**Harvard Medical School**

 **Curriculum Vitae**

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| Date Prepared: | May 22, 2018 |
| Name: | Shannon Michelle MacDonald |
| Office Address: | Massachusetts General Hospital Department of Radiation OncologyFrancis H Burr Proton Therapy Center30 Fruit StreetRoom 112Boston, Massachusetts 02114 |
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| Work Fax: | 617-724-9532 |
| Place of Birth: | Boston, MA |

[Education](http://cv.hms.harvard.edu/index.php?page=education)

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| 1996 | B.S. | Biology  | Boston College |
| 2001 | M.D. | Medicine  | Loyola University Stritch School of Medicine |

[Postdoctoral Training](http://cv.hms.harvard.edu/index.php?page=postdoc)

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| --- | --- | --- | --- |
| 6/2001-6/2002 | Intern  | Internal Medicine | Mount Auburn Hospital |
| 6/2002-6/2006 | Resident | Radiation Oncology | New York University |
| 6/2004-6/2006 | Chief Resident | Radiation Oncology | New York University |

[Faculty Academic Appointments](http://cv.hms.harvard.edu/index.php?page=academic_appt)

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| --- | --- | --- | --- |
| 2001-2002 | Clinical Fellow  | Medicine | Harvard Medical School |
| 2006-2008 | Instructor | Radiation Oncology | Harvard Medical School |
| 2008-20142014-Present | Assistant ProfessorAssociate Professor | Radiation OncologyRadiation Oncology | Harvard Medical SchoolHarvard Medical School |

[Appointments at Hospitals/Affiliated Institutions](http://cv.hms.harvard.edu/index.php?page=hospital_appt)

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| 07/06 – present02/2018 –present02/2018 – present02/2018 –present | PhysicianAffiliateAffiliateAffiliate | Radiation OncologyRadiation OncologyRadiation OncologyRadiation Oncology | Massachusetts General HospitalBrigham and Women’s HospitalBoston Children’s HospitalDana Farber Cancer Institute |

Administrative Leadership Positions

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| 2010- 20162016 –Present | Radiation Oncology Medical Student Clinical ClerkshipDirector of Breast Radiation Oncology | Massachusetts General Hospital, Course Director; time commitment approximately 5 hours per weekMassachusetts General Hospital, Department of Radiation Oncology |

2018- MGH/DFCI/BCH Proton Therapy Liaison Massachusetts General Hospital/Boston

Present Children’s Hospital/Dana Farber Cancer

[Committee Service](http://cv.hms.harvard.edu/index.php?page=service)

Local

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| 2006 -2008 | Cancer Care Committee | Newton Wellesley Hospital |
| 2010-present2014-present | Residency Selection Committee for Harvard Radiation Oncology Residency ProgramHarvard Radiation Oncology Program Evaluation Committee | Massachusetts General Hospital/Harvard Medical SchoolHarvard Medical School |
| 2013-20142018 –present | Center for Global Medicine - Radiation oncologist for efforts to bring radiation therapy to Rwanda (Director, Lawrence N Shulman, MD)Board of Directors, Christopher’s Haven | Dana Farber Cancer Institute CenterMassachusetts General Hospital |

Regional

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| --- | --- | --- |
| 2010 - 2012 | Massachusetts Board of Medicine Expert Panel on Breast Reconstruction  | Massachusetts Board of Medicine |

National and International

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| 2007 - 2009 | Breast Nodal Atlas Sub-Committee | Radiation Therapy Oncology Group  |
| 2007 – 20102008 – 2011 | Breast IMRT CommitteeA Breast Review Committee | Radiation Therapy Oncology GroupAssociation for Therapeutic Radiology andOncology  |
| 2011-present | Germ Cell Tumor Committee; Chair, Radiation Oncology | Children’s Oncology Group |
| 2012-present | Neuroblastoma Committee | Children’s Oncology Group |
| 2012-2016 | Representative for the American Society of Radiation Oncology (ASTRO) to the National Accreditation Program for Breast Centers (NAPBC) Board | National Accreditation Program for Breast Centers |
| 2013-2014 | International Germ Cell Tumor Conference Scientific Committee | International Germ Cell Tumor Conference (3rd & 4th) |

 2015- Annual Meeting Educational Committee American Society for Radiation Oncology

 present

2016 – Central Nervous System Committee Children’s Oncology Group

present

2016 – High Grade Glioma Committee Children’s Oncology Group

present Chair, Radiation Oncology

2016 – Breast Committee, Chair Proton Therapy Oncology Group

present

2018 - 2019 ACRO Scientific Program American College of Radiation Oncology

present Committee Member

[Professional Societies](http://cv.hms.harvard.edu/index.php?page=societies)

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| 2002- present | Association for Therapeutic Radiology and Oncology (ASTRO)  |  |
| 2008 - present | Children’s Oncology Group (COG) |  |
| 2006 - present | Radiation Therapy Oncology Group (RTOG) |  |
| 2008 – 2009 | Pediatric Brain Tumor Consortium (PBTC) |  |
| 2008 - 2011 | American College of Radiology (ACR) Breast Appropriateness Criteria Panel |  |
| 2009-present | Pediatric Radiation Oncology Society (PROS) |  |
| 2012-present | American Society of Clinical Oncology(ASCO) |  |
| 2014-present | The Society for NeuroOncology (SNO) |  |
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[Grant Review Activities](http://cv.hms.harvard.edu/index.php?page=grant)

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| 2010-2011 | Federal Share Proton Grants | Grant Reviewer |
| 2012-present | John McNicholas Foundation for Pediatric Brain Tumors | Grant Reviewer for annual scholar award of approximately 100K per year |
| 2012-present | Christopher Brandle Joy of Life Foundation | Grant Reviewer  |

[Editorial Activities](http://cv.hms.harvard.edu/index.php?page=editorial)

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| Ad-Hoc Reviewer |
| CancerInternational Journal of RadiationOncology, Biology, PhysicsRadiotherapy and OncologyCochrane Breast Cancer GroupRadiation OncologyBritish Journal of RadiologyBreast Cancer ResearchPediatric Blood & Cancer**Other Editorial Activities** |

2013 Irish Cooperative Oncology Research Group Peer Review Panel for Protocols

2013-present International Journal of Particle Therapy Editorial Board

2015-present International Journal of Radiation Oncology\* Senior Associate Editor

 Biology\*Physics

[Honors and Prizes](http://cv.hms.harvard.edu/index.php?page=honors)

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| 2004 | Methods in Clinical Cancer Research Protocol Writing Workshop Scholarship | American Association of Cancer Research (AACR)/American Society of Clinical Oncology (ASCO) | Scholarship to attend 1 week intensive protocol writing workshop |
| 2005 | Howard H. Wong Scholarship | American College of Radiation Oncology (ACRO) | Scholarship to study proton radiation at MGH |
| 2009 | MGH Physician Leadership Development Program | MGH Physician’s Organization | Selected for leadership 2 year course run by MGPO & HBS |
| 2011 | Partners in Excellence Award | Partners Healthcare | Individual award for excellence in clinical care |
| 2011 | MGH 100 Award | Massachusetts General Hospital Cancer Center | Individual award for excellence in clinical care |
| 2011 | Capstone Leadership | MGH Physician’s Organization | Goal of improving the selection process for proton therapy and improving efficiency and utilization of this resource. Helped to devise algorithm to select appropriate patients for proton therapy |
| 2012 | Teacher of the Year Award | Association of Residents in Radiation Oncology (ARRO) | Harvard Radiation Oncology Program |
| 2012 | The Red Journal Outstanding Reviewer Award | International Journal of Radiation Oncology Biology Physics | Received for quantity and quality of manuscript review |

**Report of Funded and Unfunded Projects**

[Funding Information](http://cv.hms.harvard.edu/index.php?page=funded)

Current Unfunded

|  |  |
| --- | --- |
|  2013-present | Risk of Brainstem Necrosis for Patients Treated with Proton Radiation for Medulloblastoma and EpendymomaProtocol 2013P002177Retrospective review of patients treated with proton beam radiation to localize areas of radiographic treatment change and CNS toxicity. Goal is to report rates of toxicity and to correlate with Linear Energy Transfer(LET) and Radiobiological Effectiveness (RBE) |
| 2013-present2013-present2013-present2012-present2012-present2012-present2012-present2012-present2012-present | Proton Beam Radiation Therapy for Pediatric CraniopharyngiomaProtocol 2013P001763Retrospective review to report outcomes for pediatric CraniopharyngiomaProton Radiotherapy for Optic GliomasProtocol 2013P000652Retrospective review to report outcomes for pediatric Optic GliomasRetrospective Study of Radiation Therapy for Choroidal Hemangiomas in Pediatric PatientsProtocol 2013P000351Retrospective review to report technique and outcomes for treatmentRetrospective Review of Outcomes for Pediatric Patients Treated with Proton Therapy for CNS Tectal GliomasProtocol 2012P001987Retrospective review to report outcomes for pediatric Tectal GliomasRetrospective Review of Secondary Malignancies among Retinoblastoma Patients Treated with ProtonsProtocol 2012P001688Retrospective Review for pediatric retinoblastoma patients, also opened at MEEI and CHBRetrospective Review for Patients Treated with Proton Radiation for CNS Germ Cell TumorsProtocol 2012P001519Report outcomes, patterns of relapse and implications of early versus late diagnosis Patterns of Relapse for Patients Treated with Proton Radiation for MedulloblastomaProtocol 2012P001518Retrospective Review to reports patterns of failure and correlate with LET/RBERetrospective Review of Vertebral Body Growth in Patients Treated with Spinal Proton TherapyProtocol 2012P001000Intent to provide data for delivery of proton craniospinal radiation with sparing of the vertebral bodies and determine algorithm for predicting growth after RTRetrospective Review of Outcomes for NeuroblastomaProtocol 2010P001706Review outcomes of patients treated prior to opening of prospective clinical trial |

Current Funded

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| 10/01/2015-01/01/202110/01/08- 12/312015 | The Radiotherapy Comparative Effectiveness (RADCOMP) Consortium Trial Pragmatic Randomized Trial of Proton vs. Photon Therapy for Patients with non-Metastatic Breast Cancer, Patient-Centered Outcomes Research Institute (PCORI), (Bekelman, JE, University of Pennsylvania, PI).$11.8mn; 10% effort. Role in grant: Study Co-Chair:This study is a multi-center pragmatic randomized clinical trial of proton vs. photon therapy for patients with locally advanced breast cancer.NIH/NCI Federal Share Program Income - C06 CA059267 (DeLaney PI) (total direct costs $ 9,862,878). I serve as a co-investigator on this trial. Under this umbrella, I serve as the site PI for three clinical trials. 1) Proton Radiation for Pediatric Germ Cell Tumors Phase II Clinical Trial 09-263.The major goals of this project are to determine efficacy and document toxicity of proton radiation for CNS germ cell tumors in children |
| 4/15/2013-4/14/20159/25/2014-8/21/2019 | 2) Proton Radiation for Locally Advanced Breast Cancer Following Mastectomy Phase II Clinical Trial 10-205. The major goals of this project are to determine efficacy and document toxicity of proton radiation for Locally Advanced Breast Cancer following Mastectomy3) Proton Radiation for Neuroblastoma Phase II Clinical Trial 13-443. The major goals of this project is to determine the efficacy and document toxicity of proton radiation for pediatric neuroblastomaDevelopment of IMPT technique and MRI dose verification method for vertebral body sparing to mitigate growth delay in childrenSpiro Grant (MacDonald PI) ($ 50,000)Improving Clinical Effectiveness and Understanding of the Biophysical Basis of Proton Therapy. Co-investigator under U19 CA021239-35 (DeLaney PI) (total direct costs $3,100,454). Role as co-investigator is to lead prospective clinical trials for pediatric medulloblastoma with technique developed for sparing vertebral bodies to allow for growth following craniospinal radiation and to lead further investigations using proton therapy for breast cancer patients. |
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**Report of Local Teaching and Training**

[Teaching of Students in Courses](http://cv.hms.harvard.edu/index.php?page=students)

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| 2010- 2015 | Diagnostic Radiology  | Massachusetts General Hospital |
| 2010-2015 | Radiation Oncology Medical Student Clinical Clerkship | Massachusetts General Hospital, Course Director |

[Formally Supervised Trainees](http://cv.hms.harvard.edu/index.php?page=residents)

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| 2012-2013 | Roshan Sethi, MSIV Doris Duke Fellowship | Supervised for one year of clinical research through Doris Duke Foundation; served as sole mentor for multiple research projects involving proton radiation for pediatric patients; Additional responsibilities included mentorship for participation in clinic and conferences; Roshan Sethi’s work was chosen for oral presentation at the Doris Duke Foundation conference. He published three first author original publications and contributed to additional manuscripts and chapters. He continues to complete research projects under my guidance during his internship year at Brigham & Women’s Hospital and will join Harvard Radiation Oncology Residency Program in 2015. |
| 2012-2013 | Raymond Mailhot, MSIV Conquer Cancer Foundation of ASCO Medical Student Rotation for Underrepresented Populations and ASTRO Minority Summer Fellowship Award. | Mentored for two projects involving the cost effectiveness of proton radiation for pediatric malignancies and breast cancer. Supervised for one year as an intern. Raymond Mailhot has published one first author publication and has one in press. We continue to work together on ongoing research projects. |
| 2010-2014 | Rachel Jimenez, MD | Mentored during clinical rotations for 6 months and for several research projects. Continue to mentor as junior faculty. Radiation Oncologist, Instructor, at the Massachusetts General Hospital |

[Formal Teaching of Residents, Clinical Fellows and Research Fellows](http://cv.hms.harvard.edu/index.php?page=residents)

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| 2008-2010  | Shane Cotter, MD, PhD | Radiation Oncologist, Cancer Center of Saint Barbara, CA |
| 2009-2010  | Barbara Rombi, MD | Radiation Oncologist, Provincial Agency for Proton Therapy & APSS, Trento, Italy |
| 2009-2012  | Jona Hattangadi, MD, PhD | Chief of CNS Tumor Service, Radiation Oncologist, Assistant Professor, University of California Health Systems, San Diego, CA |
| 2011-2014  | Ayal Aizer, MD | Radiation Oncologist, Instructor, Brigham & Women’s Hospital, Boston, MA |
| 2011-2012  | Karen Bernstein, MD | Radiation Oncologist, Instructor, Massachusetts General Hospital, Boston, MA |
| 2012-2014  | Matthew Ladra, MD | Director of Pediatric Radiation Oncology, Provision Center of Proton Therapy, Knoxville, TN |
| 2013  | Jonathon Schoenfeld, MD, MPH | Instructor, Harvard Medical School, Radiation Oncologist, Dana Farber Cancer Institute and Brigham & Women’s Hospital, Boston, MA |
| 2013  | Kent Mouw, MD, PhD | Resident, Harvard Radiation Oncology Program, Radiation Oncology Resident, Massachusetts General Hospital, Boston, MA  |
| 2013  | Ann Radlow, MD | Resident, Harvard Radiation Oncology Program, Radiation Oncology Resident, Massachusett General Hospital, Boston, MA |
| 2012  | Shyam Tanguturi, MD | Resident, Harvard Radiation Oncology Program, Radiation Oncology Resident, Massachusett General Hospital, Boston, MA |
| 2012  | Kristina Mirabeau-Beale, MD | Clinical Fellow, Harvard Radiation Oncology Program, Radiation Oncology Fellow, Brigham & Women’s Hospital, Boston, MA  |
| 2011  | Jennifer Pretz, MD | Clinical Fellow, Harvard Radiation Oncology Program, Radiation Oncology Fellow, Brigham & Women’s Hospital, Boston, MA |
| 2011  | Alexander Spektor, MD | Clinical Fellow, Harvard Radiation Oncology Program, Radiation Oncology Fellow, Brigham & Women’s Hospital, Boston, MA |
| 2011 | Raymond Mak, MD | Assistant Professor, Harvard Radiation Oncology Program, Assistant Professor, Radiation Oncology, Brigham & Women’s Hospital, Boston, MA  |
| 2010 | Stephanie Krejacarek Childs, MD | Radiation Oncologist, Internal Medicine, Rochester, MN |
| 2010  | Joseph Mancias, MD, PhD | Instructor, Radiation Oncologist, Beth Israel Deaconess Medical Center, Boston, MA  |
| 2010  | David Miyamoto, MD | Instructor in Radiation Oncology, Harvard Medical School, Attending Radiation Oncologist, Massachusetts General Hospital, Boston, MA |
| 2007  | Lia Halasz, MD | Assistant Professor, Department of Radiation Oncology & Neurological Sciences, University of Washington Medical Center, Radiation Oncologist, University of Washington Medical Center, Seattle, Washington |
| 2007  | Akash Nanda, MD | Director, Department of Radiation Oncology, Dr. P. Phillips Hospital and Health Central Hospital, Orlando, FL  |
| 20072006  | Jennifer Wo, MDNeil Martin, MD | Assistant Professor, Harvard Radiation Oncology Program, Attending, Radiation Oncology, Massachusetts General Hospital, Boston, MAAssistant Professor in Radiation Oncology, Harvard Medical School, Instructor in Radiation Oncology, Harvard Medical School, Attending Radiation Oncologist, Dana Farber Cancer Institute |

[Clinical Supervisory and Training Responsibilities](http://cv.hms.harvard.edu/index.php?page=clinical)

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| 2008- present | Breast Cancer Radiation Oncology Rotation/ Massachusetts General Hospital | One-on-one direct interaction with resident for 350 hours/year.  |
| 2008- present | Pediatric Cancer Radiation Oncology Rotation/ Massachusetts General Hospital | One-on-one direct interaction with resident for 750 hours/year.  |

[Local Invited Presentations](http://cv.hms.harvard.edu/index.php?page=presentations_local)

|  |  |
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| 2007 | Proton Therapy for Breast Cancer/ Breast Cancer Grand Rounds |
|  | Massachusetts General Hospital Cancer Center |
| 2007 | The Potential for Proton Radiation for Breast Cancer/Seminar |
|  | Massachusetts General Hospital |
| 2008 | Using LN-MRI to Help Define Lymphatic Volumes for RT Planning/Breast Cancer Grand Rounds  |
|  | Massachusetts General Hospital |
| 2009 | Added Complexities in Proton Radiation /Seminar |
| 2009 | Pediatric Neurooncology in the Proton Era/Harvard Course, Cambridge, MAProtons for Pediatric Protocols/SeminarPediatric Neurooncology in the Proton Era/Harvard Course, Cambridge, MA |
| 2010 | Partial Breast Irradiation/Seminar |
|  | Harvard University Breast Cancer Course, Boston, MA |
| 2011 | Proton Radiation for Pediatric Malignancies/Pediatric Residency Program |
|  | Massachusetts General Hospital |
| 2011 | Proton Radiation for Pediatric Malignancies and the Impact on Neuroendocrine Structures |
|  | Massachusetts General Hospital |
| 2011 | Proton Radiation for Pediatric Malignancies/Seminar |
|  | Massachusetts College of Pharmacy, Boston, MA |
| 201220132014201520162016201620162018 | Proton Beam Therapy/Pediatric Endocrine Didactic ConferenceMassachusetts General HospitalPost-Mastectomy Radiation Using Proton Beam Radiation/Breast Cancer Grand RoundsMassachusetts General HospitalThe Use of Protons for Locally Advanced Breast Cancer/Physics & Dosimetry ConferenceMassachusetts General HospitalPCORI and Breast Contouring Presentation/Resident Breast Foundation Lecture SeriesMassachusetts General HospitalProton Radiation for Locally Advanced Breast Cancer: Exploring the Potential Benefit of Protons versus Photons for Cardiac Sparing on a Randomized Controlled Trial/MGH Cardiology Grand RoundsMassachusetts General HospitalRADCOMP: Randomized Trial Comparing Proton to Photon Therapy for Non-Metastatic Breast Cancer; A PCORI Sponsored TrialMassachusetts General HospitalHow does the Axillary Nodal Status Affect Recommendations for Radiation Therapy and Proton Therapy for Breast CancerAdvances in Surgical Oncology Conference 2016Massachusetts General HospitalRadComp: Pragmatic Radomized Trial Comparing Protons to Photons for Patients with Non-Metastatic Breast Cancer Receiving Regional Nodal RadiationMGH Multidisciplinary Breast RoundsMassachusetts General HospitalHow does the axillary nodal status affect recommendations for XRT?Advances in Surgical Oncology Conference 2018Massachusetts General Hospital |

**Report of Regional, National and International Invited Teaching and Presentations**

[Invited Presentations and Courses](http://cv.hms.harvard.edu/index.php?page=presentations)

Regional (no presentations sponsored by outside entities)

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| --- | --- |
| 2007 | Partial Breast Irradiation/Grand Rounds/Invited Speaker |
|  | Lowell General Hospital, Lowell, MA |
| 2012 | Proton Radiation for Pediatric Malignancies/*Visiting Professorship* |
|  | Tufts Medical Center Cancer Center, Boston, MA |

National (no presentations sponsored by outside entities)

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| 2006  | Protons for Pediatric Brain Tumors/Invited Speaker |
|  | Children’s Brain Tumor Foundation, Montefiore Hospital, New York, NY |
| 2008 | Proton Radiation for Pediatric Solid Tumors/Seminar/Invited Speaker |
|  | Mount Kisco, NY |
| 2008  | Breast Cancer Scientific Session/Moderator |
|  | ASTRO Annual Meeting, Boston, MA |
| 2009  | Proton Radiation for Pediatric Malignancies/Invited Speaker |
|  | Practical Aspects on IMRT and Proton Therapy Symposium, Chandler, AZ |
| 2010  | Added Complexities of Proton Radiation/Invited Speaker |
|  | New York University Radiation Oncology, New York, NY |
| 2010  | Added Complexities of Proton Radiation/*Visiting Professorship* |
|  | University of Pennsylvania, Philadelphia, PA |
| 2010  | Proton Radiation for Pediatric Malignancies/Point Counterpoint Presentation and Discussion/Invited Speaker |
|  | New York Roentgen Society Annual Meeting, New York, NY |
| 2010  | Breast Cancer Scientific Session/Moderator |
|  | ASTRO Annual Meeting, San Diego, CA |
| 2011  | Partial Breast Irradiation/Invited Speaker |
|  | Holy Cross Hospital, Fort Lauderdale, FL |
| 2011  | American Radium Society Breast Session/Moderator |
|  | American Radium Society, West Palm, FL |
| 2011  | Proton Radiation for Pediatric Malignancies/*Visiting Professorship* |
|  | Columbia University Department of Radiation Oncology, New York, NY |
| 2011 | Radiation Therapy for Pediatric Malignancies/*Visiting Professorship* |
|  | New York University, New York, NY |
| 2011  | Pediatric Radiation Scientific Session/Moderator  |
|  | ASTRO Annual Meeting, Miami, FL |
| 2012 | Breast Cancer Session/Moderator |
|  | ASTRO Annual Meeting, Boston, MA |
| 2013 | Three Dimensional Planning for Breast Cancer; The Use of Established Contouring Guidelines/Invited Speaker |
|  | ASTRO Cancer Imaging and Radiation Therapy Symposium, Orlando, FL |
| 2013 | Pediatric Malignancies: MGH Experience using ProtonsCancer Grand Rounds/*Visiting Professorship*  |
|  | UMDNJ-Robert Wood Johnson Medical School and The Cancer Institute of New Jersey, New Brunswick, NJ |
| 2013201320142014201420142014 | Pediatric Malignancies/Invited Speaker ASTRO 2013 Spring Refresher Course, Chicago, ILProtons for Pediatric CNS Malignancies: Clinical Experience & Future Promise/Invited SpeakerSt. Jude Children’s Research Hospital, Memphis, TNProton Radiation for Children: Indications, Access & Cost Effectiveness/*Visiting Professorship*Tufts Medical Center Cancer Center, Boston, MAProton Beam Radiation; MGH Experience/Invited SpeakerMayo Clinic Arizona, Scottsdale, AZModern Radiation for Breast Cancer/Invited SpeakerACRO Annual Meeting, Orlando, FLRadiation Therapy Contraindications and Safety Concerns Panel/Invited SpeakerASTRO 2014 Spring Refresher Course, New Orleans, LAThe Management of Pediatric Malignancies/Invited SpeakerASTRO 2014 Spring Refresher Course, New Orleans, LA |
| 2014201420142015201520152015201520152015201520152015201620162016201620162016201620172017201720172017201720172017201720172017201720182018201820182018 | The Role of Protons in the Management of Breast Cancer – Present and Future/Invited Expert Speaker for Proton Consortium Practice Guidelines SeriesUniversity of Maryland Medical Center, Baltimore, MDProton Radiation for Locally Advanced Breast Cancer/*Visiting Professorship*University of Washington, Seattle, WAPediatric Brain Tumors Educational Session/Invited SpeakerASTRO Annual Meeting, San Francisco, CACardiotoxicity of Radiation Therapy Remains a Current and Future Problem/Invited Speaker/DebateAmerican College of Cardiology, San Diego, CAProton Beam Therapy in Pediatric CNS Tumors/*Visiting Professorship*Memorial Sloan-Kettering Cancer Center, New York, NYAdvances in Ependymoma/Invited Speaker2015 Pediatric Neuro-Oncology Basic & Translational Research Conference, San Diego, CABreast Education Session/Invited Speaker54th Annual Conference of the Particle Therapy Co-Operative Group, San Diego, CABreast Session/Moderator54th Annual Conference of the Particle Therapy Co-Operative Group, San Diego, CAPediatric Brain Tumor Education Session/Invited SpeakerASTRO’s 57th Annual Meeting, San Antonio, TXNRG Oncology/RTOG 2014: 1 Year Toxicity Report From a Phase II Study of Repeat Breast Preserving Surgery and 3-D Conformal Partial-Breast Reirradiation (PBrl) for In-Breast Recurrence/ModeratorASTRO’s 57th Annual Meeting, San Antonio, TXPediatric Sarcomas and Hodgkin Lymphoma Educational Session/Invited SpeakerASTRO’s 57th Annual Meeting, San Antonio, TXPro: Cardiotoxicity in Breast Cancer is a Major Concern/Invited Speaker/DebateASTRO’s 57th Annual Meeting, San Antonio, TXPediatric Central Nervous System Malignancies/*Visiting Professorship*Johns Hopkins Hospital, Baltimore, MDProton Radiation Outcomes and LET/RBE Correlations for Medulloblastoma and Ependymoma/*Visiting Professorship*University of Miami Miller School of Medicine Sylvester Comprehensive Cancer Center, Miami, FLPediatric Medulloblastoma and Ependymoma; Outcomes & LET/RBE Correlations/*Visiting Professorship*Yale School of Medicine, New Haven, CTPediatric Brain Tumors: Educational SessionASTRO’s 58th Annual Meeting, Boston, MABreast Cancer ePoster Session/DiscussantASTRO’s 58th Annual Meeting, Boston, MACardiac Toxicity: Lessons Learned While Curing Breast Cancer – Is Proton the Answer – YesASTRO’s 58th Annual Meeting, Boston, MAPractical Aspects of Delivering Proton Therapy/Invited SpeakerSibley Hospital, Washington, DCHumbling Advances in Technology: Protons & Brainstem Necrosis/Invited SpeakerChildren’s National Hospital, Washington, DCProtons for Locally Advanced Breast Cancer; Early Experience and the Radcomp Randomized Trial Comparing Proton to Photons for LABC/*Visiting Professorship*MD Anderson Cancer Center, Houston, TXHumbling Advances in Technology: Protons and Brainstem Injury/*Visiting Professorship*MD Anderson Cancer Center, Houston, TXIncidence of Optic Nerve Involvement in Pediatric Intracranial Germ Cell Tumors/Invited Speaker5th International CNS Germ Cell Tumor Symposium, Columbus, OhioRadiation Oncology Practice/Co-Chair5th International CNS Germ Cell Tumor Symposium, Columbus, OhioUpdate on Current Management of Germ Cell Tumors/Invited Speaker2017 Paediatric Radiation Oncology Society, New York, NYPromising Developments in Radiation Techniques for Childhood Cancers/*Visiting Professorship*Cedar-Sinai Hospital, Los Angeles, CABrainstem Injury in Pediatric Brain Tumor Patients: Recent Photon and Proton Experience/Session Moderator & Invited SpeakerASTRO’s 59th Annual Meeting, San Diego, CAPediatric Brain Tumors/Educational SessionASTRO’s 59th Annual Meeting, San Diego, CAARRO Poster Walk/Pediatric – Pediatric Walk with the ProfessorASTRO’s 59th Annual Meeting, San Diego, CARADCOMP: Successful Enrollment on a Randomized Trial/Invited SpeakerASTRO’s 59th Annual Meeting, San Diego, CAModern Radiation Treatment for Locally Advanced Breast Cancer/*Visiting Professorship*Georgetown University Hospital, Washington, DCModern Proton Radiation for Pediatric Malignancies/*Visiting Professorship*Georgetown University Hospital, Washington, DCNRG Oncology: PCORI RADCOMP Breast Randomized Trial of Photons versus Protons/ Invited SpeakerProton Work Group, Phoenix, AZPractical Aspects of Proton Therapy/*Visiting Professorship*Tufts Medical Center Cancer Center, Boston, MABreast Education Session/Invited SpeakerASTRO 2018 Spring Refresher Course, Fort Lauderdale, FLBreast, Physics and Gynegologic Q&A/Invited SpeakerASTRO 2018 Spring Refresher Course, Fort Lauderdale, FLProton Therapy for Breast Cancer Educational Session/Invited SpeakerPTCOG 2018 Annual Meeting, Cincinnati, OH |

International (Those presentations below sponsored by an outside entity are so noted by the sponsors name in parenthesis)

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| 20062008  | Update on Breast Radiation Therapy/Invited LectureBermuda, Partners International/Tuberculosis and Cancer Center of BermudaReduction in Secondary Tumors with Protons compared to Photons at Symposium: Clinical Aspects and Potential Benefits of Proton Radiation/Invited Lecture |
|  | Groningen (Netherlands), University Medical Center Groningen |
| 2009  | Proton Radiation for Pediatric Malignancies/Invited Lecture |
|  | Arab Health Conference, Dubai, UAE; (Ion Beam Associates) |
| 2010  | Proton Radiation for Pediatric CNS Malignancies: The MGH Experience/Invited Lecture |
| 2010 | Paul Scherer Institute, Villigen, SwitzerlandProton Therapy for Childhood CNS Ependymoma: Clinical Outcomes for a Cohort of 49 Patients (*Abstract oral presentation*)Vienna, Austria  |
| 2012  | Proton Radiation for Pediatric Malignancies/Invited Lecture |
|  | Boldrini Hospital Sau Paulo, Brazil, (Elektra) |
| 2012  | Proton Radiation for Breast Cancer: Post-Mastectomy Radiation/Invited Lecture |
| 2012 | EAFO Global Oncology Forum Moscow, RussiaPartial Breast Irradiation/Invited Lecture and ModeratorEAFO Global Oncology Forum Moscow, Russia |
| 2012  | What is New in the Treatment of Intracranial Tumors: North American Approach/Invited LecturePediatric Radiation Oncology Society 2012 Annual Meeting, London, UK |
| 201320132013 | The Treatment of Relapsed Germ Cell Tumors/ Panel Member3rd International Germ Cell Tumor Conference, Protons for Pediatric Germ Cell Tumors, Cambridge, UKShould Proton Radiation be used for Pediatric CNS Germ Cell Tumors/ Debate3rd International Germ Cell Tumor Conference, Protons for Pediatric Germ Cell Tumors, Cambridge, UKBifocal intracranial tumors of nongerminomatous germ cell etiology: Diagnostic and therapeutic implications (*Abstract oral presentation*)3rd International Germ Cell Tumor Conference, Protons for Pediatric Germ Cell Tumors, Cambridge, UK |
| 2013201420142014201420142015201620162016201620172017 | Radiation Therapy for CNS Germ Cell Tumors/Invited Speaker45th Congress of the International Society of Paediatric Oncology, Hong Kong, ChinaBreast Cancer Educational Session/Invited SpeakerProton Therapy Oncology Group, Shanghai, ChinaBreast Cancer and Proton Therapy/Invited SpeakerThird Swedish Postgraduate Course in Proton Therapy, Uppsala, Sweden, (Ion Beam Associates)Paediatric Cancer and Proton Therapy/Invited SpeakerThird Swedish Postgraduate Course in Proton Therapy, Uppsala, Sweden, (Ion Beam Associates)Patient Selection for Proton Therapy/Invited SpeakerThird Swedish Postgraduate Course in Proton Therapy, Uppsala, Sweden, (Ion Beam Associates)Dose Constraints in Pediatric Practice/CNS Tumours/Invited SpeakerPediatric Radiation Oncology Society/ SIOP Meeting, Toronto, CanadaProton Therapy in Childhood Brain Tumours/Current Status/ Invited Speaker2015 Paediatric Radiation Oncology Society, Ljubljana, SloveniaBreast Cancer Session/Chair2016 Particle Therapy Co-Operative Group, Prague, Czech RepublicBreast Radiotherapy/Educational Session2016 Particle Therapy Co-Operative Group, Prague, Czech RepublicPROS: What is New for MedulloblastomaPediatric Radiation Oncology Society/SIOP Meeting, Dublin, IrelandPROS: Proton Therapy SessionPediatric Radiation Oncology Society/SIOP Meeting, Dublin, IrelandProton Therapy for Pediatrics; Proton Therapy Practical Aspects and Proton Therapy for Breast Cancer/*Visiting Professorship*King Chulalongkorn Memorial Hospital, Bankok, ThailandBreast Education Session2017 Particle Therapy Co-Operative Group, Chiba, Japan |
| 2017 | Proton Therapy Experience in the United States/Invited SpeakerSymposium On Proton & Heavy Ion Radiotherapy On Cancer In Vietnam, Hanoi, Vietnam |

**Report of Clinical Activities and Innovations**

[Current Licensure and Certification](http://cv.hms.harvard.edu/index.php?page=licensure)

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| 2005-present | Massachusetts Registered Physician |
| 2007-present | American Board of Radiology |
| 2007-present | New Hampshire Registered Physician |

[Practice Activities](http://cv.hms.harvard.edu/index.php?page=practice)

|  |  |  |  |
| --- | --- | --- | --- |
| 2006 - present | Consultation, Treatment | Pediatric Radiation Oncology | 24 hours per week |
| 2006 - present | Consultation, Treatment | Breast Radiation Oncology | 16 hours per week |

**Report of Scholarship**

[Publications](http://cv.hms.harvard.edu/index.php?page=publications)

[Peer reviewed scientific or medical publications in print , book chapters, or other media](http://cv.hms.harvard.edu/index.php?page=peer_review)

Research investigations

|  |  |
| --- | --- |
| 1. | Balkema GW, **MacDonald SM**. Increased absolute light sensitivity in Himalayan mice with cold-induced ocular pigmentation. Vis Neurosci. 1998;15(5):841-849.  |
| 2. | Roth JM, Akalu A, Zelmanovich A, Policarpio D, Ng B, **MacDonald SM**, Formenti S, Liebes L, Brooks PC. Recombinant Alpha2(IV)NC1 domain inhibits tumor cell-extracellular matrix interactions, induces cellular senescence, and inhibits tumor growth in vivo. Am J Pathol. 2005;166(3):901-911.  |
| 3. | Xavier S, **MacDonald SM\***, Roth J, Caunt M, Akalu A, Morais D, Buckley MT, Liebes L, Formenti SC, Brooks PC. The vitamin-like dietary supplement para-aminobenzoic acid enhances the antitumor activity of ionizing radiation. Int J Radiat Oncol Biol Phys. 2006;65(2):517-527. **\***shared first authorship. |
| 4. | **MacDonald SM**, Ahmad S, Kachris S, Vogds B, DeRouen M, Gittlemnam A, DeWyngaert K, Vlachaki MT. Intensity modulated radiation therapy versus three-dimensional conformal radiation therapy for the treatment of high grade glioma; a dosimetric comparison. J Appl Clin Med Phys. 2007; Apr 19;8(2):47-60. |
| 5. | **MacDonald SM**, Desai N, Heller G, Rolnitzky L, Allen JC. MRI changes in the "normal" pineal gland following chemotherapy for suprasellar germ cell tumors. Pediatr Hematol Oncol. 2008;25(1):5-15.  |
| 6. | Kozak KR, Hong TS, Sluss PM, Lewandrowski EL, Aleryani SL, **MacDonald SM**, Choi NC, Yock TI. Cardiac blood biomarkers in patients receiving thoracic (Chemo) radiation. Lung Cancer. 2008;62(3):351-355. |
| 7. | **MacDonald SM**, Safai S, Trofimov A, Wolfgang J, Fullerton B, Yeap BY, Bortfeld T, Tarbell NJ, Yock T. Proton radiotherapy for childhood ependymoma: Initial clinical outcomes and dose comparisons. Int J Radiat Oncol Biol Phys. 2008;71(4):979-986. |
| 8. | Li XA, Tai A, Arthur DW, Buchholz TA, **MacDonald SM**, Marks LB, Moran JM, Pierce LJ, Rabinovitch R, Taghian A, Vicini F, Woodward W, White JR. Variability of target and normal structure delineation for breast cancer radiotherapy: An RTOG multi-institutional and multiobserver study. Int J Radiat Oncol Biol Phys. 2009;73(3):944-951. |
| 9. | **MacDonald SM**, Abi-Raad RF, Alm El-Din MA, Niemierko A, Kobayashi W, McGrath JJ, Goldberg SI, Powell S, Smith B, Taghian AG. Chest wall radiotherapy: Middle ground for treatment of patients with one to three positive lymph nodes after mastectomy. Int J Radiat Oncol Biol Phys. 2009;75(5):1297-1303. |
| 10. | Recht A, Ancukiewicz M, Alm El-Din MA, Lu XQ, Martin C, Berman SM, Hirsch AE, Kachnic LA, Katz A, **MacDonald SM**, Nedea EA, Stevenson MA, Powell SN, Taghian AG. Lung dose-volume parameters and the risk of pneumonitis for patients treated with accelerated partial-breast irradiation using three-dimensional conformal radiotherapy. J Clin Oncol. 2009;27(24):3887-3893. |
| 11. | **MacDonald SM**, Yock TI. Proton beam therapy following resection for childhood ependymoma. Childs Nerv Syst. 2010;26(3)285-291. (*peer reviewed review article*) |
| 12. | **MacDonald SM**, Trofimov A, Safai S, Adams J, Fullerton B, Ebb D, Tarbell NJ, Yock TI. Proton radiotherapy for pediatric central nervous system germ cell tumors: Early clinical outcomes. Int J Radiat Oncol Biol Phys. 2011;79(1):121-129. |
| 13. | **MacDonald SM**, Harisinghani MG, Katkar A, Napolitano B, Wolfgang J, Taghian AG. Nanoparticle-enhanced MRI to evaluate radiation delivery to the regional lymphatics for patients with breast cancer. Int J Radiat Oncol Biol Phys. 2010;77(4):1098-1104.  |
| 14. | Cotter SE, Herrup DA, Friedmann A, **MacDonald SM**, Pieretti RV, Robinson G, Adams J, Tarbell NJ, Yock TI. Proton radiotherapy for pediatric bladder/prostate rhabdomyosarcoma: Clinical outcomes and dosimetry compared to intensity-modulated radiation therapy. Int J Radiat Oncol Biol Phys. 2011;81(5):1367-1373. |
| 15. | Childs SK, Kozak KR, Friedmann AM, Yeap BY, Adams J, **MacDonald SM**, Liebsch NJ, Tarbell NJ, Yock TI. Proton radiotherapy for parameningeal rhabdomyosarcoma: Clinical outcomes and late effects. Int J Radiat Oncol Biol Phys. 2012;82(2):635-642.  |
| 16. | Abi-Raad R, Boutrus R, Wang R, Niemierko A, **MacDonald SM**, Smith B, Taghian AG. Patterns and risk factors of locoregional recurrence in T1-T2 node negative breast cancer patients treated with mastectomy: Implications for postmastectomy radiotherapy. Int J Radiat Oncol Biol Phys. 2011;81(3):e151-157.  |
| 17. | Rombi B, Delaney TF, **MacDonald SM**, Huang MS, Ebb DH, Liebsch NJ, Raskin KA, Yeap BY, Marcus KJ, Tarbell NJ, Yock TI. Proton radiotherapy for pediatric Ewing's Sarcoma: initial clinical outcomes. Int J Radiat Oncol Biol Phys. 2012;82:1142-1148. |
| 18. | Bellon JR, Harris EE, Arthur DW, Bailey L, Carey L, Goyal S, Halyard MY, Horst KC, Moran MS, **MacDonald SM**, Haffty BG. ACR Appropriateness Criteria(®) conservative surgery and radiation - stage I and II breast carcinoma: Expert panel on radiation oncology: Breast. Breast J. 2011;17(5):448-455.  |
| 19. | **MacDonald SM**, Harris EE, Arthur DW, Bailey L, Bellon JR, Carey L, Goyal S, Halyard MY, Horst KC, Moran MS, Haffty BG. ACR Appropriateness Criteria locally advanced breast cancer. Breast J. 2011;17:579-585. |
| 20. | Moran MS, Bai HX, Harris EE, Arthur DW, Bailey L, Bellon JR, Carey L, Goyal S, Halyard MY, Horst KC, **MacDonald SM**, Haffty BG. ACR Appropriateness Criteria(®) ductal carcinoma in situ. Breast J. 2012;18(1):8-15. |
| 21. | Halyard MY, Wasif N, Harris EE, Arthur DW, Bailey L, Bellon JR, Carey L, Goyal S, Horst KC, Moran MS, **MacDonald SM**, Haffty BG. ACR Appropriateness Criteria® local-regional recurrence (LR) and salvage surgery: Breast Cancer. Am J Clin Oncol. 2012;35(2):178-182. |
| 22. | Kuhlthau KA, Pulsifer MB, Yeap BY, Rivera Morales D, Delahaye J, Hill KS, Ebb D, Abrams AN, **MacDonald SM**, Tarbell NJ, Yock TI. Prospective study of health-related quality of life for children with brain tumors treated with proton radiotherapy. J Clin Oncol. 2012;30(17):2079-2086. |
| 23. | Hattangadi JA, Powell SN, **MacDonald SM**, Mauceri T, Ancukiewicz M, Freer P, Lawenda B, Alm El-Din MA, Gadd MA, Smith BL, Taghian AG. Accelerated partial breast irradiation with low-dose-rate interstitial implant brachytherapy after wide local excision: 12-Year outcomes from a prospective trial. Int J Radiat Oncol Biol Phys. 2012;83(3):791-800. |
| 24. | Hattangadi JA, Rombi B, Yock TI, Broussard G, Friedmann AM, Huang M, Chen YL, Lu HM, Kooy H, **MacDonald SM**. Proton radiotherapy for high-risk pediatric neuroblastoma: Early outcomes and dose comparison. Int J Radiat Oncol Biol Phys. 2012;83(3):1015-1022. |
| 25. | De Amorim Bernstein K, Sethi R, Trofimov A, Zeng C, Fullerton B, Yeap BY, Ebb D, Tarbell NJ, Yock TI, **MacDonald SM**. Early clinical outcomes using proton radiation for children with central nervous system atypical teratoid rhabdoid tumors. Int J Radiat Oncol Biol Phys. 2013;86:114-120. |
| 26. | **MacDonald SM**, Jimenez R, Paetzold P, Adams J, Beatty J, Delaney TF, Kooy H, Taghian AG, Lu HM. Proton radiotherapy for chest wall and regional lymphatic radiation; dose comparisons and treatment delivery**.** Radiat Oncol. 2013; 8:71;1-7. |
| 27. | Aizer AA, Sethi RV, Hedley-Whyte ET, Ebb D, Tarbell NJ, Yock TI, **MacDonald SM**. Bifocal intracranial tumors of nongerminomatous germ cell etiology: Diagnostic and therapeutic implications. Neuro Oncol. 2013;15:955-960. |
| 28. | **MacDonald SM**, Patel SA, Hickey S, Specht M, Isakoff SJ, Gadd M, Smith BL, Yeap BY, Adams J, Delaney TF, Kooy H, Lu HM, Taghian AG. Proton therapy for breast cancer after mastectomy: early outcomes of a prospective clinical trial**.** Int J Radiat Oncol Biol Phys. 2013;86:484-490. |
| 29. | Yonekawa Y, **MacDonald SM**, Shildkrot Y, Mukai S. Standard fractionation low-dose proton radiotherapy for diffuse choroidal hemangiomas in pediatric sturge-weber syndrome**.** J AAPOS.2013;17:318-322. |
| 30. | Jimenez RB, Goma C, Nyamwanda J, Kooy HM, Halabi T, Napolitano BN, McBride SM, Taghian AG, Lu HM, **MacDonald SM**. Intensity modulated proton therapy for postmastectomy radiation of bilateral implant reconstructed breasts: a treatment planning study. Radiother Oncol. 2013;107:213-217. |
| 31. | Jimenez RB, Sethi RV, Depauw N,Pulsifer M, Adams J, McBride S, Ebb D, Fullerton BC, Tarbell NJ, Yock TI, **MacDonald SM.** Proton radiation therapy for pediatric medulloblastoma and supratentorial PNET: Outcomes for very young children treated with upfront chemotherapy.Int J Radiat Oncol Biol Phys. 2013;87:120-126.  |
| 32. | Sethi RV, Marino R, Niemierko A, Tarbell NJ, Yock TI, and **MacDonald SM.** Delayed diagnosis in children with intracranial germ cell tumors. J Pediatr. 2013;163:1448-1453.  |
| 33.  | Mailhot R, Kim J, Bussière M, Hattangadi J, Hollander A, Michalski J, Tarbell NJ, Yock TI, **MacDonald SM.** Cost-effectiveness of proton therapy compared to photon therapy in the management of pediatric medulloblastoma. Cancer. 2013;119:4299-4307.  |
| 34.  | **MacDonald SM**, Sethi R, Lavally B, Huang M, Yeap BY, Marino R, Marcus KJ, Caruso P, Pulsifer M, Ebb D, Tarbell NJ, Yock TI. Proton radiotherapy for pediatric central nervous system ependymoma: Clinical outcomes for 70 Patients. Neuro Oncol. 2013;15:1552-1559.  |
| 35. | Sethi R, Shih H, Yeap B, Mouw K, Petersen R, Kim D, Munzenrider J, Grabowski E, Rodriguez-Galindo C, Yock TI, Tarbell NJ , Marcus KM, Mukai S, **MacDonald SM.** Second non-ocular tumors among survivors of retinoblastoma treated with contemporary photon and proton radiotherapy. Cancer. 2014;120:126-133.  |
| 36. | Aizer AA, Ancukiewicz M, Nguyen PL, **MacDonald SM**, Yock TI, Tarbell NJ, Shih HA, Loeffler JS, Oh KS. Very favorable natural history of WHO Grade II supratentorial ependymomas after gross total resection: Results from a population-based study. J Neuro Oncol. 2013;15:955-960. |
| 37. | Warren LE, Miller CL, Horick N, Skolny MN, Jammallo LS, Sadek BT, Shenouda MN, O’Toole JA, **MacDonald SM**, Specht MC, Taghian AG. The Impact of radiation therapy on the risk of lymphedema after treatment for breast cancer: A prospective cohort study. Int J Radiat Oncol Biol Phys. 2013;88:565-571. |
| 38.39.40.41.42.43.44.45.46.47.48.49.50.51.52.53.54.55.56.57.58.59.60.61.62.63.64.65.66.67.68.69.70.71.72.73.74.75.76.77.78.79. | Sethi RV, Giantsoudi D, Raiford M, Malhi I, Niemierko A, Rapalino O, Caruso P, Yock TI, Tarbell NJ, Paganetti H, **MacDonald SM**. Patterns of failure following proton therapy in medulloblastoma; Linear energy transfer distributions and RBE associations for relapses. Int J Radiat Oncol Biol Phys. 2013;88: 655-663.Galland-Girodet S, Pashtan I, **MacDonald SM**, Ancukiewicz M, Hirsch AE, Kachnic LA, Specht M, Gadd M, Smith BL, Powell SN, Recht A, Taghian AG. Long-term cosmetic outcomes and toxicities of proton beam therapy compared with photon-based 3-dimensional conformal accelerated partial-breast irradiation: A phase 1 trial. Int J Radiat Oncol Biol Phys. 2014;90(3): 493-500.Greenberger BA, Pulsifer MB, Ebb DH, **MacDonald SM**, Jones RM, Butler WE, Huang MS, Marcus KJ, Oberg JA, Tarbell NJ, Yock TI. Clinical outcomes and late endocrine, neurocognitive, and visual profiles of proton radiation for pediatric low-grade gliomas. Int J Radiat Oncol Biol Phys. 2014;89(5):1060-1068.Mouw KW, Sethi RV, Yeap BY, **MacDonald SM**, Chen YL, Tarbell NJ, Yock TI, Munzenrider JE, Grabowski E, Mukai S, Shih HA. Proton radiotherapy for the treatment of retinoblastoma. Int J Radiat Oncol Biol Phys. 2014;90(4):863-869.Alcorn SR, Chen MJ, Claude L, Dieckmann K, Ermoian RP, Ford EC, Malet C, **MacDonald SM**, Nechesnyuk AV, Nilsson K, Villar RC, Winey BA, Tryggestad EJ, Terezakis SA. Practice patterns of photon and proton pediatric image guided radiation treatment: results from an international pediatric research consortium. Prac Rad Onc. 2014;4(5):336-341. Ladra MM, Szymonifka J, Mahajan A, Friedmann AM, Yeap BY, Goebel C, **MacDonald SM**, Grosshans D, Rodriguez-Galindo C, Marcus KJ, Tarbell NJ, Yock TI. Preliminary results of a phase II trial of proton radiotherapy for pediatric rhabdomyosarcoma. J Clin Oncol. 2014;32(33):3762-3770.Kamran SC, Collier JM, Lane AM, Kim I, Niemierko A, Chen YL, **MacDonald SM**, Munzenrider JE, Gragoudas E, Shih HA. Outcomes of proton therapy for the treatment of uveal metastases. Int J Radiat Oncol Biol Phys. 2014;90(5):1044-1050.Yock TI, Bhat S, Szymonifka J, Yeap BY, Belahaye J, Donaldson SS, **MacDonald SM**, Pulsifer MB, Hill KS, DeLaney TF, Ebb D, Huang M, Tarbell NJ, Fisher PG, Kuhlthau KA. Quality of life outcomes in proton and photon treated pediatric brain tumor survivors. Radiother Oncol. 2014;133(1):89-94.Min CH, Paganetti H, Winey BA, Adams J, **MacDonald SM**, Tarbell NJ, Yock TI. Evaluation of permanent alopecia in pediatric medulloblastoma patients treated with proton radiation. Radiat Oncol. 2014;9:220.Ladra MM, Edgington SK, Mahajan A, Grosshans D, Szymonifka J, Khan F, Moteabbed M, Friedmann AM, **MacDonald SM**, Tarbell NJ, Yock TI. A dosimetric comparison of proton and intensity modulated radiation therapy in pediatric rhabdomyosarcoma patients enrolled on a prospective phase II proton study. Radiotherapy Oncol. 2014;133(1):77-83.Mailhot R, Kim J, Hollander A, Hattangadi-Gluth J, Michalski J, Tarbell NJ, Yock TI, Bussiere M, **MacDonald SM**. Cost effectiveness of proton versus photon radiation therapy with respect to the risk of growth hormone deficiency in children. Cancer. 2015;121(10):1694-702.Lucas JT Jr, Ladra MM, **MacDonald SM**, Busse PM, Friedmann AM, Ebb DH, Marcus KJ, Tarbell NJ, Yock TI. Proton therapy for pediatric and adolescent esthesioneuroblastoma. Pediatric Blood & Cancer. 2015;62(9):1523-1528.Ladra MM, Mandeville HC, Niemierko A, Padera TP, Friedmann AM, **MacDonald SM**, Ebb D, Chen YL, Tarbell NJ, Yock TI. Local failure in parameningeal rhabdomyosarcoma correlates with poor response to induction chemotherapy. Int J Radiat Oncol Biol Phys. 2015;92(2):258-267.Ye JC, Mohindra P, Spektor A, Krishnan MS, Chmura SJ, Howard AR, Viswanathan AN, **MacDonald** **SM**, Thaker NG, Das P, Mancini BR, Higgins SA, Braunstein S, Haas-Kogan D, Bradley KA, Hung AY, Thomas CR Jr, Kharofa J, Wheatley M, Currey A, Parashar B, Du K, Jimenez RB, Golden DW. Medical student perspectives on a multi-institutional clerkship curriculum: A report from the radiation oncology education collaborative study group. Int J Radiat Oncol Biol Phys. 2015;92(2):217-219.Eaton BR, Chowdhry V, Weaver K, Liu L, Ebb D, **MacDonald SM**, Tarbell NJ, Yock TI. Use of proton therapy for re-irradiation in pediatric intracranial ependymoma. Radiother Oncol. 2015;116(2):301-8.Pulsifer MB, Sethi RV, Kuhlthau KA, **MacDonald SM**, Tarbell NJ, Yock TI. Early cognitive outcomes following proton radiation in pediatric patients with brain and central nervous system tumors. Int J Radiat Oncol Biol Phys. 2015;93(2):400-7.Depauw N, Batin E, Daartz J, Rosenfeld A, Adams J, Kooy H, **MacDonald SM**, Lu HM. A novel approach to postmastectomy radiation therapy using scanned proton beams. Int J Radiat Oncol Biol Phys. 2015;91(2):427-34.Braunstein LZ, Galland-Girodet S, Goldberg s, Warren LE, Sadek BT, Shenouda MN, Abi-Raad RF, **MacDonald SM**, Taghian AG. Long-term outcomes among breast cancer patients with extensive regional lymph node involvement: implications for locoregional management. Breast Cancer Res Treat. 2015;154(3):633-9.Eaton BR, **MacDonald SM**, Yock TI, Tarbell NJ. Secondary malignancy risk following proton radiation therapy. Front Oncol. 2015;5:261.Giantsoudi D, Sethi RV, Eaton BR, Beow YY, Ebb D, Caruso PA, Rapalino O, Chen YL, Adams J, Yock TI, Tarbell NJ, Paganetti H, **MacDonald SM**. Incidence of CNS injury for a cohort of 111 patients treated with proton therapy for medulloblastoma; LET and RBE associations for areas of injury. Int J Radiat Oncol Biol Phys. 2015;95(1):287-96.Eaton BR, Esiashvili N, Kim S, Weyman EA, Thornton LT, Mazewski C, MacDonald T, Ebb DH, **MacDonald SM**, Tarbell NJ, Yock TI. Clinical outcomes among children with standard-risk medulloblastoma treated with proton and photon radiation therapy: A comparison of disease control and overall survival. Int J Radiat Oncol Biol Phys. 2016;94(1):133-8.Yock TI, Yeap By, Ebb DH, Weyman E, Eaton BR, Sherry NA, Jones RM, **MacDonald SM**, Pulsifer MB, Lavally B, Abrams AN, Huang MS, Marcus KJ, Tarbell NJ. Long-term toxic effects of proton radiotherapy for paediatric medulloblastoma: a phase 2 single-arm study. Lancet Oncol. 2016;17(3):287-98.Fei HW, Ali MT, Tan TC, Cheng KH, Salama L, Hua L, Zeng X, Halpern EF, Taghian A, **MacDonald SM**, Scherrer-Crosbie M. Left ventricular global longitudinal strain in HER-2+ breast cancer patients treated with Anthracyclines and Trastuzumab who develop cardiotoxicity is associated with subsequent recovery of left ventricular ejection fraction. Echocardiography. 2016;33(4):519-26.Batin E, Depauw N, **MacDonald SM**, Lu HM. Can surface imaging improve the patient setup for proton postmastectomy chest wall irradiation? Practical Rad Onc. 2016;6(6):e235-e241.Mailhot R, Ishaq O, Raldow A, Perez CA, Jimenez R, Scherrer-Crosbie M, Bussiere M, Taghian A, Sher DJ, **MacDonald SM**. Establishing cost-effective allocation of proton therapy for breast irradiation. Int J Radiation Oncol Biol Phys. 2016;95(1):11-8.Yock TI, Tarbell NJ, Yeap BY, Ebb DH, Weyman E, Eaton BR, Sherry NA, Jones RM, **MacDonald SM**, Pulsifer MB, Lavally B, Abrams AN, Huang MS, Marcus KJ. Proton beam therapy for medulloblastoma – Author’s reply. Lancet Oncol. 2016;17(5):e174-5.Cuaron JJ, **MacDonald SM**, Cahlon O. Novel applications of proton therapy in breast carcinoma. Chin Clin Oncol. 2016;5(4):52.Giantsoudi D, Adams J, **MacDonald SM**, Paganetti H. Proton treatment techniques for posterior fossa tumors: consequences for LET and dose/volume parameters for the brainstem and organs at risk. Int J Radiation Oncol Biol Phys. 2017 97:401-410.Eaton BR, Esiashvili N, Kim S, Patterson B, Weyman EA, Thorton LT, Mazewski C, MacDonald TJ, Ebb D, **MacDonald SM**, Tarbell NJ, Yock TI. Endocrine outcomes with proton and photon radiotherapy for standard risk medulloblastoma. Neuro Oncol. 2016;18(6):881-7.Friedman GN, Grannan BL, Yanamadala V, Shankar GM, Dewitt JC, Puthenpura V, Koffie RM, **MacDonald SM**, Ebb DH, Frosch MP, Duhaime AC. Rapid neurological recovery following partial surgical resection of spinal glioblastoma multiforme in a pediatric patient presenting with complete paraplegia. J Pediatr Hematol Oncol. 2016;38(8):e286-E290.**MacDonald SM**, Rapalino O, Sherry NA, Cohen AB, Ebb DH, Tarbell NJ, Oakely DH. Case 32-2016: A 20-year-old man with gynecomastia. N Engl J Med. 2016;375:1567-79.Giantsoudi D, Seco J, Eaton BR, Simeone FJ, Kooy H, Yock TI, Tarbell NJ, DeLaney TF, Adams J, Paganetti H and **MacDonald SM.** Evaluating intensity modulated proton therapy relative to passive scattering proton therapy for increased vertebral column sparing in CSI in growing pediatric patients. Int J Radiat Oncol Biol Phys. 2017;98(1):37-46. Braunstein LZ, Taghian AG, Niemierko A, Salama L, Capuco A, Bellon JR, Wong JS, Punglia RS, **MacDonald SM**, Harris JR. Breast-cancer subtype, age, and lymph node status as predictors of local recurrence following breast-conserving therapy. Breast Cancer Res Treat. 2017;161(1):173-179.Rao AD, Chen Q, Ermoian RP, Alcorn SR, Figueiredo MLS, Chen MJ, Dieckmann K, **MacDonald SM**, Ladra MM, Kobyzeva D, Nechesnyuk AV, Nilsson K, Ford EC, Winey BA, Villar RC, Terezakis SA. Practice patterns of palliative radiation therapy in pediatric oncology patients in an international pediatric research consortium. Pediatr Blood Cancer. 2017;64(11).Mouw KW, Yeap BY, Caruso P, Fay A, Misra M, Sethi RV, **MacDonald SM**, Chen YL, Tarbell NJ, Yock TI, Freitag SK, Munzenrider JE, Grabowsi E, Katz M, Kuhlthau K, DeCastro D, Heidary G, Ciralsky J, Mukai S, Shih HA. Analysis of patient outcomes following proton radiation therapy for retinoblastoma. Adv Radiat Oncol. 2017;2(1):44-52.Rao AD, Rashid A, Chen Q, Villar RC, Kobyzeva K, Nilsson K, Dieckmann K, Nechesnyuk A, Ermoian R, Alcorn S, **MacDonald SM**, Ladra MM, Ford EC, Winey BA, Figueiredo ML, Chen MJ, Terezakis SA. Reirradiation for recurrent Pediatric CNS malignancies; A multi-institution review. Int J Radiat Oncol Biol Phys. 2017;99(3):634-641.Patel SA, Lu HM, Nyamwanda JA, Jimenez RB, Taghian AG, **MacDonald SM**, Depauw N. Postmastectomy radiation therapy technique and cardiopulmonary sparing: A dosimetric comparative analysis between photons and protons with free breathing versus deep inspiration breath hold. Pract Radiat Oncol. 2017;7(6):e377-e384.**MacDonald SM**, Laack NN, Terezakis S. Protons, brainstem necrosis, and the self-driving car. Int J Radiat Oncol Biol Phys. 2017;97(2):216-219.Ventura LM, Grieco JA, Evans CL, Kahlthau KA, **MacDonald SM**, Tarbell NJ, Yock TI, Pulsifer MB. Executive functioning academic skills, and quality of life in pediatric patients with brain tumors post-proton radiation therapy. Int J Radiat Oncol Biol Phys. 2017;97(2):216-219.Haas-Kogan D, Indelicato D, Paganetti H, Esiashvili N, Mahajan A, Yock TI, Flampouri S, **MacDonald SM**, Fouladi M, Kry S, Kalapurakal J, Terezakis S, Kooy H, Grosshans D, Makrigiorgos M, Mishra K, Poussaint TY, Cohen K, Fitzgerald T, Gondi V, Liu A, Michalski J, Mirkovic D, Mohan R, Perkins S, Wong K, Vikram B, Buchsbaum J, Kun LE. NCI workshop on proton therapy for children: considerations regarding brainstem injury. Int J Radiat Oncol Biol Phys. 2017;101(1):152-168. Giantsoudi D, Adams J, **MacDonald SM**, Paganetti H. Can differences in linear energy transfer and thus relative biological effectiveness compromise the dosimetric advantage of intensity-modulated proton therapy as compared to passively scattered proton therapy? Acta Oncologica. 2018 (in press)Kamran S, Goldberg SI, Kuhlthau KA, Lawell MP, Weyman EA, Gallotto SL, Hess CB, Huang MS, Friedmann AM, Abrams AN, **MacDonald SM**, Pulsifer M, Tarbell NJ, Yock T. Quality of life in proton-treated pediatric medulloblastoma: results of a prospective assessment with 5-year follow-up. Cancer. 2018 (in press) |

Other peer reviewed publications

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| 1. | **MacDonald SM**, DeLaney TF, Loeffler JS. Proton beam radiation therapy. Cancer Invest. 2006;24(2)199-208. (*peer reviewed review article*)  |
| 2. | Wong JM, Chi SN, Marcus KJ, Levine BS, Ullrich NJ, **MacDonald SM**, Lechpamer M, Goumnerova LC. Germinoma with malignant transformation to nongerminomatous germ cell tumor. J Neurosurg Pediatr. 2010;6:295-298. (case report and review) |

[Non-peer reviewed scientific or medical publications in print , book chapters, or other media](http://cv.hms.harvard.edu/index.php?page=peer_review)

**Chapters**

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| 1. | **MacDonald SM**, Gierga DP, Napolitano B, and Taghian AG. APBI 3D conformal external beam: The MGH technique. In: Accelerated Partial Breast Irradiation; Editors:David E. Wazer, Douglas W. Arthur, Frank A. Vicini. New York, NY: Springer;2009:315-325  |
| 2. | **MacDonald** **SM,** Taghian AG. Breast cancer. In: Proton and Heavier Charged Particle Radiotherapy. Editors: Thomas DeLaney, M.D. & Hanne Kooy. Ph.D. Lippincott Williams & Wilkins.;2007:254-261 |
| 3. | **MacDonald SM,** Taghian AG. Evolving innovations for breast radiotherapy. In: Breast Cancer, A Multidisciplinary Approach to Diagnosis and Management. Editors: Alphonse G Taghian, Barbara L Smith, and John K Erban. New York, NY: Demos Medical Publishing;2010: 298-307 |
| 4. | Racsa M, Hirsch AE, **MacDonald SM**. Radiation treatment for DCIS. In: Breast Cancer, A Multidisciplinary Approach to Diagnosis and Management Editors Alphonse G Taghian, Barbara L Smith, and John K Erban. New York, NY: Demos Medical Publishing; 2010:99-110  |
| 5. | **MacDonald SM**, Friedmann AM, Tarbell NJ, Constine LS. Rhabdomyosarcoma. In: Pediatric Radiation Oncology. Editors: Edward C Halperin, Louis S Constine, Nancy J Tarbell, Larry E Kun. Lippincott Williams & Wilkins; 5th Edition 2011: 204-229 |
|  6. | Tarbell NJ, **MacDonald SM**, Kun LE. Tumors of the posterior fossa and the spinal canal. In: Pediatric Radiation Oncology. Editors: Edward C Halperin, Louis S Constine, Nancy J Tarbell, Larry E Kun. Lippincott Williams & Wilkins; 5th Edition 2011: 53-84 |
| 7. | Tarbell NJ, **MacDonald SM**, Kun LE. Supratentorial brain tumors. In: Pediatric Radiation Oncology. Editors: Edward C Halperin, Louis S Constine, Nancy J Tarbell, Larry E Kun. Lippincott Williams & Wilkins; 5th edition 2011: 26-52 |
|  8. | **MacDonald SM**, Tarbell NJ. Radiation therapy for CNS malignancies. In: Tumors of the Pediatric Central Nervous System. Editors: Keating, