

KRISTIN RAE SWANSON

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VISION

My research lab has served to pioneer the burgeoning field of Mathematical Neuro-oncology generating excellent data to support new approaches to improve the lives of brain cancer patients. We achieve this through the development of patient-specific mathematical models ideally applied to routinely acquired clinical data to generate accurate predictions of disease course and response to therapy in individual patients that can be used inform novel therapy design.

EDUCATION

Postdoc	MATHEMATICAL AND COMPUTATIONAL MEDICINE University of California, San Francisco, CA	1999-2000
PhD	MATHEMATICAL BIOLOGY University of Washington, Seattle, WA ADVISOR: Professor J. D. Murray, FRS THESIS: "Mathematical Modeling of the Growth and Control of Tumors"	JUNE 1999
MS	MATHEMATICAL BIOLOGY University of Washington, Seattle, WA	JUNE 1998
BS	MATHEMATICS (MINOR: PHYSICS) Tulane University, New Orleans, LA Magna Cum Laude with University & Departmental Honors	MAY 1996

PROFESSIONAL EXPERIENCE

James D. Murray Endowed Chair of Applied Mathematics in Neuropathology	2011 — PRESENT
Associate Research Professor of Pathology (Neuropathology)	2008 — PRESENT
Assistant Research Professor of Pathology (Neuropathology)	2002 — 2008
Shaw Professorship in Investigative Neuropathology Pathology (Neuropathology), University of Washington School of Medicine	2004 — 2005
Adjunct Associate Research Professor of Applied Mathematics	2008 — PRESENT
Adjunct Assistant Research Professor of Applied Mathematics Applied Mathematics, University of Washington	2002 — 2008
Affiliate Investigator of Computational Biology Computational Biology Program, Fred Hutchinson Cancer Research Center	2009 — PRESENT
Acting Instructor / Senior Fellow / NSF Fellow Pathology (Neuropathology) and Applied Mathematics, University of Washington, Seattle, WA	2000 — 2002
NSF Mathematical Sciences Postdoctoral Fellow Medicine, University of California, San Francisco, CA	1999 — 2000
NSF Mathematical Biology Graduate Research Fellow / Boeing Research Fellow / Graduate Research Associate/ Teaching Assistant Applied Mathematics, University of Washington, Seattle, WA	1996 — 1999

CURRENT RESEARCH FUNDING

8/05/2009	NIH/NINDS R01 Research Grant (PI) – R01 NS060752
- 7/31/2014	"Novel Tools for Evaluation and Prediction of Radiotherapy Response in Individual Glioma Patients" PI: <i>K. R. Swanson</i>

- 9/01/2009 **NIH/NCI Physical Sciences Oncology Center** (PI Project 3) – U54 CA143970
 - 8/31/2014 “The Physical Microenvironment in Cancer Biology and Therapy”
Project 3: “Clinical Imaging and the Tumor Physical Microenvironment”
 PD: *R. Gatenby* (Moffitt Cancer Center)
 PI of Project 3: *K. R. Swanson*
- 10/01/2009 **James S. McDonnell Foundation Planning Award** (PI)
 - 9/30/2011 “Brain Oncology Network of Knowledge (BONK)”
 PI: *K. R. Swanson*
- 6/01/2011 **James S. McDonnell Foundation Collaborative Activity Award** (PI)
 - 5/31/2014 “BONK: Predicting and Controlling Glioma Recurrence: The Role of Heterogeneity and Microenvironment”
 MPIs: *K. R. Swanson, P. Canoll* (Columbia), *A. Anderson* (Moffitt)
- 6/01/2011 **NSF Research Coordination Network Incubator Award** (Collaborator/Member)
 - 5/31/2012 “Interdisciplinary Communication Laboratory for Undergraduate Biology (iCLUB)”
 MPIs: *H. Gaff, J. Alonzo* (Old Dominion)
- 9/30/2011 **NIH/NCI R01 Grant** (MPI)
 - 9/29/2016 “Patient-specific predictive modeling that integrates advanced cancer imaging”
 MPIs: *K. R. Swanson, P. Kinahan* (Radiology, University of Washington)

PAST RESEARCH FUNDING

- 9/01/2010 **NIH/NCI U54 Physical Sciences Oncology Center Pilot Grant** (PI)
 - 8/31/2011 “In Silico Investigation of Novel Anti-angiogenic Therapeutic Strategies for Gliomas”
 PI: *K. R. Swanson*
- 9/01/2010 **NIH/NINDS R56 Grant** (Co-Investigator) – R56 NS066992
 - 8/31/2011 “The Role of Myosin II in Glioma Invasion”
 MPIs: *S. Rosenfeld & P. Canoll* (Columbia University)
- 1/01/10 **Brain Tumor Funders’ Collaborative Award** (PI)
 -12/31/10 “Patient-specific metrics of treatment response”
 PI: *K. R. Swanson*
- 8/15/2005 **James F. McDonnell Foundation 21st Century Research Award** (PI)
 - 12/1/2010 “Dynamics of Glioma Growth and Invasion”
 PI: *K. R. Swanson*
- 5/10/2004 **NIH/NCI Program Project Grant** (Co-Investigator) – P01 CA42045
 - 2/28/2010 “Molecular Imaging of Cancer and Its Response to Therapy”
 PI: *K. Krohn* (Radiology, University of Washington)
- 12/1/2008 **Ivy Foundation** (co-PI)
 - 11/30/2009 “Quantitatively Connect *In Vivo* Behavior with Protein Expression in Malignant Gliomas”
 Co-PI’s: *J. Zhang / K. R. Swanson*
- 2/1/2008 **University of Washington-Fred Hutchison Cancer Research Center**
 - 1/31/2009 **Cancer Consortium Molecular Diagnostics Pilot Award** (PI)
 “An Innovative Means to Connect *In Vivo* Behavior with Protein Expression in Malignant Gliomas”
 PI: *K. R. Swanson*
- 5/1/2003 **Dana Foundation Program in Brain and Immuno-Imaging Grant** (PI)
 - 9/1/2006 “Integration of MR and PET Imaging Characteristics with Mathematical Modeling to Define the Extent of Invasion of Gliomas”
 PI: *K. R. Swanson*
- 9/1/2001 **NIH K01 Award** (Consultant)

- 8/31/2006 "MRI/MRSI and Molecular Analysis of Low Grade Gliomas"
PI: *T. McKnight* (Magnetic Resonance Sciences Center, UCSF)
- 11/01/2004 **University of Washington-Fred Hutchison Cancer Research Center**
- 12/31/2005 **Cancer Consortium Pilot Award (PI)**
"Glioma Growth, Invasion and Angiogenesis: Integrating Mathematical Modeling and Imaging"
PI: *K. R. Swanson*
- 9/1/2002 **French Ministry of Science Grant** (Investigator)
- 8/31/2005 "Interaction Between the Functional Brain and Glioma Growth: A Modeling of the Static and Temporal Metabolic, Electrophysiological and Hemodynamic Parameters"
PI: *R. Costalat* (Université Pierre et Marie Curie, Paris)

FELLOWSHIPS, SCHOLARSHIPS, GRANTS AND OTHER HONORS

- 2011 **Best Abstract for Western Regional Society for Nuclear Medicine Annual Meeting**
- 2011 – PRESENT **James. D. Murray Endowed Chair of Applied Mathematics in Neuropathology**
- 2010 **Awarded Best Clinical Investigation of 2009 – Journal of Nuclear Medicine**
- 2009 **William E. Schiesser Endowed Lecture – Lehigh University**
- 2009 **Finalist – Hoshino Award – World Federation of Neuro-Oncology**
- 2008 **Undergraduate Research Mentor of the Year, University of Washington**
- 2007 **Nominated for Paul Marks Prize in Cancer Research**
- 2005-2010 **James F. McDonnell Foundation 21st Century Research Award**
- 2004-2005 **Shaw Professorship in Investigative Neuropathology**
- 2001 **Burroughs Wellcome Fund Career Awards at the Scientific Interface Finalist**
- 1999-2002 **NSF Mathematical Sciences Postdoctoral Research Fellowship**
- 1999 **Landahl/Busenberg Travel Grant**
- 1998 **NSF Mathematical Biology Training Grant**
Program in Mathematics and Molecular Biology Fellowship Alternate
- 1997 **Boeing Research Fellowship**
- 1996 **Kappa Kappa Gamma Prize in Mathematics** (1st in graduating class – Math)
Elsie Field Dupre Memorial Prize in Physics (1st in graduating class – Physics)
Tulane University Senior Scholar in Mathematics
Tulane University Outstanding Senior Mathematics Major
National Physical Sciences Consortium Fellowship Alternate
- 1995 **Mortar Board National Senior Honor Society**
Newcomb College Daisy Chain Commencement Honor
Martha Gilmore Robinson Honorary Scholarship
- 1994 **Viola V. Knapp Honorary Scholarship**
- 1993 **Florence Kerwin Honorary Scholarship**
Student Initiated - Newcomb Fellows Research Grant
- 1992-1996 **Tulane University Dean's List / Honors Program**

PUBLICATIONS

PATENTS FILED

- "Method and system for characterizing tumors"
K. R. Swanson, E. C. Alvord, Jr, J. D. Murray, R. Rockne
File date: 2/19/2010
Application #: US 12/709,367

THESES

1. **K. R. Swanson**. Mathematical Modeling of the Growth and Control of Tumors, PhD Dissertation, University of Washington, 1999
2. **K. R. Swanson**. Turing Model of Pattern Formation with Periodic Conditions, Undergraduate Honors Thesis, Tulane University, 1996

BOOKS

1. J. M. Gottman, J. D. Murray, C. C. Swanson, R. Tyson, **K. R. Swanson**. The Mathematics of Marriage: Dynamic Nonlinear Models, MIT Press (Bradford Books): Cambridge, 2003

