

Curriculum Vitae for: Heiko Enderling, Ph.D.
Date: 11/13/2017

Current Position: Associate Member
Department of Integrated Mathematical Oncology
Department of Radiation Oncology
H. Lee Moffitt Cancer Center & Research Institute
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Heiko.Enderling@Moffitt.org

Current Academic Appointments: Associate Professor
Department of Oncologic Sciences, MDC 44
Morsani College of Medicine
University of South Florida
12901 Bruce B. Downs Blvd.

Education:
1997 - 2003: Diplom-Ingenieur (M.S.) Computer Visualization,
University of Magdeburg, Germany
2003 - 2006: Ph.D. Mathematical Biology, University of Dundee, Scotland

Postgraduate Training and Fellowship Appointments

2006 - 2006 Postdoctoral Fellow, Department of Mathematics and Department of Surgery and Molecular Oncology, University of Dundee, Scotland
2007 - 2009 Postdoctoral Fellow, Center of Cancer Systems Biology, St. Elizabeth's Medical Center of Boston, Tufts University School of Medicine, Boston, USA

Academic Appointments and Employment:

2009 - 2010: Instructor, Department of Surgery,
Tufts University School of Medicine, Boston, USA
Assistant Investigator, Center of Cancer Systems Biology,
St. Elizabeth's Medical Center of Boston, Boston, USA
2010 - 2013: Assistant Professor, Department of Surgery,
Tufts University School of Medicine, Boston, USA
Associate Investigator, Center of Cancer Systems Biology,
St. Elizabeth's Medical Center of Boston, Boston, USA
2013 - 2017: Assistant Member, Integrated Mathematical Oncology,
H. Lee Moffitt Cancer Center & Research Institute
Assistant Professor, Department of Oncologic Sciences,
University of South Florida, Tampa, FL
2017 - date: Associate Member, Integrated Mathematical Oncology,
H. Lee Moffitt Cancer Center & Research Institute
Associate Professor, Department of Oncologic Sciences,
University of South Florida, Tampa, FL

Honors and Awards

2003 – 2006 **Nicholl-Lindsay PhD Scholarship**, University of Dundee, Scotland
2004 **Best Poster Prize**, Society for Mathematical Biology Annual Meeting,
University of Michigan, Ann Arbor, MI, USA
2006 **Scottish International Education Trust award**, Scottish International
Education Trust
2007 **Young Investigator Award**, British Oncology Association, UK
2008 – 2010 **Centennial Postdoctoral Fellowship**, American Association for Cancer
Research, USA
2010 **Best Poster Prize**, Society for Mathematical Biology Annual Meeting,
University of Rio de Janeiro, Brazil
2017 **Research Educator of the Year**, Moffitt Cancer Center, Tampa, FL, USA

Research Support

Current

External Grants:

Account #: 1U54CA193489-01 **(Gatenby, R/PI; Enderling Core Co-Lead)**
Dates: 09/01/2015 – 08/30/2020
Source: NIH/NCI
Title: Cancer as a complex adaptive system
% Effort: 8.3%
Role in the Study: Co-Leader, Education and Outreach Unit
As the co-leader of the Education and Outreach Core I organize the
PSOC seminar series, the HIP IMO program, public evening lectures,
career shadow days, and contribute to the annual workshop
development.
Total Direct Costs: \$7,500,000
Total Amount of Award: \$12,546,665

Account #: tbc **(Sahebjam, S/PI; Enderling Co-I)**
Dates: 07/01/2016-06/30/2019
Source: ASCO Conquer Cancer Foundation CDA
Title: A Phase I Trial of Hypofractionated Stereotactic Irradiation (HFSRT)
with Pembrolizumab and Bevacizumab in Patients with Recurrent
High Grade Gliomas
% Effort: 5%
Total Amount of Award: \$199,891
Role in the Study: Co-Investigator; Analyze clinical data and develop a mathematical
model for patient-specific response mechanisms

Account #: tbc **(Enderling, H)**
Dates: 02/27/2017-02/25/2018
Source: Jayne Koskinas Ted Giovanis Foundation for Health and Policy
Title: Improving metastatic prostate cancer treatment with optimal docetaxel
schedules
% Effort: 5%
Total Direct Costs: \$50,000

Account #: tbd **(Enderling, H)**
Dates: 06/01/2017-05/31/2018
Source: Miles for Moffitt
Title: Using radiation to steer tumor-immune ecosystem evolution
% Effort: 15%
Total Direct Costs: \$100,000

Internal Grants:

Account #: 02-25999-13-49 **(Enderling, H/PI)**
Source: Moffitt Cancer Center
Title: Support
% Effort:
Total Direct Costs: \$375,000
Total Amount of Award: \$375,000

Account #: tbd **(Enderling, H/PI)**
Source: Moffitt Cancer Center
Title: Steering tumor-stroma-immune ecosystem evolution for immune-modulated breast control
% Effort: 1%
Total Direct Costs: \$50,000

Completed

External Grants:

Account #: n/a **(Enderling, H/PI)**
Dates: 05/01/06-12/31/06
Source: Cancer Research UK
Title: Mathematical modelling of radiotherapy strategies for early breast cancer
% Effort: 100%
Total Direct Costs: £20,000
Total Amount of Award: £20,000

Account #: 08-40-02-ENDE **(Enderling, H/PI)**
Dates: 10/01/08-09/30/11
Source: American Association for Cancer Research
Title: Paradoxical proliferation-apoptosis-migration dynamics in tumor progression
% Effort: 50%
Total Direct Costs: \$180,000
Total Amount of Award: \$180,000

Account #: U54 CA149233-01 **(Hlatky, L/PI; Enderling Core PI)**
Dates: 05/01/10-03/22/13
Source: NIH/NCI
Title: Intercellular Interactions Modulate Carcinogenesis Course: A Dynamic System Study
% Effort: 25%
Role in the Study: Leader, Education and Outreach core

As the leader of the Education and Outreach core I oversaw the organization of bi-weekly seminars, design and maintenance of the Center website, recruitment of summer students, and organized career shadow days with local schools.

