Ryan A. Tasseff

CONTACT INFORMATION

Institute for Systems Biology
401 Terry Avenue North
Seattle, WA 98109-5234

Voice: (+33 6) 46 44 10 89
E-mail: rtasseff@systemsbiology.org
WWW: systemsbiology.org

EDUCATION

Cornell University, Ithaca, New York USA

Ph.D. Chemical and Biomolecular Engineering, January 2012

- Dissertation Topic: "Reconstruction and Analysis of the Molecular Programs Involved in Deciding Mammalian Cell Fate"
- Concentrations: Applied Mathematics and Computational Methods, Cellular and Molecular Medicine, Classical and Statistical Thermodynamics
- Advisor/ Committee Chair: Jeffrey D. Varner

University of Florida, Gainesville, Florida USA

B.S., Chemical Engineering, June, 2006

- Minor in Mathematics and Advanced Option in Physical Chemistry

HONORS AND AWARDS

Edna and William C. Hooey Fellowship, Cornell University 2011

National Science Foundation IGERT Fellowship in Nonlinear Dynamics, Cornell University 2008

Graduated Magna Cum Laude, Honors in Chemical Engineering, University of Florida, 2006

University Scholars Research Grant and Best Undergraduate Paper, University of Florida, 2005

Florida Bright Futures Award for 100% paid tuition, 2001

ACADEMIC EXPERIENCE

Institute for Systems Biology, Seattle, WA USA **2011 - present**

Research Scientist
Participating in clinical-genomic research for ISB-INOVA health care system collaboration. Primary goal: identify statistical clinical-genomic association and develop general analysis pipelines. Assisted with statistical analysis and overall analysis design for pilot project on pre-term birth involving 2k+ whole genome sequences. Contributed to drafting first joint ISB-INOVA research paper. Participated in hiring committee for expanding project team.

Visiting scientist at Institut Gntique Biologie Molculaire Cellulaire in llkirch-Graffenstaden, France. Primary goal: Work with yeast biologist to apply machine learning techniques for the identification of key cell cycle features within large, heterogeneous datasets and developing spatial temporal models of yeast dynamics within a microfludic chip.

Postdoctoral research on computational systems biology
Participated in ISB-Procter and Gamble (P&G) collaboration. Primary goal: integration of systems biology methods with current research pipelines at P&G related to Epithelial biology. Worked directly with P&G biologist to formulate measures for systematic identification of biomarkers and therapeutic targets given existing high-throughput data. Assisted in experimental design for improving identification of key features. Designed novel mathematical framework for dynamic analysis of periodic behavior in mouse hair-cycle. Modeled and simulated skin barrier formation. Multiple targets for inflammatory skin diseases and hair growth modulation submitted internally to P&G for potential patent submission.

Cornell University, Ithaca, New York USA **2006 - 2011**

Ph.D. research on computational and experimental molecular cell biology.
Constructed and analyzed mechanistic mathematical models of biomolecular interaction networks. Networks associated with progression of androgen independent prostate cancer and differentiation of hematopoietic GM precursor cells. Identified robust yet fragile subnetworks relating to the cellular infrastructure. Employed both experimental and computational techniques to characterize a feedback control circuit in programed differentiation.

- Completed both computational and experimental research in cell biology
- Advisor and team leader for 30+ undergraduate/Masters/PhD research projects
- Designed, organized and maintained the departments first mammalian cell culture facility

Instructed Course for Masters of Engineering program.

- Novel Masters Program: Medical and Industrial Biotechnology
- CHEME 5490, MIB Molecular Biology Lab
- Designed the curriculum for Mammalian Cell Culture

Teaching Assistant

- CHEME 2880, Biomolecular Engineering: Fundamentals and Applications

Industry Experience

Cornell / General Electric, Albany, New York USA **2008 and 2009**
Cornell Business of Science and Technology Initiative member
Assisted in analysis of a full supply chain model for estimating profits from ventures into woody biomass gasification.

University of Florida / Progress Energy, Crystal River, Florida USA **2005 - 2006**
Integrated Product and Process Design Member
Lead development of software for real-time predictions of facility cooling processes to maintain environmentally safe operations.

Dow Chemical Company, USA **2003 - 2004**
Rotating Cooperative
Computational design of distillation columns and separations processes in Freeport, TX.
Research and development of pharmaceutical soluble polymers in Plaquemine, LA.
Process control and optimization in Pittsburg, CA.

Skills

- Programming languages: proficient in Python, basic skills in C++, Java, Fortran and Unix shell scripts
- Mathematical platforms: Matlab, Octave, R and Aspen
- Operating Systems: Mac OSX, Linux, Windows.
- Experience with cloud/commodity computing (Amazon EC2)
- Mammalian cell culture techniques
- Biochemical techniques: Fluorescence Activated Cell Sorting, cytometry, cloning, immunochem.
- Familiarity with high-throughput data (mRNA microarray, whole genome sequencing)

Publications

Ryan Tasseff, Anjali Bheda-Malge, Teresa DiColandrea, Charles C. Bascom, Robert J. Isfort and Richard Gelinas. Mouse hair cycle expression dynamics modeled as coupled mesenchymal and epithelial oscillators. *PLoS Comp. Bio.* Accepted in Sep. 2014.

