BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
Follow this format for each person. DO NOT EXCEED FOUR PAGES.

NAME	POSITION TITLE
Purvis, Jeremy E	Assistant Professor of Genetics
eRA COMMONS USER NAME (credential, e.g., agency login) jeremy_purvis	

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
University of Florida Gainesville, FL	B.S.	1997-2002	Microbiology and Cell Science
University of Florida Gainesville, FL	M.S.	2002-2004	Microbiology and Cell Science
University of Pennsylvania Philadelphia, PA	Ph.D.	2005-2009	Genomics and Computational Biology
Harvard Medical Boston, MA	N/A	2009-2013	Systems Biology

A. Personal Statement

I am an Assistant Professor of Genetics at the University of North Carolina, Chapel Hill. My lab studies cell fate decisions in stem cell and cancer cell biology with a specific focus on “irreversible” fates such as apoptosis, senescence, and differentiation. We study the timing and mechanism of these decisions using a variety of experimental and computational approaches including genomic/epigenetic profiling, time-lapse microscopy, single-molecule mRNA detection, high-content image analysis, computational modeling, and statistical learning. Our ultimate goal is to not only understand how cells make decisions under physiological conditions, but to discover how to manipulate these decisions to treat disease. I was trained in both computational and experimental biology and have demonstrated proficiency in both areas through my publication record. I have written a successful training grant subproject, postdoctoral fellowship proposal, and career transition award. I currently lead a research team in collaboration with the Novartis Institutes for Biomedical Research and have mentored several graduate and rotation students.

B. Positions and Honors

ACTIVITY/OCCUPATION	BEGINNING DATE (mm/yy)	ENDING DATE (mm/yy)	FIELD	INSTITUTION/COMPANY	SUPERVISOR/ EMPLOYER
Teaching Assistant	01/03	05/03	Microbiology	University of Florida	Dr. Madeline Rasche
Guest Lecturer	01/03	01/03	Microbiology	University of Florida	Dr. Julie Maupin-Furlow
Public School Teacher	08/04	08/05	Mathematics	Manatee County School Board	Nancy High
Guest Lecturer	12/08	12/08	Bioengineering	Univ. of Pennsylvania	Dr. Paul Janmey
Section Leader	06/09	06/09	Systems Biology	Univ. of Pennsylvania	Dr. Scott Diamond
Teaching Fellow	09/09	12/10	Systems Biology	Harvard Medical School	Dr. Peter Sorger

Academic and Professional Honors

2012	NIH Pathway to Independence Award - NIGMS (K99/R00)
2010-2012	Ruth L. Kirschstein National Research Service Award - NIGMS (F32)
2011	Visiting Scholar at Duke Center for Systems Biology
2010-2013	Ruth L. Kirschstein National Research Service Award (NIH/NIGMS)
2008-2009	NHGRI Computational Genomics Graduate Fellowship
2008	Computational Molecular Science and Engineering Forum (CoMSEF) Graduate Student Award
2004	James Davidson Graduate Travel Scholarship
2004	American Society for Microbiology Travel Award
2003	President’s Award, American Society for Microbiology
1997-2001	Robert C. Byrd Honors Scholarship
1997-1999	University of Florida Honors Program

C. Publications

RESEARCH PAPERS

1. **Purvis JE**, Karhohs KW, Batchelor E, Loewer A, Lahav G. p53 dynamics control cell fate. (2012) **Science** 336(6087):1440-4. PMID: 22700930

2. Shah PP, Wang T, Kaletsky RL, Myers MC, **Purvis JE**, Jing H, Huryn DM, Greenbaum DC, Smith III AB, Bates P, Diamond SL. A small molecule oxocarbazate inhibitor of human cathepsin L blocks SARS and Ebola pseudotype virus infection into HEK 293T cells. (2010) **Molecular Pharmacology** 78(2):319-24. PMID: 20466822

3. Chatterjee MS, **Purvis JE**, Brass LF, Diamond SL. Pairwise agonist scanning predicts cellular signaling responses to combinatorial stimuli. (2010) **Nature Biotechnology** 28(7):727-32. PMID: 20562863

4. **Purvis JE**, Radhakrishnan R, Diamond SL. Steady-state kinetic modeling constrains cellular resting states and dynamic behavior. (2009) **PLoS Computational Biology** 5(3):e1000298. PMID: 19266013

5. Beavers MP, Myers MC, Shah PP, **Purvis JE**, Diamond SL, Cooperman BS, Huryn DM, Smith AB 3rd. Molecular docking of cathepsin L inhibitors in the binding site of papain. (2008) **J Chem Inf Model** 48(7):1464-72. PMID: 18598021

