CURRICULUM VITAE

NAME	POSITION TITLE
Russell Rockne rockne@uw.edu	University of Washington Department of Pathology Research Scientist III

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	YEAR(s)	FIELD OF STUDY
University of Colorado, Boulder, CO	BS	2002	Mathematics
University of Washington, Seattle, WA	MS	2006	Mathematical Biology
University of Washington, Seattle, WA	PhD	In Progress	Mathematical Biology

Professional Experience

2006-present Research Scientist, Pathology & Applied Mathematics, University of Washington, Seattle, WA
2002-2004 Instructor, Edmonds Community College, Mercer Island private high school, WA

Memberships

European Society for Theoretical and Mathematical Biology (ESTMB)
Society of Mathematical Biology (SMB)
Society of Industrial and Applied Mathematics (SIAM)
Society for Neuro-Oncology (SNO)
Society for Nuclear Medicine (SNM)
American Mathematical Society (AMS)
Radiation Research Society (RRS)

Awards

Robert's prize nominee

Top 10 paper of the year for Physics in Medicine and Biology 2011

Rockne, R, Rockhill JK, Mrugala M, Spence AM, Kalet I, Hendrickson K, Lai A, Cloughsey T, Alvord EC Jr., Swanson KR: Predicting the efficacy of radiotherapy in individual glioblastoma patients *in vivo*: a mathematical modeling approach. *Physics in Medicine and Biology*, **55**: 3271-3285 2010. PubMed ID: 20484781

Best Abstract 2011

36th Annual Western Regional Society for Nuclear Medicine

Rockne R, Champley K, Alessio A, Muzi M, Krohn KA, Kinahan PE, Swanson KR. Patient-specific simulations allow prediction of hypoxia and [18F]FMISO-PET in human glioblastoma. Seattle, WA

Clinical research paper of the year 2009

Swanson KR, Chakraborty G, Wang CH, **Rockne R**, Harpold HLP, Muzi M, Anderson TCH, Krohn KA, Spence AM: Complimentary but Distinct Roles for MRI and 18F-Fluoromisonidazole PET in the Assessment of Human Glioblastomas. *Journal of Nuclear Medicine*, **50**: 36-44 2009. PubMed ID: 19091885

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

A mathematical model for brain tumor response to radiation therapy. 2006, Master's (MS) Degree in Applied Mathematics, University of Washington, Seattle, WA. Advisor: Kristin R. Swanson

Articles - Peer Reviewed

1. **Rockne R**, Alvord EC Jr., Rockhill J K, Swanson K R: A mathematical model for brain tumor response to radiation therapy. *Journal of Mathematical Biology*, Special Issue on Computational Oncology, 2009 **58**(4-5):561-78
   PubMed ID**:** 18815786

2. **Rockne R**, Alvord E C Jr., Reed P, Swanson K R: Modeling the growth and invasion of gliomas, from simple to complex: the Goldie Locks paradigm. BIOMAT 2007 International Symposium on Mathematical and Computational Biology. Ed. Mondaini R. 2008 World Scientific

3. Swanson K R, Harpold H L P, Peacock D L, **Rockne R**, Pennington C, Kilbride L, Grant R, Wardlaw J, Alvord E C, Jr. Velocity of Radial Expansion of Contrast-Enhancing Gliomas and Effectiveness of Radiotherapy in Individual Patients: A Proof of Principle. *Clinical Oncology,* 2008 20: 301-308
   PubMed ID**:** 18308523

4. Swanson KR, Chakraborty G, Wang CH, **Rockne R**, Harpold HLP, Muzi M, Anderson TCH, Krohn KA, Spence AM: Complimentary but Distinct Roles for MRI and 18F-Fluoromisonidazole PET in the Assessment of Human Glioblastomas. *Journal of Nuclear Medicine*, 2009 **50**: 36-44.
   PubMed ID**:** 19091885

5. Szeto MD, Chakraborty G, Hadley J, **Rockne R**, Muzi M, Alvord E C Jr., Krohn K, Spence A M, Swanson K R: Quantitative Metrics of Net Proliferation and Invasion Link Biological Aggressiveness Assessed by MRI with Hypoxia Assessed by FMISO-PET in Newly Diagnosed Glioblastomas. *Cancer Research*, 2009 **69**(10):4502-9
   PubMed ID**:** 19934335