ARTICLES – PEER REVIEWED

1. J. D. Murray, **K. R. Swanson**: On the Mechanochemical Theory of Biological Pattern Formation with Applications to Wound Healing and Angiogenesis. In: *On Growth and Form: Spatio-temporal Patterning in Biology*, edited by Drs. M. A. J. Chaplain, J. McLauchlan, G. D. Singh, Wiley (London), 1999, pp. 251-285
2. **K. R. Swanson**, E. C. Alvord Jr, J. D. Murray: A Quantitative Model for Differential Motility of Gliomas in Grey and White Matter. *Cell Proliferation*, 2000, 33: 317-329
3. **K. R. Swanson**, J.D. Murray, D. Lin, L. D. True, K. Buhler, R. Vessella: A quantitative model for the dynamics of serum prostate-specific antigen as a marker for cancerous growth: an explanation for a medical anomaly. *American Journal of Pathology*, 158(6): 2195-9, 2001
4. **K. R. Swanson**, E. C. Alvord Jr, J. D. Murray: Virtual Brain Tumors (Gliomas) Enhance the Reality of Medical Imaging and Highlights Inadequacies of Current Therapy. *British Journal of Cancer*, 86:14-18, 2002 [Selected to be featured in the 2003 Yearbook of Oncology, Elsevier Science]
5. J. M. Gottman, C. Swanson, **K. R. Swanson**: A General Systems Theory of Marriage: Nonlinear Difference Equation Modeling of Marital Interactions. *Personality and Social Psychology Review*, 6(4): 326-340, 2002
6. **K. R. Swanson**, E. C. Alvord Jr, J. D. Murray: Quantifying Efficacy of Chemotherapy of Brain Tumors (Gliomas) with Homogeneous and Heterogeneous Drug Delivery. *Acta Biotheoretica*, 50(4): 223-237, 2002
7. **K. R. Swanson**, L. D. True, J. D. Murray: On the use of quantitative modeling to help understand PSA dynamics and other medical problems. *American Journal of Clinical Pathology*, 119(1):14-7, 2003
8. E. Mandonnet, J-Y Delattre, M-L Tanguy, **K. R. Swanson**, A. F. Carpentier, H. Duffau, P. Cornu, R. Van Effenterre, E. C. Alvord, Jr., L. Capelle: Continuous growth of mean diameter in a subset of WHO grade II gliomas. *Annals of Neurology*, 53:524 – 528, 2003
9. J. M. Gottman, R. Levenson, C. Swanson, **K. R. Swanson**, R. Tyson, D. Yoshimoto: Observing Gay, Lesbian and Heterosexual Couples' Relationships: Mathematical Modeling of Conflict Interaction. *Journal of Homosexuality*, 45(1):65-91, 2003
10. **K. R. Swanson**, E. C. Alvord Jr, J. D. Murray: Virtual Resection of Gliomas: Effect of Extent of Resection on Recurrence. *Mathematical and Computer Modelling*, 37(11):1177-1190, 2003 [Special Issue: "Modeling and Simulation of Tumor Development, Treatment, and Control"]
11. **K. R. Swanson**: Clinical Application of a Mathematical Model for Glioma Growth and Invasion. In: *Mathematical Modelling and Computing in Biology and Medicine*, V. Capasso (ed.), Milan Research Center for Industrial and Applied Mathematics, Progetto Leonardo, pp. 629-636, 2003
12. **K. R. Swanson**, C. Bridge, J. D. Murray, E. C. Alvord Jr.: Virtual and Real Brain Tumors: Using Mathematical Modeling to Quantify Glioma Growth and Invasion. *Journal of the Neurological Sciences*, 216(1):1-10, 2003
13. J. M. Gottman, K. Ryan, C. Swanson, **K. R. Swanson**: Proximal change experiments with couples: a methodology for empirically building a science of effective interventions for changing couples' interaction. *Journal of Family Communication*, , 5(3), 163-190, 2005
14. **K. R. Swanson**, E. C. Alvord Jr., J. D. Murray: Dynamics of a Model for Brain Tumors Reveals a Small Window for Therapeutic Intervention, *Discrete and Continuous Dynamical Systems - Series B*, 4(1):289—295, 2004
15. A. M. Spence, M. Muzi, D. A. Mankoff, S. Finbarr O'Sullivan, J. M. Link, T. K. Lewellen, B. Lewellen, P. Phan, S. Minoshima, **K. R. Swanson**, K. A. Krohn. FDG-PET Imaging of Gliomas

- at Delayed Intervals: Improved Distinction Between Tumor and Normal Gray Matter, *Journal of Nuclear Medicine*, 45: 1653-1659, 2004
16. S. Palfi, **K. R. Swanson**, S. De Bouard, F. Chretien, R. Oliveira, C. Le Guerinel, J. M. Kros, M. Peschanski, R. Gherardi, C. Christov. Oligodendroglial phenotype and 1p/19q loss in gliomas are associated with low invasiveness in an organotypic brain slice invasion assay. *British Journal of Cancer*, 91, 745 - 752, 2004
 17. **K. R. Swanson**: Anatomic Determinants of Tumor Growth: Integrating Quantitative Modeling and Imaging. *Proceedings of the American Society for Neuroradiology* 2004
 18. A. M. Spence, D. A. Mankoff, M. Muzi, **K. R. Swanson**: Nuclear Imaging of Gliomas. in Barnett GH, ed. *High-Grade Gliomas: Diagnosis and Treatment*, Humana Press Inc, Totowa, NJ, 2005
 19. H. Hatzikirou, A. Deutsch, C. Schaller, M. Simon, **K. R. Swanson**: Mathematical Modelling of Glioblastoma Tumour Development: A Review. *Mathematical Models and Methods in Applied Sciences*, 15(11), 1779-1794, November 2005.
 20. S. Jbabdi, E. Mandonnet, H. Duffau, L. Capelle, **K. R. Swanson**, M. Pelegri-Issac, R. Guillevin, H. Benali: Diffusion Tensor Imaging Allows Anisotropic Growth Simulations of Low-Grade Gliomas. *Magnetic Resonance in Medicine*, 54:616–624, 2005
 21. **K. R. Swanson**, H. L. P. Harpold, L. D. True: Prostate Specific Antigen: A Clinical and Mathematical Conundrum. *American Journal of Clinical Pathology*, 125 (3): 331-333, 2006
 22. H. L. P. Harpold, P. Vicini, **K. R. Swanson**: Kinetic Modeling of FLT-PET to Generate Parametric Maps of Proliferation. *Journal of Undergraduate Research in Bioengineering*, 6(1):49-68, 2006
 23. H. L. P. Harpold, E. C. Alvord, Jr., **K. R. Swanson**: The Evolution of Mathematical Modeling of Glioma Growth and Invasion. *Journal of Neuropathology and Experimental Neurology*, 66(1):1-9, 2007
 24. K. A. Krohn, F. O'Sullivan, J. Crowley, J. Eary, H. M. Linden, J. M. Link, D. Mankoff, M. Muzi, J. G. Rajendran, A. M. Spence, **K. R. Swanson**. Challenges in Clinical Studies with Multiple Imaging Probes. *Nuclear Medicine and Biology*, 34:879-85, 2007
 25. **K. R. Swanson**: A Mathematical Analysis of Glioma Growth and Invasion *In Vitro*. *Mathematical and Computer Modeling*, 47:638-48, 2008, doi:10.1016/j.mcm.2007.02.024
 26. R. Rockne, E. C. Alvord, Jr, J. K. Rockhill, **K. R. Swanson**. Modeling Radiotherapy Effect in Glioma Patients. *Journal of Mathematical Biology*, 2008 doi:10.1007/s00285-008-0219-6
 27. R. Rockne, E. C. Alvord, Jr, M. Szeto, S. Gu, G. Charkraborty, **K. R. Swanson**. Modeling Glioma Growth and Invasion. Chapter in Edited Book: Selected Topics on Cancer Modelling: Genesis – Evolution – Immune Competition - Therapy. Nicola Bellomo, Mark Chaplain, and Elena De Angelis Eds., In Press, 2008
 28. R. Rockne, E. C. Alvord, Jr, P. J. Reed, **K. R. Swanson**. Modeling the growth and invasion of gliomas, from simple to complex: the Goldie Locks paradigm. Chapter in Edited Book: BIOMAT 2007 - International Symposium on Mathematical and Computational Biology. World Scientific Co. Pte. Ltd., 2008
 29. **K. R. Swanson**, R. Rostomily, E. C. Alvord, Jr.: Predicting Survival of Patients with Glioblastoma by Combining a Mathematical Model and Pre-operative MR imaging Characteristics: A Proof of Principle. *British Journal of Cancer*, 98, 113-9, 2008, doi:10.1038/sj.bjc.6604125
 30. **K. R. Swanson**, H. L. P. Harpold, D. L. Peacock, R. Rockne, C. Pennington, L. Kilbride, R. Grant, J. Wardlaw, E. C. Alvord, Jr. Velocity of Radial Expansion of Contrast-Enhancing Gliomas and Effectiveness of X-Irradiation in Individual Patients: A Proof of Principle. *Clinical Oncology*, 20:301-8, 2008
 31. A. M. Spence, M. Muzi, **K. R. Swanson**, F. O'Sullivan, J. K. Rockhill, J. G. Rajendran, T. Ch. Adamsen, J. M. Link, P. E. Swanson, K. J. Yagle, R. C. Rostomily, D. L. Silbergeld, K. A. Krohn. Regional Hypoxia in Glioblastoma Multiforme Quantified with [F-18]-Fluoromisonidazole (FMISO) PET before Radiotherapy: Correlation with Time to Progression and Survival. *Clinical Cancer Research*, 14(9):2623-30, 2008
 32. **K. R. Swanson**, G. Chakraborty, C. Wang, R. Rockne, H. L. P. Harpold, M. Muzi, T. C. Adamsen, K. A. Krohn, A. M. Spence. Complementary but Distinct Roles for Magnetic Resonance Imaging and [18F]-fluoromisonidazole PET in the Assessment of Human Glioblastomas. *Journal of Nuclear Medicine*, 50(1):36-44, 2009 - **Awarded Journal of Nuclear Medicine Best Clinical Investigation of 2009**

