

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 personalize precision treatment choices and thus improve the lives of brain cancer patients. We achieve this through the development of patient-specific mathematical models ideally applied to routinely-acquired clinical or research imaging to generate accurate predictions of disease course and response to therapy in individual patients that can be used inform optimized 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, FRSE 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

Professor of Neurological Surgery	2012 — PRESENT
Vice Chair of Research, Neurological Surgery	
Member, Robert H. Lurie Comprehensive Cancer Center	
Member, Northwestern University Brain Tumor Institute	
Professor of Radiology	2014 — PRESENT
Member, Chemistry of Life Processes Institute	
Northwestern University Feinberg School of Medicine, Chicago, IL	
Professor of Engineering Sciences and Applied Mathematics	2013 — PRESENT
Northwestern University McCormick School of Engineering and Applied Sciences, Evanston, IL	
Affiliate Professor of Applied Mathematics	2012 -- PRESENT
Applied Mathematics, University of Washington, Seattle, WA	
James D. Murray Endowed Chair of Applied Mathematics in Neuropathology	2011 — 2012
Associate Research Professor of Pathology (Neuropathology)	2008 — 2012
Shaw Professorship in Investigative Neuropathology	2004 — 2005
Assistant Research Professor of Pathology (Neuropathology)	2002 — 2008
Pathology (Neuropathology), University of Washington School of Medicine	
Adjunct Associate Research Professor of Applied Mathematics	2008 — 2012
Adjunct Assistant Research Professor of Applied Mathematics	2002 — 2008
Applied Mathematics, University of Washington	
Affiliate Investigator of Computational Biology	2009 — PRESENT
Computational Biology Program, Fred Hutchinson Cancer Research Center	
Acting Instructor / Senior Fellow / NSF Postdoctoral Fellow	2000 — 2002
Pathology (Neuropathology) and Applied Mathematics, University of Washington, Seattle, WA	
NSF Mathematical Sciences Postdoctoral Fellow	1999 — 2000
Medicine, University of California, San Francisco, CA	

**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

- 8/5/2009 **NIH/NINDS R01 Research Grant** (PI) – R01 NS060752
- 7/31/2015 “Novel Tools for Evaluation and Prediction of Radiotherapy Response in Individual
(NCE) Glioma Patients”
Total Costs: \$1,647,115
PI: *K. R. Swanson*
- 9/1/2009 **NIH/NCI Physical Sciences Oncology Center** (PI Project 3) – U54 CA143970
- 8/31/2015 “The Physical Microenvironment in Cancer Biology and Therapy”
(NCE) *Project 3: “Clinical Imaging and the Tumor Physical Microenvironment”*
Total Costs: \$6,083,591, Project 3: \$913,706
PD: *R. Gatenby* (Moffitt Cancer Center)
PI of Project 3: *K. R. Swanson*
- 6/1/2011 **James S. McDonnell Foundation Collaborative Activity Award** (PI)
- 2/28/2015 “BONK: Predicting and Controlling Glioma Recurrence: The Role of Heterogeneity and
Microenvironment”
Total Costs: \$1,590,000
PI: *K. R. Swanson*, Co-PIs: *P. Canoll* (Columbia), *A. Anderson* (Moffitt)
- 9/30/2011 **NIH/NCI R01 Grant** (MPI) R01 CA16437
- 9/29/2016 “Patient-specific predictive modeling that integrates advanced cancer imaging”
MPIs: *K. R. Swanson*, *P. Kinahan* (Radiology, University of Washington)
Total Costs: \$4,497,606
- 7/1/2012 **NIH R01 Grant** (Consultant)
- 6/30/2017 “Convection-enhanced delivery in glioblastoma”
PI: *J. Bruce* (Neurosurgery, Columbia University)
- 9/15/2012 **NIH/NINDS R01 Grant** (Consultant) – R01 NS073610
- 8/31/2016 “Myosin II and Glioma Dispersion”
MPIs: *S. Rosenfeld* (Cleveland Clinic) & *P. Canoll* (Columbia University)
- 8/1/2013 **Supplement to NIH/NCI R01 Grant** (MPI) R01 CA16437
- 7/31/2016 “Patient-specific predictive modeling that integrates advanced cancer imaging”
MPIs: *K. R. Swanson*, *P. Kinahan* (Radiology, University of Washington)
Total Costs: ~\$500,000
- 1/1/2014 **Dixon Translational Research Grant** (MPI)
- 12/31/2014 “Predicting the Storm: Patient-Specific Mathematical Modeling of Pediatric High Grade
Gliomas to Determine Early Predictors of Response to Therapy”
Total Costs \$49,994
MPIs: *K. R. Swanson*, *S. Goldman* (Lurie Children’s Hospital)
- 9/1/2014 **NIH T32 Neuroscience of Human Cognition** (Mentor)
-8/31/2015 “Neural Capacity as Predictors of Cognition in Extreme Survivors of Glioblastoma
Multiforme”
MSTP Student: *C. Paula de los Angeles*
Co-Mentors: *L. Wang* (Psychiatry), *K. R. Swanson*
- 9/1/2014 **James S. McDonnell Foundation** (PI)
- 8/31/2017 “The ENDURES Study: Environmental Dynamics Underlying Responsive Extreme
Survivors of Glioblastoma”

Total Costs \$1,850,584
 PD: *K. R. Swanson*
 co-PIs: *P. Canoll (Columbia), R. Gatenby (Moffitt), K. Egan (Moffitt)*

PENDING RESEARCH FUNDING

- 7/1/2014 **Chicago Biomedical Consortium Catalyst Award Proposal (PI)**
 - 6/30/2016 “Predictive Modeling of Neural Stem Cell Based Virotherapy of Malignant Gliomas”
 co-PIs: *M. Lesniak (U Chicago), K. Swanson (Northwestern)*
- 4/1/2015 **NIH/NCI Physical Sciences Oncology Center (MPI of Project 2)**
 - 3/31/2020 “*Cancer as a complex adaptive system*”
Project 2: “Integrating large imaging data sets and mechanistic modeling for patient-specific treatment design”
 PD: *R. Gatenby (Moffitt Cancer Center)*
 MPI of Project 2: *K. R. Swanson*
- 4/1/2015 **NIH U01 (MPI)**
 - 3/31/2020 “Simulation-based, patient-specific response metric for clinical trials”
 MPIs: *K. R. Swanson (Contact), J. Razier, M. Mrugala (University of Washington)*
- 4/1/2015 **NIH Big Data to Knowledge Predoctoral Training Grant (co-investigator)**
 - 3/31/2020 “*Predoctoral Training in Biomedical Big Data Science*”
 PI: *J. Starren (Northwestern)*
- 6/1/2015 **Howard Hughes Medical Institute Investigator Applicant**
 - 5/30/2020 PI: *K. R. Swanson*
- 7/1/2015 **NIH R21 (PI)**
 - 6/31/2017 “Brain Metastasis Localization, Growth Patterns and Angiogenic Phenotype”
 PI: *K. R. Swanson*