Total Direct Costs: \$ 939,473
Total Amount of Award: \$ 1,350,267

Account #: 6U54CA149233-02 (Hlatky, L/PI; Enderling Project PI)
Dates: 11/01/11-10/31/12
Source: NIH/NCI
Title: CompuCell3D as a cross-validation tool for quantitative ICBP models and novel model development platform
% Effort: 15%
Role in the Study: Project-PI, Project supervisor and postdoctoral fellow mentor
Total Direct Costs: \$90,000
Total Amount of Award: \$158,000

Account #: 5-U54-CA113007 (Quaranta, V/PI; Enderling Co-I)
Dates: 2004-2015
Source: NIH/NHLBI
Title: Multiscale Mathematical Modeling of Cancer Progression
% Effort: 2%
Role in the Study: Investigate the role of cancer stem cells in tumor growth
Total Direct Costs: \$1,184,211
Total Amount of Award: \$1,794,359

Internal Grants:

Account #: 60-17997-99-02 (Enderling, H/PI)
Dates: 01/01/2016-12/31/2016
Source: ACS-IRG
Title: Identifying radiation fractionation protocols that optimally synergize with immunotherapy
% Effort: 5%
Total Amount of Award: \$30,000

Account #: 02-25999-16-61 (Enderling, H; Abate-Daga, D/MPI)
Dates: 2015-2016
Source: Cancer Biology and Evolution program pilot award
Title: Enhance CAR T cell therapy for pancreatic cancer with radiation and oncolytic virus therapy
% Effort: 1%
Total Direct Costs: \$25,000
Total Amount of Award: \$25,000

Account #: 02-25999-15-34 (Enderling, H; Coppola D/MPI)
Dates: 01/27/2015-06/30/2016
Source: Moffitt/IMO workshop pilot award
Title: Forecasting H. Pylori-associated gastric disease progression to improve screening modalities for early gastric cancer intervention
% Effort: 1%
Total Direct Costs: \$50,000

Total Amount of Award: \$50,000

Account #: 09-33000-15-03 (Enderling, H/PI)
Dates: 04/02/2014-06/30/2016
Source: DeBartolo Family Personalized Medicine Institute
Title: Increasing the likelihood of a patient-specific abscopal effect in metastatic renal cell carcinoma
% Effort: 1%
Total Direct Costs: \$70,000
Total Amount of Award: \$70,000

Account #: 02-25999-17-66 (Jim, H)
Dates: 01/15/2017-06/30/2017
Source: Moffitt Cancer Center
Title: Early Detection of Cancer Progression: Leveraging Team Science
% Effort: 5%
Total Amount of Award: \$75,000
Role in the Study: Co-Investigator; Analyze clinical data and develop a mathematical model. The goals of this study are: 1) to evaluate whether patient-reported symptomatology can be used to identify cancer progression early, and 2) to develop home-based symptom reporting software.

Patents

04/03/2015: U.S. Patent Application Serial No. PCT/US2015/024278
Radiotherapy targeted to promote a systemic abscopal effect
Incorporates 04/04/2014 U.S. Patent Application No. 61/975,573
Augmenting Irradiation and Immune System Orchestrated Abscopal Effects

Teaching Experience

Post-Doctoral advising:

2011 - 2013: **Xuefeng Gao, Ph.D.**, Center of Cancer Systems Biology, Tufts University School of Medicine, Boston, MA (now at Institute Pasteur, Paris, France); I mentored Dr. Gao in my lab for 2 years. His work resulted in a peer-reviewed publication in *Cancer Research* (19) and a book chapter (3)

2014: **Sotiris Prokopiou, Ph.D.**, Department of Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL (now staff modeler at private company Cosmo, Lyon, France); I mentored Dr. Prokopiou for one year in my lab. His work contributed to a publication in *Radiation Oncology* (43), two patent applications, and a poster presentation and published abstract (6) at an AACR meeting

2014 - 2016: **Jan Poleszczuk, Ph.D.**, Department of Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL; I mentor Dr. Poleszczuk in my lab. His work contributed to a filed patent application, numerous first author publications including *Cancer Research* (34) and *PLoS Computational Biology* (30), and various published abstracts

2015 - current: **Rachel Howard, Ph.D.**, Department of Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL; I mentor Dr. Walker in my lab. Do date she published an invited review (44) and four abstracts (7,9,10,12).

2016 - current: **Daniel Santiago, Ph.D.**, Department of Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL; I mentor Dr. Santiago in my lab, jointly with Dr. Daniel Abate-Daga's lab in Immunology.

2017 - current: **Renee Brady, Ph.D.**, Department of Integrated Mathematical Oncology, Moffitt Cancer Center, Tampa, FL; I mentor Dr. Brady in my lab. She is working on prostate cancer and the tumor-immune ecosystem.

Student advising:

2013: **Summer student faculty advisor** for Mr. Brian Barker, Ms. Sarah Bober, Ms. Karina Cisneros, Ms. Justina Cline, and Ms. Amanda Thompson for an REU summer project at Worcester Polytechnic Institute, Worcester, MA; I developed the project and met with the students bi-weekly. The work was published in the Bulletin for Mathematical Biology (28)

2014 - 2015: **Student intern faculty mentor** for Mr. David Kotschessa, Department of Mathematics, USF; I developed a project and meet with the student bi-monthly. Parts of the work are currently included in a manuscript draft.

2014: **Master student co-supervisor** for Melanie Bernhardt, M.Sc., Department of Mathematics, Technical University Munich, Germany; Thesis title: "Mathematical modelling of combined radiation and chemotherapy". I provided biological expertise and scientific guidance for the project

2015 - current: **Doctor of Philosophy student supervisor** for Thomas Lewin, University of Oxford, UK; I co-developed the D. Phil project and meet with the student bi-weekly (either in person or teleconference) to provide scientific guidance

2016 - current: **Research mentor** for Ms. Enakshi Sunessee, Department of Cell Biology Microbiology, and Molecular Biology, USF; I developed a project and meet with the student bi-weekly. Ms. Sunessee received two USF Excellence in Undergraduate Research Awards at the USF Undergraduate Research and Arts Colloquium in 2016 ("Analysis of a Proliferation Saturation Index to predict the response to radiation in Head and Neck cancer patients for personalized radiotherapy") and 2017 ("Characterization of migration phenotype of pancreatic cancer cell lines"). She also received a student research award for her poster "Characterization of migration phenotype of pancreatic cancer cell lines", presented at the Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa, November 12, 2016.

2017 – current **Research mentor** for Ms. Aaya Khalid, Department of Chemical Engineering, USF. She is working on the tumor-immune ecosystem.

Administrative Appointments

2014 - date: **Director, IMO / PSOC Education and Outreach**
As Director for Education and Outreach I develop, plan and oversee IMO workshops, student internships and seminar series.

2015 - date: **Director, HIP-IMO**
I developed and oversee the High school Internship Program in Integrated Mathematical Oncology (HIP IMO), in which we enroll exceptional high school students on mentored research projects in mathematical oncology. In 2015 we enrolled 7 students, for 2016 we increased the number of mentors and accepted 10 students.

2016: **Co-Leader, FLiCR**
Together with Dr. Gatenby I develop and implement the Future Leaders in interdisciplinary Cancer Research (FLiCR) summer internship program to

diversify the future workforce with underrepresented minorities trained in team science. For 2016, we have enrolled 5 students from Morehouse College and Spelman College, historically black liberal arts colleges located in Atlanta, GA, and an international student from Mauritius.

2017 - date: **Moffitt Faculty Champion**, School-to-Work mentoring program, Big Brothers/Big Sisters of Tampa

Committees:

2010 - 2015: **Co-Chair**, NCI/ICBP Education and Outreach Committee
2010 - 2018: **Board of Directors**, Society for Mathematical Biology
2012 - 2018: **Chair**, Membership Committee, Society for Mathematical Biology
2016 - 2020: **Chair**, NCI/PSOC Education and Outreach Working Group
2016 - 2017: **Member**, Scientific Advisory Committee, 2017 Annual Meeting of the Society for Mathematical Biology, Salt Lake City, UT, July 17-21, 2017
2016 - date: **Board of Advisors**, Tampa Bay STEM Network
2017 - 2019: **Program Leader**, Program on Statistical, Mathematical, and Computational Methods for Precision Medicine (PMED), The Statistical and Applied Mathematical Sciences Institute (SAMSI), North Carolina (NSF, Duke, NCSU, UNC)

Editorial Duties:

2013 – 2017 **Editorial Board**: Cancer Research
2013 – 2016 **Editorial Board**: EPJ Nonlinear Biomedical Physics
2012 – 2015 **Editorial Board**: Mathematical Biosciences and Engineering
2017 – date **Editorial Board**: PeerJ
2012 – 2013 **Guest Chief Editor**: Frontiers in Molecular and Cellular Oncology
2012 **Guest Associate Editor**: PLOS Computational Biology
2015 **Guest Lead Editor**: Stem Cells International
2006 – date **Ad Hoc Reviewer**: Nature Communications, Scientific Reports, Cancer Research, Oncotarget, Cancers, Cell Proliferation, Stem Cell Reviews and Reports, Integrative Biology, Biosystems, Frontiers in Immunology, Progress in Biophysics and Molecular Biology, PLOS Computational Biology, PLOS One, Biology Direct, Convergent Science Physical Oncology, Cell Communication and Adhesion, Frontiers in Bioscience, Frontiers in Oncology, Journal of Theoretical Biology, Bulletin of Mathematical Biology, Mathematical Medicine and Biology, Journal of Mathematical Biology, Mathematical Biosciences and Engineering, Transactions on Bioengineering, Mathematical Modeling of Natural Phenomena, Theoretical Biology and Medical Modelling, Mathematical Biosciences, Mathematics in Computers and Simulation, Applied Mathematics and Computation, Physical Biology, Physical Oncology

Grant review duties:

NIH study section:

2014 - 2015: NIH-National Institute of Biomedical Imaging and Bioengineering (NIBIB)
- Ruth L. Kirschstein National Research Service Award Institutional Research Training (T32)
- Research Education Programs for Residents and Clinical Fellows (R25)
2018 NIH / NCI Exploratory Grant Award to Promote Workforce Diversity in Basic Cancer Research (R21)

Ad hoc grant review:

2013: Medical Research Council United Kingdom (MRC)
2014: Swiss National Science Foundation (SNSF)
Italian Association for Cancer Research (AIRC)
Canada Foundation for Innovation (CFI)
2015: The Wellcome Trust, United Kingdom
Cancer Research UK, United Kingdom (CRUK)
Italian Association for Cancer Research (AIRC)
2016: Swiss National Science Foundation (SNSF)
Italian Association for Cancer Research (AIRC)
2017: Cancer Research UK, United Kingdom (CRUK)
National Sciences and Engineering Research Council, Canada (NSERC)
Hong Kong Research Grants Council
French National Cancer Institute

Professional Association Memberships

2003 - current: **Full Member**, Society for Mathematical Biology (SMB)
2005 - 2010: **Member**, European Society for Mathematical and Theoretical Biology (ESMTB)
2007 - 2016: **Full Member**, Radiation Research Society (RRS)
2008 - current: **Active Member**, American Association for Cancer Research (AACR)
2016 - current: **Active Member**, American Society for Radiation Oncology (ASTRO)
2016 : **Member**, Society for ImmunoTherapy of Cancer (SITC)

Peer-Reviewed Publications

1. **Enderling H**, Anderson ARA, Chaplain MAJ, Munro AJ, Vaidya JS. Mathematical Modelling of Radiotherapy Strategies for Early Breast Cancer. *J. Theor. Biol.* 241(1): 158-171, 2006
IF: 2.116
2. **Enderling H**, Anderson ARA, Chaplain MAJ, Rowe GW. Visualisation of the Numerical Solution of Partial Differential Equation Systems in Three Space Dimensions and its Importance for Mathematical Models in Biology. *Math. Biosci. Eng.* 3(4): 571-582, 2006
IF: 0.840
3. **Enderling H**, Chaplain MAJ, Anderson ARA, Vaidya JS. A Mathematical Model of breast cancer development, local treatment and recurrence. *J. Theor. Biol.* 246(2): 245-259, 2007
IF: 2.116
4. **Enderling H**, Alexander NR, Clark E, Branch KM, Estrada L, Crooke C, Jouquin J, Lobdell N, Zaman MH, Guelcher SA, Anderson, AR, Weaver AM. Dependence of invadopodia function on collagen fiber spacing and crosslinking: computational modeling and experimental evidence. *Biophys. J.* 95(5): 2203-2218, 2008
IF: 3.972; Q1 Biophysics
5. **Enderling H**, Hlatky L, Hahnfeldt P. Migration rules: tumours are conglomerates of self-metastases. *Br. J. Cancer* 100(12): 1917-1925, 2009
IF: 4.836; Q1 Oncology
6. **Enderling H**, Hlatky L, Hahnfeldt P. Reply: Inflammatory breast carcinoma as a model of accelerated self-metastatic expansion by intra-vascular growth. *Br. J. Cancer* 101(6): 1030, 2009
IF: 4.836; Q1 Oncology