Holly A. Jensen, Lauren E. Styskal, **Ryan Tasseff**, et al. 2013 The Src-Family Kinase Inhibitor PP2 Rescues Inducible Differentiation Events in Emergent Retinoic Acid-Resistant Myeloblastic Leukemia Cells. *PLoS ONE* 8(3): e58621. doi:10.1371/journal.pone.0058621

Ryan Tasseff, Satyaprakash Nayak, Sang Ok Song, Andrew Yen and Jeffrey Varner. 2011. Modeling and analysis of retinoic acid induced differentiation of uncommitted precursor cells. *Integrative*

Biology, DOI: 10.1039/c0ib00141d..

Young-Min Ban, **Ryan A Tasseff**, and Dmitry I. Kopelevich. 2011. Non-adiabatic Dynamics of Interfacial Systems: A Case Study of a Nanoparticle Penetration into a Lipid Bilayer. *Molecular Simulation*, 37(7) 525-536.

Ryan A. Tasseff, and Jeffrey D. Varner. 2011. Mathematical Models in Biotechnology. *Comprehensive Biotechnology*, 2nd edition ISBN: 9780444533524

Timon H. Stasko, Robert J. Conrado, Andreas Wankerl, Rodrigo Labatut, **Ryan Tasseff**, et al. 2010. Mapping Woody-Biomass Supply Costs Using Forest Inventory and Competing Industry Data. *Biomass and Bioenergy.* doi:10.1016/j.biombioe.2010.08.044

Reiterer G, Chen L, **Tasseff R**, Varner JD, Chen CY and Yen A. 2010. Raf associates with phosphorylated nuclear BubR1 during endoreduplication induced by JAK inhibition. *Cell Cycle* 9(16):3297-304

Tasseff R, Nayak S, Salim S, et al. 2010. Analysis of the Molecular Networks in Androgen Dependent and Independent Prostate Cancer Revealed Fragile and Robust Subsystems. *PLoS ONE* 5(1): e8864. doi:10.1371/journal.pone.0008864

Dmitry I. Kopelevich, Jean-Claude Bonzongo, **Ryan A. Tasseff**, et al. 2008. Potential Toxicity of Fullerenes and Molecular Modeling of Their Transport across Lipid Membranes. *Nanoscience and Nanotechnology*:233-260. Copy Right John Wiley & Sons, Inc.

Ryan Tasseff, Dr. Dmitry Kopelevich. 2006. Molecular Modeling of Nanoparticle Transport across Lipid Bilayers. *University of Florida: Journal of Undergraduate Research* 7(4)

Papers in preparation

INOVA-ISB Research Network. A clinical and whole genome sequencing study of preterm birth.

Ryan Tasseff, Johanna Congleton, Andrew Yen and Jeffrey D. Varner. Investigation of the cRaf interactome and steady-state multiplicity in Retinoic Acid-Induced Differentiation of HL-60 cells.

Conference Presentations

ECMTB 9th European Conference on Mathematical and Theoretical Biology 2014, Gothenburg, Sweden (oral)
Biocellion: Accelerating multicellular biological simulation. **Ryan Tasseff**, Seunghwa Kang, Simon Kahan, Ilya Shmulevich and Nick Flann.

SBE International Conference on Biomolecular Engineering 2011, San Fransisco, CA (poster)
Modeling and Analysis of the Retinoic Acid Induced Proliferation and Differentiation Program of HL-60. **Ryan Tasseff**, Satyaprakash Nayak, Sang Ok Song, Andrew Yen and Jeffrey D. Varner.

AICHE Annual Meeting 2010, Salt Lake City, UT - In Silico Biology (oral)
Modeling and Analysis of the Retinoic Acid Induced Proliferation and Differentiation Program of HL-60. **Ryan Tasseff**, Satyaprakash Nayak, Sang Ok Song, Andrew Yen and Jeffrey D. Varner.

ACS National Meeting 2010, San Francisco, CA - Biotechnology (poster)
Modeling and Analysis of the Retinoic Acid Induced Proliferation and Differentiation Program of HL-60. **Ryan Tasseff**, Satyaprakash Nayak, Sang Ok Song, Andrew Yen and Jeffrey D. Varner.

AICHE Annual Meeting 2008, Philadelphia, PA - Systems Biotechnology II (oral)
Mathematical Modeling and Analysis of the Role of the BLR1 Protein and MAPK Activation in the Growth-Arrest and Differentiation Program of a Model Adult Stem-Cell. Jeffrey D. Varner, **Ryan**

Tasseff, Satyaprakash Nayak and Andrew Yen.

AICHE Annual Meeting 2008, Philadelphia, PA - Engineering Life Sciences (poster)
Formulation and Analysis of An Ultrascale Protein Interaction Network Involved In the Androgen Response of Prostate Cancer Epithelial Cells. **Ryan A. Tasseff**, Satyaprakash Nayak, Poorvi Kaushia, Noreen Rizvi, Saniya Salim, Jeffrey D. Varner.

AICHE Annual Meeting 2007, Salt Lake City, UT - Bioengineering (poster)
Identification of Fragile Mechanisms in the Human Complement Cascade Is Sensitive to the Choice of Numerical Method for the Solution of the Sensitivity Equations. **Ryan A. Tasseff**, Jeffrey D. Varner, Satyaprakash Nayak, Thomas J. Mansell, Deyan Luan.

AICHE Annual Meeting 2005, Cincinnati, OH - Transport in Nanoscale (oral)
Modeling of Transport of Nanoparticles across a Lipid Bilayer. **Ryan A. Tasseff** and Dmitry I. Kopelevich.

OTHER

Peer Reviewer for Oxford Journal, *Bioinformatics*