6. Wang C, Rockhill JK, Mrugala M, Peacock DL, Lai A, Jusenius K, Wardlaw JM, Cloughesy T, Spence AM, **Rockne R**, Alvord EC Jr., Swanson KR: Prognostic significance of growth kinetics in newly diagnosed glioblastomas revealed by combining serial imaging with a novel bio-mathematical model. *Cancer Research,* 2009 **69**(23): 9133-9140
   PubMed ID**:** 19366800

7. Assefa M, **Rockne R**, Szeto M, Swanson KR. Mathematical Modeling of Glioma Proliferation and Diffusion. *Ethnicity and Disease*, 2009 **19**:2, Supplement 3
   PubMed ID**:** 19554787

8. Swanson KR, Chakraborty G, Wang CH, **Rockne R**, Harpold HLP, Muzi M, Anderson TCH, Krohn KA, Spence AM: Complimentary but Distinct Roles for MRI and 18F-Fluoromisonidazole PET in the Assessment of Human Glioblastomas. *Journal of Nuclear Medicine*, 2009 **50**: 36-44.
   PubMed ID**:** 19091885 - ***Awarded Journal of Nuclear Medicine Best Clinical Investigation of 2009***

9. **Rockne, R**, Rockhill JK, Mrugala M, Spence AM, Kalet I, Hendrickson K, Lai A, Cloughsey T, Alvord EC Jr., Swanson KR: Predicting the efficacy of radiotherapy in individual glioblastoma patients *in vivo*: a mathematical modeling approach. *Physics in Medicine and Biology*, 2010 **55**: 3271-3285.
   PubMed ID**:** 20484781 - ***Awarded Top 10 Best Publication in PMB for 2010;***
   Finalist for Roberts' Prize from Institute of Physics and Engineering in Medicine

10. Basanta D, Scott JG, **Rockne R,** Swanson KR, Anderson ARA: The role of IDH1 mutated tumor cells in secondary glioblastomas: an evolutionary game theoretical view. *Physical Biology***. 8**(2011)
    PubMed ID**:** 21301070 - ***Top 3% of downloaded articles across all Institute of Physics Journals for 2011***

11. Bohman LE, Swanson KR, Moore JL, **Rockne R**, Mandigo C, Hankinson T, Assanah M, Canoll P, Bruce JN. Preoperative MRI Characteristics of Glioblastoma Multiforme: Implications for Understanding Glioma Ontogeny. *Neurosurgery,* 67(5):1319-27, 2010
PubMed ID: 20871424

12. Gu S, Chakraborty G, Champley K, Alessio A, Claridge J, **Rockne R**, Muzi M, Krohn KA, Spence AM, Alvord EC Jr., Anderson ARA, Kinahan P, Swanson KR. Applying A Patient-Specific Bio-Mathematical Model of Glioma Growth to Develop Virtual [18F]-FMISO PET Images. *Mathematics in Medicine and Biology* 2011 Article DOI: 10.1093/imammb/dqr002 In: Computation modeling in cancer special double issue: IMA Mathematical Medicine and Biology. Ed. Rejniak K, Anderson ARA.
PubMed ID: 21562060

13. Swanson KR, **Rockne R**, Claridge J, Chaplain MA, Alvord EC Jr., Anderson ARA. Quantifying the role of angiogenesis in malignant progression of gliomas: *In silico* modeling integrates imaging and histology. Cancer Res. 71(24):7366-75, 2011
PubMed ID: 21900399

14. Baldock A, **Rockne R**, Boone A, Neal M, Mrugala M M, Rockhill J K, Swanson K R. Patient-specific mathematical neuro-oncology: Predicting prognosis and treatment response in individual glioblastoma patients. *Expert Reviews in Neurotheraputics*. *Submitted*

15. Sodt R, **Rockne R**, Neal M L, Kalet I, Swanson K R. Quantifying the role of antisotropic invasion in human glioblastoma. *Accepted – in press*

16. Alvord E C, Jr., **Rockne R**, Rockhill J K, Mrugala M M, Rostomily R, Lai A, Cloughessy T, Wardlaw J M, Spence A M, Swanson K R. Know thy enemy: Paradoxes to be exploited in the war against glioblastoma. *Submitted*