33. P. Hinow, P. Gerlee, L. J. McCawley, V. Quaranta, M. Ciobanu, S. Wang, J. M. Graham, B. P. Ayati, J. Claridge, **K. R. Swanson**, M. Loveless, A. R. A. Anderson: A spatial model of tumor-host interaction: application of chemotherapy. *Mathematical Biosciences and Engineering*, 6(3):521-46, 2009
34. M. Szeto, G. Chakraborty, J. Hadley, R. Rockne, M. Muzi, E. C. Alvord Jr, K. A. Krohn, A. M. Spence, **K. R. Swanson**. Quantitative metrics of net proliferation and invasion link biological aggressiveness assessed by MRI with hypoxia assessed by FMISO-PET in glioblastomas. *Cancer Research*, 69(10):4502-9, 2009
35. M. Assefa, R. Rockne, M. Szeto, **K. R. Swanson**. Mathematical Modeling of Glioma Proliferation and Diffusion. *Ethnicity and Disease*, 19(2) Supplement 3:60-1, 2009
36. C.H. Wang, J. K. Rockhill, M. Mrugala, D. L Peacock, A. Lai, K. Jusenius, J. M. Wardlaw, T. Cloughesy, A. M. Spence, R. Rockne, E. C. Alvord, Jr, **K. R. Swanson**. Prognostic Significance of Growth Kinetics in Glioblastoma: Novel Insights from Combining Serial MR Imaging with a Bio-mathematical Model for Glioma Growth and Invasion. *Cancer Research*, 69:9133-9140, 2009
37. G. Chakraborty, R. Sodt, S. Massey, S. Gu, R. Rockne, E. C. Alvord, Jr., **K. R. Swanson**. Bridging from Multi-scale Modeling to Practical Clinical Applications in the Study of Human Gliomas. Chapter in Edited Book: Multi-Scale Cancer Modeling. Editors: T.S.Deisboeck, G. Stamatakos. Chapman & Hall, 2010 ISBN 9781439814406
38. R. Rockne, J. K. Rockhill, I. Kalet, E. C. Alvord, Jr, **K. R. Swanson**. Predicting Efficacy of Radiotherapy in Individual Patients with Gliomas. *Physics in Medicine and Biology*, 55:3271-3285, 2010 - **Awarded Top 10 Best Publication in PMB for 2010; Finalist for Roberts' Prize from Institute of Physics and Engineering in Medicine**
39. M. Assefa, R. Rockne, E. C. Alvord Jr., G. Chakraborty, **K. R. Swanson**. A Bio-Mathematical Analysis of the Velocity of Glioma Growth Before and After Contrast-Enhancement. *Ethnicity and Disease*. In Press
40. L-E. Bohman, **K. R. Swanson**, J. Moore, R. Rockne, C. Mandigo, T. Hankinson, M. Assanah, P. Canoll, J. N. Bruce. Preoperative MRI Characteristics of Glioblastoma Multiforme: Implications for Understanding Glioma Ontogeny. *Neurosurgery*, 67(5):1319-27, 2010
41. D. Basanta, J. G. Scott, R. Rockne, **K. R. Swanson**, A. R. A. Anderson: The role of IDH1 mutated tumour cells in secondary glioblastomas: an evolutionary game theoretical view. *Physical Biology*, 8(1);, 2011
42. S. Gu, G. Chakraborty, K. Champley, A. Alessio, J. Claridge, R. Rockne, M. Muzi, K. A. Krohn, A. M. Spence, E. C. Alvord Jr, A. R. A. Anderson, P. Kinahan, **K. R. Swanson**. Applying A Patient-Specific Bio-Mathematical Model of Glioma Growth to Develop Virtual [18F]-FMISO PET Images. *Mathematics in Medicine and Biology*, In Press
43. J. Scott, D. Basanta, P. Chinnaiyan, P. Canoll, **K. R. Swanson**, A. R. A. Anderson. Production of 2-HG by IDH-1 mutated gliomas: an evolutionary alternative to the Warburg shift? *Neuro-Oncology*, In Press
44. **K. R. Swanson**, R. Rockne, J. Claridge, M. A. J. Chaplain, E. C. Alvord, Jr, A. R. A. Anderson. Quantifying the role of angiogenesis in malignant progression of gliomas: In silico modeling integrates imaging and histology. *Cancer Research*, In Press
45. E. A. Stoll, B. A. Habibi, A. M. Mikheev, J. Lusiene, S. C. Massey, **K. R. Swanson**, R. C. Rostomily, P. J. Horner. An increased mitotic rate partially compensates for decreased neural stem cell number, survival and differentiation in aged mouse subventricular zone. *Stem Cell*, In Press

ARTICLES – UNDER REVIEW

46. S. Massey, M. Assanah, K. Lopez, P. Canoll, **K. R. Swanson**. Progenitor cell recruitment drives aggressive glioma growth: mathematical and experimental modeling.
47. S. Ivkovic, C. Beadle, S. C. Massey, **K. R. Swanson**, P. Canoll, S. S. Rosenfeld. Direct Inhibition of Myosin II Effectively Blocks Glioma Invasion In The Presence Of Multiple Motogens.
48. A. L. Baldock, R. Rockne, A. Boone, M. Neal, M. M. Mrugala, J. K. Rockhill, **K. R. Swanson**. Patient-Specific Mathematical Neuro-Oncology: Predicting Prognosis and Treatment Response in Individual Gliomas Patients.
49. R. Sodt, R. Rockne, M. L. Neal, I. Kalet, **K. R. Swanson**. Quantifying the role of anisotropic invasion in human glioblastoma.

50. E. C. Alvord, Jr, R. Rockne, J. K. Rockhill, M. M. Mrugala, R. Rostomily, A. Lai, T. Cloughesy, J. M. Wardlaw, A. M. Spence, **K. R. Swanson**. Know thy enemy: Paradoxes to be exploited in the war against glioblastoma.
51. M. L. Neal, T. Cloke, R. Sodt, A. L. Baldock, A. D. Trister, A. Boone, S. Ahn, T. Cloughesy, A. Lai, M. M. Mrugala, J. K. Rockhill, R. Rockne, **K. R. Swanson**. Predicting survival using metrics of treatment response tuned to patient-specific glioblastoma kinetics
52. A. L. Baldock, S. Ahn, R. Rockne, M. Neal, D. Corwin, H. Malone, V. Ebaina, A. Sonabend, M. M. Mrugala, J. K. Rockhill, R. Rostomily, D. L. Silbergeld, A. Lai, T. Cloughesy, G. McKhann, J. Bruce, P. Canoll, **K. R. Swanson**. Patient-specific metrics of invasiveness reveal significant prognostic benefit of extensive resection in a subset of less diffuse malignant gliomas

ARTICLES – IN FINAL PREPARATION

1. R. Rockne, M. Neal, A. D. Trister, J. K. Rockhill, M. Mrugala, **K. R. Swanson**. Patient-specific mathematical neuro-oncology: a case study of a patient-specific, 4D simulation of glioma growth and response to radiation therapy.
2. **K. R. Swanson**, E. C. Alvord, Jr. Combining a Mathematical Model and MR Imaging Characteristics to Predict the Course of an Untreated Glioblastoma: A Novel Case Study with Histopathological Validation.
3. M. Szeto, S. Ahn, J. K. Rockhill, M. Mrugala, R. Rockne, E. C. Alvord, Jr, **K. R. Swanson**. Heterogeneity of Biological Aggressiveness of Glioblastomas: A Spatial Analysis
4. E. C. Alvord, Jr., **K. R. Swanson**: The Adult Human Pyramidal Tract: A Mathematical Analysis of Wallerian Degeneration following Massive Supra-Medullary Stroke.
5. **K. R. Swanson**, M. Roudier, L. True, R. Vessella: A Biomathematical Analysis of PSA and Tumor Dynamics: Correlations with Clinical and Autopsy Data.
6. S. Pardakhtim et al. Segmentation of Glioma on Magnetic Resonance Imaging: Accuracy of a Semi-Automated Method
7. J. Hadlock, C. Murthy, A. Hawkins-Daarud, **K. R. Swanson**. A Spatial Analysis of Hypoxia: Using MRI and [18F]-Fluoromisonidazole PET to Predict the Location of Radiation Therapy Resistance in Glioblastoma Multiforme

LETTERS TO THE EDITOR

1. **K. R. Swanson**, E. C. Alvord, Jr: Using Mathematical Modeling to Predict Survival of Low Grade Gliomas. *Annals of Neurology*, 61(5): 496, 2007

OTHER PUBLICATIONS

1. J. A. Sonnen, C. D. Keene, **K. R. Swanson**, J. Zhang, C. M. Shaw, T. J. Montine: Ellsworth "Buster" Alvord, Jr (1923-2010) Obituary. *Brain Pathology*, 20(5): 993-4, 2010

PUBLISHED ABSTRACTS

1. **K. R. Swanson**, E. C. Alvord, Jr, J. D. Murray. "Mathematical Modeling of the Growth and Control of Gliomas," Gordon Conference on Theoretical Biology and Biomathematics, June 1998
2. **K. R. Swanson**, E. C. Alvord, Jr, J. D. Murray. "Modeling the Growth and Diffusion of Gliomas on Anatomically Accurate Domains," Year in Mathematical Biology Pattern Formation Workshops, Institute for Mathematics and Its Application (Minneapolis), October 1998
3. **K. R. Swanson**, E. C. Alvord, Jr, J. D. Murray. "Predicting In Vitro Behavior of Brain Tumor Growth and Invasion," Theory and Mathematics in Biology and Medicine (Amsterdam), June 1999
4. **K. R. Swanson**, J. M. McCune, S. M. Blower. "Quantifying the Contribution of the Thymus in T-Cell Reconstitution," STIs at the Millennium: Past, Present and Future (Baltimore), May 2000
5. **K. R. Swanson**, E. C. Alvord, Jr. "Correlations of a 3D Quantitative Model for Brain Tumor Growth and Invasion with Clinical Behavior," Cancer Modeling Workshop (Corsica), June 2000
6. **K. R. Swanson**, E. C. Alvord, Jr, J. D. Murray. "A Three-Dimensional Quantitative Model for Brain Tumor (Glioma) Growth and Invasion," Annual Meeting of the Society for Industrial and Applied Mathematics (Puerto Rico), July 2000
7. **K. R. Swanson**, L. True, J. D. Murray. "A Quantitative Model for Prostate Specific Antigen (PSA) as a Marker of Tumor Growth," Annual Meeting of the Society for Industrial and Applied Mathematics (Puerto Rico), July 2000

8. **K. R. Swanson**, J. Gottman, J. D. Murray. "The Mathematics of Marriage: Using Modeling to Determine Marital Stability," Annual Meeting of the Society for Industrial and Applied Mathematics (Puerto Rico), July 2000
9. **K. R. Swanson**, E. C. Alvord, Jr. "A 3D Quantitative Model for Brain Tumor Growth and Invasion: Correlations Between the Model and Clinical Behavior," International Workshop on Brain Tumor Modeling (Scotland), June 2001
10. **K. R. Swanson**, E. C. Alvord, Jr. "Correlations of a 3D Quantitative Model for Brain Tumor Growth and Invasion with Clinical Behavior," Cancer Modeling Workshop (Corsica), 2001
11. **K. R. Swanson**, E. C. Alvord, Jr. "A 3D Quantitative Model for Brain Tumor Growth and Invasion: Correlations Between the Model and Clinical Behavior," Neuro-Oncology, 3(4):323, 2001
12. **K. R. Swanson**, L. D. True, J. D. Murray, D. Lin, R. Vessella. "The Dynamics of Prostate Specific Antigen (PSA) as a Marker of Cancerous Growth," Annual Meeting of the Society for Mathematical Biology (Hilo, Hawaii), July 2001
13. **K. R. Swanson**, E. C. Alvord, Jr. "Can a Three-Dimensional Model for Brain Tumor Growth and Invasion Predict Clinical Behavior in Real Patients?" Annual Meeting of the Society for Mathematical Biology (Hilo, Hawaii), July 2001
14. **K. R. Swanson**, E. C. Alvord, Jr. "Correlations of a 3D Quantitative Model for Brain Tumor Growth and Invasion with Clinical Behavior," Cancer Modeling Workshop (Corsica, France), September 2001
15. **K. R. Swanson**, J. D. Murray, E. C. Alvord, Jr. "Combining Radiological Observations with a Three-Dimensional Model to Predict Behavior of Brain Tumors in Real Patients," SIAM Life Sciences and Imaging Sciences Conference (Boston), March 2002
16. E. Mandonnet, P. Broët, **K. R. Swanson**, A. Carpentier, J.Y. Delattre, L. Capelle. "Linear Growth of Mean Tumor Diameter in Low Grade Gliomas", Neurology, 58 (7): A13-A13 Suppl. 3 APR 9 2002
17. **K. R. Swanson**, E. Mandonnet, E. C. Alvord, Jr, J.Y. Delattre, L. Capelle, P. Broët, A. Carpentier. "Linear Radial Growth of Gliomas: A Mathematical Analysis of Clinical Data," European Society of Mathematical and Theoretical Biology (Milan, Italy), July 2002
18. **K. R. Swanson**, E. C. Alvord, Jr., R. Rostomily. "3D Quantitative Modeling of Glioma Growth and Invasion: Predictions of Survival Time from Imaging Characteristics," European Society of Mathematical and Theoretical Biology (Milan, Italy), July 2002
19. **K. R. Swanson**, E. C. Alvord, Jr. "A Biomathematical and Pathological Analysis of an Untreated Glioblastoma," Neuropathology 2002 (Helsinki, Finland), July 2002
20. **K. R. Swanson**, E. C. Alvord, Jr. "The Concept of Gliomas as a Traveling Wave: The Application of a Mathematical Model to High- and Low-Grade Gliomas," Canadian Journal of Neurological Sciences, 29(4):395, November 2002
Platform Presentation at the Canadian Association of Neuropathology Annual Meeting (Vancouver, BC), October 2002
21. **K. R. Swanson**, E. C. Alvord, Jr. "Serial Imaging Observations and Postmortem Examination of an Untreated Glioblastoma: A Traveling Wave of Glioma Growth and Invasion," Society for Neuro-Oncology Annual Meeting (San Diego), November 2002 - *Neuro-Oncology* 4 (4): 340 OCT 2002
22. M. Muzi, **K. R. Swanson**, A. M. Spence, J. M. Link, S. C. Shoner, C. M. Vernon, D. A. Mankoff, K. A. Krohn. "Initial Assessment of an Acetate model for Membrane Biosynthesis in Glioma Patients," Society for Nuclear Medicine (New Orleans), June 2003 – Journal of Nuclear Medicine 44 (5): 786 Suppl. S MAY 2003
23. E. C. Alvord Jr., **K. R. Swanson**, J. D. Murray. "How to Improve the Diagnosis of Gliomas", American Association of Neuropathologists (Orlando), June 2003 – Journal of Neuropathology and Experimental Neurology 62 (5): 129 MAY 2003
24. **K. R. Swanson**, E. C. Alvord, Jr.: "The Contribution of Net Proliferation and Invasion in the Development of Successful Treatment for Gliomas", Annual Meeting of the Society for Mathematical Biology (Dundee, Scotland), August 2003 – Platform Presentation
25. **K. R. Swanson**, R. Rostomily, E. C. Alvord, Jr. "Confirmation of a theoretical model describing the relative contributions of net growth and dispersal in individual infiltrating gliomas", Canadian Journal of the Neurological Science, In Press, 2003

- Platform presentation at the Annual Meeting of the Canadian Association of Neuropathology (Kingston, Ontario), October 2003
26. **K. R. Swanson**, E. C. Alvord, Jr. "Interpreting the Dynamics of Tumor Recurrence Following Radical Resection Through a Theoretical Model for Glioma Growth and Invasion", Society for Neuro-Oncology (Keystone, CO), November 2003
 27. A. M. Spence, M. Muzi, K. A. Krohn, **K. R. Swanson**, J. M. Link, S. C. Schoner, C. M. Vernon, D. A. Mankoff. "Initial assessment of 1-[C-11]acetate PET imaging of membrane biosynthesis as a measure of growth in glioma-bearing patients", AACR-NCI-EORTC International Conference (Boston, Massachusetts), November 2003 – *Clinical Cancer Research* 9 (16): 6254S-6254S Part 2 Suppl. S DEC 1 2003
 28. C. A. Bridge, E. C. Alvord, **K. R. Swanson**. "Validation of a Mathematical Model for Brain Tumor Growth and Invasion: Serial Followup of an Untreated Glioma", American Association for the Advancement of Science (Seattle, WA), February 2004
 29. H. L. P. Harpold, A. Lai, E. C. Alvord, **K. R. Swanson**. "Interpreting Serial Magnetic Resonance Imaging (MRI) of a Treated Glioblastoma: A Quantitative Modeling Perspective", American Association for the Advancement of Science (Seattle, WA), February 2004
 30. **K. R. Swanson**, E. C. Alvord, Jr. "Growth of Glioblastomas Predicted from Diagnostic MRIs", Growth & Death in the CNS International Conference (St. Moritz, Switzerland), March 2004
 31. A. M. Spence, M. Muzi, J. R. Grierson, **K. R. Swanson**, J. M. Link, D. A. Mankoff, F. O'Sullivan, S. Minoshima, K. A. Krohn. "Initial assessment of [18F]3'-deoxy-3'-fluorothymidine (FLT) for PET imaging of DNA synthesis in glioma patients", 51st Annual Mtg of Society for Nuclear Medicine (Philadelphia, PA), June 2004
 32. **K. R. Swanson**, M. Muzi, A. M. Spence, J. G. Rajendran, J. R. Grierson, K. A. Krohn. "Imaging Glioma Patients with F-MISO and MRI Provides Distinct Information in the Assessment of Radiation Therapy", 51st Annual Mtg of Society for Nuclear Medicine (Philadelphia, PA), June 2004
 33. **K. R. Swanson**, M. Muzi, A. M. Spence, J. G. Rajendran, J. R. Grierson, K. A. Krohn. Concordance of FMISO-PET and MR Imaging Abnormalities in Glioma Patients. Society for Neuro-Oncology (Toronto, Canada), November 2004 - *Neuro-Oncology* 6 (4): 368-369 OCT 2004
 34. **K. R. Swanson**, H. Harpold, S. Nissen, C. Bridge, A. Lai, T. Cloughesy, E. C. Alvord, Jr. Monitoring the Effects of Treatment in Glioblastomas: Integrating Mathematical Modeling with Clinical Imaging. Society for Neuro-Oncology (Toronto, Canada), November 2004 - *Neuro-Oncology*, 6(4):369, 2004
 35. **K. R. Swanson**, H. Harpold, M. Muzi, A. M. Spence, J.G. Rajendran, K. A. Krohn. Concordance of FMISO and MRI Imaging Abnormalities in Malignant Gliomas. AACR Molecular Targets and Cancer Therapeutics: Discovery, Biology, and Clinical Applications, November 2005 - *Clinical Cancer Research* 11 (24): 9130S-9130S Part 2 Suppl. S DEC 15 2005
 36. A. M. Spence, M. Muzi, J. Grierson, **K. R. Swanson**, J. Link, D. A. Mankoff, F. O'Sullivan, K. A. Krohn. [18F]3'-deoxy-3'-fluorothymidine (FLT) for PET imaging DNA synthesis in glioma patients. AACR Molecular Targets and Cancer Therapeutics: Discovery, Biology, and Clinical Applications, November 2005 – *Clinical Cancer Research* 11 (24): 9130S-9130S Part 2 Suppl. S, DEC 15 2005
 37. H. Harpold, A. R. A. Anderson, E. C. Alvord, Jr., **K. R. Swanson**. *In Silico* Model Integrating the Angiogenic Cascade Accurately Simulates Low and High-Grade Human Gliomas. AACR Annual Meeting, April 2006
 38. **K. R. Swanson**, H. Harpold, G. Chakraborty, C. Wang, M. Muzi, A. M. Spence, K. A. Krohn. Discordance of FMISO-PET and MRI Regions in Malignant Gliomas. 52nd Annual Meeting of the Society for Nuclear Medicine, June 2006
 39. A. M. Spence, M. Muzi, **K. R. Swanson**, J. K. Rockhill, J.G. Rajendran, T. C. Adamsen, D. L. Silbergeld, R. C. Rostomily, J. A. Scharnhorst, K. A. Krohn. Hypoxia Assessed with [F-18]-Fluormisonidazole (FMISO) PET Before Radiotherapy (RT) in Malignant Glioma Patients. 52nd Annual Meeting of the Society for Nuclear Medicine, June 2006
 40. **K. R. Swanson**. Mathematical Modeling in Clinical Oncology, SIAM Conference on the Life Sciences, August 2006

41. H. Harpold, A. R. A. Anderson, E. C. Alvord, Jr., **K. R. Swanson**. *In Silico* Model Integrating the Angiogenic Cascade Accurately Simulates Low and High-Grade Human Gliomas. International Congress on Neuropathology, September 2006. *Brain Pathology* 16: S4-S4 007 Suppl. 1 SEP 2006
42. **K. R. Swanson**, E. C. Alvord, Jr. Quantifying the Behavior of Gliomas: Comparing Theoretical Predictions with Actual Patient Observations. International Congress on Neuropathology, September 2006. *Brain Pathology* 16: S39-S39 085 Suppl. 1 SEP 2006
43. H. L. P. Harpold, A. R. A. Anderson, E. C. Alvord, Jr., **K. R. Swanson**. Simulating low- and high-grade human gliomas: An in silico model integrating the angiogenic cascade. Society for Neuro-Oncology, *Neuro-Oncology* 8 (4): 493-493 OCT 2006
44. A. M. Spence, M. Muzi, **K. R. Swanson**, J. K. Rockhill, J. G. Rajendran, T. Ch. Adamsen, J. M. Link, J. D. Scharnhorst, K. A. Krohn: Hypoxia assessed in malignant gliomas with [F-18]-fluoromisonidazole (FMISO) PET before and after radiotherapy (RT). 18th EORTC-NCI-AACR Symposium on Molecular Targets and Cancer Therapeutics, Prague, Czech Republic, November 7-10, 2006. *European Journal of Cancer* 4:161, 2006.
45. **K. R. Swanson**, R. Rockne, J. K. Rockhill, E. C. Alvord, Jr. Mathematical modeling of radiotherapy in individual glioma patients: quantifying and predicting response to radiation therapy. AACR Annual Meeting, 2007
46. **K. R. Swanson**, G. Chakraborty, R. Rockne, C. Wang, D. L. Peacock, M. Muzi, E. C. Alvord Jr, K. Krohn, A. M. Spence. A Mathematical Model for Glioma Growth and Invasion Links Biological Aggressiveness Assessed by MRI with Hypoxia Assessed by FMISO-PET. 53rd Annual Meeting of the Society for Nuclear Medicine (Platform Presentation), June 2007 – *Journal of Nuclear Medicine* 2007; 48 (Supplement 2):151P
47. A. M. Spence, M. Muzi, **K. R. Swanson**, J. K. Rockhill, J. G. Rajendran, T. Ch. Adamsen, J. M. Link, J. D. Scharnhorst, D. Silbergeld, R. Rostomily, K. A. Krohn: Imaging Resistance from Hypoxia in Glioblastoma Multiforme (GM) with [F-18]-Fluoromisonidazole (FMISO) PET before and after Radiotherapy(RT). 59th American Academy of Neurology Annual Meeting, 2007 – *Neurology* 68(12):A287 Suppl 1 Mar 20, 2007
48. **K. R. Swanson**, R. Rockne, J. K. Rockhill, E. C. Alvord, Jr. Combining mathematical modeling with serial MR imaging to quantify and predict response to radiation therapy in individual glioma patients. Society for Neuro-Oncology Annual Meeting, 2007 – *Neuro-Oncology* 9(4):575, 2007
49. L-E Bohman, C. Mandigo, T. Hankinson, M. Assanah, **K. R. Swanson**, P. Canoll, J. N. Bruce. Preoperative MRI Characteristics of Glioblastoma Multiforme: Implications for Understanding Glioma Ontogeny. Society for Neuro-Oncology Annual Meeting, 2007 – *Neuro-Oncology* 9(4):579, 2007
50. E. C. Alvord, Jr, J. Claridge, A. R. A. Anderson, **K. R. Swanson**. Cell Kinetics Underlying Grading of Gliomas. American Association of Neuropathologists Annual Meeting, San Diego, 2008 – *Journal of Neuropathology and Experimental Neurology* 67(5):502, 2008
51. C. Wang, D. L. Peacock, J. K. Rockhill, M. Mrugala, A. M. Spence, E. C. Alvord, Jr., **K. R. Swanson**. Prognostic Significance of Growth Kinetics in Glioblastoma Patients: Insights from a Novel Mathematical Modeling Approach. Society for Neuro-Oncology, Lake Las Vegas, 2008 - *Neuro-Oncology* 10(5): 759, 2008
52. R. Rockne, **K. R. Swanson**. Predicting efficacy of radiotherapy in individual glioma patients in vivo: a pilot study. European Society for Mathematical and Theoretical Biology Annual Meeting, Edinburgh, 2008
53. R. Rockne, J. L. Moore, **K. R. Swanson**. Three-dimensional simulation of glioma growth and response to radiation therapy: a case study. Society for Mathematical Biology Annual Meeting, Toronto, Canada, 2008
54. S. Massey, P. Canoll, **K. R. Swanson**. Parameter sensitivity investigation of a mathematical model of glioma tumorigenesis mediated by platelet-derived growth factor. Society for Mathematical Biology Annual Meeting, Toronto, Canada, 2008
55. **K. R. Swanson**, R. Rockne, J. K. Rockhill, M. Mrugala, E. C. Alvord, Jr. Patient-specific virtual controls can be used to simulate and predict response to radiation therapy in individual glioblastoma patients. World Federation of Neuro-Oncology, Yokohama, Japan, 2009 – **Hoshino Award Finalist**

56. **K. R. Swanson**, R. Rockne, J. K. Rockhill, M. Mrugala, E. C. Alvord, Jr. Prognostic significance of growth kinetics in newly diagnosed glioblastoma: A role for patient-specific virtual controls. World Federation of Neuro-Oncology, Yokohama, Japan, 2009
57. **K. R. Swanson**. Bridging from Anatomic Imaging to Molecular Imaging through Multi-scale Models for Brain Tumor Growth and Invasion. Society for Mathematical Biology Annual Meeting, Vancouver, Canada, 2009
58. **K. R. Swanson**. Predictive Modeling of Brain Tumor Growth and Invasion: Optimizing Treatment in Individual Patients. Society for Mathematical Biology Annual Meeting, Vancouver, Canada, 2009
59. S. Massey, P. Canoll, **K. R. Swanson**. Paracrine PDGF signaling and progression in experimental gliomas. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
60. R. Rockne, **K.R. Swanson**. The role of delay and observation timing in assessing glioma response to radiation therapy. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
61. G. Chakraborty, S. Gu, R. Rockne, **K.R. Swanson**. Predicting metabolic growth patterns from patient-specific anatomic imaging and mathematical modeling of glioblastomas. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
62. S. Gu, G. Chakraborty, R. Rockne, **K.R. Swanson**. Spatiotemporal Pharmacokinetic/Pharmacodynamic Radioactive Tracer and Brain Tumor Modeling: A Method for Generating Patient-specific Simulated PET Images. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
63. A. Boone, R. Rockne, M.M. Mrugala, J.K. Rockhill, E.C. Alvord Jr, **K.R. Swanson**. The Clinical Significance of Mathematical Models in the Treatment and Management of Gliomas: A Case Study in Translating Applied Mathematics Research into Clinically Relevant Solutions. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
64. M. Szeto, R. Rockne, **K.R. Swanson**. Anatomic Variation in Quantitative Measures of Glioma Aggressiveness. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
65. M. Simon, R. Rockne, **K.R. Swanson**. A comparison between volumetric and localized spatial analysis techniques for assessing model parameters. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
66. R. Sodt, R. Rockne, I. Kalet, **K.R. Swanson**. Simulation of Anisotropic Growth of Gliomas Using Diffusion Tensor Imaging. International Conference on Mathematical Biology and Annual Meeting of the Society for Mathematical Biology, University of British Columbia, Vancouver July 2009.
67. A. E. Boone, R. Rockne, M. M. Mrugala, J. K. Rockhill, E. C. Alvord, Jr, **K. R. Swanson**. Opportunities for Personalized Treatment and Management of Malignant Gliomas: The Clinical Significance of Mathematical Models. Society for Neuro-Oncology, New Orleans, LA 2009; *Neuro-Oncology*, 11(5):648, 2009
68. S. C. Massey, P. Canoll, **K. R. Swanson**. Modeling the effects of progenitor cell recruitment on glioma growth and progression. Society for Neuro-Oncology, New Orleans, LA 2009, *Neuro-Oncology* 11(5):574, 2009
69. A. E. Boone, R. Rockne, M. M. Mrugala, **K. R. Swanson**. Pre-treatment glioblastoma proliferation and invasion kinetics: A mechanism to predict pseudo progression. Society for Neuro-Oncology, 2010., *Neuro-Oncology*, 12(Supp 4):118, 2010
70. **K. R. Swanson**, S. Gu, G. Chakraborty, K. Champley, A. Alessio, J. Claridge, R. Rockne, M. Muzi, K. A. Krohn, A. M. Spence, E. C. Alvord, Jr, A. R. Anderson, P. Kinahan. In Silico PET Imaging: From anatomic glioma growth dynamics to metabolic tumor activity via bio-mathematical modeling. Society for Neuro-Oncology, 2010, *Neuro-Oncology*, 12(Supp 4):118, 2010

71. R. Rockne, J. K. Rockhill, M. Mrugala, **K. R. Swanson**. Predicting spatial patterns of tumor recurrence following radiation therapy: a hybrid clinical imaging and mathematical modeling approach. Society for Neuro-Oncology, 2010, *Neuro-Oncology*, 12(Supp 4):111, 2010
72. S. Massey, R. Rockne, P. Canoll, **K. R. Swanson**. In silico glioma model reveals that environmentally targeted therapies may be more effective at altering disease kinetics. Society for Neuro-Oncology, 2010, *Neuro-Oncology*, 12(Supp 4):25, 2010
73. S. Ivkovic, C. Beadle, S. C. Massey, **K. R. Swanson**, P. Canoll, S. S. Rosenfeld. Direct inhibition of non-muscle myosin II effectively blocks glioma invasion in the presence of multiple motogens. *Neuro-Oncology*, 12(Supp 4):4, 2010
74. **K. R. Swanson**, A. E. Boone, R. Rockne, M. M. Mrugala. Predicting pseudoprogression in glioblastoma patients: A mathematical and clinical perspective. European Society of Mathematical and Theoretical Biology
75. R. Rockne, S. Massey, M. Mrugala, A. R. A. Anderson, **K. R. Swanson**. Response to anti-angiogenic therapy in human brain tumors: the role of the microenvironment and heterogeneity. European Society of Mathematical and Theoretical Biology
76. **K. R. Swanson**, S. Gu, G. Chakraborty, K. Champley, A. Alessio, R. Rockne, M. Muzi, K. A. Krohn, P. Kinahan. Predictive simulation of patient-specific [18F]FMISO-PET: Integrating imaging with predictive mathematical models of the tumor microenvironment. Annual Meeting of the Society for Nuclear Medicine (SNM) – *Platform Presentation*
77. C. H. Holdsworth, D. Corwin, R. D. Stewart, R. Rockne, **K. R. Swanson**, M. Phillips. Biologically Optimized 4D Dose Distributions for the Treatment of Incurable Glioblastoma. Annual Meeting of American Association of Physicists in Medicine (AAPM)
78. R. Rockne, J. K. Rockhill, M. Mrugala, **K. R. Swanson**. Patient-specific virtual radiation oncology: predicting and quantifying treatment response in individual glioblastoma patients. Annual Meeting of American Association of Physicists in Medicine (AAPM)
79. R. Rockne, J. K. Rockhill, M. Mrugala, **K. R. Swanson**. Patient-specific virtual radiation oncology: novel metrics of response provide a means to stratify patients within a single RTOG RPA class. Annual Meeting of the American Association of Cancer Research (AACR)
80. **K. R. Swanson**, R. Rockne, C. H. Holdsworth, D. Corwin, R. D. Stewart, M. H. Phillips. Improving Treatment Response by Designing Patient-Specific Optimized Radiation Therapy Dose Distributions Informed by Glioma Proliferation and Invasion Kinetics: A Case Study. Annual Meeting of the Radiological Society of North America (RSNA)
81. E. C. Alvord, Jr, Russell Rockne, J. K. Rockhill, M. M. Mrugala, R. Rostomily, A. Lai, T. Cloughesy, J. M. Wardlaw, A. M. Spence, **K. R. Swanson**. Know thy enemy: Paradoxes to be exploited in glioblastoma. Annual Meeting of the Society for Neuro-Oncology, 2011
82. R. Rockne, A. R. A. Anderson, **K. R. Swanson**. Predictive integration of tumor growth kinetics on clinical imaging with histological features through patient-specific simulation. Annual Meeting of the Society for Neuro-Oncology, 2011
83. D. Corwin, C. Holdsworth, R.D. Stewart, R. Rockne, **K. R. Swanson**. Patient-Specific Mathematical Radiation Oncology: 4D Optimized Dose Distributions Informed by Glioma Kinetics of Proliferation and Invasion. Annual Meeting of the Society for Neuro-Oncology, 2011
84. A. Baldock, R. Rockne, P. Canoll, D. Born, K. Yagle, **K. R. Swanson**. Cystic Gliomas are Quantitatively Less Biologically Aggressive. Annual Meeting of the Society for Neuro-Oncology, 2011
85. M. L. Neal, R. Rockne, A. Trister, **K. R. Swanson**. Predicting outcomes following therapy for glioblastoma using response metrics from patient-specific, 3D tumor models. Annual Meeting of the Society for Neuro-Oncology, 2011
86. R. Rockne, K. Champley, A. Alessio, M. Muzi, K. A. Krohn, P. E. Kinahan, **K. R. Swanson**. Patient-specific simulations allow prediction of hypoxia and [18F]FMISO-PET in human glioblastoma., University of Washington Medical Center, Seattle, WA. ***Awarded Best Abstract for 2011 Western Regional Society for Nuclear Medicine Annual Meeting**

