Edward (Ted) Elliot Graves

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Date of birth June 19, 1974

Citizenship U.S.A.

A. EDUCATIONAL BACKGROUND

University

1992 – 1996 B.S. with honors, Bioengineering
University of California, Berkeley
Emphasis: Electronic Instrumentation

1996 – 2001 Ph.D., Bioengineering
University of California, Berkeley and San Francisco
Major area: Medical Imaging, Minor Areas: Oncology, Computer Vision

Postgraduate Training

2001 – 2003 Postdoctoral Fellowship
Massachusetts General Hospital
Field of study: Molecular imaging

B: EMPLOYMENT HISTORY

08/01/2003 – 02/01/2012 **Assistant Professor**
Division of Radiation Physics, Department of Radiation Oncology
Stanford University, California

02/02/2012 – present **Associate Professor (with tenure)**
Director, Imaging Radiobiology Laboratory
Divisions of Radiation Physics and Radiation and Cancer Biology, Department of Radiation Oncology

Stanford University, California

C. PUBLIC AND PROFESSIONAL SERVICE

Journal Review

2005 – present	Medical Physics (Associate Editor)
2005 – present	Physics in Medicine and Biology (ad hoc)
2006 – present	Molecular Imaging (ad hoc)
2007 – present	International Journal of Radiation Oncology Biology Physics (ad hoc)
2007 – present	Technology in Cancer Research and Treatment (ad hoc)
2008 – present	Cancer Research (ad hoc)
2009 – present	Radiation Research (ad hoc)
2009 – present	Measurement Science and Technology (ad hoc)
2009 – present	Lung Cancer
2009 – present	Journal of Applied Clinical Medical Physics
2009 – present	BMC Medical Imaging
2010 – present	Clinical Cancer Research (ad hoc)
2010 – present	Molecular Cancer Research
2011 – present	Journal of Nuclear Medicine

Grant Review

2006 – 2010	Department of Defense Breast Cancer Research
2009	National Institutes of Health Challenge Grants
2009 – present	Italian Ministry of Health
2010 – present	Cancer Prevention and Research Institute of Texas
2010 – present	Bankhead-Coley Cancer Research Program
2011 – 2014	National Institutes of Health Clinical Molecular Imaging Probes (CMIP) study section
2011 – present	National Institutes of Health Special Emphasis Panel Study Section (co-chair)
2015 – present	National Institutes of Health SBIR/STTR Panel Study Section (co-chair)

Committee Membership

Society

2008 – 2011	Member, Molecular Imaging Committee, RSNA
2008 – present	Founding member, Small Animal Conformal Irradiation Working Group, AAPM
2008 – present	Member, Imaging in Therapy Assessment Working Group, AAPM
2012 – 2015	Member, Molecular Imaging Board of Directors, Society of Nuclear Medicine and Molecular Imaging

Stanford

2008 – present	Member, Cancer Biology Graduate Program Executive Committee
2012 – present	Member, Scientific Review Committee, Stanford Cancer Institute
2015 – present	Director, Cancer Biology Scholarly Concentration, Stanford Medical School
2016 – present	Member, Non-Human Use Radiation Safety Committee
2019 – present	Member, Radiation Oncology Diversity Cabinet

2020 – present Training Committee Member, Cancer-TNT (Cancer-Translational Nanotechnology Training) Program

D. TEACHING

2007 Stanford Cancer Biology Survey Course
Lectures: Cancer Imaging

2004 – 2010 Stanford Radiation Oncology Physics Resident Course, yearly
Lectures: Measurement of Ionizing Radiation
Radiation and Matter
Electron Beam Therapy
Radiation Protection
Quality Assurance

2006, 2009, 2011 Stanford Bioengineering 222C, yearly
Lectures: Imaging Hypoxia
Imaging Radiation Response
Imaging Circulation Tumor Cells and Metastasis
Discussion Section

2007 – 2014 Stanford Cancer Biology 241, yearly
2008-2014 Course Director
2007-2014 Discussion Section Leader
Lectures: Cancer Imaging

2014 Stanford Cancer Biology 243, Guest Lecturer
Lectures: Tumor Hypoxia at the Molecular, Cellular, and Patient Level
Systems Biology of Tumor Hypoxia: Discussion

2004 – Present Stanford Bioengineering 222A, yearly
Lectures: Tissue Optics
Fluorescence Imaging Methods
Bioluminescence Imaging Methods
3D Optical Imaging
Applications of Molecular Imaging in Radiation Therapy

2004 – Present Stanford Bioengineering 222B, yearly
Lectures: CT Contrast Agents

2015 – Present Stanford Cancer Biology 240, yearly
2015-present Course Director
2015-present Discussion Section Leader

2015 – Present Stanford Cancer Biology 242
2015-present Course Director
2015-present Discussion Section Leader

E. FUNDING

Current Funding

NIH/NCI Graves 09/01/15-08/31/21
Title: **Radiation-Induced Tumor Cell Migration**
Role: PI

Varian Medical Systems, Inc. Gensheimer 09/09/16-09/08/21
Title: **A phase II trial of addition of radical-dose radiation therapy to anti-PD1 immunotherapy for non-small cell lung cancer patients**
Role: Translational Research Co-Chair

NIH Idoyaga 09/15/17-08/31/22

Title: **Effect of Radiotherapy on Dendritic Cell Subsets: Implications for Immunotherapy**
Role: Co-Investigator

NIH Bhardwaj and Loo 09/01/19-08/30/21
Title: **Practical Implementation of an Ultra-rapid FLASH Radiation Therapy Linac Beamline**
Role: Senior/Key Person

University of California, Irvine Loo 06/01/20-05/31/25
Title: **Increasing the therapeutic index of brain tumor treatment through innovative FLASH radiotherapy**
Role: Co-Investigator

Stanford Cancer Institute Graves 09/01/20-08/31/21
Title: **Synergizing CAR-T Cell Therapy with Radiation for the Treatment of Brain Tumors**
Role: PI

Pending Funding

NIH Cheshier 04/01/17-03/31/22
Title: **Enhancing Myeloid Checkpoint Immunotherapy through Standard of Care Treatment in Glioblastoma**
Role: Co-Investigator

NIH/NCI Giaccia 04/01/19-03/31/24
Title: **Hypoxia: Molecular Studies and Clinical Exploitation**
Role: Project Leader

NIH U54 Ferrera and Levy 09/02/19-08/31/24
Title: Immuno-Oncology Translation Network (IOTN): Immuno-engineering to Improve Immunotherapy (i3) Centers
Role: Project Leader on Project 3

NIH T32 Graves 04/01/20-03/31/25
Title: **Postdoctoral Training in the Radiation Sciences**
Role: PI

NIH R01 Graves 04/01/20-03/31/25
Title: **Macrophage Responses to Radiation and Effects on Tumor Recurrence**
Role: PI

NIH R01 Graves, Loo, Rankin, Rao 09/01/20-08/31/25
Title: **FLASH radiotherapy: real-time imaging and biological interrogation of molecular mechanisms**
Role: PI

Prior Funding

DOD Graves 09/01/13-08/31/16
Title: **Imaging the Ovarian Cancer-Associated Protein AXL to Stage Disease and Monitor Therapy**
Role: PI

NIH/NCI Le 04/01/12-03/31/17
Title: **Targeting Galectin-1 with Radiation in Lung Cancer**
Role: Co-Investigator

NIH/NCI Cochran 07/01/10-03/31/17
Title: **Engineered HGF-NK1 antagonists for Met-targeted cancer imaging and therapy**
Role: Co-Investigator

NIH Rubin 05/01/10-04/30/17
Title: **Computerized Quantitative Imaging Assessment of Tumor Burden**
Role: Co-Investigator

DOD PCRP Loo 08/15/12-08/14/17
Title: **EF5 PET of Tumor Hypoxia: a Predictive Imaging Biomarker of Response to Stereotactic Ablative Radiotherapy (SABR) for Early Lung Cancer**
Role: Co-Investigator

NIH/NCI Giaccia 06/01/13-05/31/19
Title: **Hypoxia: Molecular Studies and Clinical Exploitation**
Role: Leader, Core B

Varian Medical Systems Loo 09/09/16-09/08/19
Title: **A phase II trial of addition of radical-dose radiation therapy to anti-PD1 immunotherapy for non-small cell lung cancer patients**
Role: Translational Research Co-Chair

NIH Rankinn 04/01/16-03/31/21
Title: **Preclinical Testing of a Novel Therapy Targeting AXL in Advanced Kidney Cancer**
Role: Co-Investigator

UCOP Loo 04/01/19-03/31/21
Title: **Immune mechanisms of FLASH radiotherapy: a new paradigm for lung cancer cure**
Role: Co-Investigator

F. HONORS

1996, 1997, 1999	NIH Predoctoral Training Grant Recipient
1998	UC Berkeley Block Grant Recipient
2000	Achievement Rewards for College Scientists Scholar
2000	First prize, student poster competition, ISMRM Experimental and Clinical Research in the New Millenium Workshop, Geiranger, Norway
2001, 2002	NIH Postdoctoral Training Grant Recipient

G. MEMBERSHIP, SCIENTIFIC SOCIETY

1998 – 2001	Member, International Society for Magnetic Resonance in Medicine
1995 – Present	Member, Tau Beta Pi (national engineering honor society)
2003 – Present	Member, World Molecular Imaging Society (formerly Society for Molecular Imaging)
2009 – Present	Member, American Society of Physicists in Medicine
2009 – Present	Member, American Association of Radiation Oncology
2012 – Present	Member, Radiation Research Society
2016 – Present	Member, American Association for Cancer Research

H. SCHOLARLY PUBLICATIONS

Peer-Reviewed Papers: (117 total, 0 in press, 0 submitted)

*(1) *Acquired data and implemented CNN model of visual processing.*
*(2) *Analyzed magnetic resonance spectroscopy data.*
*(3) *Aided in manuscript writing and preparation.*
*(4) *Analyzed magnetic resonance imaging data.*
*(5) *Developed FMT system and acquired data.*
*(6) *Aided in study design, data analysis, and manuscript preparation.*
*(7) *Supervised data analysis using custom-built RT_Image platform.*
*(8) *Developed and applied metabolic and hypoxia imaging methods to animal models.*
*(9) *Assisted with quantitative analysis of 4D-CT data and interpretation of findings.*
*(10) *Assisted with preclinical imaging experiments and data analysis.*
*(11) *Aided with animal tumor model, data analysis, and manuscript preparation.*
*(12) *Supervised animal irradiation and contributed to data analysis and manuscript preparation.*
*(13) *Led implementation of EF5 synthesis and contributed to data analysis and manuscript preparation.*

1. Zarándy A, Orzó L, **Graves E**[1], Werblin F. CNN-Based Models for Color Vision and Visual Illusions. *IEEE Transactions on Circuits and Systems I: Fundamental Theory and Applications* 1999; 46:229-38.
2. **Graves EE**, Nelson SJ, Vigneron DB, Chin C, Verhey L, McDermott M, Larson D, Sneed PK, Chang S, Prados MD, Lamborn K, Dillon WP. A Preliminary Study of the Prognostic Value of Proton Magnetic Resonance Spectroscopic Imaging in Gamma Knife Radiosurgery of Recurrent Malignant Gliomas. *Neurosurgery* 2000; 46(2):319-26. PubMed PMID: 10690720
3. **Graves EE**, Nelson SJ, Vigneron DB, Verhey L, McDermott M, Larson D, Chang S, Prados MD, Dillon WP. Serial Proton MR Spectroscopic Imaging of Recurrent Malignant Gliomas after Gamma Knife Radiosurgery. *American Journal of Neuroradiology* 2001; 22(4):613-24. PubMed PMID: 11290467
4. Pirzkall A, McKnight TR, **Graves EE**[2], Carol MP, Sneed PK, Wara WW, Nelson SJ, Verhey LJ, Larson DA. MR-Spectroscopy Guided Target Delineation for High-Grade Gliomas. *International Journal of Radiation Oncology Biology Physics* 2001; 50(4):915-28. PubMed PMID: 11429219
5. **Graves EE**, Pirzkall A, Nelson SJ, Larson D, Verhey L. Registration of Magnetic Resonance Spectroscopic Imaging to Computed Tomography for Radiotherapy Treatment Planning. *Medical Physics* 2001; 28(12):2489-96. PubMed PMID: 11797952
6. Ntziachristos V, Bremer C, **Graves EE**[3], Weissleder R. In-vivo tomographic imaging of near-infrared fluorescent probes. *Journal of Molecular Imaging* 2002; 1(2):82-8. PubMed PMID: 12920848
7. **Graves EE**, Pirzkall A, McKnight TR, Vigneron DB, Larson DA, Verhey LJ, McDermott M, Chang S, Nelson SJ. Use of Proton Magnetic Resonance Spectroscopic Imaging Data for Planning Focal Radiation Therapies. *Image Analysis and Stereology* 2002; 21:69-76.
8. Pirzkall A, Nelson SJ, McKnight TR, Takahashi MM, Li X, **Graves EE**[2], Verhey LJ, Wara WW, Larson DA, Sneed PK. Metabolic imaging of low-grade gliomas with three-dimensional magnetic resonance spectroscopy. *International Journal of Radiation Oncology Biology Physics* 2002; 53(5):1254-64. PubMed PMID: 12128127
9. McKnight TR, von dem Bussche MH, Vigneron DB, Lu Y, Berger MS, McDermott MW, Dillon WP, Pirzkall A, **Graves EE**[2], Nelson SJ. Histopathological validation of a three-dimensional magnetic resonance spectroscopy index as a predictor of tumor presence. *Journal of Neurosurgery* 2002; 97(4):794-802. PubMed PMID: 12405365
10. Nelson SJ, **Graves E**[2], Pirzkall A, Li X, Chan AA, Vigneron DB, McKnight TR. In Vivo Molecular Imaging for Planning Radiation Therapy of Gliomas: An Application of 1H MRSI. *Journal of Magnetic Resonance Imaging* 2002; 16(4):464-76. PubMed PMID: 12353260
11. **Graves EE**, Ripoll J, Weissleder R, Ntziachristos V. A Submillimeter Resolution Fluorescence Molecular Imaging System for Small Animal Imaging. *Medical Physics* 2003; 30(5):901-11. PubMed PMID: 12772999
12. Kircher MF, Allport JR, **Graves EE**[4], Love V, Josephson L, Lichtman AH, Weissleder R. In vivo high resolution three-dimensional imaging of antigen-specific cytotoxic T-lymphocyte trafficking to tumors. *Cancer Research* 2003; 63(20):6838-46. PubMed PMID: 14583481

13. **Graves EE**, Culver JP, Ripoll J, Weissleder R, Ntziachristos V. Singular-value analysis and optimization of experimental parameters in fluorescence molecular tomography. *Journal of the Optical Society of America A* 2004; 21(2):231-41. PubMed PMID: 14763766
14. **Graves EE**, Weissleder R, Ntziachristos V. Fluorescence Molecular Imaging of Small Animal Tumor Models (Review). *Current Molecular Medicine* 2004; 4(4):419-30. PubMed PMID: 15354872
15. Ntziachristos V, Schellenberger EA, Ripoll J, Yessayan D, **Graves E**[5], Bogdanov A Jr, Josephson L, Weissleder R. Visualization of antitumor treatment by means of fluorescence molecular tomography with an annexin V-Cy5.5 conjugate. *Proceedings of the National Academy of Sciences of the United States of America* 2004, 101(33):12294-9. PubMed PMID: 15304657, PMCID: PMC514472
16. Li X, Vigneron DB, Cha S, **Graves EE**[2], Crawford F, Chang SM, Nelson SJ. Relationship of MR-Derived Lactate, Mobile Lipids, and Relative Blood Volume for Gliomas *in Vivo*. *American Journal of Neuroradiology* 2005; 26(4):760-9. PubMed PMID: 15814918
17. **Graves EE**, Yessayan D, Turner G, Weissleder R, Ntziachristos V. Validation of *In Vivo* Fluorochrome Concentrations Measured Using Fluorescence Molecular Tomography. *Journal of Biomedical Optics* 2005; 10(4):44019.
18. Catalaa I, Henry R, Dillon WP, **Graves EE**[2], McKnight TR, Lu Y, Vigneron DB, Nelson SJ. Perfusion, Diffusion and Spectroscopy Values in Newly Diagnosed Cerebral Gliomas. *NMR in Biomedicine* 2006; 19(4):463-75. PubMed PMID: 16763973
19. **Graves EE**, Giaccia AJ. Imaging Tumoral Hypoxia: Oxygen Concentrations and Beyond. *Oncology* 2007; 21(3):368-76. PubMed PMID: 17447439
20. **Graves EE**, Quon A, Loo BW Jr. RT_Image: An Open-Source Tool for Investigating PET in Radiation Oncology. *Technology in Cancer Research and Therapy* 2007; 6(2):111-21. PubMed PMID: 17375973
21. Cecic I, Chan DA, Sutphin PD, Ray P, Gambhir SS, Giaccia AJ, **Graves EE**. Oxygen sensitivity of reporter genes: implications for preclinical imaging of tumor hypoxia. *Molecular Imaging* 2007; 6(4):219-28. PubMed PMID: 17711777
22. Cheng Z, Zhang L, **Graves E**[6], Xiong Z, Dandekar M, Chen X, Gambhir SS. Small-animal PET of melanocortin 1 receptor expression using a 18F-labeled alpha-melanocyte-stimulating hormone analog. *Journal of Nuclear Medicine* 2007; 48(6):987-94. PubMed PMID: 17504880, PMCID: PMC4154809
23. Lee P, Weerasuriya DK, Lavori PW, Quon A, Hara W, Maxim PG, Le QT, Wakelee HA, Donington JS, **Graves EE**[7], Loo BW Jr. Metabolic Tumor Burden Predicts for Disease Progression and Death in Lung Cancer. *International Journal of Radiation Oncology Biology Physics* 2007; 69(2):328-33. PubMed PMID: 17869659
24. **Graves EE**, Zhou H, Chatterjee R, Keall PJ, Gambhir SS, Contag CH, Boyer AL. Design and Evaluation of a Variable Aperture Collimator for Conformal Radiotherapy of Small Animals Using a MicroCT Scanner. *Medical Physics* 2007; 34(11): 4359-67. PubMed PMID: 18072501
25. Le QT, Koong A, Lieskovsky YY, Narasimhan B, **Graves E**[2], Pinto H, Brown JM, Spielman D. In vivo(1)H Magnetic Resonance Spectroscopy of Lactate in Patients with Stage IV Head-and-Neck Squamous Cell Carcinoma. *International Journal of Radiation Oncology Biology Physics* 2008; 71(4):1151-7. PubMed PMID: 18258377, PMCID: PMC2601688
26. Bennewith KL, Huang X, Ham CM, **Graves EE**[8], Erler JT, Kambham N, Feazell J, Yang GP, Koong A, Giaccia AJ. The Role of Tumor Cell-Derived Connective Tissue Growth Factor (CTGF/CCN2) in Pancreatic Tumor Growth. *Cancer Research* 2009; 69(3):775-84. PubMed PMID: 19179545, PMCID: PMC2747032
27. Zhou H, Keall PJ, **Graves EE**. A Bone Composition Model for Monte Carlo X-Ray Transport Simulations. *Medical Physics* 2009; 36(3):1008-18. PubMed PMID: 19378761
28. Rodriguez M, Zhou H, Keall P, **Graves E**. Commissioning of a Novel MicroCT/RT System for Small Animal Conformal Radiotherapy. *Physics in Medicine and Biology* 2009; 54(12):3727-40. PubMed PMID: 19478377, PMCID: PMC2810127

29. Minn AY, Schellenberg D, Maxim P, Suh Y, McKenna S, Cox B, Dieterich S, Xing L, **Graves E**[9], Goodman K, Chang D, Koong AC. Pancreatic tumor motion on a single planning 4D-CT does not correlate with intrafraction tumor motion during treatment. *American Journal of Clinical Oncology* 2009; 32(4):364-8. PubMed PMID: 19398901
30. La TH, Filion EJ, Turnbull BB, Chu JN, Lee P, Nguyen K, Maxim P, Quon A, **Graves EE**[7], Loo BW Jr, Le QT. Metabolic Tumor Volume Predicts for Recurrence and Death in Head-and-Neck Cancer. *International Journal of Radiation Oncology Biology Physics* 2009; 74(5):1335-41. PubMed PMID: 19289263, PMCID: PMC2752334
31. Cairns RA, Bennewith KL, **Graves EE**[8], Giaccia AJ, Chang DT, Denko NC. Pharmacologically increased tumor hypoxia can be measured by ^{18}F-Fluoroazomycin Arabinoside Positron Emission Tomography and enhances tumor response to hypoxic cytotoxin PR-104. *Clinical Cancer Research* 2009; 15(23):7170-4. PubMed PMID: 19920111, PMCID: PMC2810128
32. Bazalova M, Zhou H, Keall PJ, **Graves EE**. Kilovoltage beam Monte Carlo dose calculations in submillimeter voxels for small animal radiotherapy. *Medical Physics* 2009; 36(11):4991-9. PubMed PMID: 19994508, PMCID: PMC2773455
33. Motomura AR, Bazalova M, Zhou H, Keall PJ, **Graves EE**. Investigation of the effects of treatment planning variables in small animal radiotherapy dose distributions. *Medical Physics* 2010; 37(2):590-9. PubMed PMID: 20229867, PMCID: PMC2816985
34. **Graves EE**, Maity A, Le QT. The tumor microenvironment in non-small-cell lung cancer. *Seminars in Radiation Oncology* 2010; 20(3):156-63. PubMed PMID: 20685578, PMCID: PMC2917385
35. Schellenberg D, Quon A, Minn AY**, Graves EE**[7], Kunz P, Ford JM, Fisher GA, Goodman KA, Koong AC, Chang DT. ^{18}Fluorodeoxyglucose PET is prognostic of progression-free and overall survival in locally advanced pancreas cancer treated with stereotactic radiotherapy. *International Journal of Radiation Oncology Biology Physics* 2010; 77(5):1420-25. PubMed PMID: 20056345
36. Zhou H, Rodriguez M, van den Haak F, Nelson G, Jogani R, Xu J, Zhu X, Xian Y, Tran PT, Felsher DW, Keall PJ, **Graves EE**. Development of a MicroCT-Based Image-Guided Conformal Radiotherapy System for Small Animals. *International Journal of Radiation Oncology Biology Physics* 2010; 78:297-305. PMC PMID: 20395069, PMCID: PMC 2906632
37. **Graves EE**, Vilalta M, Cecic IK, Erler JT, Tran PT, Felsher D, Sayles L, Sweet-Cordero A, Le QT, Giaccia AJ. Hypoxia in Models of Lung Cancer: Implications for Targeted Therapeutics. *Clinical Cancer Research* 2010; 16(19):4843-52. PubMed PMID: 20858837, PMCID: PMC2948600
38. Murphy JD, La TH, Chu K, Quon A, Fischbein NJ, Maxim PG, **Graves EE**[7], Loo BW Jr, Le QT. Postradiation Metabolic Tumor Volume Predicts Outcome in Head-and-Neck Cancer. *International Journal of Radiation Oncology Biology Physics* 2011; 80(2):514-21. PubMed PMID: 20646870, PMCID: PMC2962876
39. Apte S, Chin FT, **Graves EE**. Molecular Imaging of Hypoxia: Strategies for Probe Design and Application. *Current Organic Synthesis* 2011; 8(4):593-603. PubMed PMID: 22347839, PMCID: PMC3279754
40. Kozak MM, Murphy JD, Schipper ML, Donington JS, Zhou L, Whyte RI, Shrager JB, Hoang CD, Bazan J, Maxim PG, **Graves EE**[7], Diehn M, Hara WY, Quon A, Le QT, Wakelee HA, Loo BW Jr. Tumor Volume as a Potential Imaging-Based Risk-Stratification Factor in Trimodality Therapy for Locally Advanced Non-Small Cell Lung Cancer. *Journal of Thoracic Oncology* 2011; 6(5):920-6. PubMed PMID: 21774104
41. Bazalova M, **Graves EE**. The Importance of Tissue Segmentation for Dose Calculations for Kilovoltage Radiation Therapy. *Medical Physics* 2011; 38(6):3039-49. PubMed PMID: 21815377, PMCID: PMC3125081
42. Murphy JD, Chisholm KM, Daly ME, Wiegner EA, Truong D, Iagaru A, Maxim PG, Loo BW Jr, **Graves EE**[7], Kaplan MJ, Kong C, Le QT. Correlation between metabolic tumor volume and pathologic tumor volume in squamous cell carcinoma of the oral cavity. *Radiotherapy and Oncology* 2011; 101(3):356-61. PubMed PMID: 21665308, PMCID: PMC3178721

43. Chan DA, Sutphin PD, Nguyen P, Turcotte S, Lai EW, Banh A, Reynolds GE, Chi JT, Wu J, Solow-Cordero DE, Bonnet M, Flanagan JU, Bouley DM, **Graves EE**[10], Denny WA, Hay MP, Giaccia AJ. Targeting GLUT1 and the Warburg Effect in Renal Cell Carcinoma by Chemical Synthetic Lethality. *Science Translational Medicine* 2011; 3(94):94ra70. PubMed PMID: 21813754, PMCID: PMC3683134
44. Nelson GS, Perez J, Vilalta M, Ali R, **Graves E**. Facilitating multimodal preclinical imaging studies in mice by using an immobilization bed. *Comparative Medicine* 2011; 61(6):499-504. PubMed PMID: 22330576, PMCID: PMC3236691
45. Chennupati SK, Quon A, Kamaya A, Pai RK, La T, Krakow TE, **Graves E**[7], Koong AC, Chang DT. Positron Emission Tomography for Predicting Pathologic Response After Neoadjuvant Chemoradiotherapy for Locally Advanced Rectal Cancer. *American Journal of Clinical Oncology* 2012; 35(4):334-9. PubMed PMID: 21422989
46. Lee P, Bazan JG, Lavori PW, Weerasuriya DK, Quon A, Le QT, Wakelee HA, **Graves EE**[7], Loo BW. Metabolic Tumor Volume is an Independent Prognostic Factor in Patients Treated Definitively for Non-Small-Cell Lung Cancer. *Clinical Lung Cancer* 2012; 13(1):52-8. PubMed PMID: 21703935, PMCID: PMC4296977
47. Chu KP, Murphy JD, La TH, Krakow TE, Iagaru A, **Graves EE**[7], Hsu A, Maxim PG, Loo B, Chang DT, Le QT. Prognostic Value of Metabolic Tumor Volume and Velocity in Predicting Head and Neck Cancer Outcomes. *International Journal of Radiation Oncology Biology Physics* 2012; 83(5):1521-27. PubMed PMID: 22270168, PMCID: PMC3337882
48. Tang C, Murphy JD, Khong B, La TH, Kong C, Fischbein NJ, Colevas AD, Iagaru AH, **Graves EE**[7], Loo BW Jr, Le QT. Validation that Metabolic Tumor Volume Predicts Outcome in Head-and-Neck Cancer. *International Journal of Radiation Oncology Biology Physics* 2012; 83(5):1514-20. PubMed PMID: 22270174, PMCID: PMC3337958
49. Jayachandran P, Pai RK, Quon A, **Graves E**[7], Krakow TE, La T, Loo BW Jr; Koong AC, Chang DT. Postchemoradiotherapy Positron Emission Tomography Predicts Pathologic Response and Survival in Patients with Esophageal Cancer. *International Journal of Radiation Oncology Biology Physics* 2012; 84(2):471-7. PubMed PMID: 22381904
50. Le QT, Fisher R, Oliner KS, Young RJ, Cao H, Kong C, **Graves E**[7], Hicks RJ, McArthur GA, Peters L, O'Sullivan B, Giaccia A, Rischin D. Prognostic and predictive significance of plasma HGF and IL-8 in a phase III trial of chemoradiation with or without tirapazamine in locoregionally advanced head and neck cancer. *Clinical Cancer Research* 2012; 18(6):1798-1807. PubMed PMID: 22383739, PMCID: PMC3306471
51. Nair VS, Gevaert O, Davidzon G, Napel S, **Graves EE**[6], Hoang CD, Shrager JB, Quon A, Rubin DL, Plevritis SK. Prognostic PET 18F-FDG uptake imaging features are associated with major oncogenomic alterations in patients with resected non-small cell lung cancer. *Cancer Research* 2012; 72(15):3725-34. PubMed: PMID 22710433, PMCID: PMC3596510
52. Abelson JA, Murphy JD, Trakul N, Bazan JG, Maxim PG, **Graves EE**[7], Quon A, Le QT, Diehn M, Loo BW Jr. Metabolic imaging metrics correlate with survival in early stage lung cancer treated with stereotactic ablative radiotherapy. *Lung Cancer* 2012; 78(3):219-24. PubMed PMID: 23009727
53. Bazalova M, Weil MD, Wilfley B, **Graves EE**. Monte Carlo model of the scanning beam digital x-ray (SBDX) source. *Physics in Medicine and Biology* 2012; 57(22):7381-94. PubMed PMID: 23093305, PMCID: PMC4163683
54. Tseng D, Rachakonda LP, Su Z, Advani R, Horning S, Hoppe RT, Quon A, **Graves EE**[7], Loo BW Jr, Tran PT. Interim-treatment quantitative PET parameters predict progression and death among patients with Hodgkin's disease. *Radiation Oncology* 2012; 7:5. PubMed PMID: 22260710, PMCID: PMC3398283
55. Ackerman N, **Graves EE**. The Potential for Cerenkov Luminescence Imaging of Alpha-Emitting Radionuclides. *Physics in Medicine and Biology* 2012; 57(3):771-83. PubMed PMID: 22252144, PMCID: PMC5558792
56. Bazan JG, Koong AC, Kapp DS, Quon A, **Graves EE**[7], Loo BW Jr, Chang DT. Metabolic tumor volume predicts disease progression and survival in patients with squamous cell

carcinoma of the anal canal. *Journal of Nuclear Medicine* 2013; 54(1): 27-32. PubMed PMID: 23236018

57. Sasportas LS, Hosford DN, Sodini MA, Waters DJ, Zambricki EA, Barral JK, **Graves EE**[3], Brinton TJ, Yock PG, Le QT, Sirjani D. Cost-effectiveness landscape analysis of treatments addressing xerostomia in patients receiving head and neck radiation therapy. *Oral Surgery, Oral Medicine, Oral Pathology, Oral Radiology* 2013; 116(1):e37-51. PubMed PMID: 23643579, PMCID: PMC4018820
58. Xiao N, Cao H, Chen CH, Kong CS, Ali R, Chan C, Sirjani D, **Graves E**[12], Koong A, Giaccia A, Mochly-Rosen D, Le QT. A Novel Aldehyde Dehydrogenase-3 Activator (Alda-89) Protects Submandibular Gland Function from Irradiation without Accelerating Tumor Growth. *Clinical Cancer Research* 2013; 19(16):4455-64. PubMed PMID: 23812668, PMCID: PMC3745542
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59. Rodriguez M, Zhou H, **Graves E**, Keall P, Van den Haak F, Xu J. Dosimetry of a Novel MicroCT/RT System for Small Animal Conformal Radiotherapy. Presented at the Annual Conference of the American Association of Physicists in Medicine, Houston, TX, 2008.
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64. La TH, Filion EJ, Turnbull BB, Chu JN, Lee P, Nguyen K, Maxim P, Loo BW, **Graves EE**, Le Q. Metabolic Tumor Volume Predicts for Recurrence and Death in Head and Neck Cancer. Presented at the Annual Conference of the American Society of Therapeutic Radiology and Oncology, Boston, MA, 2008.
65. Apte SD, Chin FT, **Graves EE**. Synthesis of a New PET Radiotracer Targeting Carbonic Anhydrase IX. Presented at the 18th International Symposium on Radiopharmaceutical Sciences, Edmonton, Canada, 2009.
66. Chin FT, Subbarayan M, Sorger J, Gambhir SS, **Graves EE**. Automated Radiosynthesis of [^{18}F]EF5 for Imaging Hypoxia in Human. Presented at the 18th International Symposium on Radiopharmaceutical Sciences, Edmonton, Canada, 2009.
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70. Rodriguez MR, Nelson GS, Zhou H, Keall PJ, **Graves EE**. A Calibration Method for Positioning Small Animal Radiotherapy Subjects Using MicroCT. Presented at the Annual Conference of the American Association of Physicists in Medicine, Anaheim, CA, 2009.
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78. Bazalova M, Nelson G, Noll J, **Graves E**. Comparison of Dose Distributions for Small Animal Radiotherapy Using a MicroCT Scanner and a Single-Field Irradiator. Presented at the Annual Conference of the American Association of Physicists in Medicine, Philadelphia, PA, 2010.
79. Nelson G, Bazalova M, Vilalta M, Perez J, **Graves E**. Immobilization Bed for Multi-Modality Image Registration. Presented at the Annual Conference of the American Association of Physicists in Medicine, Philadelphia, PA, 2010.
80. Noll J, Ali R, Vilalta M, **Graves E**. Assessing the Potential of Cerenkov Radiation for in Vivo Imaging of Tumor Hypoxia. Presented at the Annual Conference of the American Association of Physicists in Medicine, Philadelphia, PA, 2010.
81. Vilalta M, Sweet-Cordero A, Felsher D, Le QT, Giaccia AJ, **Graves EE**. Hypoxia in Models of Lung Cancer and its Implications for Targeted Therapeutic Studies. Presented at the World Molecular Imaging Congress, Kyoto, Japan, 2010.
82. Nelson G, Ali R, Doyle T, **Graves E**. Multi-modal Immobilization Bed for Mice for Serial Imaging. Presented at the World Molecular Imaging Congress, Kyoto, Japan, 2010.
83. Bazalova M, Oldfield JS, **Graves E**. Evaluation of the Imaging Performance and Dosimetry of the Quantum FX microCT Scanner. Presented at the World Molecular Imaging Congress, Kyoto, Japan, 2010.
84. Lartey FM, Cord KT, Shen B, Chua JY, Tirouvanziam R, Palmer T, Guzman R, Chin FT, **Graves E**, Loo BW. *In vivo* PET Imaging of Stroke-Induced Neuroinflammation in Mice using a Novel Radioligand ^{18}F-PBR06. Presented at the World Molecular Imaging Congress, Kyoto, Japan, 2010.
85. Chu KPM, Murphy J, La TH, Loo BW, Krakow TE, Hsu A, Maxim PG, **Graves E**, Chang D, Le QT. Prognostic Value of Metabolic Tumor Volume and Velocity in Predicting Head and Neck Cancer Outcomes. Presented at the Annual Conference of the American Society of Therapeutic Radiology and Oncology, San Diego, CA, 2010.
86. Tseng D, Rachakonda LP, Su Z, Advani R, Horning S, Rosenberg SA, Hoppe RT, Quon A, **Graves EE**, Loo BW, Tran PT. Mid-treatment metabolic tumor volume predicts progression and death among patients with Hodgkin's disease. Presented at the Annual Conference of the American Society of Therapeutic Radiology and Oncology, San Diego, CA, 2010.
87. Nelson GS, Bazalova M, Chang KK, Ackerman N, Vilalta M, **Graves EE**. In Silico, in Vitro, and in Vivo Quantification of Tungsten and Iodine in Dose Enhanced RT (DERT). Presented

at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.

88. Yang J, Yamamoto T, Thielemans K, Mazin S, **Graves EE**, Keall PJ. A Feasibility Study for Real-Time Tumor Tracking Using Positron Emission Tomography (PET). Presented at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.
89. Ackerman N, Bazalova M, **Graves EE**. GEANT4 Microdosimetry for Simulation of Dose Enhancement in Vivo at Orthovoltage Energy. Presented at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.
90. Bazalova M, **Graves EE**. Accuracy of Monte Carlo Dose Calculations with Kilovoltage Photon Beams. Presented at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.
91. Bazalova M, Weil M, **Graves EE**. Monte Carlo Simulations of a Novel Kilovoltage Radiotherapy Source. Presented at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.
92. Noll JM, Nelson GS, Vilalta M, Ali R, Bazalova M, **Graves EE**. Integration of Bioluminescence Imaging with Small Animal Radiotherapy for Treatment Planning and Response Assessment. Presented at the Annual Conference of the American Association of Physicists in Medicine, Vancouver, Canada, 2011.
93. Ali R, Apte S, Vilalta V, Nelson G, **Graves E**. ^{18}F-EF5 uptake in preclinical tumor models is predictive for post-radiation response. Presented at the International Congress of Radiation Research, Warsaw, Poland, 2011.
94. Yang J, Yamamoto, Gopalan S, Cui G, Diehn M, Berger J, Loo BW, **Graves EE**, Keall PJ. Impact of Audiovisual Biofeedback on 4D PET Image Quality. Presented at the Annual Conference of the American Society of Radiation Oncology, Miami, FL, 2011.
95. Lartey FM, Cord KT, Chua JY, Shen B, Alomran RK, Tirouvanziam R, Palmer T, Chin FT, **Graves EE**, Guzman R, Loo BW. Imaging of Stroke-Induced Neuroinflammation in Mice using 18F-PBR06. Presented at the 2011 Annual World Molecular Imaging Congress, San Diego, CA, September 8, 2011.
96. Ali R, Apte S, Vilalta M, Nelson G, Noll J, Cao H, Le Q, Chang D, **Graves EE.** Advances in the Synthesis and Preclinical/Clinical Characterization of the Hypoxia-Selective PET Tracer 18F-EF5. Presented at the Annual World Molecular Imaging Congress, San Diego, CA, September 9, 2011.
97. Knoll JM, Nelson GS, Vilalta M, Ali R, Bazalova M, Graves EE. Integration of Bioluminescence Imaging with Small Animal Radiotherapy for Treatment Planning and Response Assessment. Presented at the 2011 Annual World Molecular Imaging Congress, San Diego, CA, September 10, 2011.
98. Mazim S, Nanduri A, yang J, Yamamoto T, Loo B, **Graves E.** Lung Cancer patient Feasibility Study for Emission Guided Radiation Therapy. Presented at the 54th Annual Conference of the American Association of Physicists in Medicine, Charlotte, NC, July 29-August 2 2012.
99. Park J, Schmidt T, **Graves E**, Bazalova M, Lee J, Contag C, Suh T. Bioluminescence Monitoring of Metastatic Breast Cancer: Quantitative Assessment of Radiation Treatment Effects and Tracking of Tumor Cells. Presented at the 54th Annual Conference of the American Association of Physicists in Medicine, Charlotte, NC, July 29-August 2, 2012.
100. Eclov N, Loo B, **Graves E**, Maxim P. Characterization of the Effect of "Lung Detail" CT Reconstruction Algorithm on Radiation Therapy Dose Calculation. Presented at the 54th Annual Conference of the American Association of Physicists in Medicine, Charlotte, NC, July 29-August 2, 2012.
101. Vilalta M, Giaccia A, **Graves E.** Radiation enhances tumor self-seeding. Presented at the Annual World Molecular Imaging Congress, Dublin, Ireland, September 7, 2012.
102. Vilalta M, Hughes N, Moore S, Sayles L, Sweet-Cordero, Cochran J, Giaccia A, **Graves E.** Hypoxia and vasculature in models of lung cancer: location, location, location. Presented at the Annual World Molecular Imaging Congress, Dublin, Ireland, September 7, 2012.

103. Vilalta M, Giaccia A, **Graves E.** Radiation enhances tumor self-seeding. Presented at the 58th Annual Meeting of the Radiation Research Society, Grande, Puerto Rico, September 30-October 3, 2012.
104. Ackerman N, Bazalova M, **Graves E**. Geant4 microdosimetry for dose enhancement and radiobiology. Presented at the 58th Annual Meeting of Radiation Research Society, Grande Puerto Rico, September 30-October 3, 2012.
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106. Park J, Bazalova M, **Graves E**, Lee J, Park H, Contag C, Suh T. Correlation Between Radiation Dose and Molecular Bioluminescence Responses of 4T1 Breast Cancer Cells for Adaptive Radiation Therapy. Presented at the 55th Annual Conference of the American Association of Physicists in Medicine, Indianapolis, Indiana, August 4-8, 2013.
107. Fan Q, Nanduri A, Yang J, Yamamoto T, Loo B, **Graves E**, Zhu L, Mazin S. Demonstration of a Planning Scheme for Emission Guided Radiation Therapy (EGRT) in a Metastatic Breast Cancer Patient. Presented at the 55th Annual Conference of the American Association of Physicists in Medicine, Indianapolis, Indiana, August 4-8, 2013.
108. Yang J, Yamamoto T, Gopalan S, Berger J, Johnston E, Chung M, Eclov N, Diehn M, Loo B, **Graves E**, Keall P. Impact of Audiovisual Biofeedback Respiratory Training On 4D-PET Image Quality. Presented at the 55th Annual Conference of the American Association of Physicists in Medicine, Indianapolis, Indiana, August 4-8, 2013.
109. Yang J, Yamamoto T, Mazin S, Cui J, **Graves E**, Keall P. The Potential of Positron Emission Tomography (PET) for Intra-Treatment Dynamic Tumor Tracking During Radiotherapy: A Phantom Study. Presented at the 55th Annual Conference of the American Association of Physicists in Medicine, Indianapolis, Indiana, August 4-8, 2013.
110. Ali R, Fuh K, Vega A, Marcellin D, Rafat M, Chan D, Giaccia A, **Graves EE**. Imaging Primary and Metastatic Murine Ovarian Tumors with 18F-FDG PET and Oral Contrast CT. Presented at the 2013 World Molecular Imaging Congress, Georgia, USA, September 18, 2013.
111. Park JY, Bazalova M, Schmidt TL, **Graves EE**, Contag C, Suh TS. Determination of Adaptive Radiation Dose Based on the Correlation Between Bioluminescence Intensity and Radiation for 4T1 Breast Carcinoma. Presented at the 2013 World Molecular Imaging Congress, Georgia, USA, September 20, 2013.
112. Lartey FM, Ali R, Rosenblum S, Shen B, Miao Z, Rafat M, Vilalta M, Palmer T, Chin FT, **Graves EE**, Guzman R, Loo BW. Longitudinal [18F]PBR06 PET imaging indicates an inverse relationship between microglial activation and motor function during stroke-induced neuroinflammation in mice. Presented at the 2013 World Molecular Imaging Congress, Georgia, USA, September 21, 2013.
113. Zhou H, Hallac R, Denney R, Li L, Lopez R, Liu L, **Graves E**, Trawick M, Pinney K, Mason R. Evaluation of tumor oxygenation in response to an indole-based vascular disrupting agent using ^{19}F MRI. Presented at the Proc. Joint Annual Meeting ISMRM-ESMRMB, Milan, Italy, May 2014.
114. Rafat M, Bazalova M, Palma B, Kozak M, Jiang D, Dunning M, McCormick D, Nelson J, Hemsing E, Lartey F, **Graves E**, Koong A, Maxim P, Loo B. Radiobiological Advantage of Very Rapid Irradiation. Presented at the 56th Annual Conference of the American Association of Physicists in Medicine, Austin, Texas, July 20-24, 2014.
115. Keall P, Yang J, Yamamoto T, Pollock S, Diehn M, Berger J, **Graves E**, Loo B. The Impact of Audiovisual Biofeedback On Image Quality During 4D Functional and Anatomic Imaging: Results of a Prospective Clinical Trial. Presented at the 56th Annual Conference of the American Association of Physicists in Medicine, Austin, Texas, July 20-24, 2014.
116. Yang J, Yamamoto T, Loo B, **Graves E**, Keall P. Positron Emission Tomography (PET)-Guided Dynamic Lung Tumor Tracking for Cancer Radiotherapy: First Patient Simulations. Presented at the 56th Annual Conference of the American Association of Physicists in Medicine, Austin, Texas, July 20-24, 2014.

117. Nanduri A, Fan Q, Yang J, Yamamoto T, **Graves E**, Loo B, Mazin S. Dynamic Treatment of Clinical Margins Beyond the PET-Avid Target in Emission Guided Radiation Therapy: A Retrospective Patient Study. Presented at the 56th Annual Conference of the American Association of Physicists in Medicine, Austin, Texas, July 20-24, 2014.
118. Shuhendler AJ, Ye D, Brewer KD, Bazalova M, **Graves EE**, Rutt BK, Rao J. Cancer Therapy Response Monitoring Using a Novel MRI Contrast Agent that Self-Assembles in Apoptotic Cells. Presented at the 2014 World Molecular Imaging Congress, Seoul, Korea, September 14-20, 2014.
119. Rafat M, Vilalta M, Giaccia A, **Graves EE**. Tumor Cell Migration is Enhanced by Normal Tissue Irradiation in a Preclinical Mouse Model. Presented at the 2014 World Molecular Imaging Congress, Seoul, Korea, September 14-20, 2014.
120. Chang S, Ahmed M, **Graves E**, Jeraj R. In Memoriam of Warren Sinclair: Physics Applications for New Radiobiology. Presented at the 57th Annual Conference of the American Association of Physicists in Medicine, Anaheim, California, July 12-16, 2015.
121. Rafat M, Vilalta M, Aguilera TA, Giaccia A, **Graves EE**. Normal Tissue Irradiation Promotes Tumor and Immune Cell Infiltration. Presented at the 2015 World Molecular Imaging Congress, Honolulu, Hawaii, September 4, 2015.
122. Shuhendler A, Cui L, Lin J, Shen B, James ML, Witney TH, Bazalova-Carter M, Chattophadhyay N, Gambhir SS, Chin FT, **Graves E**, Rutt B, Rao J. A novel PET tracer enabling in vivo imaging of poly(ADP ribose) polymerase-1 activity for precision cancer medicine. Presented at the 2015 World Molecular Imaging Congress, Honolulu, Hawaii, September 5, 2015.
123. Prionas ND, Aggarwal S, Shaffer J, von Eyben R, **Graves EE**, Maxim PG, Quon A, Gensheimer MF, Diehn M, Loo BW. Temporal Change in Quantitative Positron Emission Tomography Metrics Predicts Recurrence in Early-Stage Lung Cancer Patients Treated with Stereotactic Ablative Radiation Therapy. Presented at the 2016 Annual American Society for Therapeutic Radiology and Oncology, Boston, Massachusetts, September 25-28, 2016.
124. Dobberfuhl A, Diaz E, **Graves EE**, Ning S, Briggs M, Wen Y, Kidd E, Chen B. The Natural History of Radiation Induced Bladder Dysfunction in a Novel Rat Model of Underactive Bladder. Presented at AUA 2017 Annual Meeting, Boston, Massachusetts, May 12-16, 2017.
125. Melemenidis S, **Graves E**. Investigating the Influence of Tissue Geometry On Bioluminescence Imaging for Quantification of Low Photo-Emitting Sources. Presented at the 60th Annual Conference of the American Association of Physicists in Medicine, Nashville, Tennessee, July 29-August 2, 2018.
126. Hacker BC, Alves SM, Jiang DD, Koong, AC, Giaccia AJ, **Graves EE**, Rafat M. The irradiated tissue microenvironment and its role in breast cancer recurrence: Enhanced macrophage infiltration promotes tumor cell recruitment. Presented at the Annual Meeting of the American-Association-for-Cancer-Research (AACR) 2019, Atlanta, Georgia, March 2019-April 3, 2019.
127. Benej M, Hong XQ, Vibhute S, Scott S, Wu JH, **Graves E**, Le QT, Koong AC, Giaccia AJ, Chen CS, Yu B, Papandreou, I, Denko NC. Papaverine and its novel derivatives radiosensitize solid tumors by inhibiting mitochondrial metabolism. Presented at the Annual Meeting of the American-Association-for-Cancer-Research (AACR) 2019, Atlanta, Georgia, March 2019-April 3, 2019.
128. Tyagi N, **Graves E**, Fakhri G El, Megibow A. Beyond Conventional CT Simulation: PET-CT, PET-MR, MR-Only, and Multi-Energy CT. Presented at the 60th Annual Conference of the American Association of Physicists in Medicine, Nashville, Tennessee, July 29-August 2, 2018.
129. Dobberfuhl AD, Briggs MA, Wallace SL, Wen Y, Zhou Y, **Graves EE**, Knox S, Chen B. Ambulatory and ex-vivo effect of intradetrusor ipsc-derived human progenitor smooth muscle cells in a rat model of radiation induced bladder dysfunction. Presented at International Continence Society 2019 Meeting, Gothenburg, Sweden, September 6, 2019.
130. Sforza DM, Melemenidis S, **Graves EE**, Iordachita I, Xu X, Hardy L, Wong JW, Wang KKH. A standalone quantitative bioluminescence tomography-guided system readily adapted to

commercial small animal irradiators using a universal transportable mouse bed. Presented at the 5th Conference on Small Animal Precision Image-Guided Radiotherapy, Munich, Germany, March 9-11, 2020.

131. Natarajan S, Levy K, Wang J, Chow S, Eggold J, Loo P, Manjappa R, Lartey FM, Schüler E, Skinner L, Rafat M, Ko R, Kim A, Rawi DA, von Eyben R, Dorigo O, Casey KM, **Graves EE**, Bush K, Yu AS, Koong AC, Maxim PG, Loo BW, Rankin EB. FLASH irradiation enhances the therapeutic index of abdominal radiotherapy in mice. Presented at the Annual Meeting of the American Association for Cancer Research (AACR) 2020, Virtual, April 17-28, 2020.
132. Li AM, Ducker GS, Li Y, Seoane JA, Xiao Y, Melemenidis S, Zhou Y, Liu L, Vanharanta S, **Graves EE**, Rankin EB, Curtis C, Massague J, Rabinowitz JD, Thompson CB, Ye J. Reprogramming of serine metabolism during breast cancer progression. Presented at the Annual Meeting of the American Association for Cancer Research (AACR) 2020, Virtual, April 17-28, 2020.

Invited Presentations

Regional

1. "Magnetic Resonance Spectroscopic Imaging of Patients Undergoing Gamma Knife Radiosurgery". Brownbag lunch seminar, September 8, 1998, Department of Radiology, University of California, San Francisco.
2. "Magnetic Resonance Spectroscopic Imaging as a Prognostic Indicator in Gamma Knife Radiosurgery". Radiation Oncology Grand Rounds, February 14, 1999, Department of Radiation Oncology, University of California, San Francisco.
3. "Magnetic Resonance Spectroscopy and Spectroscopic Imaging". Technologist in-service session, May 15, 2000, Department of Radiology, University of California, San Francisco.
4. "Applications of ^{1}H Magnetic Resonance Spectroscopic Imaging in Radiation Therapy of Malignant Glioma". Seminar, February 5, 2001, Department of Diagnostic Radiology, Dartmouth-Hitchcock Medical Center, Hanover, New Hampshire.
5. "Applications of ^{1}H Magnetic Resonance Spectroscopic Imaging in Radiation Therapy of Malignant Glioma". Seminar, March 19, 2001, Department of Bioengineering, University of California, Berkeley.
6. "Metabolic Imaging in Radiation Therapy". Seminar, January 4, 2002, Department of Radiation Oncology, Stanford University, Stanford, California.
7. "*In Vivo* Three-Dimensional Molecular Imaging Using Fluorescence". Seminar, November 12, 2002, Department of Radiation Oncology, Stanford University, Stanford, California.
8. "*In Vivo* Three-Dimensional Molecular Imaging Using Fluorescence". Seminar, November 15, 2002, Department of Radiology, University of California, San Francisco.
9. "PET-CT in Radiation Oncology". Varis Independent Users' Group Annual Meeting, June 3, 2004, Stanford University, Stanford, California.
10. "Metabolic Imaging IV: QA and Managerial Aspects of PET/CT". Stanford Image-Guided Radiation Therapy Short Course, April 29, 2005. Department of Radiation Oncology, Stanford University, Stanford, California.
11. "Molecular Imaging in Radiation Oncology". Nuclear Medicine Grand Rounds, May 3, 2005. Department of Radiology, Stanford University, Stanford, California.
12. "Metabolic Imaging IV: QA and Managerial Aspects of PET/CT". Stanford Image-Guided Radiation Therapy Short Course, October 21, 2005. Department of Radiation Oncology, Stanford University, Stanford, California.
13. "Metabolic Imaging IV: QA and Managerial Aspects of PET/CT". Stanford Image-Guided Radiation Therapy Short Course, May 13, 2006. Department of Radiation Oncology, Stanford University, Stanford, California.
14. "Molecular Imaging in Radiation Oncology: Laboratory and Clinical Developments". Radiation Oncology Grand Rounds, August 10, 2006, Department of Radiation Oncology, Duke University, Durham, North Carolina.

15. "Metabolic Imaging IV: QA and Managerial Aspects of PET/CT". Stanford Image-Guided Radiation Therapy Short Course, November 11, 2006. Department of Radiation Oncology, Stanford University, Stanford, California.
16. "Molecular Imaging in Radiation Oncology and Radiobiology". Seminar, March 28, 2007, Department of Radiology, University of California, San Francisco.
17. "PET/CT for Radiotherapy". Stanford Image-Guided Radiation Therapy Short Course, July 27, 2007. Department of Radiation Oncology, Stanford University, Stanford, California.
18. "PET/CT for Radiotherapy". Stanford Image-Guided Radiation Therapy Short Course, January 18, 2008. Department of Radiation Oncology, Stanford University, Stanford, California.
19. "PET/CT for Radiotherapy". Stanford Image-Guided Radiation Therapy Short Course, September 26, 2008. Department of Radiation Oncology, Stanford University, Stanford, California.
20. "Small Animal Image-Guided Radiotherapy Using a MicroCT Scanner". Invited lecture, November 18, 2008, MD Anderson Cancer Center, Houston, TX.
21. "New Imaging Tools for Radiotherapy Planning". Invited lecture, April 18, 2009, San Francisco Radiation Oncology Conference, San Francisco, CA.
22. "Small Animal Imaging and Radiotherapy Using a MicroCT Scanner". Invited lecture, June 26, 2009, Coalition of Bay Area Radionuclide Imagers meeting, San Jose, CA.
23. "PET/CT for Radiotherapy". Stanford Image-Guided Radiation Therapy Short Course, November 6, 2009. Department of Radiation Oncology, Stanford University, Stanford, California.
24. "Reverse Translation: Investigating Radiation Therapy and Molecular Imaging in the Laboratory". Invited lecture, April 22, 2010, Dana Farber Cancer Institute, Boston, MA.
25. "Reverse Translation: Investigating Radiation Therapy and Molecular Imaging in the Laboratory". Invited lecture, July 26, 2010, Princess Margaret Hospital, Toronto, Ontario, Canada.
26. "Molecular Imaging in Radiation Therapy". Invited lecture, September 15, 2010, Comprehensive Cancer Research Training Program, Stanford University School of Medicine, Menlo Park, CA.
27. "PET/CT in SBRT Treatment Planning and Therapeutic Assessment". Stanford Stereotactic Body Radiation Therapy Short Course, October 1, 2010, Department of Radiation Oncology, Stanford University, Stanford, California.
28. "Reverse Translation: Evaluating Clinical Molecular Imaging and Radiotherapy Strategies in the Laboratory". Nuclear Medicine seminar series, December 13, 2010, Memorial Sloan-Kettering Cancer Center, New York, New York.
29. "PET/CT in SBRT Treatment Planning and Therapeutic Assessment". Stanford Stereotactic Body Radiation Therapy Short Course, November 30, 2012, Department of Radiation Oncology, Stanford University, Stanford, California.
30. "Effects of Radiation on Circulating Tumor Cells and Tumor Self-Seeding". Radiological Sciences, Biomedical Engineering, and Cancer Imaging Program Seminar Series, February 6, 2013, University of Texas Southwestern, Dallas, Texas.
31. "Molecular Imaging in Radiation Oncology: Opportunities and Challenges". Radiation Oncology Grand Rounds, March 14, 2013, Yale University, New Haven, Connecticut.
32. "Effects of Radiation on Trafficking Cancer and Immune Cells". Grand Rounds, June 5, 2019, Johns Hopkins University, Baltimore, Maryland.
33. "Effects of Radiation on Trafficking Cancer and Immune Cells". Grand Rounds, June 27, 2019, Karmanos Cancer Institute, Detroit, Michigan.
34. "Understanding and Exploiting the FLASH Effect for Radiotherapy". Grand Rounds, October 15, 2020, New York Proton Center, New York, New York.
35. "Bridging the Gap: Uniting Medical Physics with Radiation Biology and Therapy". Grand Rounds, April 8, 2021, Johns Hopkins University, Baltimore, Maryland.

National

1. "*In Vivo* MRI and MRSI for Evaluation of Cancer Patients". Dual Modality Imaging symposium, American Association of Physicists in Medicine 46th Annual Meeting, July 27, 2004, Pittsburgh, PA.
2. "Molecular Imaging for Radiation Therapy: Biological and Technical Challenges". American Association of Physics Teachers National Meeting, August 3, 2004, Sacramento, California.
3. "Future Directions of Molecular Imaging: Molecular Imaging of Hypoxia". Featured lecture, Academy of Molecular Imaging Annual Meeting, March 26, 2006, Orlando, FL.
4. "Small Animal Radiotherapy Using a MicroCT Scanner". Invited lecture, May 1, 2008, American Association of Physicists in Medicine Focused Research Meeting, St. Louis, MO.
5. "Animal Models for Conformal Radiotherapy". Invited lecture, May 1, 2008, American Association of Physicists in Medicine Focused Research Meeting, St. Louis, MO.
6. "Treatment Planning for MicroCT-Based Radiotherapy". Invited lecture, May 2, 2008, American Association of Physicists in Medicine Focused Research Meeting, St. Louis, MO.
7. "MicroCT-Based Small Animal Radiotherapy". Small Animal IGRT: Systems and Studies Symposium, July 2008, American Association of Physicists in Medicine Annual Meeting, Houston, TX.
8. "Development of Preclinical Molecular Imaging and Conformal Radiotherapy Technologies". Invited lecture, April 20, 2010, American Nuclear Society Topical Meeting, Las Vegas, NV.
9. "Preclinical and Clinical Hypoxia Imaging: Current and Emerging Methods and Technology". Symposium, August 2011, American Association of Physicists in Medicine Annual Meeting, Vancouver, Canada.
10. "Radiation-Induced Long Distance Tumor Cell Migration Into and Out of the Radiation Field and Its Clinical Implication". American Association of Physicists in Medicine Annual Meeting, July 14, 2015, Anaheim, California.
11. "Use of Hypoxia Imaging to Inform Cancer Treatment". American Association of Physicists in Medicine Annual Meeting, July 31, 2017, Denver, Colorado.

<u>International</u>

1. "Imaging Tumoral Hypoxia in the Laboratory and the Clinic". Pre-Clinical Molecular Imaging and Its Potential Impact on the Future of Oncology scientific symposium, American Society of Clinical Oncology Annual Meeting, June 6, 2006, Atlanta.
2. "Functional and Molecular Imaging of Head and Neck Cancer". Invited lecture, June 2008, American Society of Clinical Oncology Annual Meeting, Chicago, IL.
3. "Applications of Molecular Imaging in Small Animal Radiotherapy". Invited lecture, October 2008, Radiation Research Society Biannual Meeting, Boston, MA.
4. "Imaging and Targeting Hypoxia in Preclinical Models of Cancer". Invited lecture, May 2, 2010, Tumor Microenvironment Imaging Workshop, Toronto, Ontario, Canada.
5. "Evaluation of Clinical Molecular Imaging and Radiotherapy Strategies in Preclinical Models". Invited lecture, September 7, 2010, Catholic University Advanced Medical Physics Center Symposium, Seoul, South Korea.
6. "Automated Image Segmentation". Invited lecture, February 8, 2013, Cancer Imaging and Radiation Therapy Symposium, Orlando, Florida.
7. "Effects of Radiation on Cell Migration". Invited lecture, November 4, 2015, Department of Radiation Oncology, University of Hokkaido, Sapporo, Japan.
8. "Effects of Radiation on Tumor Cell Migration". Invited lecture, February 3, 2016, Colloquia and Seminars at University of Victoria Department of Physics & Astronomy, Victoria BC, Canada.
9. "Effects of Radiation on Tumor Cell Migration". Invited lecture, February 4, 2016, Colloquia at University of British Columbia Department of Physics & Astronomy, Vancouver BC, Canada.
10. "Effects of Radiation on Tumor Cell Migration". Invited lecture, February 5, 2016, Colloquium at Simon Fraser University Department of Physics, Burnaby BC, Canada.
11. "Imaging and Biology Strategies to Reduce NTCP and Increase TCP". Invited lecture, March 14, 2017, University of Hokkaido GI-CoRE Symposium, Sapporo, Japan.

12. "Effects of Radiation on Recruitment of Trafficking Cancer and Immune Cells". Radiation Research Society Annual Meeting, October 15, 2017, Cancun, Mexico.
13. "Advancing the Biological Understanding and Clinical Implementation of Radiation Therapy through Molecular Imaging". Grand Rounds, August 16, 2018, Xidian University, Xian, China.
14. "Advancing the Biological Understanding and Clinical Implementation of Radiation Therapy through Molecular Imaging". 3rd China-America Nuclear Medicine Academic Forum, August 19, 2018, Linyi, China.
15. "Advancing the Biological Understanding and Clinical Implementation of Radiation Therapy through Molecular Imaging". Grand Rounds, August 20, 2018, Peking University, Beijing, China.
16. "Local and Distant Effects of Radiotherapy: Models and Mechanisms". Seminar, August 8, 2019, University of Western Ontario, London, Ontario, Canada.
17. "Biological and Physical Questions for Combined Radiotherapy and Immunotherapy". iFIT Symposium, University of Tubingen, May 24, 2022, Tubingen, Germany.