6. **Purvis JE**, Chatterjee MS, Brass LF, Diamond SL. A molecular signaling model of platelet phosphoinositide and calcium regulation during homeostasis and P2Y1 activation. (2008) **Blood** 112(10):4069-79. PMID: 18596227

7. **Purvis J**, Ilango V, Radhakrishnan R. Role of Network Branching in Eliciting Differential Short-Term Signaling Responses in the Hyper-Sensitive Epidermal Growth Factor Receptor Mutants Implicated in Lung Cancer. (2008) **Biotechnology Progress** 24(3):540-53. PMID: 18412405

8. Shah PP, Myers MC, Beavers MP, **Purvis JE**, Jing H, Grieser HJ, Sharlow ER, Napper AD, Huryn DM, Cooperman BS, Smith AB, Diamond SL. Kinetic Characterization and Molecular Docking of a Novel, Potent, and Selective Slow-binding Inhibitor of Human Cathepsin L. (2008) **Molecular Pharmacology** 74(1):34-41. PMID: 18403718

9. **Purvis J**, Liu Y, Ilango V, Radhakrishnan R. Efficacy of tyrosine kinase inhibitors in the mutants of the epidermal growth factor receptor through a multiscale molecular/systems model for phosphorylation and inhibition. (2007) **Proceedings of Foundations of Systems Biology in Engineering II**. pp 289-294.

10. Liu Y*, **Purvis J***, Shih A, Weinstein J, Agrawal N, Radhakrishnan R. A multiscale computational approach to dissect early events in the Erb family receptor mediated activation, differential signaling, and relevance to oncogenic transformations. (2007). **Annals of Biomedical Engineering** 35(6):1012-25. **equal contribution*. PMID: 17273938

11. **Purvis JE**, Yomano LP, Ingram LO. Enhanced trehalose production improves growth of Escherichia coli under osmotic stress. **Applied and Environmental Microbiology** (2005) 71:3761-9. PMID: 16000787

12. Gonzalez R, Tao H, **Purvis JE**, York SW, Shanmugam KT, Ingram LO. Gene array-based identification of changes that contribute to ethanol tolerance in ethanologenic Escherichia coli: comparison of KO11 (parent) to LY01 (resistant mutant). **Biotechnology Progress** (2003) 19:612-23. PMID: 12675606

(*Continued on p. 3*)

REVIEW ARTICLES

13. **Purvis JE**, Lahav G. Encoding and decoding cellular information through signaling dynamics. (2013) ***Cell*** 152(5):945-56. PMID: 23452846

14. **Purvis JE**, Lahav G. Decoding the insulin signal. (2012) **Molecular Cell** 46(6):715-6. PMID: 22749395

15. Shih A, **Purvis J**, Radhakrishnan R. Molecular systems biology of ErbB1 signaling: bridging the gap through multiscale modeling and high-performance computing. (2008) **Molecular BioSystems** 4:1142. PMID: 19396377

BOOK CHAPTER

16. **Purvis JE**, Shih AJ, Liu Y, Radhakrishnan R. Cancer Cell: Linking Oncogenic Signaling to Molecular Structure. (2009) in **Multi-Scale Cancer Modeling**, ed. Deisboeck T. (Chapman & Hall).

PATENT

Diamond SL, Chatterjee, MS, **Purvis JE**. Methods for Predicting Cellular Signaling Responses to Combinatorial Stimuli. No. PCT/US11/40712, filed June 16, 2011.

D. Research Support

Ongoing research support

NIH/NIGMS K99-GM102372 Role: PI 9/01/2012 – 8/31/2017
Dynamics of cellular senescence in single human cells
The aim is to investigate the timing and control of cellular senescence in single human cells with a specific focus on $p16^{INK4a}$ expression.

Completed research support

NIH/NIGMS F32-GM095168 Role: PI 7/01/2010 – 8/31/2012
Transcriptional dynamics and cellular function of p53 pulses
The aim is to discover the functional role of p53 dynamics in response to DNA damage.

NIH/NHGRI T32-HG000046 Role: Awarded Trainee 7/01/2008 – 8/31/2009
Quantifying the response of human platelets to combinatorial inputs
The aim is to understand how platelets integrate multiple signals through different cell surface receptors to evoke a calcium release and activation response.

Pending research support

Alfred P. Sloan Research Fellowship Submitted: 9/15/2013
2013 Sloan Research Fellowship Nomination for Jeremy Purvis
The aim is to determine how high-level properties such as tissue structure arise from the coordinated activities of individual human stem cells.