INVITED LECTURES AND OTHER CONTRIBUTED PRESENTATIONS

- 2011 Invited Lecture – Investigative Workshop Solid Tumor Modeling: Biological, Computational and Clinical Challenges (National Institute for Mathematical and Biological Synthesis – NimBIOS, Knoxville, TN)

- Invited Seminar/Visiting Professor – Radiation Medicine Seminar (Oregon Health Sciences University, Portland, OR)
- Invited Seminar – Pathology Presents Seminar (University of Washington)
- Invited Symposium Lecture – American Association of Cancer Research (AACR) (Orlando, FL)
- Invited MiniSymposium Lecture – International Congress of Industrial and Applied Mathematics (Vancouver, BC)
- Invited Symposium Lecture – American Association of Physicists in Medicine (Vancouver, BC)
- Invited Seminar – NeuroOncology (University of California, San Diego, CA)
- Contributed Platform Presentation - Annual Meeting of Society for Nuclear Medicine (San Antonio, TX)
- Invited Seminar – Neurosurgery Grand Rounds (Columbia University School of Medicine, NY)
- Invited Seminar – Brain Tumor Program (Memorial Sloan Kettering Cancer Center, NY)
- Invited Lecture – Recent Advances in Biologically Guided Radiation Therapy Symposium (University of Washington, Seattle)
- Invited Seminar – Martinos Center for Biomedical Imaging, Massachusetts General Hospital and Harvard-MIT Division of Health Sciences and Technology (Boston, MA)
- Invited Seminar – Northwestern University Brain Tumor Institute, Robert H. Lurie Comprehensive Cancer Center (Chicago, IL)
- Invited Seminar – Neurosurgery Grand Rounds - University of Colorado (Denver, CO)
- Invited Seminar – 40 Years and Counting: AWM's Celebration of Women in Mathematics Conference (Brown University, Providence, RI)
- Invited Symposium Lecture – American Academy of Neurological Surgery Annual Meeting (Scottsdale, AZ)
- Invited Symposium Lecture - National Cancer Research Institute Annual Meeting (Liverpool, UK)
- 2010 Invited Seminar – Undergraduate Mathematical Sciences Seminar (UW)
- Invited Seminar – Neurosurgery Grand Rounds (UW)
- Invited Seminar – Imaging Science Research Lecture (UW)
- 2009 Invited Seminar – William E. Schiesser Seminar, Lehigh University (Bethlehem, PA)
- Invited Seminar – Computational Biology Program, Fred Hutchinson Cancer Research Center (Seattle, WA)
- Invited Seminar – Integrative Mathematical Oncology Department (Moffitt Cancer Center, FL)
- Invited Seminar – Pathology Presents Seminar (UW)
- Invited Lecture – Centro de Investigación en Computación del IPN, National Polytechnic Institute of México (Mexico)
- Invited Minisymposium Lecture – SIAM Computer Science and Engineering Annual Meeting (Miami, FL)
- Invited Minisymposium Lecture (x2) – Society of Mathematical Biology Annual Meeting (Vancouver, BC)
- Invited Lecture – Oregon Health Sciences University (OHSU) Blood-Brain-Barrier Consortium Annual Meeting (Gleneden Beach, Oregon)
- Invited Dean's Seminar – Old Dominion University (Norfolk, VA)
- Invited Keynote Lecture – BIOMAT 2009 (Brasilia, Brazil)
- 2008 Invited Lecture – Workshop on Modeling Tumour Response to Irradiation (Cross Cancer Institute, Edmonton, Alberta)
- Invited Lecture – Annual Meeting of the European Society for Mathematical and Theoretical Biology (Edinburgh, UK)
- Invited Lecture – Applied Physics Laboratory (UW)
- Invited Lecture – Neuro-Oncology (Moffitt Cancer Research Center, Tampa, Florida)
- Invited Lecture – Radiology (UWMC)
- Invited Lecture – 1st Transatlantic Workshop on Multiscale Cancer Modeling (Brussels, Belgium)
- 2007 Keynote Lecture – BIOMAT 2007 (Rio de Janeiro, Brazil)
- Contributed Platform Presentation – Society for Nuclear Medicine Annual Meeting (Washington, DC)

- Invited Lecture – McDonnell Foundation Tango Lessons for Brain Cancer Workshop (Cordoba, Argentina)
- Invited Lecture – Mathematics, University of Arizona (Tucson, AZ)
- Invited Symposia Lecture – Society for Mathematical Biology (San Jose, CA)
- Invited Workshop Lecturer – VICBC Workshop (Nashville, TN)
- Invited Lecture – Neurology Grand Rounds (UW)
- Invited Lecture – Molecular Imaging Seminar (UW)
- 2006 Invited Major Symposia Lecture – American Association for Cancer Research (AACR) Annual Meeting (Washington, DC)
- Plenary Lecture – Second Young Researchers Workshop in Mathematical Biology (Mathematical Biosciences Institute, Ohio State University, Columbus, Ohio)
- Invited Plenary Lecture – Gordon Research Conference on Mathematical and Theoretical Biology (Tilton, New Hampshire)
- Invited Lecture – Workshop on Mathematical Models and Problems in Cell Motility and Tumor Growth (National Center for Theoretical Sciences, Taiwan)
- Minisymposia Organizer – Joint Annual Meeting of the Society for Mathematical Biology and the SIAM Conference on the Life Sciences (Raleigh, North Carolina)
- 2005 Keynote Lecture – International Conference on Mathematical and Theoretical Biology Joint Annual Meeting of the Society for Mathematical Biology and the European Society for Theoretical and Mathematical Biology (Dresden, Germany)
- Symposia Organizer – “Mathematical Oncology”: American Association for the Advancement of Science (AAAS) Annual Meeting (Washington, DC)
- Visiting Professor – Radiology, University of Arizona School of Medicine (Tucson, AZ)
- Invited Lecture – Symposium on "Modeling in Chronic and Infectious Disease: Biology and Outcomes" at the Fred Hutchinson Cancer Research Center (Seattle, WA)
- Invited Lecture – Barrow Neurological Institute (Phoenix, AZ)
- Invited Lecture – Mathematics, Arizona State University (Tempe, AZ)
- Invited Lecture – Cancer Dynamics Workshop, University of Michigan (Ann Arbor, MI)
- Invited Lecture – Matematica e Cultura 2005 International Conference (Venice, Italy)
- Invited Lecture – Applied Mathematics, University of Washington (Seattle, WA)
- Invited Lecture – Epidemiology and Preventive Medicine, University of Maryland School of Medicine (College Park, MD)
- Invited Lecture – Applied Mathematics, University of Waterloo (Waterloo, Canada)
- Invited Lecture – Centre for Mathematical Medicine, Fields Institute (Toronto, Canada)
- Invited Lecture – NeuroSurgery Grand Rounds, University of Washington (Seattle, WA)
- Invited Lecture – Canadian Mathematical Society Winter Meeting (Victoria, BC, Canada)
- Invited Lecture – MITACS Cancer Modeling Workshop (Banff, Canada)
- Invited Lecture – Center for Mathematical Medicine Cancer Modeling Workshop (Toronto, Canada)
- 2004 Invited Symposia Lecture – American Association for the Advancement of Science (AAAS) Annual Meeting (Seattle, WA)
- Invited Symposia Lecture – Neuroradiology Education and Research (NER) Foundation Symposium 2004: “Integration of Imaging Strategies in Neuroradiology” and 42nd Annual American Society for Neuroradiology Annual Meeting (Seattle, WA)
- Invited Lecture – NeuroOncology, Pitie-Salpetriere Hospital (Paris, France)
- Invited Lecture – Workshop on Mathematical Oncology, Fields Institute (Toronto, Canada)
- Invited Lecture – Bioengineering, University of Washington (Seattle, WA)
- Invited Lecture – Applied Mathematics, University of Washington (Seattle, WA)
- Invited Lecture – Neuropathology Research-in-Progress (Seattle, WA)
- Contributed Platform Presentation – Growth & Death in the CNS International Conference (St. Moritz, Switzerland)
- 2003 Keynote Lecture – European Union International Conference on “Linking Mathematical and Biological Models in Cancer Research” (Magdeburg, Germany)
- Invited Lecture – NeuroOncology Colloquia at the Pitie-Salpetriere Hospital (Paris, France)
- Invited Lecture – Society for Nuclear Medicine Annual Meeting (New Orleans, LA)

- Invited Lecture – Neurosurgery Grand Rounds (Harborview Medical Center, Seattle, WA)
Invited Lecture – Neuropathology Research-in-Progress Seminar (Harborview Medical Center, Seattle, WA)
- Invited Lecture – Society for Mathematical Biology (Dundee, Scotland)
Invited Lecture – Washington State University, Mathematics (Pullman, WA)
- 2002 Society for Neuro-Oncology (San Diego, CA)
 Canadian Association of Neuropathology – Oral Contribution (Vancouver, BC)
 International Congress of Neuropathology (Helsinki, Finland)
 Mathematical Modeling & Computing in Biology and Medicine Conference (Milan, Italy)
Invited Lecture – Applied Mathematics – University of Washington (Seattle, WA)
Invited Lecture – Steele Laboratory – Harvard Medical School (Boston, MA)
 Life Sciences Meeting of Society for Industrial and Applied Mathematics (Boston, MA)
- 2001 Invited Lecture – Biostatistics – Fred Hutchinson Cancer Research Center (Seattle, WA)
Keynote Lecture at International Conference – Using Mathematical Modelling and Computer Simulation to Improve Cancer Therapy (Corsica, France)
 Annual Society for Mathematical Biology Meeting (Hilo, HI)
Invited Lecture – Molecular Imaging Laboratory – University of Washington (Seattle, WA)
Invited Lecture – International Brain Tumor Modeling Workshop (Edinburgh, Scotland)
- 2000 Invited Lecture – Neuro-Oncology Research – University of Washington (Seattle, WA)
Invited Lecture – Applied Mathematics – University of Washington (Seattle, WA)
 Annual Society for Industrial and Applied Math Meeting (Rio Grande, Puerto Rico)
 Using Mathematical Modeling and Computer Simulation to Improve Cancer Therapy (Corsica, France)
Invited Lecture – Math Modeling Journal Club – University of California (San Francisco, CA)
Invited Lecture – Biomedical Engineering – Washington University (St. Louis, MO)
Invited Lecture – Courant Institute of Mathematical Sciences – New York University (NY)
Invited Lecture – Information Technology – Merck and Company (Rahway, NJ)
Invited Lecture – Quantitative Modeling – Physiome Sciences, Inc (Princeton, NJ)
Invited Lecture – Engineering Sciences & Applied Mathematics – Northwestern (Evanston, IL)
Invited Lecture – Quantitative Modeling – Entelos, Inc. (Menlo Park, CA)
- 1999 Invited Lecture – Neurology Grand Rounds – University of Washington (Seattle, WA)
Contributed Platform Presentation – Theory and Mathematics in Biology and Medicine 99 (Amsterdam, The Netherlands)
Invited Lecture – Neuropathology Grand Rounds – Harborview Medical Center (Seattle, WA)
 Brain Awareness Week Open House – University of Washington (Seattle, WA)
- 1998 Zoology – University of Washington (Seattle, WA)
 Applied Mathematics – University of Washington (Seattle, WA)
 Pattern Formation– Institute for Mathematics and It's Application (Minneapolis, MN)
 Gordon Research Conference, Theoretical Biology and Biomathematics (Tilton, NH)
- 1996 Honors Thesis Defense – Mathematics, Tulane University (New Orleans, LA)
 1995 Research Experience for Undergraduates – Carnegie Mellon University (Pittsburgh, PA)

PROFESSIONAL MEMBERSHIPS

- American Association for Cancer Research (AACR)
- Society for Mathematical Biology (SMB), Board of Directors
- Society for Neuro-Oncology (SNO)
- Society for Nuclear Medicine (SNM)
- Women in Cancer Research (AACR-WICR)
- Fred Hutchinson/University of Washington Cancer Consortium
 - Program in Neuro-Oncology
 - Program in Imaging
- European Society for Theoretical and Mathematical Biology (ESTMB)
- Centre for Mathematical Medicine (Fields Institute, Toronto, Canada)
- Center for the Development of a Virtual Tumor (CVIT.org)

Institute of Translational Health Sciences (ITHS)
 Founding member of the National Science Foundation sponsored RCN-UBE Incubator: Interdisciplinary
 Communication Laboratory for Undergraduate Biology (iCLUB)

ACADEMIC SERVICE

Scientific Advisory Committee, Annual Meeting of the Society for Mathematical Biology 2012
 Knoxville, TN

**External Scientific Advisory Board, Moffitt Cancer Center Bankhead-Coley
 Team Science Award** 2011- PRESENT

Review Editorial Board of Frontiers in Computational Physiology and Medicine 2011- PRESENT

Grant Reviewer, Italian Association for Cancer Research (AIRC) 2011

Grant Review Panelist, National Science Foundation 2011
 Mathematical Biology and the Computational Mathematics

Grant Review Panelist, National Institutes of Health Study Section 2011
 Modeling and Biological Systems (MABS)

Grant Review Panelist, National Science Foundation 2010
 RTG (Research Training Groups) component of the EMSW21 -
 Enhancing the Mathematical Sciences Workforce in the 21st Century

Grant Reviewer, French Insitut National du Cancer 2010

Grant Reviewer, French National Research Agency (ANR) 2009

**Scientific Advisory Board, Vanderbilt University component of
 NCI's Tumor Microenvironment Network (TMEN)** 2007-2011
 Vanderbilt University, Nashville, Tennessee

Elected Member, Council on Research and Graduate Education 2007-2010
 University of Washington School of Medicine

Board of Directors, The Society for Mathematical Biology 2007-2010

Scientific Committee, Mathematics and Medicine Workshop FEBRUARY 2009
 CIRM, Marseilles (Luminy), France

Chair and Organizer, Modeling Cancer and Angiogenesis Workshop 2008-2009
 Mathematical Biosciences Institute, Ohio State University

Scientific Committee, Annual Meeting of the Society for Mathematical Biology 2008
 Toronto, Canada

Panelist, National Science Foundation Grant Review Panel 2006

**Grant Reviewer, National Natural Sciences and Engineering Research Council
 of Canada (NSERC)** 2006

Organizing Committee, MITACS/CMM Cancer Modeling Workshop OCTOBER 2005
 Workshop on Growth and Control of Tumours - Current Problems and Future Challenges
 BIRS, Banff, Canada

Chair, Mathematical Oncology Symposium FEBRUARY 2005
 AAAS Annual Meeting, Washington, DC

Graduate and Professional Student Senator OCTOBER 1998 TO JUNE 1999
 University of Washington, Seattle, WA

Mortar Board Senior Honor Society Treasurer MARCH 1995 TO MARCH 1996
 Tulane University, New Orleans, LA

REVIEWER AND EDITORIAL BOARD MEMBERSHIP

Reviewer For:	Journal of Theoretical Biology
Acta Biotheoretica	Journal of Theoretical Medicine
Applied Mathematics Letters	Mathematics in Medicine and Biology
Bulletin of Mathematical Biology	Mathematical Biosciences
Cancer Detection and Prevention	Medical Image Analysis
Cancer Letters	Microvascular Research
Cancer Research	Nonlinear Dynamics, Psychology and Life Sciences
Cell Proliferation	Physical Review E
Journal of Nonlinear Science	PLOS One
Journal of the Royal Society Interface	Transactions on Medical Imaging
Editorial Board Member for:	Frontiers in Computational Physiology and Medicine

IN THE NEWS**Modelling predicts radiotherapy response**

June 2010 *MedicalPhysicsWeb*

<http://medicalphysicsweb.org/cws/article/research/42904>

Modeling Plus MRI Data Characterize Brain Tumors in Patients

December 2009 *NCI Physical Sciences in Oncology Research News*

http://physics.cancer.gov/news/2009/dec/po_news_c.asp

UW researchers discover groundbreaking approach to predicting life expectancy among patients with malignant brain tumors by Clare Hagerty

November 30, 2009 *University of Washington Health and Medicine News*

<http://uwnews.org/article.asp?articleID=53947>

The Amgen Scholars Program: Encouraging a new generation of biomedical researchers

By Robert Roseth – August 6, 2009 *University Week*

<http://uwnews.org/uweek/article.aspx?id=51343>

Radiation Options & Advances for Brain Cancer Patients

An interview with Dr. Jason Rockhill discussing advances in radiation therapy in the treatment of gliomas and the role of the Swanson Lab's research – February 12, 2009 *Patient power*

<http://www.patientpower.info/listenguestdetails.asp?Guest=945Rockhill,%20M.D.,%20Ph.D.&ID=R&n=Jason%20K.&In=Rockhill,%20M.D.,%20Ph.D.>

Researcher outsmarts brain tumors with math by Jean Enerson

December 2008 Healthlinks Special on *NBC KING 5*

http://www.king5.com/health/stories/NW_122408HEB_brain_tumors_KS.223c0bb.html

Can Mathematics Treat Cancer? by Chen Sai

November 13, 2008 Issue of *Life Week Magazine*

[Life Week] is China's best Newsweek Magazine, sponsored by China Publishing Group. [Life Week] publishes weekly, with 200 thousand circulation, all over China, including HK and Taiwan.

<http://www.lifeweek.com.cn/2008-12-08/0002423302.shtml>

Comparing Invasive Species to Metastatic Cancers Inspires New Insights for Modelers by Mike

Martin - January 8, 2008

<http://jnci.oxfordjournals.org/cgi/content/full/100/2/88>

Can Math Cure Cancer? by Robert Langreth, Senior Editor

October 27, 2008 Issue of *Forbes Magazine*

<http://www.forbes.com/forbes/2008/1027/074.html>

Glint of Hope Compels Brain Cancer Clinical Trials (Against a Dim Prognosis)

Fall 2008 Issue of University of Washington Medical Center *Neuro-Oncology Consult*,

http://www.pathology.washington.edu/research/labs/swanson/text/UWMCCConsultFall08_BrainCancer.pdf

Modeling Cancer Biology by Kristin Cobb, PhD

Spring 2007 Issue of *Biomedical Computation Review*

<http://biomedicalcomputationreview.org/3/2/4.pdf>

The Right Equation: Mathematicians Work to Predict Tumor Growth*Journal of the National Cancer Institute* 2005 97(13):952-953; doi:10.1093/jnci/dji195<http://jnci.oxfordjournals.org/cgi/content/full/97/13/952>**Mathematical Modeling of Cancer***SIAM News*, Volume 37, Number 1, Jan/February 2004<http://www.siam.org/pdf/news/203.pdf>**STUDENT SUPERVISION AND MENTORING****HIGH SCHOOL STUDENTS:**

<i>Mahlet Assefa</i>	High School Student	2008 – Present
	<u>Awards:</u> NIH STEP-UP Fellow	
	<u>Currently:</u> Undergraduate Student – Yale University	
Tyler Rockhill	High School Student	2009 – Present
	<u>Currently:</u> Undergraduate Student – University of Portland	
April Baldock	High School Student	2011 – Present

UNDERGRADUATE STUDENTS:

<i>Carly A. Bridge</i>	<u>Major:</u> Neurobiology	2001 – 2004
	<u>Awards:</u> Mary Gates Fellow	
	<u>Currently:</u> ND, 2009 – Bastyr	
<i>Hana L. P. Harpold</i>	<u>Major:</u> Bioengineering	2003 – 2007
	<u>Currently:</u> MD, 2010 - University of Washington Pediatrics Residency at University of Chicago	
<i>Sariah Khormae</i>	<u>Major:</u> Neurobiology	2003 – 2005
	<u>Awards:</u> Mary Gates Fellow UW Presidential Scholar	
	<u>Currently:</u> Marshall Scholar MD/PhD student at Cambridge University	
<i>Stephanie Nissen</i>	<u>Major:</u> Bioengineering	2003 – 2004
	<u>Awards:</u> Mary Gates Fellow	
	<u>Currently:</u> Graduate Student – Genetics – UCSD	
<i>Patrick Reed</i>	<u>Major:</u> Biochemistry & Applied Math	2004 – 2007
	<u>Awards:</u> Mary Gates Fellow	
	<u>Currently:</u> Graduate Student – University of Chicago	
<i>Melissa Cowan</i>	<u>Major:</u> Applied Mathematics	2004 – 2005
	<u>Awards:</u> Mary Gates Fellow	
	<u>Currently:</u> Graduate Student – Electrical Engineering – UW	
<i>Nikhil Joshi</i>	<u>Major:</u> Bioengineering	2004 – 2006
<i>Gargi Chakraborty</i>	<u>Major:</u> Biochemistry & Neurobiology	2005 – 2010
	<u>Awards:</u> Mary Gates Fellow Research for Advanced Undergraduates Fellow NSF VIGRE Fellow	
	<u>Currently:</u> MS, Applied Mathematics, 2010 – University of Washington Software Developer at Boeing	
<i>Courtney Mitchell</i>	<u>Major:</u> Applied Mathematics	2005 – 2005
<i>Danielle Peacock</i>	<u>Major:</u> Biochemistry	2005 – 2006
	<u>Currently:</u> Graduate Student – Integrated Program in Biomedical Sciences University of Tennessee Health Sciences Center	
<i>Christina Wang</i>	<u>Major:</u> Bioengineering	2005 – 2009
	<u>Currently:</u> Medical Student – University of Washington	
<i>Jeffrey Jacobs</i>	<u>Major:</u> Biology	2005 – 2007
<i>Lily Chau</i>	<u>Major:</u> Psychology	2005 – 2006
<i>Mindy Szeto</i>	<u>Major:</u> Biochemistry, Sociology & Biology	2005 – Present
	<u>Awards:</u> Mary Gates Fellow (2006, 2008) Amgen Research Scholar (2008) Washington Research Foundation Fellowship (2008) NSF VIGRE Undergraduate Research Fellow (2009)	

<i>Stanley Gu</i>	<u>Major:</u>	Bioengineering	2006 – Present
	<u>Awards:</u>	Mary Gates Fellow NSF VIGRE Undergraduate Research Fellow (2008, 2009) MS Bioengineering (2010)	
	<u>Currently:</u>	Pfizer	
<i>Huo Shin John Tsui</i>	<u>Major:</u>	Biostatistics	2006
<i>Kevin Do</i>	<u>Major:</u>	Sociology BS (2010)	2006 – 2010
<i>Rita Sodt</i>	<u>Major:</u>	Computer Science	2006 – Present
	<u>Awards:</u>	Mary Gates Fellow (2008, 2010) Levinson Emerging Scholars Award (2008) Goldwater Scholarship UW Nominee (2008) Amgen Scholar (2009) BS (2010)	
	<u>Currently:</u>	Graduate Student – Computer Science – Univ of Washington	
<i>Ivan Vulovic</i>	<u>Major:</u>	Computer Science	2006 – 2007
	<u>Currently:</u>	Microsoft	
<i>Julia Moore</i>	<u>Major:</u>	Molecular & Cellular Bio / Applied Math BS (2009)	2007 – 2009
	<u>Awards:</u>	Mary Gates Fellow Amgen Research Scholar NSF VIGRE Fellow Goldwater Scholar	
	<u>Currently:</u>	Graduate Student – Emory	
<i>Jennifer Hadley</i>	<u>Major:</u>	Bioengineering	2007
	<u>Awards:</u>	Amgen Research Scholar	
	<u>Currently:</u>	Medical Student at University of Alabama – Birmingham	
<i>Susan Massey</i>	<u>Major:</u>	Mathematics BS(2010)	2007 – Present
	<u>Awards:</u>	Amgen Research Scholar AMA Trjitzinsky Award Boeing/OMA Research Scholar McNair Scholar NSF VIGRE Graduate Fellow Individually awarded NSF Graduate Fellowship	
	<u>Currently:</u>	Graduate Student – Applied Mathematics – Univ of Washington	
<i>Shokouh Pardakhtim</i>	<u>Major:</u>	Mathematics / Pre-Med (2010)	2007 – 2010
	<u>Awards:</u>	STAR Scholar NSF VIGRE Fellow McNair Scholar	
<i>Jennifer Beers</i>	<u>Major:</u>	Post-Bac/Pre-Med (2010)	2007 – 2010
	<u>Currently:</u>	Medical Student at University of Washington School of Medicine	
<i>Chunyan Zhou</i>	<u>Major:</u>	Biology (2009)	2007 – 2009
	<u>Currently:</u>	Grad Student – Environmental Toxicology – Univ of Washington	
<i>Harkirat Sohi</i>	<u>Major:</u>	Applied Mathematics (MS, 2010)	2008 – 2009
	<u>Awards:</u>	NSF VIGRE Fellow NASA Research Grant	
<i>Brent Sandona</i>	<u>Major:</u>	Computer Engineering	2008 – 2010
<i>Brad Peterson</i>	<u>Major:</u>	Biochemistry	2008 – 2010
<i>Larissa Miller</i>	<u>Major:</u>	Pre-Bioengineering	2008 – 2009
<i>Amanda Ly</i>	<u>Major:</u>	Chemical Engineering	2008 – 2009
<i>Addie Boone</i>	<u>Major:</u>	Medical Anthropology/Biochemistry	2009 – Present
<i>Samantha Ryder</i>	<u>Major:</u>	Geography/ Pre-Med	2009
<i>Pratyusha Banik</i>	<u>Major:</u>	Biochemistry	2009
<i>Jin Stedje</i>	<u>Major:</u>	Applied Math & Music at MIT	2009
<i>Anne Baldock</i>	<u>Major:</u>	Neurobiology	2009 – Present
	<u>Currently:</u>	Research Scientist (Swanson Lab UW)	
<i>Liz Hanley</i>	<u>Major:</u>	Bioengineering	2009 – 2010
<i>Tyler Cloke</i>	<u>Major:</u>	Bioengineering	2009 – Present

<i>Zinnia Xu</i>	<u>Major:</u>	Bioengineering	2009 – 2010
<i>Kristin DeVleming</i>	<u>Major:</u>	Applied Computational Mathematical Sciences	2009
<i>Gina Tran</i>	<u>Major:</u>	Undeclared	2009
<i>Tyler Cloke</i>	<u>Major:</u>	Computer Science and Engineering	2009 – Present
<i>Greg Sterin</i>	<u>Major:</u>	Computer Science and Engineering	2010 – Present
<i>Christine Scullywest</i>	<u>Major:</u>	Premed	2010
<i>Misbah Uraizee</i>	<u>Major:</u>	Biology & Mathematics at Yale	2010
<i>Jason Uanon</i>	<u>Major:</u>	Mathematics/Computer Science and Engineering	2010 – Present
<i>Alex Kim</i>	<u>Major:</u>	Neurobiology	2010 – Present
<i>Sam Sussman</i>	<u>Major:</u>	Neurobiology	2010 – Present
<i>Dillon Eng</i>	<u>Major:</u>	Mechanical Engineering at Rice University	2010
<i>Jessica Forbes</i>	<u>Major:</u>	Mathematics at Carroll College	2010
<i>Theresa Kurtz</i>	<u>Awards:</u>	Amgen Research Summer Scholar	
	<u>Major:</u>	Neuroscience/Math at Rochester University	2011
<i>Evan Leon</i>	<u>Awards:</u>	Amgen Research Summer Scholar	
	<u>Major:</u>	Computer Science and Engineering	2011 – Present
<i>Jordan Lange</i>	<u>Awards:</u>	NASA Summer Research Scholar	
	<u>Major:</u>	Computer Science Engineering	2011 – Present
<i>Aaron Nash</i>	<u>Major:</u>	Computer Science Engineering	2011 – Present
<i>Kellie Fontes</i>	<u>Major:</u>		2011 – Present
<i>Chantal Murphy</i>	<u>Major:</u>		2011 – Present
<i>Michael Fisher</i>	<u>Major:</u>		2011 – Present

GRADUATE STUDENTS:

<i>Erin Stretton</i>	<u>Currently:</u>	PhD student - INRIA	MS (2005)
<i>Russell Rockne</i>	<u>Currently:</u>	Research Scientist Pathology & PhD student - UW	MS (2006) PhD (In Process)
<i>Jihyoun Jeon</i>	<u>Currently:</u>	Postdoctoral Fellow – Fred Hutchinson Cancer Center	PhD (2007)
<i>Jonathan Claridge</i>	<u>Awards:</u>	NSF VIGRE Graduate Fellow	2006 – 2007, PhD (2011)
<i>Gargi Chakraborty</i>	<u>Currently:</u>	Boeing Research Analyst	MS (2010)
<i>Elizabeth Addison-Smith</i>		External Reviewer for Queensland University of Technology	2010
<i>Misha Kutzman</i>			MS (2010)
<i>Susan Massey</i>	<u>Awards:</u>	NSF Graduate Fellow (Individually-awarded)	MS (2011) PhD (In Process)
<i>Sunyoung Ahn</i>	<u>Currently:</u>	Research Scientist (Swanson Lab)	MS (2011)
<i>David Corwin</i>	<u>Currently:</u>	Research Scientist (Swanson Lab)	MS (2011)

POSTDOCTORAL FELLOWS:

<i>Maxwell Neal</i>			2010 – Present
<i>Kirsten Fagnan</i>			2010 – Present
<i>Andrea Hawkins-Daarud</i>	<u>Awards:</u>	NSF Postdoctoral Fellow (Individually-awarded)	2011 – Present

MEDICAL STUDENTS AND RESIDENTS:

<i>H. Sawyer Gillespie</i>		Medicine Rotation and Research Project	2003 – 2004
<i>Andrew Trister</i>		Radiation Oncology Resident	2010 – Present