PAST RESEARCH FUNDING

- 7/1/2012 **Phase II Irving Institute Grant for Collaborative and Multidisciplinary Pilot Research (CaMPR) (Consulting Investigator)**
 - 6/31/2013 “Improving imaging biomarkers for brain tumor resection.”
 MPIs: *E. Hillman, P. Canoll, G. McKhann (Columbia)*
 Total Costs: \$75,000
- 6/1/2011 **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)*
- 10/01/2009 **James S. McDonnell Foundation Planning Award (PI)**
 - 9/30/2012 “Brain Oncology Network of Knowledge (BONK)”
 Total Costs: \$50,000
 PI: *K. R. Swanson*
- 9/01/2010 **NIH/NINDS R56 Grant (Co-Investigator) – R56 NS066992**
 - 8/31/2012 “The Role of Myosin II in Glioma Invasion”
 Total Costs (UW subcontract): \$18,552
 MPIs: *S. Rosenfeld & P. Canoll (Columbia University)*
- 11/14/2011 **Planning Grants for Collaborative and Multidisciplinary Pilot Research (CaMPR) (Consulting Investigator)**
 - 3/14/2012 “Uncovering the hemodynamic signature of glioma with ultra-fast multispectral optimal imaging”
 MPIs: *E. Hillman, P. Canoll, G. McKhann (Columbia)*
 Total Costs: \$15,000
- 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"
Total Costs: \$58,766
PI: *K. R. Swanson*
- 1/1/10 **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 – 2012 **James. D. Murray Endowed Chair of Applied Mathematics in Neuropathology**
- 2011 **Best Abstract for Western Regional Society for Nuclear Medicine Annual Meeting**
- 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**

- “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
 Publication Date: October 29, 2013

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. Correlation of in vitro infiltration with glioma histological type in organotypic brain slices. *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**: Quantifying glioma cell 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**. A mathematical model for brain tumor response to radiation therapy. *Journal of Mathematical Biology*, 2008 doi:10.1007/s00285-008-0219-6
27. R. Rockne, E. C. Alvord, Jr, M. Szeto, S. Gu, G. Chakraborty, **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., ISBN 0817647120, Sept 25, 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 - **Top 3% of downloaded articles across all Institute of Physics Journals for 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*, 29(1): 31-48. doi:10.1093/imammb/dqr002
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*, 13(12):1262-4,2011 doi: 10.1093/neuonc/nor083
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*, 71(24):7366-7375, Dec 15, 2011 doi: 10.1158/0008-5472.CAN-11-1399
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*, 29(12):2005-17, Dec 2011
46. 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. *Molecular Biology of the Cell*, 23:533-42, Feb 2012, doi:10.1091/mbc.E11-01-0039
47. S. Massey, M. Assanah, K. Lopez, P. Canoll, **K. R. Swanson**. Progenitor cell recruitment drives aggressive glioma growth: mathematical and experimental modeling. *Journal of the Royal Society Interface*, 9(73):1757-66, Aug 2012 doi: 10.1098/rsif.2012.0030
48. R. Sodt, R. Rockne, M. L. Neal, I. Kalet, **K. R. Swanson**. Quantifying the role of anisotropic invasion in human glioblastoma. In: *Computational Surgery and Dual Training*, M Garbey, B. L. Bass, S. Berceci, C. Collet, P. Cerveri. (eds.), Springer New York, pp 315-329, 2014 ISBN: 978-1-4614-8647-3, doi: 10.1007/978-1-4614-8648-0_20
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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. A 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. J. Parker, K. Dionne, R. Massarwa, M. Klassen, L. Niswander, **K. R. Swanson**, P. Canoll, BK Kleinschmidt-DeMasters, A. Waziri. *Ex Vivo* Evaluation of Tumor Cell Migratory Characteristics in a Human Glioblastoma Slice Culture Model. Annual Meeting of the Society for Neuro-Oncology, 2011
82. 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
83. 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
84. 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
85. 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
86. M. L. Neal, R. Rockne, A.D. 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 Neuro-Oncology. 2011;13(suppl 3):iii76-iii84.
87. 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**
88. A. Hawkins-Daarud, R. Rockne, M. Muzi, S. Partridge, P. E. Kinahan, **K. R. Swanson**. Patient-Specific Untreated Virtual Imaging Controls for [18F]-FMISO PET imaging of Glioblastoma, University of Washington Medical Center, Seattle, WA. 2012 Annual Meeting of the Society for Nuclear Medicine (SNM)
89. R. Rockne, A. Hawkins-Daarud, M. Muzi, S. Partridge, P. E. Kinahan, **K. R. Swanson**. Predictive Simulation of MRI and FMISO-PET Imaging Changes During Anti-Angiogenic Therapy for Glioblastomas, University of Washington Medical Center, Seattle, WA. 2012 Annual Meeting of the Society for Nuclear Medicine (SNM)
90. P. E. Kinahan R. Rockne, A. Hawkins-Daarud, M. Muzi, S. Partridge, **K. R. Swanson**. Integrating models of cancer biology with advanced PET and MR imaging methods to assess response to therapy. IEEE International Symposium on Biomedical Imaging 2012 (Barcelona, Spain)
91. A. D. Trister, M. L. Neal, T. Cloke, A. L. Baldock, S. Ahn, M. M. Mrugala, J. K. Rockhill, R. Rockne, K. R. Swanson. A Novel Metric Of Patient-specific Response To Treatment For Glioblastoma Discriminates Patients With Pseudo-progression. American Society for Radiation Oncology (ASTRO) (Boston, MA)
92. S. K. Johnston, C. A. Bridge, R. Rockne, L. Guyman, A. Baldock, J. K. Rockhill, M. Mrugala, S. Adair, H-PP. Kiem, **K. R Swanson**. Enabling the Detection of Treatment Benefit in Novel Therapeutic Studies through Patient-Specific Mathematical Modeling: Analysis of

