
CURRICULUM VITAE

RUSSELL ROCKNE

Russell.Rockne@northwestern.edu

POSITION TITLE

Post-doctoral Researcher
Northwestern University
Department of Neurological Surgery

EDUCATION/TRAINING

| INSTITUTION AND LOCATION | DEGREE | YEAR(s) | FIELD OF STUDY |
|---------------------------------------|-------------------------|-------------------|-----------------------|
| University of Colorado, Boulder, CO | BS | 2002 | Mathematics, Fine Art |
| University of Washington, Seattle, WA | MS | 2006 | Applied Mathematics |
| University of Washington, Seattle, WA | PhD | 2013 | Mathematical Biology |
| Northwestern University, Chicago, IL | Post Doc. Researcher | 2013 - present | Mathematical Oncology |

A. Personal Statement

My research is based on patient-specific (PS) mathematical models of cancer growth and response to therapy. Specifically, I consider how routine and advanced clinical data can be used to parameterize PS models that can provide biological insight and clinically relevant predictions of individual disease behavior. My dissertation established a framework for PS modeling of tumor growth and response to radiation therapy with MRI and PET data. My research approach uses mathematics to connect data from multiple modalities and scales, with a focus on imaging data.

My research goal is to test the general hypothesis that patient-specific mathematical models can quantify and predict disease dynamics and recurrence resulting from therapy *in vivo*, in individual patients. To this end, I have already made significant contributions to PS model parameterization and prediction, with patented algorithms as well as first and senior author level peer reviewed publications. More broadly, my research career aims towards further biological validations and clinical applications of PS mathematical models of tumor growth and response to therapy using routine and novel imaging as well as tissue and molecular data. I have received 2 national awards for 1st author research works, been awarded one patent, published 13 research articles and produced 51 conference abstracts all during the course of my Ph.D. Research works which include me as an author have been cited over 520 times with an h-index of 10 calculated with Google scholar.

Research Management and Grant Writing Experience

In addition to my own research, I have over 7 years of experience managing the day to day activities of over \$1 million in direct cost annual research funding with my PhD mentor Dr. Kristin Swanson as the PI.

- I have supervised research staff and students at all levels from undergraduate to post-doctoral fellows
- I establish scientific goals and milestones in accordance with grant directives and reporting deadlines
- I present research to domestic and international biomedical and mathematical societies
- I have contributed to all aspects of grant preparation including budget, budget justification, specific aims, research plan, facilities and resources and all NIH required sections. I also have experience with private foundations, as well as R01, U54, U01, R21, DP5 and K award grant mechanisms
- I have designed and implemented data analysis and workflow systems
- I have authored IRB protocols, renewals and modifications for prospective and retrospective studies
- I organize the Mathematical Neuro-Oncology lecture series – including identifying and inviting speakers

B. Positions and Honors

Positions and Employment

2013-present Post-doctoral Research Associate, Neurological Surgery, Northwestern University, Chicago, IL
2012-2013 Research Associate, Neurological Surgery, Northwestern University, Chicago, IL
2006-2012 Research Scientist, Pathology & Applied Mathematics, University of Washington, Seattle, WA
2002-2004 Mathematics Instructor, Edmonds Community College, Mercer Island private high school, WA

Other Experience and Professional Memberships

European Society for Theoretical and Mathematical Biology (ESTMB)

Society of Mathematical Biology (SMB)

**I am the editor for the graduate student and postdoc column in the SMB society newsletter*

Society of Industrial and Applied Mathematics (SIAM)

Society for Neuro-Oncology (SNO)

Society of Nuclear Medicine and Molecular Imaging (SNMMI)

American Mathematical Society (AMS)

Radiation Research Society (RRS)

**I am currently under consideration for an organizational role in the Scholars in Training (SIT) for RRS*

American Association for Cancer Research (AACR)

Mathematical Neuro-Oncology Lecture Series – Organizer

2015

Thomas Yankeelov – Cancer Imaging Research, Vanderbilt University

March

2014

Kit Curtius – Applied Mathematics, University of Washington

December

Natalia Komarova – Mathematics, University of California Irvine

November

Olivia Kelada – Therapeutic Radiology, Yale University

October

Alex Fletcher – Center for Mathematical Biology, Oxford University

September

Philipp Altrock – Biostatistics and Computational Biology, Harvard/Dana Farber

August

Bruce Ayati – Applied Mathematical and Computational Sciences, University of Iowa