7. **Enderling H**, Anderson ARA, Chaplain MAJ, Behesti A, Hlatky L, Hahnfeldt P, Paradoxical Dependencies of Tumor Dormancy and Progression on Basic Cell Kinetics. *Cancer Res.* 69(22): 8814-8821, 2009
IF: 9.329; Q1 Oncology
8. **Enderling H**, Park D, Hlatky L, Hahnfeldt P. The importance of spatial distribution of stemness and proliferation state in determining tumor radioresponse. *Math. Model. Nat. Phenom.* 4(3): 117-133, 2009
IF: 0.813
9. **Enderling H**, Hlatky L, Hahnfeldt P. Tumor morphological evolution: directed migration and gain and loss of the self-metastatic phenotype. *Biol. Direct* 5:23, 2010
IF: 4.658; Q1 Biology
10. **Enderling H**, Chaplain MAJ, Hahnfeldt P. Quantitative modeling of tumor dynamics and radiotherapy. *Acta Biotheor.* 58(4): 341-353, 2010
IF: 0.704
11. Tang J, **Enderling H**, Becker-Weimann S, Pham C, Polyzos A, Che CY, Costes SV. Phenotypic transition maps of 3D breast acini obtained by imaging-guided agent-based modeling. *Integr. Biol.* 3(4): 408-421, 2011 [*Cover*]
IF: 3.756
12. **Enderling H**, Hahnfeldt P. Cancer stem cells in solid tumors: is 'evading apoptosis' a hallmark of cancer? *Progr. Biophys. Mol. Biol.* 106(2): 391-399, 2011
IF: 2.274
13. Morton CI, Hlatky L, Hahnfeldt P, **Enderling H**. Non-Stem Cancer Cell Kinetics Modulate Solid Tumor Progression. *Theor. Biol. Med. Model.* 8(1): 48, 2011
IF: 0.95
14. Sasi SP, Yan X, **Enderling H**, Park D, Gilbert HY, Curry, C, Coleman C, Hlatky L, Qin G, Kishore R, Gouskassian DA. Breaking the 'harmony' of TNF- α signaling for cancer treatment. *Oncogene* 31(37): 4117-4127, 2012
IF: 8.459; Q1 Biochemistry & Molecular Biology, Q1 Oncology, Q1 Cell Biology, Q1 Genetics & Heridity
15. **Enderling H**, Hlatky L, Hahnfeldt P, Almog N. Systems biology of tumor dormancy: linking biology and mathematics on multiple scales to improve cancer therapy. *Cancer Res.* 72(9): 2172-2175, 2012
IF: 9.329; Q1 Oncology
16. **Enderling H**, Hlatky L, Hahnfeldt P. Immunoediting: Evidence of the multifaceted role of the immune system in self-metastatic tumor growth. *Theor. Biol. Med. Model* 9:31, 2012
IF: 0.95
17. **Enderling H**. Cancer stem cells and tumor dormancy. *Adv. Exp. Med. Biol.* 734:4, 2012
IF: 1.958
18. Hillen T, **Enderling H**, Hahnfeldt P. The tumor growth paradox and immune system-mediated selection for cancer stem cells. *Bull. Math. Biol.* 75(1):161-184, 2013
IF: 1.263; Q1 Agricultural and Biological Sciences (miscellaneous)
19. Gao X, McDonald JT, Hlatky L, **Enderling H**. Acute and fractionated irradiation differentially modulate glioma stem cell division kinetics. *Cancer Res.* 73(5):1481-1490, 2013
IF: 9.329; Q1 Oncology
20. **Enderling H**, Hlatky L, Hahnfeldt P. Cancer stem cells: a minor cancer subpopulation that redefines global cancer features. *Front. Oncol.* 3:76, 2013
IF: -
21. McGuire MF, **Enderling H**, Wallace DI, Batra J, Jordan M, Kumar S, Panetta JC, Pasquier E. Formalizing an integrative, multidisciplinary cancer therapy discovery workflow, *Cancer Res.* 73(20):6111-7, 2013
IF: 9.329; Q1 Oncology

22. **Enderling H**, Rejniak KA. Simulating Cancer: Computational models in oncology. *Front. Oncol.* 3:233, 2013
IF: -
23. **Enderling H**. Unveiling stem cell kinetics: prime time for integrating experimental and computational models. *Front. Oncol.* 3:291, 2013
IF: -
24. Poleszczuk J, Hahnfeldt P, **Enderling H**. Biphasic modulation of cancer stem cell driven solid tumor dynamics in response to reactivated replicative senescence. *Cell Prolif.* 47(3): 267-76, 2014
IF: 3.116
25. Poleszczuk J, **Enderling H**. A High-Performance Cellular Automaton Model of Tumor Growth with Dynamically Growing Domains. *Appl. Math.* 5(1): 144-52, 2014
IF: -
26. Sasi SP, Song J, Park D, **Enderling H**, Gee H, Garrity B, Shtifman A, Yan X, Walsh KA, Natarajan M, Kishore R, Goukassian D. TNF-TNFR2/p75 Signaling Inhibits Early and Increases Delayed Non-Targeted Effects in Murine BM-derived EPCs, *J. Biol. Chem.* 289(20): 14178-93, 2014
IF: 4.573; Q1 Biochemistry & Molecular Biology
27. Sasi SP, Bae S, Song J, Perepletchikov A, Schneider D, Yan X, Kishore R, **Enderling H**, Goukassian D. Therapeutic non-toxic doses of TNF induce remarkable regression in TNFR2-p75 knockdown Lewis lung carcinoma xenografts. *PLoS One* 9(3): e92373, 2014
IF: 3.234; Q1 Multidisciplinary Sciences
28. Weekes S, Barker B, Bober S, Cisneros K, Cline J, Thompson A, Hlatky L, Hahnfeldt P, **Enderling H**. A multi-compartment mathematical model of cancer stem cell driven tumor growth dynamics. *Bull. Math. Biol.* 76(7): 1762-82, 2014
IF: 1.389; Q1 Agricultural and Biological Sciences (miscellaneous)
29. Yan X, Sasi SP, Gee H, Lee J, Yang Y, Mehrzad R, Onufrak J, Song J, **Enderling H**, Agarwal A, Rahimi L, Morgan J, Wilson PF, Carrozza J, Walsh K, Kishore R, Goukassian DA. Cardiovascular Risks Associated with Low Dose Ionizing Particle Radiation. *PLoS One* 9(10): e110269, 2014
IF: 3.234; Q1 Multidisciplinary Sciences
30. Poleszczuk J, Hahnfeldt P, **Enderling H**. Evolution and phenotypic selection of cancer stem cells. *PLoS Comp. Biol.* 11(3):e1004025, 2015
IF: 4.620; Q1 Biochemical research methods, Q1 Mathematical and Computational Biology
31. Poleszczuk J, Hahnfeldt P, **Enderling H**. Therapeutic implications from sensitivity analysis of tumor angiogenesis models. *PLoS One* 10(3):e0120007, 2015
IF: 3.234; Q1 Multidisciplinary Sciences
32. Sasi SP, Park D, Muralidharan S, Wage J, Kiladjian A, Onufrak J, **Enderling H**, Yan X, Goukassian D. Particle radiation-induced non-targeted effects in bone marrow-derived endothelial progenitor cells. *Stem Cells Int.* 2015:496512, 2015
IF: 2.813
33. Poleszczuk J, **Enderling H**. Cancer stem cell plasticity as tumor growth promoter and catalyst of population collapse. *Stem Cells Int.* 2016:3923527, 2016
IF: 2.813
34. Poleszczuk J, Luddy KA, Prokopiou S, Robertson-Tessi M, Moros EG, Fishman M, Djeu JY, Finkelstein SE, **Enderling H**. Abscopal benefits of localized radiotherapy depend on activated T cell trafficking and distribution between individual metastatic lesions. *Cancer Res.* 76(5):1009-18, 2016
IF: 9.329; Q1 Oncology
35. Poleszczuk J, Johnstone PA, **Enderling H**. Stratifying prostate cancer patients by relative lymph node involvement: population- and modeling-based study. *Cancer Med.* 5(8):1850-1855, 2016

