, R.P., Sridhara, V., Schoenbach, K.H "Microscopic Calculations of Local Lipid Membrane Permittivities and Diffusion Coefficients for Application to Electroporation Analyses." Biochemical Biophysical Research Communications Vol. 348, Issue. 2, Sept. 2006, pp. 643-648.

11. Qin Hu, Sridhara, V., R. P. Joshi, J. Kolb and K.H, Schoenbach, "Molecular Dynamics Analysis of High Electric Pulse effects on Bilayer Membranes Containing DPPC and DPPS." (invited paper) IEEE Transactions on Plasma Science, Vol. 34, no. 4, Aug. 2006, pp. 1405-1411.

12. Hu, Q., Sridhara, V., Joshi, R.P., Schoenbach, K.H., Beebe, S.J., Blackmore, P.F. "Simulations of transient membrane behavior in cells subjected to a high-intensity ultrashort electric pulse." Physical Review E - Statistical, Nonlinear, and Soft Matter Physics, Vol. 71,no. 3, March 2005, pp. 031914(1-7).

13. Joshi, R. P., Sridhara, V., Jogai, B., Shah, P., Del Rosario, R.D. "Analysis of dislocation scattering on electron mobility in GaN high electron mobility transistors." Journal of Applied Physics, Vol. 93, no. 12, Jun 15, 2003, pp. 10046-10052.

14. Joshi, R. P., Sridhara, V., Shah, P., Del Rosario, R.D. " Monte Carlo analysis of GaN-based Gunn oscillators for microwave power generation." Journal of Applied Physics, Vol. 93, no. 8, Apr 15, 2003, pp. 4836-4842.

15. Houser JR et. al., "Controlled measurements of multiple cellular components in E. coli as a resource for integrative computational modeling of cellular subsystems." (in preparation)

CONFERENCE PROCEEDINGS

1. Sridhara, V., Joshi, R.P., Hu, Q., Nguyen, A., and Schoenbach, K.H. "Simulations of cell response to high intensity, ultrashort electrical pulses" (invited paper) Bio-Electromagnetic Society Conference, Cancun, Mexico, June 11-15, 2006.

2. Pliquett, U., Sridhara, V., Joshi, R.P., Swanson, R.J., and Schoenbach, K.H. "Monitoring intrastructural changes in Jurkat cells after nanosecond pulsed electric field application." Electromed 2005 Conference, Portland, OR, May 15-18 , 2005.

3. Garner, A.L., Chen, G., Chen, N., Sridhara, V., Kolb, J. F., Swanson, R.J., Beebe, S.J., Joshi, R.P., and Schoenbach, K.H. "Changes in the Dielectric Properties of Jurkat and HL-60 cells after Electrical Pulses." Electromed 2005 Conference, Portland, OR, May 15-18, 2005.

CONFERENCE/RESEARCH FESTIVAL POSTER PRESENTATIONS

1. Viswanadham Sridhara, Aakash Sur, Sean M. Caroll, Christopher J. Marx, Claus O. Wilke "Analysis of metabolic fluxes in E. coli over time", AG3C annual meeting, May 2014.

2. Sridhara, V., Meyer AG, Rai P, Barrick JE, Ravikumar P, Segre D, and Wilke C.O. "Predicting bacterial growth conditions from bacterial physiology", 1st Annual symposium in Big Data in Biology, The University of Texas at Austin, May 2013.

3. Viswanadham Sridhara, Aron Marchler-Bauer, Stephen H. Bryant and Lewis Y. Geer "A Comparative Proteomics Technique for the Automatic Annotation of Post-Translational Modifications on Multiple Genomes at Reduced Error Rate." 58th ASMS Conference on Mass Spectrometry, Salt Lake City, UT, May 23-27, 2010. (Same work presented at NIH Research Festival, Oct 5-8, 2010)

4. Viswanadham Sridhara, Lewis Y. Geer and Stephen H. Bryant "Decreasing Database Search Times in ETD MS/MS Sequence Searching by Assignment of Parent Precursor Charge to MS/MS Spectra." 57th ASMS Conference on Mass Spectrometry, Philadelphia, PA, May 31- June 4, 2009. (Same work presented at NIH Research Festival, Oct 6-9, 2009)

5. Viswanadham Sridhara, Lewis Y. Geer and Stephen H. Bryant "Increasing True Positive Rates in MS/MS Sequence Searching Algorithms by Incorporating Corrections to Precursor Mass Calculations." 56th ASMS Conference on Mass Spectrometry, Denver, CO, June 1-6, 2008.

6. Sridhara, V., Hu, Q., Joshi, R.P., Schoenbach, K.H., "Molecular Dynamics Simulations to Probe Electric-Pulse Induced Micelle Formation and Ion-Channel Regulation in Biological Cells", Old Dominion University Research Day 2006, Norfolk, Va, April 6,

2006. (Poster awarded an honorable mention)

7. Hu, Q., Sridhara, V., Joshi, R.P., Schoenbach, K.H., "Dynamical modeling studies of model membranes and cellular response to nanosecond ultrashort pulses", ODU Research Day 2005, Norfolk, Va, April 5, 2006. (Poster awarded 3rd place)

INVITED TALKS/ORAL PRESENTATIONS

1. Sridhara, V. "Predicting bacterial growth conditions from bacterial physiology", October 2013, Center for Systems and Synthetic Biology, The University of Texas at Austin.

2. Viswanadham Sridhara, Dina L. Bai, An Chi, Jeffrey Shabanowitz, Donald F. Hunt and Lewis Y. Geer "Using subspectral interval matches to make novel identifications of ETD tandem mass spectra" , 59th ASMS Conference on Mass Spectrometry, Denver, CO, June 5-9, 2011. (ORAL SESSION)

3. Sridhara, V., "Open Mass Spectrometry Search Algorithm", George Washington University, April 2011.

4. Sridhara, V., "A comparative proteomics technique for large scale automatic annotation of post-translational modifications on multiple genomes with reduced error rate", NIH ProtIG Fellows seminar, January 2010.

5. Sridhara, V., "Evolutionary conservation of phosphorylation sites – A mass spectrometric perspective", Sanford Markey's Lab, December 2009.

6. Sridhara, V., "Time Domain Dielectric Spectroscopy Study of Jurkat Cells and Mitochondria", Frank Reidy Research Center for Bioelectrics, Norfolk, Va, Oct. 2005.

7. Sridhara, V., "Time Domain Dielectric Spectroscopy Study of HL-60 cells induced by Ultra-Short pulses", Frank Reidy Research Center for Bioelectrics, Norfolk, Va, Dec 2004.

JOURNALS REFEREED

- Journal of Proteome Research, PLoS Pathogens, Journal of Theoretical Biology, Biology Direct, PLoS Computational Biology, International Journal of Bioinformatics Research and Applications.

AWARDS

- June 2007: NIH Postdoctoral Fellowship.
- April 2007: Outstanding Graduate Researcher Award (Ph. D.).
- May 2006: $2k funding from ODU College of Engineering Dean's office.
- April 2006: Honorary Mention for ODU Research Foundation Day Poster Presentation.