August

Jasmine Foo, Kevin Leder – Mathematics, Industrial Engineering, Univ. Minnesota

July

Jacob Scott MD – Radiation Oncology Moffitt Cancer Center

April

Paul Macklin – Center for Applied Molecular Medicine, Univ. of Southern California

March

Awards and Honors

Named the “[Future of Mathematical Biology](#)”

2014

This is a semi-annual feature in the Society for Mathematical Biology newsletter

Landahl Student Travel Award

2013

Society for Mathematical Biology (SMB) Annual Meeting

Phoenix Arizona

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

Landahl Student Travel Award

2008

European Society for Theoretical and Mathematical Biology (ESMTB) Annual Meeting

Edinburgh Scotland

Patents Awarded

“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

US Patent No. 8,571,844

Issue date: 10-29-2013

C. Peer-reviewed Publication and Patent Citations

523 citations; h-index 10; i-10 index; 12 (as of 12/4/2014)

6 First author, 17 contributing author, 4 more senior author (Baldock 2014, Neal 2013a,b Jackson 2014)

1. **Rockne R C**, Trister A D, Neal M L, Hendrickson K, Mrugala M M, Rockhill J K, Krohn K, Swanson K R. A patient-specific computational model of hypoxia-modulated radiation-resistance in glioblastoma using 18F-FMISO PET. **Accepted – in press** *Journal of the Royal Society – Interface* 2014
2. Jackson P, Juliano J, Hawkins-Daarud A J, **Rockne R C**, Swanson K R. Using patient-specific mathematical neuro-oncology to go from the median to the individual patient. **Accepted – in press** *Bull. Math Biol.* 2014
3. Baldock, A L, Ahn, S, **Rockne, R C**, Johnston, S, Neal, M, ..., Swanson, K R. Patient-specific metrics of invasiveness reveal significant prognostic benefit of resection in a predictable subset of gliomas. *PloS One*, 9(10), e99057, 2014. doi:10.1371/journal.pone.0099057
4. Adair J, Johnston S K, Beard B C, Guyman L A, Baldock A L, Bridge C A, Hawkins-Daarud A J, Gori J L, Born D E, Gonzalez-Cuyar L F, Rockhill J K, Silbergeld D L, Mrugala M M, **Rockne R C**, Storer B E, Swanson K R, Kiem H-P. Gene therapy enhances chemotherapy tolerance and efficacy in glioblastoma patients. *Journal of Clinical Investigation*. doi:10.1172/JCI76739 2014.
5. Baldock A, Yagle K, Born D E, Ahn S, Trister A D, Neal M, Johnston S K, Bridge C A, Basanta D, Scott J, Malone H, Sonabend A M, Canoll P, Mrugala M M, Rockhill J K, **Rockne R C**, Swanson K R. Invasion and proliferation kinetics in enhancing gliomas predict IDH1 mutation status. *Neuro-Oncology* 16(6), 779-786, 2014 PMID: 24832620 PMCID: PMC4022227
***Cover of this issue with editorial feature**
6. Corwin D, Holdsworth C, **Rockne R C**, Trister A D, Mrugala M M, Rockhill J K, Stewart R D, Phillips M, Swanson K R. Patient-specific, biologically optimized IMRT plans for the treatment of glioblastoma. *Plos One* doi: 10.1371/journal.pone.0079115, Nov 2013 PMID: 24265748. PMCID: PMC3827144.
7. Hawkins-Daarud A J, **Rockne R C**, Anderson A R A, Swanson K R. Modeling tumor-associated edema in gliomas during anti-angiogenic therapy and its impact on imageable tumor. *Frontiers in Molecular and Cellular Oncology*. doi: 10.3389/fonc.2013.00066, Mar 2013 PMID: 23577324. PMCID: PMC3616256. ***Ranked as #1 Paper in this journal – May 2013**
8. Baldock A, **Rockne R**, Boone A, Neal M, Bridge C, Guyman L, Hawkins-Daarud H, Corwin D, Mrugala M M, Rockhill J K, Swanson K R. From Patient-Specific Mathematical Neuro-Oncology to Precision Medicine. *Frontiers in Molecular and Cellular Oncology*. doi: 10.3389/fonc.2013.00062, Mar 2013 PMID: 23565501. PMCID: PMC3613895. ***Ranked as #3 Paper in this journal – May 2014**
9. Neal M L, Trister A D, Ahn S, Baldock A L, Bridge C A, Guyman L, Lange J, Sodt R, Cloke T, Lai A, Cloughesy T, Mrugala M M, Rockhill J K, **Rockne R C**, Swanson K R. Response classification based on a minimal model of glioblastoma growth is prognostic for clinical outcomes and distinguishes progression from pseudoprogression. *Can. Res.*, 3588 Feb 2013 PMCID: PMC3740772.
10. Neal M L, Trister A D, Cloke T, Sodt R, Ahn S, Baldock A L, Bridge C, Lai A, Cloughesy T, Mrugala M, Rockhill J K, **Rockne R C**, Swanson K R. Discriminating survival outcomes in patients with glioblastoma using a simulation-based, patient-specific response metric. 8(1): e51951 *PLOS One*, Jan 2013 PMID: 23372647. PMCID: PMC3553125.
11. **Patent** “Method and system for characterizing tumors” K. R. Swanson. E. C. Alvord, Jr., J. D. Murray, **R. Rockne** US Patent No. 8,571,844 Issue date: 10-29-2013