- IF: 2.500*
36. Perni S, Mohamed ASR, Scott J, **Enderling H**, Garden AS, Gunn B, Rosenthal D, Fuller CD. CT-based volumetric tumor growth velocity: a novel imaging prognostic indicator in oropharyngeal cancer patients receiving radiotherapy. *Oral Oncol.* 63:16-22, 2016
IF: 4.286; Q1 Oncology, Q1 Oral Surgery
 37. Caudell JJ, Torres-Roca JF, Gillies RJ, **Enderling H**, Kim S, Rishi A, Moros E, Harrison LB. Personalized Radiotherapy for Head and Neck Cancer: Future Directions. *Lancet Oncol.* 18(5): e266-273, 2017
IF: 24.725; Q1 Oncology
 38. Poleszczuk J, Luddy K, Chen L, Lee JK, Harrison LB, Soliman H, **Enderling H**. Neoadjuvant radiotherapy of early-stage breast cancer and long-term disease-free survival. *Breast Cancer Res.* 19:75, 2017
IF: 6.345; Q1 Cancer Research, Q1 Oncology
 39. Shiao JC, Mohamed ASR, Messer JA, Hutcheson KA, Johnson JM, **Enderling H**, Morrison WH, Zafereo ME, Hessel AC, Lai SY, Kies MS, Ferrarotto R, Garden AS, Schomer DF, Gunn B, Phan J, Frank SJ, Beadle BM, Weber RS, Lewin JS, Rosenthal DI, Fuller CD. Quantitative pretreatment computerized tomographic volumetry is associated with oncologic outcomes in patients with T4a squamous carcinoma of the larynx. *Head & Neck* 39(8): 1609-1620, 2017
IF: 2.76; Q1 Otorhinolaryngology
 40. Walker R, Schoenfeld JD, Pilon-Thomas S, Poleszczuk J, **Enderling H**. Evaluating the potential for maximized T cell redistribution entropy to improve abscopal responses to radiotherapy. *Converg. Sci. Phys. Oncol.* 3:034001, 2017
 41. Poleszczuk J, Walker R, Moros EG, Latifi K, Caudell J, **Enderling H**. Predicting patient-specific radiotherapy protocols based on mathematical model choice for proliferation saturation index. *Bull Math Biol.*, Accepted, 2017
IF: 1.263; Q1 Agricultural and Biological Sciences (miscellaneous)
 42. Walker R, Mejia J, Lee JK, Pimiento JM, Malafa M, Giuliano AR, Coppola D, **Enderling H**. Personalizing gastric cancer screening with predictive modeling of disease progression biomarkers. *Appl. Immunohistochem. Mol. Morphol.* Accepted, 2017
IF: 1.634, Q1 Medical Laboratory Technology
 43. Walker R, Poleszczuk J, Majia J, Lee JK, Pimiento JM, Malafa M, Giuliano A, **Enderling H**, Coppola D. Toward early detection of Helicobacter pylori-associated gastric cancer. *Gastric Cancer*, Accepted, 2017
IF: 5.454; Q1 Cancer Research, Q1 Oncology, Q1 Gastroenterology
 44. Poleszczuk J, Moros E, Fishman M, Walker R, Djeu J, Schoenfeld J, Finkelstein S, **Enderling H**. Modeling T cell trafficking to increase the likelihood of radiation-induced abscopal effects. *Journal of Targeted Therapies in Cancer* 06.17, 36-40, 2017
 45. Sasi SP, Yan X, Zuriaga-Herrero M, Gee H, Lee J, Mehrzad, R, Song J, Onufrak J, Morgan J, **Enderling H**, Walsh K, Kishore R, Goukassian D. Different sequence of fractionated low dose proton and single iron radiation induce divergent biological responses in the heart. *Radiat Res.* 188(2): 191-203, 2017
IF: 3.022; Q1 Biophysics, Q1 Radiation, Q1 Radiology, Nuclear Medicine and Imaging
 46. Santiago D, Heidbuechel JPW, Kandell WM, Walker R, Djeu J, Engeland CE, Abate-Daga D, **Enderling H**. Fighting cancer with mathematics and viruses. *Viruses* 9(9), E329, 2017 [*Cover*]
IF: 3.465; Q1 Infectious Diseases
 47. Forouzannia F, **Enderling H**, Kohandel M. Mathematical modeling of the effects of tumor heterogeneity on the efficiency of radiation treatment schedule. *Bull Math. Biol.* Accepted, 2017
IF: 1.263; Q1 Agricultural and Biological Sciences (miscellaneous)
 48. Lewin T, Maini PK, Moros EG, **Enderling H**, Byrne HM. The evolution of tumor composition during fractionated radiotherapy: implications for outcome. *Bull Math. Biol.* under revision, 2017

49. Alfonso JCL, Parsai S, Joshi N, Godley A, Koyfman SA, Caudell JJ, Fuller CD, **Enderling H**, Scott JG. Temporally-feathered intensity modulated radiation therapy: A technique to reduce normal tissue toxicity. submitted, 2018

Invited Peer-Reviewed Publications

50. **Enderling H**, Anderson ARA, Chaplain MAJ. A model of breast carcinogenesis and recurrence after radiotherapy. *Proc. Appl. Math. Mech.* 7(1): 1121701-1121702, 2007
51. **Enderling H**, Hlatky L, Hahnfeldt P. Tumor morphological evolution: directed migration and gain and loss of the self-metastatic phenotype. *Biol. Direct* 5:23, 2010
IF: 4.658; Q1 Biology
52. **Enderling H**, Hlatky L, Hahnfeldt P. The promoting role of a tumor-secreted chemorepellent in self-metastatic tumor progression. *Math. Med. Biol.* 29(1): 21-29, 2012
IF: 1.658
53. **Enderling H**, Chaplain MAJ. Mathematical modeling of tumor growth and treatment. *Curr. Pharm. Des.* 20(3): 4934-40, 2014
IF: 3.452; Q1 Pharmacology & Pharmacy
54. **Enderling H**. Cancer stem cells: small subpopulation or evolving fraction? *Integr. Biol.* 7(1): 14-23, 2015
IF: 3.756; Q1 Biophysics
55. Johnstone PAS, **Enderling H**. Mathematical modeling of acupuncture as cancer symptom therapy: First steps. *J. Acupunct. Meridian Stud.* 8(3): 113-114, 2015
IF: -
56. Prokopiou S, Moros E, Poleszczuk J, Caudell J, Torres-Rocca JF, Latifi K, Myerson R, Harrison LB, **Enderling H**. A proliferation saturation index to predict radiation response and personalize radiotherapy fractionation. *Radiat. Oncol.* 10:159, 2015
IF: 2.546; Q1 Radiology, Nuclear Medicine and Imaging
57. Walker R, **Enderling H**. From concept to clinic: mathematically informed immunotherapy. *Curr. Probl. Cancer* 40: 67-82, 2016
IF: 0.526
58. Poleszczuk J, Macklin P, **Enderling H**. Agent-based modeling of cancer stem cell driven solid tumor growth. *Methods Mol. Biol.* 1516: 335-346, 2016
IF: 1.29