17. Neal M L, Cloke T, Sodt R, Baldock A L, Trister A D, Boone A, Ahn S, Cloughesy T, Lai A, Mrugala M M, Rockhill J K, **Rockne R**, Swanson K R. Predicting survival using metrics of treatment response tuned to patient-specific glioblastoma kinetics. *Submitted*

18. Baldock A L, Ahn S, **Rockne R**, Neal M, Corwin D, Malone H, Ebaina V, Sonabend A, Mrugala M M, Rockhill J K, Rostomily R, Silbergeld D L, Lai A, Cloughesy T, McKhann G, Bruce J, Canoll P, . Swanson K R. Patient-specific metrics of invasiveness reveal significant. *Submitted*

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. A. Hawkins-Daarud, E. C. Alvord, Jr, K. R. Swanson. 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. J. Hadlock, C. Murthy, **R. Rockne,** 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
5. A. L. Baldock, K. Yagle, J. Scott, A. Trister, M. Mrugala, **R. Rockne**, K. R. Swanson. Quantifying the Distinctive Growth Patterns of IDH1-mutated Gliomas

6. A. L. Baldock, **R. Rockne**, P. Canoll, D. Born, K. Yagle, K. R. Swanson. Cystic Gliomas are Quantitatively Less Biologically Aggressive.

Contributed Works

1. **Rockne R**, Alvord EC Jr., Szeto M, Gu S, Chakraborty G, Swanson KR: Modeling Diffusely Invading Brain Tumors: An Individualized Approach to Quantifying Glioma Evolution and Response to Therapy. In: Selected Topics in Cancer Modeling: Genesis, Evolution, Immune Competition, and Therapy. Ed. Bellomo N, Chaplain M, de Angelis E. Birkhauser, Boston MA. 2008 ISBN-13 13 978-0817647124

2. Chakraborty G, Sodt R, Massey S, Gu S, **Rockne R**, Alvord EC Jr., Swanson KR. Bridging from Multi-scale Modeling to Practical Clinical Applications in the Study of Human Gliomas. In: Multiscale Cancer Modeling. Ed. Deisboeck T, Stamatakos G. CRC Press. ISBN-10 1439814406

Abstracts

1. Swanson KR, Chakraborty G, **Rockne R**, Wang C, Peacock DL, Muzi M, Alvord EC Jr., Krohn K, Spence AM. 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 - J Nucl Med. 2007; 48 (Supplement 2):151P
2. Swanson KR, **Rockne R**, Rockhill JK, Alvord EC Jr.: Mathematical modeling of radiotherapy in individual glioma patients: quantifying and predicting response to radiation therapy. American Association of Cancer Researchers Annual Meeting. Los Angeles, CA, 2007 (AACR)
3. Swanson KR, **Rockne R**, Rockhill JK, Alvord EC Jr.: Combining mathematical modeling with serial MR imaging to quantify and predict response to radiation therapy in individual glioma patient. Annual Meeting of the Society for Neuro-Oncology. Dallas, TX, 2007 (SNO)
4. **Rockne R**, Swanson KR. Predicting efficacy of radiotherapy in individual glioma patients in vivo: a pilot study. European Society for Mathematical and Theoretical Biology Annual Meeting, Edinburgh, Scotland 2008 (ECMTB)
5. **Rockne R**, Moore JL, Swanson KR. Three-dimensional simulation of glioma growth and response to radiation therapy: a case study. Society for Mathematical Biology Annual Meeting, Toronto, Canada, 2008 (SMB)
6. 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***
7. G Chakraborty, S Gu, **R Rockne**, KR 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 2009 (SMB).
8. **Rockne R**, Swanson KR. 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 2009 (SMB)
9. Gu S, Chakraborty G, **Rockne R**, Swanson KR. 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 2009 (SMB)
10. Boone A, **Rockne R**, Mrugala MM, Rockhill JK, Alvord EC Jr., Swanson KR. 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 2009.