- Chemoprotective Hematopoietic Stem Cell Gene Therapy in Human Glioblastomas. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
93. M. L. Neal, A. D. Trister, S. Ahn, C. Bridge, J. Lange, A. Baldock, R. Rockne, M. Mrugala, J. K. Rockhill, A. Lai, T. Cloughesy, **K. R. Swanson**. A Response Metric Based on a Minimal Model of Glioblastoma Growth is Prognostic for Time to Progression and Overall Survival. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 94. A. Baldock, S. Ahn, R. Rockne, M. Neal, D. Corwin, K. Clark-Swanson, G. Sterin, A. D. Trister, H. Malone, V. Ebiana, A. M. Sonabend, M. Mrugala, J. K. Rockhill, D. L. Silbergeld, A. Lai, T. Cloughesy, G. M. McKhann, J. N. Bruce, R. Rostomily, P. Canoll, **K. R. Swanson**. Patient-specific invasiveness metric predicts benefit of resection in human gliomas. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 95. A. Hawkins-Daarud, R. Rockne, **K. R. Swanson**. Interpreting Intensity Modulation on T2/FLAIR Imaging of Gliomas: Deconvolving MR imaging changes from treatment effect through mathematical modeling. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 96. A. Hawkins-Daarud, A. Baldock, C. Bridge, D. Corwin, J. Rockhill, M. Mrugala, R. Rockne, **K. R. Swanson**. Revealing the diffuse extent of gliomas to enable surgical and radiotherapy treatment design: Insights from a Patient-Specific Mathematical Model and an Untreated Glioblastoma. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 97. A. L. Baldock, K. Yagle, S. Ahn, D. Born, P. Swanson, R. Rockne, **K. R. Swanson**. Invasion and Proliferation Kinetics Predict IDH-1 Mutation in Contrast-Enhancing Gliomas. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC) ***Platform Presentation**
 98. D. M. Corwin, C. Holdsworth, R. D. Stewart, R. Rockne, **K. R. Swanson**. Virtual clinical trials: Implications for spatially optimizing radiotherapy using a patient-specific model of glioma. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 99. D. M. Corwin, C. Holdsworth, R. D. Stewart, R. Rockne, **K. R. Swanson**. Reducing dose to normal tissue while improving tumor control in human glioblastomas using a patient-specific mathematical and radiotherapy optimization algorithm. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 100. A. Trister, B. Bot, K. Fontes, C. Bridge, J. K. Rockhill, M. Mrugala, R. Rockne, E. Huang, **K. R. Swanson**. A novel patient-specific model of glioma growth kinetics elucidates underlying biology as measured by gene expression microarray. Annual Meeting of the Society for Neuro-Oncology, 2012 (Washington, DC)
 101. A. Trister, B. Bot, A. Hawkins-Daarud, K. Fontes, C. Bridge, J. K. Rockhill, M. Mrugala, R. Rockne, E. Huang, **K. R. Swanson**. A novel patient-specific model of glioma growth kinetics elucidates underlying biology as measured by gene expression microarray. *Markers in Cancer*, October 11-13, 2012 (Hollywood, FL) ***Awarded 2012 Conquer Cancer Foundation of ASCO Merit Award**
 102. D. Corwin, C. Holdsworth, R. D. Stewart, M. Philips, R. Rockne, **K. R. Swanson**. Using patient-specific IMRT optimization and a mathematical model of glioma to improve tumor control and reduce normal tissue complications. Annual Meeting of the Radiation Research Society September 30 – October 4, 2012 (Puerto Rico)
 103. R. Rockne, M. Mrugala, J. K. Rockhill, **K. R. Swanson**. Patient-specific mathematical radiation oncology. Annual Meeting of the Radiation Research Society September 30 – October 4, 2012 (Puerto Rico)
 104. A. L. Baldock, K. Yagle, S. Ahn, D. Born, P. Swanson, R. Rockne, **K. R. Swanson**. Mathematical Model Predicts IDH-1 Mutation and Malignant Progression in Contrast-Enhancing Gliomas. Ninth AACR-Japanese Cancer Association Joint Conference: Breakthroughs in Basic and Translational Cancer Research, 21-26 February, 2013 (Maui, Hawaii)
 105. R. Rockne, A. D. Trister, M. Neal, K. Hendrickson, M. M. Mrugala, J. K. Rockhill, K. A. Krohn, **K. R. Swanson**. Quantifying Hypoxia-Modulated Radiation-Resistance in Human Glioblastomas *In Vivo*. Ninth AACR-Japanese Cancer Association Joint Conference: Breakthroughs in Basic and Translational Cancer Research, 21-26 February, 2013 (Maui, Hawaii)

106. D. Corwin, C. Holdsworth, R. D. Stewart, R. Rockne, **K. R. Swanson**. A patient-specific, mathematical approach to optimizing IMRT dose plans for glioblastoma. Feinberg School of Medicine Research Day, April 2013 (Chicago, IL)
107. J. E. Adair, B. C. Beard, S. K. Johnston, M. Mrugala, R. C. Rockne, **K. R. Swanson**, H-P. Kiem. Improved chemotherapy efficacy after MGMT(P140K) hematopoietic stem cell gene therapy in poor-prognosis glioblastoma revealed by patient-specific mathematical modeling. American Society of Gene and Cell Therapy, 15-18 May 2013 (Salt Lake City, UT) – *Oral Presentation*
108. D. Corwin, C. Holdsworth, R. Rockne, R. D. Stewart, M. Phillips, **K. R. Swanson**. Optimizing radiotherapy for Glioblastoma using a patient-specific mathematical model. Annual meeting of the American Association of Physicists in Medicine (AAPM), August 2013 (Indianapolis, IN)
109. D. Corwin, C. Holdsworth, R. D. Stewart, A. Hawkins-Daarud, M. Phillips, R. Rockne, **K. R. Swanson**. A patient-specific model for IMRT optimization is robust to uncertainty in data collection and radiobiological parameters. Annual Meeting of the Radiation Research Society (RRS), September 2013 (New Orleans, LA)
110. D. Corwin, C. Holdsworth, R. Rockne, M. Phillips, **K. R. Swanson**. Combining mathematics, biology and physics to generate patient-specific, biologically optimized IMRT plans for glioblastoma. Horizons 2013 Joint AAPM-PSOC Annual Meeting, November 2013 (Bethesda, MD)
111. S. K. Johnston, J. E. Adair, C A. Bridge, L. Guyman, A. Hawkins-Daarud, R. C. Rockne, A. Baldock, J. K. Rockhill, M. M. Mrugala, B. C. Beard, H.-Pr. Kiem, **K. R. Swanson** Patient-specific mathematical modeling as a precision-medicine approach to evaluating therapeutic gains of a novel chemoprotection treatment in newly-diagnosed glioblastoma. Abstract #111972, American Society for Clinical Oncology (ASCO), 2013 (Chicago, IL)
112. A. L. Baldock, R. C. Rockne, S. Ahn, M. Neal, D. Corwin, K. Clark-Swanson, G. Sterin, A. D. Trister, H. Malone, A. Sonabend, M. M. Mrugala, J. K. Rockhill, D. L. Silbergeld, A. Lai, T. F. Cloughesy, G. McKhann, J. N. Bruce, R. Rostomily, P. Canoll, **K. R. Swanson**. Patient-specific biomathematical model predicts benefit of resection in human gliomas. Abstract #116930, American Society for Clinical Oncology (ASCO), 2013 (Chicago, IL)
113. D. Corwin, R. C. Rockne, M. M. Mrugala, J. K. Rockhill, **K. R. Swanson**. Training and validation cohort analysis for predicting radiation therapy response in human glioblastoma. Abstract #117018, American Society for Clinical Oncology (ASCO), 2013 (Chicago, IL)
114. A. Hawkins-Daarud, R. C. Rockne, P. Kinahan, M. Muzi, A. Alessio, K. A. Krohn, **K. R. Swanson**. Quantifying the impact of anti-angiogenic therapy on hypoxia and implications for radiation therapy in glioblastoma multiforme with a biomathematical model. Abstract #118015, , American Society for Clinical Oncology (ASCO), 2013 (Chicago, IL)
115. PR Jackson, A Hawkins-Daarud, R Rockne, R Gatenby, R Gillies, A Anderson, **KR Swanson**: Connecting MR Physics to Glioma Microenvironment: Simulating T2 MR signal intensity based on model predicted tumor associated vasogenic edema In: 4th Annual PS-OCs Network Investigators' Meeting; 2013; Scottsdale, AZ, USA.
116. PR Jackson, A Hawkins-Daarud, R Rockne, R Gatenby, R Gillies, A Anderson, **KR Swanson**: Connecting MR Physics to Glioma Microenvironment: Simulating T2 MR signal intensity based on model predicted tumor associated vasogenic edema In: Feinberg School of Medicine Research Day; 2013; Chicago, IL, USA.
117. A. Baldock, K. Yagle, S. Ahn, D. Born, P. Swanson, R. Rockne, **K. R. Swanson**. "Invasion and Proliferation Kinetics Predict IDH-1 Mutation in Contrast-Enhancing Gliomas," Feinberg School of Medicine Research Day, April 2013.
118. A. Baldock, S. Anh, R. Rockne, M. Neal, D. Corwin, K. Clark-Swanson, G. Sterin, A. D. Trister, H. Malone, V. Ebiana, A. M. Sonabend, M. Mrugala, J. K. Rockhill, D. L. Silbergeld, A. Lai, T. Cloughesy, G. M. McKhann, J. N. Bruce, R. Rostomily, P. Canoll, **K. R Swanson**. "Patient-Specific Biomathematical Model Predicts Benefit of Resection in Human Gliomas," Feinberg School of Medicine Research Day, April 2013.
119. P. Kumthekar, C. A. Bridge, V. Patel, A. Rademaker, I. Helenowski, M. M. Mrugala, J. K. Rockhill, S. Grimm, **K. R. Swanson**, J. Raizer. A Retrospective Study of Outcomes in Older Patients with Low-grade Gliomas. Annual Meeting of the Society for Neuro-Oncology, 2013 (San Francisco, CA)

120. R. Rockne, A. Hawkins-Daarud, J. Jacobs, C. Bridge, M. M. Mrugala, J. K. Rockhill, **K. R. Swanson**. Why aren't all medial gliomas bilateral? Annual Meeting of the Society for Neuro-Oncology, 2013 (San Francisco, CA)
121. C. A. Bridge, A. L. Baldock, P. Kumthekar, P. Dilfer, S. K. Johnston, J. Jacobs, D. Corwin, L. Guyman, R. Rockne, A. Sonabend, M. Cloney, P. Canoll, **K. R. Swanson**. Characteristics of Long-term Survivors in Glioblastoma. Annual Meeting of the Society for Neuro-Oncology, 2013 (San Francisco, CA)
122. A. Hawkins-Daarud, P. Jackson, **K. R. Swanson**. Elucidating Glioblastoma Regional Edema and Hypoxia Changes Induced by Anti-angiogenic Treatment through Mathematical Modeling Combined with Clinical Imaging. Annual Meeting of the Society for Neuro-Oncology, 2013 (San Francisco, CA)
123. PR Jackson, A Hawkins-Daarud, R Rockne, A. Anderson, **K.R. Swanson**. Connecting MRI Physics to Glioma Microenvironment: Exploring Modeling Schemes for Capturing Expanding Extracellular Space and its Impact on a Simulated T2-weighted MRI. In: Horizons 2013: Connecting AAPM & PS-OCs; 2013; Bethesda, MD, USA
124. A. Hawkins-Daarud, R. Rockne, A.R.A. Anderson, and **K.R. Swanson**. Modeling tumor-associated edema in gliomas during anti-angiogenic therapy and its impact on imageable tumor. Feinberg School of Medicine Research Day; 2013; Chicago, IL, USA.
125. A. Hawkins-Daarud, R. Rockne, and **K.R. Swanson**. Combining Mathematics and Biology to Create a New Weapon in the Fight Against Brain Cancer. Conference in Honor of Thomas Thompson and Kenneth Wiggins; 2013; Walla Walla, WA, USA.
126. A. Hawkins-Daarud, R. Rockne, J. Jacobs, and **K.R. Swanson**. The role of necrosis in inferring patient-specific glioblastoma growth kinetics. PSOC Site Visit; 2013; Tampa, FL, USA.
127. J. E. Adair, M. Mrugala, B. E. Storer, S. K. Johnston, **K. R. Swanson**, H-P Kiem. MGMT(P140K) Hematopoietic Stem Cell Gene Therapy Enhances Tolerance and Efficacy of Temozolomide in Combination with O6-benzylguaninein Glioblastom Patients. Annual Meeting of American Society of Gene and Cell Therapy, 2014 ***Platform Presentation**
128. R. Rockne, D. Corwin, **K. R. Swanson**. A Data-Driven Calibration of a Nolinear Mechanistic Model for DNA Damage and Repair: Applications to Radiosurgery and Heavy Ion Irradiation Treatment for Glioblastoma. European Conference on Mathematical and Theoretical Biology, Gothenburg, Sweden, June 2014 – Invited Minisymposium
129. **K. R. Swanson**. Mathematical Neuro-Oncology: Translating Patient-Specific Mathematical Modeling of Brain Tumors to Clinical Care, European Conference on Mathematical and Theoretical Biology, Gothenburg, Sweden, June 2014 – Invited Minisymposium
130. A. Hawkins-Daarud, **K. R. Swanson**. Quantifying Changes in Glioma Biology with Treatment using Modeling of Edema Formation and Clinical Imaging, European Conference on Mathematical and Theoretical Biology, Gothenburg, Sweden, June 2014 – Invited Minisymposium
131. R. C. Rockne, I. Bacchus, C. Bridge, P. D. Brown. D. Corwin, B. Desair, K. Hendrickson, M. Kim, E. Kokkinos, M. P. Mehta, M. Marymont, J. K. Rockhill, A. Rosenberg, A. D. Trister, C. K. Williams, R. Williamson, L. Young, **K. R. Swanson**. An Evaluation of Multi-Insitutional Data-Tranfer to Facilitate Personalized Computational Modeling. American Society for Theoretical and Radiation Oncology (ASTRO) 56th Annual Meeting. San Francisco, CA September 14-16, 2014
132. PR Jackson, A Hawkins-Daarud, R Rockne, A. Anderson, **K.R. Swanson**. Connecting MRI Physics to Glioma Microenvironment: Exploring Modeling Schemes for Capturing Expanding Extracellular Space and its Impact on a Simulated T2-weighted MRI. In: 5th Annual PS-OCs Network Investigators' Meeting; 2014; Bethesda, MD, USA
133. **K. R. Swanson**. Engineering a Parallel Universe: Simulating Patient-Specific Virtual Controls to Predict and Optimize Cancer Therapy. IEEE Engineering in Medicine and Biology Society, Chicago, IL, August 26-30, 2014 – Invited Miniymposium Speaker
134. B .Desai, R. Rockne, C. Bridge, D. Corwin, I. Helenowski, E. Kokkinos, C. Peters, A. Rosenberg, D. Scharfman, V. Gondi, **K. R. Swanson**. Application of a growth-rate based response metric to recurrent malignant gliomas treated with large-volume re-irradiation using proton beam therapy. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)

135. J. Juliano, R. C. Rockne, A. J. Hawkins-Daarud, P. Jackson, S. K. Johnston, J. Jacobs, E. Kokkinos, A. Rosenberg, J. Crisman, C. Peters, D. Sharfman, M. Sondag, S. Badhe, M. Lester, T. Gallagher, P. Kumthekar, **K. R. Swanson**. Growth Kinetics of Contrast Enhancing Gliomas Associate Invasive Growth with Seizure Presentation. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL) – Platform Presentation
136. A. Hawkins-Daarud, R. Rockne, **K. R. Swanson**. *In Silico* Analysis of AVAglio and RTOG 0825 Phase III Clinical Trials Suggests Signatures of Patients to Receive Benefit from Combined Bevacizumab and Radiation Therapies Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)
137. J. Jacobs, A. J. Hawkins-Daruud, S. K. Johnston, R. C. Rockne, **K. R. Swanson**. Improved Anatomical Model Prediction of Glioma Growth Utilizing Tissue-Specific Boundary Effects. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)
138. R. Rockne, D. Corwin, B. Desai, A. Hawkins-Daarud, **K. R. Swanson**. Conducting virtual clinical trials to evaluate hypofractionated radiotherapy for newly diagnosed glioblastoma. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)
139. J. Juliano#, O. Gil#, A. Hawkins-Daarud, R. C. Rockne, J. Gallaher, S. Massey, A. R. A. Anderson, P. Canoll*, **K. R. Swanson***. Dynamic Evidence of Tumor Induced Microglia Activation at the Infiltrative Margins of Glioma. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)
140. B. M. Desai, R. C. Rockne, A. W. Rademaker, W. F. Hartsell, P. Sweeney, J. J. Raizer, N. Paleologos, R. Merrell, S. Grimm, S. Azeem, D. Corwin, **K. R. Swanson**, V. Gondi. Overall survival (OS) and toxicity outcomes following large-volume re-irradiation using proton therapy (PT) for recurrent glioma. Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)
141. V Gondi, B. M. Desai, R. Rockne., A. Rademaker, **K. R. Swanson**. Outcomes following large-volume re-irradiation using proton therapy for recurrent malignant glioma Particle Therapy Oncology Group North America (PTCOG-NA), Oct 27-29, 2014 (Houston, TX)

INVITED LECTURES AND OTHER CONTRIBUTED PRESENTATIONS

- 2015 Invited Plenary Speaker – Glioblastoma Multiforme (Toledo, Spain)
Invited Speaker – Mathematical Biosciences Institute Workshop on Stem Cells, Development and Cancer (Columbus, OH)
- 2014 Invited Seminar – Engineering in Medicine and Biology Conference (Chicago, IL)
Invited Speaker – Learning for Life Series (Chicago, IL)
Invited Speaker – Brain Tumor Patient and Caregiver Forum (Chicago, IL)
TEDx Invited Speaker – TEDx at University of Chicago (Chicago, IL)
Invited Speaker – ECOG ACRIN Brain Tumor Working Group (Chicago, IL)
Invited Seminar – Bioengineering (Northwestern University)
Plenary Invited Speaker – Society for Industrial and Applied Mathematics in Life Sciences Annual Meeting (Raleigh, North Carolina)
Invited Minisymposium Lecture (x2) – European Society for Mathematical and Theoretical Biology (Gothenburg, Sweden)
Invited Speaker – Northwestern University Graduate School (Evanston, IL)
Invited Minisymposium Speaker - IEEE Engineering in Medicine and Biology Society (Chicago, IL)
Invited Speaker – Evolution of Resistance in Cancer (Kavli Institute of Theoretical Physics, Santa Barbara, CA)
- 2013 Invited Seminar – Mathematical Biology Research Training Group (Duke University)
Visiting Professor – Neurosurgery (Dartmouth – Hitchcock Medical Center, Lebanon, NH)
Invited Seminar – Princess Margaret Cancer Centre Radiation Medicine Program (Ontario Cancer Institute)
Invited Symposium Lecture – 2nd Gray Institute Symposium (Oxford, UK)
Invited Symposium Lecture – Mathways in Cancer II (Sevilla, Spain)
Invited Seminar – Consortium for Computational Oncology, University of Southern California (Los Angeles, CA)

- Invited Seminar – Engineering and Applies Sciences Seminar Series (Northwestern University, Evanston, IL)
- Invited Seminar – Tumor Biology Seminar Series (Lurie Cancer Center, Chicago, IL)
- Invited Seminar – Center for Translational Imaging (Northwestern University, Chicago, IL)
- Invited Minisymposium Lecture – Mathematical Models for Cancer and Therapy (Annual Meeting of the Society for Mathematical Biology, Tempe, AZ)
- Invited Seminar – Faculty & Fellows Research Conference
Anne & Robert Lurie Children's Hospital of Chicago (Chicago, IL)
- 2012 Invited Symposium Lecture – Radiation Research Society (Puerto Rico)
- Invited Symposium Lecture – James S McDonnell Foundation Meeting: Envisioning the Future Through a Retrospective Lens: Lessons from 15 Years of JSMF Support for Brain Cancer Research (Houston, TX)
- Invited Lecture – Eastern North American Region (ENAR) of the International Biometric Society (Washington, DC)
- Invited Seminar – Bioengineering Department Seminar (Columbia University)
- Visiting Professor – Information Sciences in Imaging, Radiology (Stanford, Palo Alto, CA)
- Invited Lecture – Northwestern University Brain Tumor Institute (Chicago, IL)
- Invited Symposium Lecture – Rice University's Innovations in Cellular Systems Biology (Houston, TX)
- 2011 Invited Lecture – Investigative Workshop Solid Tumor Modeling: Biological, Computational and Clinical Challenges (National Institute for Mathematical and Biological Synthesis – NimBIOS, Knoxville, TN)
- 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)
- Visiting Professor – 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 Visiting Professor – 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)
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 Hutchison 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)
 COSINE Society for Computational Surgery

ACADEMIC SERVICE

INTERNATIONAL

- Grant Reviewer, Royal College of Surgeons in Ireland** 2014
Grant Reviewer, Swiss National Science Foundation 2014
Grant Reviewer, French Aix-Marseille Excellence Initiative, A*MIDEX 2013
Member, Ontario Cancer Institute 4th Investigator Award Retention and Promotion Committee
 Toronto, Canada 2013
Grant Reviewer, Italian Association for Cancer Research (AIRC) 2011
Grant Reviewer, French Insitut National du Cancer 2010
Grant Reviewer, French National Research Agency (ANR) 2009
Board of Directors, The Society for Mathematical Biology 2007-2010
Scientific Committee, Mathematics and Medicine Workshop FEBRUARY 2009
 CIRM, Marseilles (Luminy), France
Scientific Committee, Annual Meeting of the Society for Mathematical Biology 2008
 Toronto, Canada
**Grant Reviewer, National Natural Sciences and Engineering Research Council
 of Canada (NSERC)** 2006, 2013
Organizing Committee, MITACS/CMM Cancer Modeling Workshop OCTOBER 2005
 Workshop on Growth and Control of Tumours - Current Problems and Future Challenges
 BIRS, Banff, Canada

NATIONAL

- Workshop Organizer, Mathematical Biosciences Institute** 2015
 Treatment, Clinical Trials and Resistance
Abstract Reviewer for Annual Meeting of the Society for Neuro-Oncology 2014
Workshop Organizer, Mathematical Biosciences Institute 2014
 Integrating Modalities and Scales in Life Science Imaging
Abstract Reviewer for Annual Meeting of the American Association of Physics in Medicine 2014
 Science Council
Grant Review Panelist, National Cancer Institute Study Section 2014

Bridging the Gap Between Cancer Mechanism and Population Science
Advisory Board, James S. McDonnell Foundation Mathematical and Complex Systems Approaches to Brain Cancer Program 2012 - PRESENT
External Scientific Advisory Board, Moffitt Cancer Center pre-SPORE 2012 - PRESENT
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
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
Scientific Advisory Board, Vanderbilt University component of NCI's Tumor Microenvironment Network (TMEN) 2007-2011
 Vanderbilt University, Nashville, Tennessee
Chair and Organizer, Modeling Cancer and Angiogenesis Workshop 2008-2009
 Mathematical Biosciences Institute, Ohio State University
Panelist, National Science Foundation Grant Review Panel 2006
Chair, Mathematical Oncology Symposium FEBRUARY 2005
 AAAS Annual Meeting, Washington, DC
LOCAL
MSTP Admissions Committee Member 2014-Present
Abstract Reviewer, Feinberg School of Medicine Research Day 2014
Search Committee for Director of Robert H. Lurie Cancer Center 2014
Grant Reviewer, American Cancer Society Institutional Research Grant Allotment 2013
Elected Member, Council on Research and Graduate Education 2007-2010
 University of Washington School of Medicine
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:**

Acta Biotheoretica

Acta Neuropathologica

Applied Mathematics Letters

Bulletin of Mathematical Biology

Cancer Detection and Prevention

Cancer Letters

Cancer Research

Clinical Cancer Research

Computer Vision and Image Understanding

Cell Proliferation

Journal of Clinical Oncology

Journal of Nonlinear Science

Journal of the Royal Society Interface

Journal of Theoretical Biology

Journal of Theoretical Medicine

Mathematics in Medicine and Biology

Mathematical Biosciences

Medical Image Analysis

Microvascular Research

Nature Reviews Cancer

Nonlinear Dynamics, Psychology and Life Sciences

Physical Review E

PLOS Computational Biology

PLOS One

Scientific Reports

Transactions on Medical Imaging

Editorial Board Member for:

Journal of Computational Surgery

Frontiers in Computational Physiology and Medicine

Frontiers in Molecular and Cellular Oncology

IN THE NEWS**Model Predicts Better Outcomes for Brain Tumors with Gene Mutation**

August 2014, Northwestern Feinberg School of Medicine News

http://www.feinberg.northwestern.edu/news/2014/08/Swanson_IDH1_mutation.html**Every Cancer Patient Deserves Their Own Equation**

April 2014 TEDxUChicago Speaker

<http://www.tedxchicago.com/Kristin-Swanson><https://www.youtube.com/watch?v=9nmsSo2Qbls>**Tumor Simulations Offer Insight into Treatment Options**

November 2013, Northwestern Feinberg School of Medicine News

http://www.feinberg.northwestern.edu/news/2013/11/swanson_%20glioblastoma.html**Study of brain tumor adds up to better treatment**February 2013 *Chicago Tribune Article*<http://www.chicagotribune.com/health/ct-x-brain-tumors-20130213,0,7841206.story>**Forecasting Brain Tumors**January 2013 *WGN TV* – Medical Watch segment<http://wgntv.com/2013/01/30/forecasting-brain-tumors/>**Forecasting Brain Tumors Like a Storm**January 2013 *Eureka Alert* press release (1.6 millions hits on google)http://www.eurekaalert.org/pub_releases/2013-01/nu-fbt011813.php<http://www.sciencedaily.com/releases/2013/01/130123195254.htm>**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 HagertyNovember 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/UWMCConsultFall08_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>

TEACHING SUMMARY

UNDERGRADUATE

Bioengineering Research/Capstone Design (BIOEN 480)

Co-supervised bioengineering senior on capstone project: Winter 2005, Spring 2005

Research Mentoring (AMATH 499, PATH 499 or CSE 499)

Average of 3 students per quarter (8 credit hours per quarter) since 2003

Undergraduate Mathematical Sciences Seminar (Math 498)

Contributed 1 hour lecture: Winter 2005, Winter 2010

GRADUATE

Bioengineering Seminar Series (BIOEN 501):

Contributed 1 hour lecture Spring 2004

Applied Math Seminar Series (AMATH 501):

Regular contributions since 2003

Neuroanatomic Pathology (PATH 571, MSTP Course)

Contributed 1.5 hour lecture Spring 2005

Environmental Pathology (PATH 555):

Contributed 2 hour lecture Spring 2005

Modeling and Computation in the Biomedical Sciences Proseminar (PATH 501)

Course director and designer - 10 weekly hour long lectures – Spring 2007

Virtual Human Research Seminar

Contributed 1 hour lecture Spring 2007

Pathology Presents Graduate Seminar (PATH 520)
 Contributed 1 hour lecture – Winter 2009, Summer 2009
 Cellular Biology (PATH 507)
 Contributed 1 hour lecture Winter 2010
 Northwestern Engineering Sciences and Applied Mathematics
 Colloquium: Contributed 1 hr lecture 4Feb2013

MEDICAL STUDENT/RESIDENT

UW Neurosurgery Grand Rounds: Regular contributions since 2003
 UW Neuropathology Research in Progress: Regular contributions since 2003
 UW Neuropathology Journal Club: Regular contributions since 2003
 UW/FHCRC Imaging Sciences Research Seminar (Radiology)
 Contributed 1 hour lecture Fall 2010
 UW Independent Study in Medical Science (HUBIO 599) Spring 2004
 UW Pathology Resident Didactics – *Intro to Biostatistics*
 Designed mini-course and contributed 4 one hour lectures - Winter 2005
 Northwestern Neurological Surgery
 Resident Lecture: Contributed 1 hr lecture
 Academic Day: Contributed 1 hr lecture 15Mar2013
 Northwestern Lurie Cancer Center TRIST
 Tumor Biology Seminar Series: Contributed 1 hr lecture 31Jan2013
 Anne & Robert Lurie Children's Hospital of Chicago
 Faculty & Fellows Research Conference: Contributed 1 hr lecture 25Jun2013

STUDENT SUPERVISION AND MENTORING**HIGH SCHOOL STUDENTS:**

<i>Mahlet Assefa</i>	High School Student – Graduated 2010 Awards: NIH STEP-UP Fellow Currently: Undergraduate Student – Yale University	2008 – 2010
<i>Tyler Rockhill</i>	High School Student – Graduated 2011 Currently: Undergraduate Student – University of Portland	2009 – 2011
<i>April Baldock</i>	High School Student	2011 – 2012
<i>Simon Ricci</i>	Latin High School , Chicago, IL	2014

UNDERGRADUATE STUDENTS:

<i>Carly A. Bridge</i>	Major: Neurobiology Awards: Mary Gates Fellow Currently: ND, 2009 – Bastyr; Clinical-Science Liason, Novocure, Inc	2001 – 2004
<i>Hana L. P. Harpold</i>	Major: Bioengineering Currently: MD, 2010 - University of Washington Pediatrician, Chicago, IL	2003 – 2007
<i>Sariah Khormae</i>	Major: Neurobiology Awards: Mary Gates Fellow UW Presidential Scholar Currently: Marshall Scholar MD/PhD student at Cambridge University	2003 – 2005
<i>Stephanie Nissen</i>	Major: Bioengineering Awards: Mary Gates Fellow Currently: Graduate Student – Genetics – UCSD	2003 – 2004
<i>Patrick Reed</i>	Major: Biochemistry & Applied Math Awards: Mary Gates Fellow Currently: Graduate Student – University of Chicago	2004 – 2007
<i>Melissa Cowan</i>	Major: Applied Mathematics Awards: Mary Gates Fellow Currently: Graduate Student – Electrical Engineering – UW	2004 – 2005
<i>Nikhil Joshi</i>	Major: Bioengineering	2004 – 2006
<i>Gargi Chakraborty</i>	Major: Biochemistry & Neurobiology	2005 – 2010

	<u>Awards:</u>	Mary Gates Fellow Research for Advanced Undergraduates Fellow NSF VIGRE Fellow MS, Applied Mathematics, 2010 – University of Washington
<i>Courtney Mitchell</i>	<u>Currently:</u>	Software Developer at Boeing
<i>Danielle Peacock</i>	<u>Major:</u>	Applied Mathematics 2005 – 2005
	<u>Major:</u>	Biochemistry 2005 – 2006
	<u>Currently:</u>	PhD (2014), University of Tennessee Health Sciences Center Postdoctoral Fellow, NIH
<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 – 2010
	<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>Currently:</u>	MSTP Student at U Colorado Denver
	<u>Major:</u>	Bioengineering 2006 – 2010
	<u>Awards:</u>	Mary Gates Fellow NSF VIGRE Undergraduate Research Fellow (2008, 2009) MS Bioengineering (2010)
<i>Huo Shin John Tsui</i>	<u>Currently:</u>	Scientist at Pfizer
<i>Kevin Do</i>	<u>Major:</u>	Biostatistics 2006
<i>Rita Sodt</i>	<u>Major:</u>	Sociology BS (2010) 2006 – 2010
	<u>Major:</u>	Computer Science 2006 – 2011
	<u>Awards:</u>	Mary Gates Fellow (2008, 2010) Levinson Emerging Scholars Award (2008) Goldwater Scholarship UW Nominee (2008) Amgen Scholar (2009) BS (2010), MS (2011)
<i>Ivan Vulovic</i>	<u>Currently:</u>	Developer at Google
	<u>Major:</u>	Computer Science 2006 – 2007
<i>Julia Moore</i>	<u>Currently:</u>	Microsoft
	<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
<i>Jennifer Hadley</i>	<u>Currently:</u>	Graduate Student – UC Davis
	<u>Major:</u>	Bioengineering 2007
	<u>Awards:</u>	Amgen Research Scholar
<i>Susan Massey</i>	<u>Currently:</u>	Medical Student at University of Alabama – Birmingham
	<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
<i>Shokouh Pardakhtim</i>	<u>Currently:</u>	Graduate Student – Applied Mathematics – Univ of Washington
	<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 – 2011
	<u>Currently:</u>	Medical Student at Northwestern University School of Medicine	
<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 – 2013
	<u>Currently:</u>	MSTP Student at UCSD	
<i>Liz Hanley</i>	<u>Major:</u>	Bioengineering	2009 – 2010
<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 – 2011
<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
<i>Alex Kim</i>	<u>Major:</u>	Neurobiology	2010 – 2012
<i>Sam Sussman</i>	<u>Major:</u>	Neurobiology	2010 – 2012
<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
	<u>Awards:</u>	Amgen Research Summer Scholar	
<i>Theresa Kurtz</i>	<u>Major:</u>	Neuroscience/Math at Rochester University	2011
	<u>Awards:</u>	Amgen Research Summer Scholar	
<i>Evan Leon</i>	<u>Major:</u>	Computer Science and Engineering	2011 – 2012
	<u>Awards:</u>	NASA Summer Research Scholar	
<i>Jordan Lange</i>	<u>Major:</u>	Computer Science Engineering	2011 – 2012
<i>Aaron Nash</i>	<u>Major:</u>	Computer Science Engineering	2011 – 2012
<i>Kellie Fontes</i>	<u>Major:</u>		2011 – 2012
<i>Chantal Murphy</i>	<u>Major:</u>		2011 – 2012
<i>Michael Fisher</i>	<u>Major:</u>		2011 – 2012
<i>Joseph Juliano</i>	<u>Major:</u>	Math and Molecular Biology, Arizona State University	2012 – 2014
	<u>Currently:</u>	Medical Student at U of Southern California	
<i>Fillan Grady</i>		Northwestern University Student	2013 - Present
<i>William Clark</i>		Loyola University Student	2013
<i>Joe Crispin</i>		Loyola University Student	2014
<i>Danielle Scharfman</i>		University of Wisconsin Student	2014

GRADUATE STUDENTS:

<i>Erin Stretton</i>	<u>Currently:</u>	Scientist (Philips)	MS (2005)
<i>Russell Rockne</i>	<u>Currently:</u>	Research Associate (Swanson Lab)	MS (2006), PhD (2013)
<i>Jihyoun Jeon</i>	<u>Currently:</u>	Research Scientist (Fred Hutchinson Cancer Center)	PhD (2007)
<i>Jonathan Claridge</i>	<u>Awards:</u>	NSF VIGRE Graduate Fellow	2006 – 2007
	<u>Currently:</u>	Google	PhD (2011)
<i>Gargi Chakraborty</i>	<u>Currently:</u>	Boeing Research Analyst	MS (2010)
<i>Misha Kutzman</i>	<u>Currently:</u>	Director of Math Immersion	MS (2010)

<i>Susan Massey</i>	<u>Awards:</u> NSF Graduate Fellow (Individually-awarded)	MS (2011)
	<u>Currently:</u> Graduate Student	PhD (2010 - Present)
<i>Sunyoung Ahn</i>	<u>Currently:</u> Research Scientist (Harvard)	MS (2011)
<i>David Corwin</i>	<u>Currently:</u> Developer at Launchpad Lab	MS (2011)
<i>Keith Curtis</i>		MS (2012)
<i>Dillon Eng</i>		MS (2012)
<i>Josh Jacobs</i>	<u>Currently:</u> Research Scientist (Swanson Lab)	PhD (2012)
<i>Mark Harmon</i>	<u>Currently:</u> Graduate Student at Northwestern	2013
<i>C. Paula de los Angeles</i>	<u>Currently:</u> MSTP Student at Northwestern	
	<u>Awards:</u> Human Cognition Training Grant (T32)	2013 - Present

POSTDOCTORAL FELLOWS:

<i>Maxwell Neal, PhD</i>	<u>Currently:</u> Research Scientist, Henry M. Jackson Foundation	2010 – 2012
<i>Kirsten Fagnan, PhD</i>	<u>Currently:</u> Research Scientist, Lawrence Berkeley Labs	2010 – 2011
<i>Andrew Trister, MD, PhD</i>	<u>Currently:</u> Postdoctoral Fellow, Sage Bionetworks	2010 – 2012
<i>Andrea Hawkins-Daarud, PhD</i>	<u>Awards:</u> NSF Postdoctoral Fellow	2011 – Present
<i>Pamela Jackson, PhD</i>		2013 – Present
<i>Russell Rockne, PhD</i>		2013 – Present

MEDICAL STUDENTS:

<i>H. Sawyer Gillespie</i>	UW Medical Student	2003 – 2004
<i>C. Paula de los Angeles</i>	NU MSTP (MD/PhD) Student	2013 – Present
<i>Paul Dilfer</i>	University of Illinois, Chicago	2013 – Present
<i>Corbin Rayfield</i>	University of Illinois, Chicago	2015 - Present

MEDICAL RESIDENTS:

<i>Andrew Trister, MD, PhD</i>	UW Radiation Oncology Resident	2010 – 2012
<i>Omar Arnaout, MD</i>	NU Neurological Surgery Resident	2013 – Present
<i>Brijal Desai, MD</i>	NU Radiation Oncology Resident	2013 – Present
<i>Rohan Lall, MD</i>	NU Neurological Surgery Resident	2013 – Present

JUNIOR FACULTY:

<i>Priya Kumethkar, MD</i>	Assistant Professor, Northwestern University	2012 – Present
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