12. Holdsworth C, Corwin D, Stewart R D, **Rockne R C**, Trister A D, Swanson K R, Philips M. Adaptive IMRT using a multiobjective evolutionary algorithm integrated with a diffusion-invasion model of glioblastoma. *Phys. Med. Biol.*, 57(24):8271-83, Nov 2012 PMID: 23190554. PMCID: PMC3544300.
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. *Can. Res.* 71(24):7366-75, 2011 PMID: 21900399. PMCID: PMC3398690.
14. **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. *Phys. Med. Biol.*, 2010 55: 3271-3285. PMID: 20484781. PMCID: PMC3786554. - **Awarded Top 10 Best Publication in PMB for 2010; Finalist for Roberts' Prize from Institute of Physics and Engineering in Medicine**
15. 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. *Can. Res.*, 2009 69(23): 9133-9140 PMID: 19366800. PMCID: PMC3760276.
16. 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. *Can. Res.*, 2009 69(10):4502-9 PMID: 19934335. PMCID: PMC3467150.
17. **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 PMID: 18815786. PMCID: PMC3784027.
18. 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. *Clin. Oncol.*, 2008 20: 301-308 PMID: 18308523.
19. 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. PMID: 19091885 - **Awarded Journal of Nuclear Medicine Best Clinical Investigation of 2009**
20. Assefa M, **Rockne R**, Szeto M, Swanson KR. Mathematical Modeling of Glioma Proliferation and Diffusion. *Ethnicity and Disease*, 2009 19:2, Supplement 3 60-1 PMID: 19554787
21. 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) PMID: 21301070 - **Top 3% of downloaded articles in Institute of Physics Journals for 2011**
22. 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 PMID: 20871424
23. 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 DOI: 10.1093/imammb/dqr002 In: Computation modeling in cancer special double issue: IMA Mathematical Medicine and Biology. Ed. Rejniak K, Anderson ARA. PMID: 21562060
24. Sodt R, **Rockne R**, Neal M L, Kalet I, Swanson K R. Quantifying the role of anisotropic invasion in human glioblastoma. In: Computational Surgery and Dual Training, M Garbey, B. L. Bass, S. Berceli, 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

Manuscripts in Final Preparation or Under Review (4 first author)

1. Hawkins-Daarud A J, **Rockne R**, Corwin D, Johnston S, Swanson K R. Virtual gliomas reveal heterogeneous response to combination therapies: anti-angiogenics, radiation and resection. **Submitted – in review.**
2. **Rockne R C**, Hawkins-Daarud A J, Rosenberg A, Johnston S K, Peters C, Crisman J, Sharfman D, Lifchitz A, Gonzalez-Cuyar L, Swanson K R. Mathematical model of glioblastoma predicts reduced proliferation rate following chemo-radiation. **In final preparation**
3. **Rockne R C**, Corwin D, Hawkins-Daarud A, Scott J, Trister A D, Swanson K R. Hitting the target: virtualizing clinical trials to improve the efficacy of clinical cancer therapy investigations. **In final preparation**
4. **Rockne R C**, Juliano J, Hawkins-Daarud A J, Rosenberg A, Badhe S, Sondag M, Lester M, Gallagher T, Kumthekar P, Swanson K R. Mathematical model predicts increased invasion as a mechanism for presentation of seizure in contrast-enhancing gliomas. **In final preparation**
5. **Rockne R C**, Carlson D, Swanson K R, Stewart R. Predicting high LET and dose rate effects from a repair misrepair fixation (RMF) nonlinear mechanistic model of DNA damage and repair. **In prep.**
6. Juliano J, Gil O, Hawkins-Daarud A J, **Rockne R C**, Gallaher J, Massey S, Anderson A R A, Swanson K R, Canoll P. Dynamic evidence for microglial activation in glioma invasion. **In final preparation**
7. Massey S, **Rockne R C**, Canoll P, Swanson K R. Differential chemotaxis of tumor cells to platelet-derived growth factor in murine gliomas.

Contributed Works and Books

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. **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. 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

Theses

A Mathematical Model for Brain Tumor Response to Radiation Therapy
Master's Degree in Applied Mathematics, University of Washington, Seattle, WA, 2006.
Advisor: Kristin R. Swanson

Patient-Specific Mathematical Radiation Oncology
Doctoral Degree in Applied Mathematics, University of Washington, Seattle, WA, 2013.
Advisor: Kristin R. Swanson

Invited lectures

2015

1. Department of Mathematics, University of Minnesota, Minneapolis, Minnesota
Mathematical Biology Seminar series
Title: Modeling and predicting tumor growth, response to and failure of treatments

2. Mathematical Biosciences Institute (MBI), The Ohio State University, Columbus Ohio
Workshop 5 in the Year of Cancer series: Treatment, Clinical Trials, Resistance
Title: Treatment-induced changes to growth phenotypes in glioma

2014

1. University of Oxford, U.K., Particle Therapy Cancer Institute
Title: Patient-specific mathematical radiation oncology
2. Radiation Research Society mini-symposium
Title: Analytical solutions and parameter stability of a repair, misrepair fixation (RMF) model for a range of doses, energies and particle types
3. European Society for Mathematical Biology
Title: A data-driven calibration of a nonlinear mechanistic model for DNA damage and repair: applications to radiosurgery and heavy ion irradiation treatment for glioblastoma
4. European Society for Mathematical Biology
Title: Quantifying the effect of spatially varying factors of resistance to radiation therapy in primary brain tumors: predictions from a patient-specific model
5. Vanderbilt University, Nashville TN. Cancer Imaging Group
Title: Imaging, math and ME makes three: using modeling to generate testable biological hypotheses driven by in vivo imaging data

2013

1. University of Southern California (USC) Center for Applied Molecular Medicine (CAMM)
Title: Mathematical radiation oncology: clinical challenges and mathematical opportunities

National society conference mini-symposia

2014 European Society for Mathematical Biology

Title: *Spatial models in cancer biology.* Foo J, Leder K, Ryser M, Gevertz J, **Rockne R C**

Title: *Recent advances in the mathematical modeling of glioma progression and invasion.* Köhn-Luque A, Hatzikirou H, Scott J, Deutsch A, **Rockne R C**

2014 Radiation Research Society

Title: *Mathematical modeling and patient-specific radiation oncology*

Rockne R C, Swanson K R, Stewart R, Bowen S

2013 Society for Mathematical Biology Annual Meeting

Title: *Mathematical Radiation Oncology*

Rockne R C– Chair

Trister AD, Enderling H, Corwin D, Gao X

D. Current Research Support

R01 NS060752 (PI: Swanson)

08/05/2009-07/31/2014

NIH/NINDS

Novel Tools for Evaluation and Prediction of Radiotherapy Response in Individual Patients

The major goals of this investigation are to apply mathematical modeling techniques to assess and predict response to radiation therapy in human glioma patients in vivo using routinely available MRIs.

Role: Research staff

U54 CA143970 Physical Sciences Oncology Center (PD: Gatenby - Moffitt)

09/30/2009-08/31/2014

NIH/NCI The Physical Microenvironment in Cancer Biology and Therapy

Project Title: Clinical Imaging and the Tumor Physical Microenvironment

The major goals of this project are to develop mathematical models for the physical tumor microenvironment that can be assessed through clinical imaging.

Role: Research staff

Collaborative Activity Award (MPI: Swanson, Canoll – Columbia, Anderson - Moffitt) 06/01/2011-05/31/2014
James D. McDonnell Foundation

BONK: Predicting and Controlling Glioma Recurrence: The Role of Heterogeneity and Microenvironment

The major goals of this investigation are to understand and predict gliomas recurrence through the bridging and integration of animal models, human imaging data and discrete and continuous mathematical models for brain tumor growth and progression.

Role: Research staff

R01 CA 16437 (MPI: Kinahan, Swanson)

09/21/2011-07/31/2016

NIH/NCI Patient-specific predictive modeling that integrates advanced cancer imaging.

The primary goal of this award is to prospectively generate longitudinal advanced imaging data to be used as a validation and test set for a mathematical model for angiogenesis and response to therapy in brain tumors.

Role: Research staff

Collaborative Activity Award (MPI: Swanson, Canoll – Columbia, Gatenby - Moffitt) 09/01/2014-08/31/2017
James D. McDonnell Foundation

ENDURES: Environmental Dynamics Underlying Responsive Extreme Survivors of glioblastoma. The primary goal of this award is to understand and characterize extreme survivors of GBM, defined as patients living 5 years or longer from diagnosis, using mathematical and multi-modal analyses.

Role: Research staff

E. Conference and national society abstracts

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

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)

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)

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)

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)

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).

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)

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)

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.

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)

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)

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)

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

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

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

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).

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)

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)

Holdsworth CH, 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 the American Association of Physicists in Medicine. Vancouver British Columbia, Canada, 2011, (AAPM)

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)

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

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

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)

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)

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)

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)

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. The 7th International Congress of Industrial and Applied Mathematics, Vancouver British Columbia, Canada, 2011 (ICIAM)

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)

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)

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)

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)

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)

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)

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)

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)

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. Annual Meeting of the Society for Nuclear Medicine, 2012 (SNM)

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. Annual Meeting of the Society for Nuclear Medicine, 2012 (SNM)

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, Barcelona, Spain 2012 (IEEE)

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, Boston, MA, 2012 (ASTRO)

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 (SNO)

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 (SNO)

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 (SNO)

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 (SNO)

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 (SNO)

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 (SNO) ***Platform Presentation**

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 (SNO)

- 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 (SNO)
- 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 (SNO)
- 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, Hollywood, FL 2012 (MIC) ***Awarded 2012 Conquer Cancer Foundation of ASCO Merit Award**
- D. Corwin, C. Holdsworth, R. D. Stewart, M. Philips, **R. C. 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, Puerto Rico 2012 (RRS)
- R. C. Rockne**, M. Mrugala, J. K. Rockhill, K. R. Swanson. Patient-specific mathematical radiation oncology. Annual Meeting of the Radiation Research Society, Puerto Rico 2012 (RRS)
- 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, Salt Lake City, UT, 2013 (ASGCT)
- D. Corwin, C. Holdsworth, **R. C. Rockne**, K. R. Swanson. Using a patient-specific mathematical model and an adaptive, evolutionary, optimization algorithm to improve radiotherapy treatment planning for human glioblastoma. Sevilla, Spain, 2013 (Mathways into Cancer II)
- R. C. Rockne**, K. R. Swanson. Mathematical radiobiology – using patient-specific models to study radiobiology *in vivo*. Sevilla, Spain, 2013 (Mathways into Cancer II)
- A. Hawkins-Daarud, **R. C. Rockne**, A. R. A. Anderson, K. R. Swanson. Understanding the impact of anti-angiogenic therapy on the microenvironment and its implications for imaging in glioblastoma multiforme with a mathematical model. Sevilla, Spain, 2013 (Mathways into Cancer II)
- R. C. Rockne**, J. K. Rockhill, R. Stewart, K. R. Swanson. Using patient-specific models to study radiobiology *in vivo*. American Society for Therapeutic Radiation and Oncology, 2013 (ASTRO)
- R. C. Rockne**, Kristin R. Swanson. Predicting efficacy of radiotherapy in individual glioblastoma patients *in vivo*: a mathematical modeling approach. Northwestern University Feinberg School of Medicine Annual Research Day 2013.
- 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-P. 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, 2013 (ASCO)
- A. 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, 2013 (ASCO)

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, 2013 (ASCO)

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, 2013 (ASCO)

R. C. Rockne, A. D. Trister. Mathematical radiation oncology: clinical challenges and mathematical opportunities. Society for Mathematical Biology Annual Meeting, 2013 (SMB)

D. Corwin, C. Holdsworth, R.D. Stewart, A. Hawkins-Daarud, M. Phillips, **R. C. Rockne**, K. R. Swanson. A patient-specific model for IMRT optimization is robust to uncertainty in data collection and radiobiological parameters. Radiation Research Society Annual Meeting, 2013 (RRS)

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)

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)

R. Harrison, J. Jacobs, B. Elston, A. Alessio, D. Byrd, **R. Rockne**, A. Hawkins-Daarud, M. Muzi, P. Jackson, K. R. Swanson, P. E. Kinahan. Integrating a three-dimensional spatiotemporal glioma model with a PET simulation system to create patient-specific FMISO images. Abstract #1876 IEEE Medical Imaging Conference (IEEE MIC), Seoul South Korea 2013.

R. C. Rockne, D. Corwin, K. R. Swanson. A Data-Driven Calibration of a Nonlinear Mechanistic Model for DNA Damage and Repair: Applications to Radiosurgery and Heavy Ion Irradiation Treatment for Glioblastoma. European Conference on Mathematical and Theoretical Biology (ECMTB), Gothenburg, Sweden, June 2014 – Invited Mini-symposium

R. C. Rockne D. Corwin, K. R. Swanson. Quantifying the effect of spatially varying factors of resistance to radiation therapy in primary brain tumors: predictions from a patient-specific model. European Conference on Mathematical and Theoretical Biology (ECMTB), Gothenburg, Sweden, June 2014 – Invited Mini-symposium

R. C. Rockne, R. Stewart, K. R. Swanson. Quantifying the effect of spatially varying factors of resistance to radiation therapy in primary brain tumors: predictions from a patient-specific model. Radiation Research Society (RRS), Las Vegas NV, 2014 – Invited Mini-symposium

D. Corwin, **R. C. Rockne**, K. R. Swanson. Conducting virtual clinical trials to evaluate hypofractionated radiotherapy for newly diagnosed glioblastoma. Radiation Research Society (RRS), Las Vegas NV, 2014 – Invited Mini-symposium

R. C. Rockne, Bacchus I, Bridge C, Brown P D, Corwin D, Desai B, Hendrickson K, Kim M, Kokkinos E, Mehta M P, Marymont M, Rockhill J K, Rosenberg A, Trister A D, Williams C K, Williamson R, Young L, Swanson K R. An Evaluation Of Multi-institutional Data-transfer To Facilitate Personalized Computational Modeling. 2014 ASTRO Annual Meeting, San Francisco CA. Abstract # 3564

B. M. Desai, **R. C. Rockne**, A. W. Rademaker, W. F. Harsell, P. Sweeny, J. Raizer, N. Paleologs, 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. 2014 ASTRO Annual Meeting, San Francisco CA. Abstract # 2499

B. Desai, **R. C. 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) ***Co-first author**

J. Juliano, **R. C. Rockne***, A. J. Hawkins-Daarud, P. Jackson, 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) ***Presenting Author**

A. Hawkins-Daarud, **R. C. 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)

J. Jacobs, A. J. Hawkins-Daruud, **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)

R. C. 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)

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)

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)

P. R. Jackson, F. Grady, M. Lester, E. Kokkinos, A. Rosenberg, **R. C. Rockne**, C. Bridge, M. Marymount, J. P. Chandler, K. R. Swanson, P. Kumetaker. A paradigm shift in determining brain metastases treatment: does number really matter? Annual Meeting of the Society for Neuro-Oncology, 2014 (Miami, FL)

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

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 – 2012 |
| <i>April Baldock</i> | High School Student | 2011 – 2012 |
| <i>Riley Koidahl</i> | | 2013 |

Undergraduate Students:

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|--------------------------|------------------------------------|-------------|
| <i>Gargi Chakraborty</i> | Major: Biochemistry & Neurobiology | 2005 – 2010 |
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|---------------------------|------------|---|
| | Awards: | Mary Gates Fellow Research for Advanced Undergraduates Fellow NSF VIGRE Fellow MS, Applied Mathematics, 2010 – University of Washington |
| <i>Christina Wang</i> | Currently: | Software Developer at Boeing |
| | Major: | Bioengineering 2005 – 2009 |
| | Currently: | Medical Student – University of Washington |
| <i>Jeffrey Jacobs</i> | Major: | Biology 2005 – 2007 |
| <i>Lily Chau</i> | Major: | Psychology 2005 – 2006 |
| <i>Mindy Szeto</i> | Major: | Biochemistry, Sociology & Biology 2005 – 2010 |
| | Awards: | Mary Gates Fellow (2006, 2008) Amgen Research Summer Scholar (2008) Washington Research Foundation Fellowship (2008) NSF VIGRE Undergraduate Research Fellow (2009) |
| <i>Stanley Gu</i> | Major: | Bioengineering 2006 – 2010 |
| | Awards: | Mary Gates Fellow NSF VIGRE Undergraduate Research Fellow (2008, 2009) MS Bioengineering (2010) |
| | Currently: | Pfizer |
| <i>Kevin Do</i> | Major: | Sociology BS (2010) 2006 – 2010 |
| <i>Rita Sodt</i> | Major: | Computer Science 2006 – 2011 |
| | Awards: | Mary Gates Fellow (2008, 2010) Levinson Emerging Scholars Award (2008) Goldwater Scholarship UW Nominee (2008) Amgen Scholar (2009) BS (2010) |
| | Currently: | Graduate Student – Computer Science – Univ of Washington |
| <i>Ivan Vulovic</i> | Major: | Computer Science 2006 – 2007 |
| | Currently: | Microsoft |
| <i>Julia Moore</i> | Major: | Molecular & Cellular Bio / Applied Math BS (2009) 2007 – 2009 |
| | Awards: | Mary Gates Fellow Amgen Research Scholar NSF VIGRE Fellow Goldwater Scholar |
| | Currently: | Graduate Student – UC Davis |
| <i>Jennifer Hadley</i> | Major: | Bioengineering 2007 |
| | Awards: | Amgen Research Scholar |
| | Currently: | Medical Student at University of Alabama – Birmingham |
| <i>Susan Massey</i> | Major: | Mathematics BS(2010) 2007 – Present |
| | Awards: | Amgen Research Summer Scholar AMA Trjitzinsky Award Boeing/OMA Research Scholar McNair Scholar NSF VIGRE Graduate Fellow Individually awarded NSF Graduate Fellowship |
| | Currently: | Graduate Student – Applied Mathematics – Univ of Washington |
| <i>Shokouh Pardakhtim</i> | Major: | Mathematics / Pre-Med (2010) 2007 – 2010 |
| | Awards: | STAR Scholar NSF VIGRE Fellow McNair Scholar |
| <i>Jennifer Beers</i> | Major: | Post-Bac/Pre-Med (2010) 2007 – 2010 |
| | Currently: | Medical Student at University of Washington School of Medicine |
| <i>Chunyan Zhou</i> | Major: | Biology (2009) 2007 |
| | Currently: | Grad Student – Environmental Toxicology – Univ. of Washington |
| <i>Harkirat Sohi</i> | Major: | Applied Mathematics (MS, 2010) 2008 – 2009 |
| | Awards: | NSF VIGRE Fellow |

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|-----------------------------|------------|---|----------------|
| | | NASA Research Grant | |
| <i>Brent Sandona</i> | Major: | Computer Engineering | 2008 – 2010 |
| <i>Brad Peterson</i> | Major: | Biochemistry | 2008 |
| <i>Larissa Miller</i> | Major: | Pre-Bioengineering | 2008 – 2009 |
| <i>Amanda Ly</i> | Major: | Chemical Engineering | 2008 – 2009 |
| <i>Addie Boone</i> | Major: | Medical Anthropology/Biochemistry | 2009 – 2011 |
| | Currently: | Medical Student at Northwestern University School of Medicine | |
| <i>Samantha Ryder</i> | Major: | Geography/ Pre-Med | 2009 |
| <i>Pratyusha Banik</i> | Major: | Biochemistry | 2009 |
| <i>Jin Stedje</i> | Major: | Applied Math & Music at MIT | 2009 |
| <i>Anne Baldock</i> | Major: | Neurobiology | 2009 – Present |
| | Currently: | Research Scientist (Swanson Lab UW) | |
| <i>Liz Hanley</i> | Major: | Bioengineering | 2009 – 2010 |
| <i>Zinnia Xu</i> | Major: | Bioengineering | 2009 – 2010 |
| <i>Kristin DeVleming</i> | Major: | Applied Computational Mathematical Sciences | 2009 |
| <i>Gina Tran</i> | Major: | Undeclared | 2009 |
| <i>Tyler Cloke</i> | Major: | Computer Science and Engineering | 2009 – 2012 |
| <i>Greg Sterin</i> | Major: | Computer Science and Engineering | 2010 – 2011 |
| <i>Christine Scullywest</i> | Major: | Premed | 2010 |
| <i>Misbah Uraizee</i> | Major: | Biology & Mathematics at Yale | 2010 |
| <i>Jason Uanon</i> | Major: | Mathematics/Computer Science and Engineering | 2010 |
| <i>Alex Kim</i> | Major: | Neurobiology | 2010 – 2012 |
| <i>Sam Sussman</i> | Major: | Neurobiology | 2010 – 2012 |
| <i>Dillon Eng</i> | Major: | Mechanical Engineering at Rice University | 2010 |
| <i>Jessica Forbes</i> | Major: | Mathematics at Carroll College | 2010 |
| | Awards: | Amgen Research Summer Scholar | |
| <i>Theresa Kurtz</i> | Major: | Neuroscience/Math at Rochester University | 2011 |
| | Awards: | Amgen Research Summer Scholar | |
| <i>Evan Leon</i> | Major: | Computer Science and Engineering | 2011 – 2012 |
| | Awards: | NASA Summer Research Scholar | |
| <i>Jordan Lange</i> | Major: | Computer Science Engineering | 2011 – 2012 |
| <i>Aaron Nash</i> | Major: | Computer Science Engineering | 2011 – 2012 |
| <i>Kellie Fontes</i> | Major: | Applied Mathematics | 2011 – 2012 |
| <i>Chantal Murphy</i> | Major: | Neurobiology, Applied Mathematics | 2011 – 2012 |
| <i>Michael Fisher</i> | Major: | | 2011 – 2012 |
| <i>William Clark</i> | Major: | | 2013 |
| <i>Fillan Grady</i> | Major: | Applied Mathematics | 2013 – Present |
| | | Physical Sciences Oncology Center Scholar | |
| <i>Danielle Sharfman</i> | Major: | | 2014 |

Graduate Students:

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|--------------------------|--|-------------------|
| <i>Gargi Chakraborty</i> | Currently: Boeing Research Analyst | MS (2010) |
| <i>Misha Kutzman</i> | | MS (2010) |
| <i>Susan Massey</i> | Awards: NSF Graduate Fellow (Individually-awarded) | MS (2011) |
| | | PhD (In Process) |
| <i>Sunyoung Ahn</i> | | MS (2011) |
| <i>David Corwin</i> | Currently: Research Associate (Swanson Lab) | MS (2011) |
| <i>Dillon Eng</i> | | MS (2012) |
| <i>Josh Jacobs</i> | | PhD (2012) |
| <i>Mark Harmon</i> | <i>Northwestern University ESAM</i> | PhD expected 2016 |

Postdoctoral Fellows:

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|----------------------------|--|-------------|
| <i>Maxwell Neal, PhD</i> | | 2010 – 2012 |
| <i>Kirsten Fagnan, PhD</i> | | 2010 – 2011 |

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|-----------------------------------|---------------------------------|----------------|
| <i>Andrea Hawkins-Daarud, PhD</i> | Awards: NSF Postdoctoral Fellow | 2011 – Present |
| <i>Andrew Trister, MD, PhD</i> | Radiation Oncology Resident | 2010 – Present |

Medical Students and Residents:

| | | |
|--------------------------------|--|----------------|
| <i>Andrew Trister, MD, PhD</i> | Radiation Oncology Resident | 2010 – Present |
| <i>Paul Dilfer</i> | University of Chicago | 2013 – 2014 |
| <i>Brijal Desai, MD</i> | Radiation Oncology Resident Northwestern | 2013 – Present |
| <i>Carli Peters</i> | University of Chicago | 2014 |
| <i>Avielle Lifchitz</i> | New York Medical College | 2014 |