11. Szeto M, **Rockne R**, Swanson KR. 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 2009 (SMB)
12. Simon M, **Rockne R**, Swanson KR. 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 2009 (SMB)
13. Sodt R, **Rockne R**, Swanson KR, Kalet I. 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, 2009 (SMB)
14. Swanson KR, Gu S, Chakraborty G, Champley K, Alessio A, Claridge J, **Rockne R**, Muzi M, Krohn K A, Spence A M, Alvord E C Jr., Anderson A R A, Kinahan P. In silico PET imaging: From anatomic glioma growth dynamics to metabolic tumor activity via bio-mathematical modeling. Annual meeting of the Society for Neuro-Oncology. Montreal, Quebec, Canada, 2010. Oxford University Press. Neuro-Oncology **12**(sup IV) 118
15. Boone A E, **Rockne R**, Mrugala M M, Swanson K R. Pre-treatment glioblastoma proliferation and invasion kinetics: A mechanism to predict pseudoprogression. Annual meeting of the Society for Neuro-Oncology. Montreal, Quebec, Canada, 2010. Oxford University Press. Neuro-Oncology **12**(sup IV) 118
16. **Rockne R**, Mrugala M M, Rockhill J K, Swanson K R. Predicting spatial patterns of tumor recurrence following radiation therapy: A hybrid clinical imaging and mathematical modeling approach. Annual meeting of the Society for Neuro-Oncology. Montreal, Quebec, Canada, 2010. Oxford University Press. Neuro-Oncology **12**(sup IV) 111
17. **Rockne R,** Swanson K R. Predicting response to radiation therapy and personalized medicine. National Institute for Mathematical and Biological Synthesis, Mathematical Oncology Workshop, 2011 (NIMBioS).
18. **Rockne R**, Massey S, Mrugala M M, Anderson A R A, Swanson K R. Response to anti-angiogenic therapy in human brain tumors: the role of the microenvironment and heterogeneity. European Society for Mathematical and Theoretical Biology Tri-Annual Meeting, Krakow, Poland, 2011 (ECMTB)
19. Swanson K R, Boone A E, **Rockne R,** Mrugala M M. Predicting pseudoprogression in glioblastoma patients: A mathematical and clinical perspective. European Society for Mathematical and Theoretical Biology Tri-Annual Meeting, Krakow, Poland, 2011 (ECMTB)
20. **Rockne R**, Rockhill J K, Mrugala M M, Swanson K R. Patient-specific virtual radiation oncology: predicting and quantifying treatment response in individual glioblastoma patients. Annual meeting of the American Association of Physicists in Medicine. Vancouver British Columbia, Canada, 2011 (AAPM)
21. **Rockne R**, Massey S, Mrugala M M, Anderson A R A, Swanson K R. Response to anti-angiogenic therapy in human brain tumors: the role of the microenvironment and heterogeneity. Casablanca International Workshop in Mathematical Biology: Analysis and Control. Casablanca, Morocco, 2011
22. Swanson K R, Gu S, Chakraborty G, Champley K, Alessio A, **Rockne R**, Muzi M, Krohn K A, Kinahan P. 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, 2011 (SNM) ***– Platform Presentation***
23. Holdsworth C H, Corwin D, Stewart R D, **Rockne R**, Swanson K R, Phillips M. Biologically Optimized 4D Dose Distributions for the Treatment of Incurable Glioblastoma. Annual Meeting of American Association of Physicists in Medicine, 2011 (AAPM)
24. **Rockne R,** Rockhill J K, Mrugala M, Swanson K R. Patient-specific virtual radiation oncology: predicting and quantifying treatment response in individual glioblastoma patients. Annual Meeting of American Association of Physicists in Medicine, 2011 (AAPM)