Published Abstracts

1. **Enderling H**, Hlatky L, Hahnfeldt P. Abstract 4931: Cancer stem cells in solid tumors: Symmetric division, niche size, and invasive tumor morphology. *Cancer Res.* 71(8), Supplement 1, 2011
2. McDonald JT, Lee J, Rietman E, Lamont C, **Enderling H**, Peluso M, Hlatky L. Abstract 4340: Increased cytokine and chemokine expression in U87MG glioblastoma cells after large clinically relevant single doses of ionizing radiation. *Cancer Res.* 72(8), Supplement 1, 2012
3. Muralidharan S, Sasi S, Yan X, **Enderling H**, Goukassian D. TNF-TNFR1/p55 or TNFR2/p75 Receptor-Ligand Interactions Inhibit Early and Increase Delayed Radio-Biological Bystander Responses in BM-Derived EPCs. *Circ. Res.* 111(4) Supplement 184, 2012
4. Sasi SP, Song J, Park D, **Enderling H**, Gee H, Garrity B, Shtifman A, Yan X, Walsh KA, Natarajan M, Kishore R, Goukassian D. TNF-alpha and IL-1 alpha but not MCB-1 and Rantes increase significantly the formation of p-H2AX foci in naïve BM-derived TNFR1/P55KO EPCS. *J. Radiat. Res.* 55(Suppl 1): i122-3, 2014
5. Poleszczuk J, Prokopiou S, Robertson-Tessi M, Luddy KA, Moros E, Fishman M, Djeu JY, **Enderling H**. A systems biology approach to predict immunotherapy augmented abscopal effects

- [abstract]. In: Proceedings of the AACR Special Conference: Tumor Immunology and Immunotherapy: A New Chapter; December 1-4, 2014; Orlando, FL. Philadelphia (PA): AACR; Cancer Immunol. Res. 3(10 Suppl):Abstract nr A18, 2015
6. Prokopiou S, Poleszczuk J, Robertson-Tessi M, Luddy KA, Fishman M, Moros E, Djeu JY, **Enderling H**. Systems biology approach predicts the diagnostic value of T effector:T regulatory cell ratio in clinical response to combined radiation/immunotherapy of high-risk soft tissue sarcoma [abstract]. In: Proceedings of the AACR Special Conference: Tumor Immunology and Immunotherapy: A New Chapter; December 1-4, 2014; Orlando, FL. Philadelphia (PA): AACR; Cancer Immunol. Res. 3(10 Suppl):Abstract nr A19, 2015
 7. Walker R, Mejia J, **Enderling H**, Coppola D. H. pylori Infection Induces Early Expression of CD44 during the Progression of Gastric Cancer. Lab. Invest. 96(Suppl 1): 206A-206A, 2016
 8. Lewin T, Kim J, Latifi K, Poleszczuk J, Bull J, Byrne H, Torres-Roca J, Moros EG, Gatenby R, Harrison LB, Heukelom J, Mohamed ASR, Rosenthal DI, Fuller CD, Caudell JJ, **Enderling H**. Proliferation saturation index predicts oropharyngeal squamous cell cancer gross tumor volume reduction to prospectively identify patients for adaptive radiation therapy. Int. J. Radiat. Oncol. Biol. Phys. 94(4): 903, 2016
 9. Diffalha SAL, Walker R, **Enderling H**, Coppola D, Pimiento J, Mejia J. Tu1324 CD133 Protein expression as a biomarker for early detection of gastric cancer. Gastroenterology 150 (4): S874-S875, 2016
 10. Walker R, Mejia J, **Enderling H**, Pimiento JM, Malafa M, Coppola D. CD44, CD133 and Lgr5 as biomarkers for early detection of H. pylori-associated gastric cancer. The FASEB Journal 30 (1 Suppl): 696.4, 2016.
 11. Poleszczuk J, Luddy K, Pilon-Thomas S, Schoenfeld JD, **Enderling H**. Personalizing the synergy of focal radiation and immunotherapy. Cancer Res., 76 (14 Supplement): 4016, 2016
 12. Walker R, Majia J, **Enderling H**, Pimiento JM, Coppola D. Cross-disciplinary methods for personalizing screening modalities for early gastric cancer intervention. Cancer Res. 76 (14 Supplement): 1523, 2016
 13. **Enderling H**, Walker R, Pimiento J, Mejia J, Coppola D. Computational modeling to suggest patient-specific screening schedules for early detection of gastric cancer. Cancer Res. 77 (13 Supplement): 4544, 2017
 14. Walker R, Poleszczuk, **Enderling H**. Local and systemic tumor-immune dynamics in metastatic cancer. Cancer Res. 77 (13 Supplement): 4543, 2017
 15. **Enderling H**. Local and systemic tumor immune dynamics. Bulletin of the American Physical Society 62, 2017.
 16. Chou KT, Grass GD, Zhang GG, Latifi K, Arrington J, Sabhemjam S, Raghunand N, **Enderling H**, Stringfield O, Sarangkasiri S, Forsyth P, Johnstone PAS, Robinson TJ, Yu HHM. Pre-treatment T2-weighted fluid attenuated inversion recovery (T2-FLAIR_{pre}) MRI may improve gross tumor volume delineation for recurrent glioblastoma treated with salvage hypofractionated stereotactic radiation therapy. Int. J. Radiat. Oncol. Biol. Phys. 99(2): E650.
 17. **Enderling H**, Sunassee E, Latifi K, Rishi A, Howard R, Moros EG, Heukelom J, Mohamed ASR, Fuller CD, Harrison LB, Caudell JJ. Mathematical model of head and neck cancer response to predict fractionation schema for robust responses during radiotherapy. Int. J. Radiat. Oncol. Biol. Phys. 99(2): E656.
 18. Latifi K, Rishi A, **Enderling H**, Moros EG, Heukelom J, Mohamed ASR, Fuller CD, Harrison LB, Caudell JJ. Mid-treatment nodal response is associated with outcome in Head and Neck squamous cell cancer. Int. J. Radiat. Oncol. Biol. Phys. 99(2): E683.
 19. Rishi A, Latifi K, Naghavi AO, Zhang GG, **Enderling H**, Moros EG, Heukelom J, Mohamed ASR, Fuller CD, Harrison LB, Caudell JJ. CT-based nodal radiomics features and outcome in head and neck squamous cell carcinoma. Int. J. Radiat. Oncol. Biol. Phys. 99(2): E715.

Edited Books

1. **Enderling H**, Almog N, Hlatky L. Systems Biology of Tumor Dormancy. Springer, 2012.