25. **Rockne R**, Massey S, Reddell N, LeVeque R J, Swanson K R. Differential chemotaxis of tumor cells in murine gliomas. The 7th International Congress of Industrial and Applied Mathematics, Vancouver British Columbia, Canada, 2011 (ICIAM)
26. Baldock A, **Rockne R**, Pardakhtim S, Hawkins-Daarud A, Swanson K R. Quantification of uncertainty in a patient-specific model for brain tumor growth. The 7th International Congress of Industrial and Applied Mathematics, Vancouver British Columbia, Canada, 2011 (ICIAM)
27. D. Corwin, C.H. Holdsworth, **R. Rockne**, R.D. Stewart, M. Phillips, K.R. Swanson. Variability in Glioblastoma Behavior and Optimal Radiation Therapy Dose Distributions. The 7th International Congress of Industrial and Applied Mathematics, Vancouver British Columbia, Canada, 2011 (ICIAM)
28. **Rockne R,** Rockhill J K, Mrugala M, Swanson K R. 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, 2011 (AACR)
29. Swanson K R, **Rockne R**, Holdsworth C H, Corwin D, Stewart R D, Phillips M. 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, 2011 (RSNA)
30. Alvord E C, Jr., **Rockne R**, Rockhill J K, Mrugala M M, Rostomily R, Lai A, Cloughesy T, Wardlaw J M, Spence A M, Swanson K R. Know thy enemy: Paradoxes to be exploited in glioblastoma. Annual Meeting of the Society for Neuro-Oncology, 2011 (SNO)
31. **Rockne R**, Anderson A R A, Swanson K R. 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 (SNO)
32. Corwin D, Holdsworth C H, Stewart R D, **Rockne R**, Swanson K R. 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 (SNO)
33. Baldock A, **Rockne R**, Canoll P, Born D, Yagle K, Swanson K R. Cystic Gliomas are Quantitatively Less Biologically Aggressive. Annual Meeting of the Society for Neuro-Oncology, 2011 (SNO)
34. Neal M L, **Rockne R**, Trister A, Swanson K R. Predicting outcomes following therapy for glioblastoma using response metrics from patient-specific, 3D tumor models. Annual Meeting of the Society for Neuro-Oncology, 2011 (SNO)
35. **Rockne R**, Champley K, Alessio A, Muzi M, Krohn K A, Kinahan P E, Swanson K R. 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, 2011 (WRSNM)***
36. 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)
37. **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)
38. 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)
39. 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)

40. 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)

41. 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)

42. 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)

43. 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)

44. 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)

45. 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)

46. 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)

47. 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)

48. 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)

49. 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)

50. 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)

51. **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)

Invited Lectures and Other Contributed Presentations

2012 Invited Symposium Lecture – Society for Industrial and Applied Mathematics, Life Sciences 2012 (San Diego, CA)

2011 Contributed Talk – ESMTB European Society for Mathematical and Theoretical Biology Krakow, Poland
Contributed Talk – NIMBioS National Institute for Mathematical and Biological Synthesis, Knoxville, TN

2009 Contributed Talk – SMB Society of Mathematical Biology Vancouver British Columbia CA

2008 Contributed Talk – ESMTB European Society for Mathematical and Theoretical Biology Edinburgh Scotland UK
Contributed Talk – SMB Society of Mathematical Biology Toronto Ontario CA
Contributed Talk – VICBC Vanderbilt Integrative Cancer Biology Center Toronto Ontario CA

Workshops

1. VICBC Vanderbilt Integrative Cancer Biology Center 2008 Toronto Ontario CA

2. MBI Mathematical Biosciences Institute Workshop 2009 Cancer Development, Angiogenesis, Progression and Invasion Columbus, OH

Graduate Course Work

Applied Linear Analysis, Numerical Methods, Mathematical Ecology, Mathematical Biology, Stochastic Methods, Scientific Computing, Advanced Methods for ODEs, PDEs, Finite Volume Methods, Fluid Mechanics, Optimization, Biomedical Imaging & Contrast Agents, Perturbations and Asymptotic Analysis

Current Research Support

7/01/2009 **NIH R01**
- 6/30/2014 "Novel Tools for Evaluation and Prediction of Radiotherapy Response in Individual Glioma Patients"
PI: *Swanson K R*

9/01/2009 **NIH/NCI Physical Sciences Oncology Center (U54)**
- 8/31/2014 "Integrative Mathematical Oncology"
PD: *Gatenby R* (Moffitt Cancer Center), PI: *Swanson K R*

6/01/2011 **James S. McDonnell Foundation Collaborative Activity Award**
- 5/31/2014 "BONK: Predicting and Controlling Glioma Recurrence: The Role of Heterogeneity and Microenvironment"
MPIs: *Swanson K R , Canoll P (Columbia), Anderson A R A (Moffitt)*

9/27/2011 **NIH R01**
- 9/31/2016 "UVIC: Untreated virtual imaging control"
MPIs: *Swanson K R , Kinahan P*