Book Chapters

1. **Enderling H**, Vaidya JS. Mathematical Modelling of Breast Carcinogenesis, Treatment with Surgery and Radiotherapy, and Local Recurrence. In: Bellomo N, Chaplain M, De Angelis E (eds) Selected Topics on Cancer Modelling – Genesis, Evolution, immune competition, and therapy. Birkhäuser, Boston: 337, 2008
2. Piotrowska MJ, **Enderling H**, an der Heiden U, Mackey MC. Mathematical modelling of stem cells related to cancer. In: Dittmar T and Zanker KS (eds). Stem cells and cancer. Nova Science Publishers, 2008
3. Gao X, McDonald JT, Hlatky L, **Enderling H**. Cell-cell interactions in solid tumors: the role of cancer stem cells. In: d'Onofrio A, Cerrai P, and Gandolfi A (eds) New Challenges for Cancer Systems Biomedicine. SIMAI Springer Series, 2012
4. **Enderling H**. Cancer stem cell kinetics. In: Encyclopedia of Systems Biology, Springer New York, 2013

Oral Presentations/Poster Presentations/Plenary Presentations (since faculty):

1. **Enderling H**, Hlatky L, Hahnfeldt P. Emerging tumor morphologies from cancer cell interactions, European Society for Mathematical and Theoretical Biology, Krakow, Poland, 2011
2. **Enderling H**, Hlatky L, Hahnfeldt P. Cancer stem cells in solid tumors: Symmetric division, niche size, and invasive tumor morphology, American Association for Cancer Research Annual Meeting, Orlando, FL, 2011
3. Gao X, Hlatky L, **Enderling H**. Fractionated but not acute radiation induces symmetric renewal in cancer stem cells. Society of Mathematical Biology Annual Meeting, Knoxville, TN, 2012
4. Weekes S, Barker B, Bober S, Cisneros K, Cline J, Thompson A, Hlatky L, Hahnfeldt P, **Enderling H**. A multi-compartment mathematical model of cancer stem cell driven tumor growth dynamics. Society of Mathematical Biology Annual Meeting, Tempe, AZ, 2013
5. **Enderling H**. An integrated hybrid agent-based - differential equation model framework for solid tumor growth, Swarmfest, University of Central Florida, Orlando, FL 2013
6. **Enderling H**. Agent-based modeling of cancer cells, modeling radiation effects, and possibilities for modeling of nano-particle interactions. Workshop Nanoparticles and Cell interaction in cancer Research, University of Central Florida, Orlando, FL, 2013
7. **Enderling H**. Fields Institute, Toronto, Canada, 2014
8. **Enderling H**. Integrating experimental and computational studies to evaluate radiotherapy treatment protocols for glioblastoma, 6th Radiation Systems Biology Workshop, National Institute for Radiation Science, Chiba, Japan, 2014
9. **Enderling H**. Biphasic modulation of cancer stem cell driven solid tumor dynamics in response to reactivated replicative senescence, European Conference for Mathematical and Theoretical Biology, Gothenburg, Sweden, 2014
10. **Enderling H**. Integrating experimental and computational studies to evaluate radiotherapy treatment protocols for glioblastoma, Society for Mathematical Biology Annual Meeting, Osaka, Japan, 2014
11. **Enderling H**. A multicompartment mathematical model of cancer stem cell-driven tumor growth dynamics, Society for Mathematical Biology Annual Meeting, Osaka, Japan, 2014
12. **Enderling H**. Agent-based modeling of cancer stem cell-driven solid tumor dynamics. OPERRA Workshop: Modeling of pathogenesis. Helmholtz Centre, Munich, Germany, 2015

13. **Enderling H.** Acute and Fractionated Irradiation Differentially Modulate Glioma Stem Cell Division Kinetics. MBI Workshop: Stem cells, development and cancer, Columbus, OH, 2015
14. **Enderling H.** Mathematical modeling to predict cancer growth and personalize treatment protocols. ICMS Workshop: Computational and multiscale mathematical modeling of cancer growth and spread. Edinburgh, Scotland, UK, 2015
15. Prokopiou S, Moros E, Poleszczuk J, Caudell J, Torres-Rocca JF, Latifi K, Myerson R, Harrison LB, **Enderling H.** Non-invasive prediction of radiation response to personalize radiotherapy fractionation. Radiation Research Society Annual Meeting, Weston, FL, USA, 2015
16. Majia J, Walker R, **Enderling H.** Pimiento J, Malaga M, Coppola D. CD44 Immunopositivity as a Biomarker of Progression in Helicobacter pylori-associated Gastric Cancer, ASIP/PISA Pathways to Translational Medicine: Recent Advances in Cell Injury, Inflammation, and Neoplasia, Baltimore, MD, USA, 2015
17. **Enderling H.** Integrated mathematical models to personalize cancer radiotherapy. Workshop on Biological & Medical Science based on Physics. Kyoto, Japan, 2015.
18. **Enderling H.** Agent-based modeling in cancer. Supercomputing 2015, Austin, TX, USA, 2015.
19. Walker R, Majia J, **Enderling H.** Coppola D. Cross-disciplinary methods for personalizing screening modalities for early gastric cancer intervention. Gastrointestinal Cancers Symposium, San Francisco, CA, 2016
20. Walker R, Majia J, **Enderling H.** Pimiento J, Malafa MK, Coppola D. H pylori Infection Induces Early Expression of CD44 During the Progression of Gastric Cancer. USCAP Annual Meeting, Boston, MA, USA, 2016
21. Al Diffalha S, Walker R, **Enderling H.** Pimiento JM, Mejia J, Coppola D. CD133 Protein Expression as a Biomarker for Early Detection of Gastric Cancer, USCAP Annual Meeting, Boston, MA, USA, 2016
22. Sunassee E, Lewin T, **Enderling H.** Analysis of a Proliferation Saturation Index to predict the response to radiation in Head and Neck cancer patients for personalized radiotherapy. USF Undergraduate Research and Arts Colloquium, Tampa, FL, USA, 2016 [*Excellence in Undergraduate Research Award*]
23. **Enderling H.** Proliferation saturation index (PSI) predicts OPX GTV reduction to prospectively identify patients for adaptive radiation therapy. Society for Mathematical Biology Annual Meeting, Nottingham, United Kingdom, 2016
24. **Enderling H.** Simple mathematical models to personalize cancer therapy. Multiscale modeling of tumor evolution: data, validation and uncertainty workshop, Center for Interdisciplinary Research, University of Bielefeld, Germany, 2016
25. Sunassee E, Jones N, Ibrahim-Hasim A, Gatenby R, **Enderling H.** Characterization of migration phenotype of pancreatic cancer cell lines. Annual Biomedical Research Conference for Minority Students (ABRCMS), Tampa, 2016 [*Student research award*]
26. **Enderling H.** Walker R, Pimiento J, Coppola D. A mathematical framework to personalize gastric carcinogenesis screening. Joint Math Meeting, Atlanta, GA, USA, 2017
27. Coppola D, **Enderling H.** H. Pylori in Gastric Cancer. Third Annual Moffitt Anatomic Pathology Symposium: Transforming Discovery into Practice, Sarasota, FL, USA, 2017
28. **Enderling H.** Harnessing tumor-immune interactions to trigger abscopal effects after radiotherapy. NCI CSBC/PSO Mathematical Oncology Meeting, Phoenix, AZ, USA, 2017
29. **Enderling H.** Local and systemic tumor immune dynamics. American Physical Society March Meeting, New Orleans, LA, USA, 2017
30. Sunassee E, Jones N, Ibrahim-Hasim A, Gatenby R, **Enderling H.** Characterization of migration phenotype of pancreatic cancer cell lines. USF Undergraduate Research and Arts Colloquium, Tampa, FL, USA, 2017 [*Excellence in Undergraduate Research Award*]

31. **Enderling H.** Integrating mathematics into abscopal effect studies. SWOG Radiation Oncology Symposium, San Francisco, CA, 2017
32. **Enderling H.**, Sunassee E, Latifi K, Rishi A, Howard R, Moros EG, Heukelom J, Mohamed ASR, Fuller CD, Harrison LB, Caudell JJ. Mathematical model of head and neck cancer response to predict fractionation schema for robust responses during radiotherapy. ASTRO, San Diego, CA, 2017 (Top 20 abstracts designation; Physics tract)

Invited Seminars

1. **Vanderbilt University**, Integrative Cancer Biology Center, Nashville, TN, 2005. Mathematical Modeling of radiotherapy strategies for early breast cancer
2. **Vanderbilt University**, Integrative Cancer Biology Center, Nashville, TN, 2006. Mathematical Modeling of targeted intraoperative radiotherapy.
3. **University of Dundee**, Department of Mathematics, Scotland, 2007. Mathematical modeling of breast cancer development, local treatment, and recurrence.
4. **Vanderbilt University**, Department of Mathematics, Nashville, TN, 2007. A mathematical model of breast cancer development, local treatment, and recurrence.
5. **University of Alberta**, Department of Mathematics, Canada, 2008. An in-silico model of early tumor dynamics – implications for treatment design.
6. **Dana Faber Cancer Institute**, Cancer Systems Biology Seminar, Boston, MA, 2009. Agent-based model of tumor growth, morphological evolution, and treatment
7. **Dartmouth College**, Department of Mathematics, Hanover, NH, 2011. Modeling cancer stem cells and tumor growth – what can we learn
8. **Memorial Sloan Kettering Cancer Institute**, CCSB, New York, 2011. Quantitative modeling of cancer stem cell kinetics in solid tumor progression
9. **Indiana University**, Biocomplexity Institute, Bloomington, IN, 2011. Modeling the cancer stem cell hypothesis in tumor growth and treatment response
10. **Moffitt Cancer Center**, Integrative Mathematical Oncology, Tampa, FL, 2011. Modeling the cancer stem cell hypothesis and implications for treatment
11. **Worcester Polytechnic Institute**, Department of Mathematics, Worcester, MA, 2012. Cancer stem cells in solid tumors
12. **Boston University School of Medicine**, Grand Rounds, Boston, MA, 2012. Cancer stem cells in solid tumors
13. **Notre Dame University**, Department of Applied Mathematics, South Bend, IN, 2013. Mathematical and computational modeling of cancer stem cells in solid tumors
14. **Moffitt Cancer Center**, Integrative Mathematical Oncology, Tampa, FL, 2011. An integrated view of cancer stem cells in solid tumors
15. **Ohio State University**, Department of Biomedical Informatics, Columbus, OH, 2013. An integrated view of cancer stem cells in solid tumors
16. **University of South Florida**, Department of Cell Biology (CCMB), Tampa, FL, 2013. Integrating mathematics and biology to understand cancer stem cells in solid tumors
17. **Rutgers University**, Genetics Department, Piscataway, NJ 2013. Phenotypic selection and evolution of cancer stem cells
18. **Heidelberg University**, Department of Quantitative Biology, Germany 2014. Systems biology investigations into the abscopal effect of radiotherapy
19. **Helmholtz Centre**, Department of Radiation Biology, Germany, 2014. Systems biology investigations into the abscopal effect of radiotherapy
20. **University College London**, Department of Applied Health Research, London, UK, 2015. Mathematical modeling to predict cancer growth and personalize treatment protocols
21. **Duke University**, Department of Mathematics, Durham, NC 2015. Integrated mathematical models to personalize cancer radiotherapy

22. **Moffitt Cancer Center**, Integrated Mathematical Oncology, Tampa, FL 2016
Local and systemic antitumor immunity. Hypothesis driven and hypothesis generating math oncology research
23. **University of South Florida**, Math club, Tampa, FL 2016
Using mathematics to personalize cancer medicine
24. **Heidelberg University**, Institute for Applied Mathematics, Germany 2016. Simple mathematical models to personalize cancer therapy
25. **Braunschweig University**, Systems Immunology Department, Germany, 2017. Mathematical modeling of tumor-immune dynamics: implications for cancer therapy
26. **Arizona State University**, Mathematics and Statistics Colloquium, Tempe, AZ 2017.
Mathematical modeling of tumor-immune dynamics: implications for cancer therapy

Public Speaking Engagements

1. Integrated Mathematical Oncology. **Leadership Tampa Health Science Day**, Moffitt Cancer Center, Tampa, FL, 2015
2. Mathematics in Cancer Research. **American Cancer Society Relay for Life**, Shorecrest Academy, St. Petersburg, FL, 2015
3. STEM in Cancer Research. **Hillsborough County STEM Academy**, Middleton High School, Tampa, FL, 2015
4. Integrated Mathematical Oncology at Moffitt Cancer Center. **Tampa Bay Stem Network Parent University**, Jefferson High School, Tampa, FL, 2016
5. Mathematics in everyday life. **The Great American Teach In**, 2nd grade science class. Hunter's Green Elementary School, Tampa, 2016
6. STEM at Moffitt Cancer Center. **Hillsborough County Middle School Teachers STEM workshop**, Museum of Science and Industry, Tampa, 2017
7. Mathematics in Oncology – from a STEM perspective. **Moffitt Healthy Kidz Hug a Science Teacher**, Moffitt McKinley, Tampa, 2017
8. Mathematics in the life sciences. 8th grade algebra class. **Sligh Middle Magnet School**, Tampa, 2017
9. STEM in cancer. **Port of Tampa**, Tampa, 2017
10. Playing computer games to beat cancer, **Moffitt Healthy Kidz**, Tampa, 2017
11. Forecasting cancer with calculus, **Tampa East Sertoma Club**, Tampa, 2017
12. Modeling and simulation in a cancer hospital, **Monroe Middle School**, Tampa, 2017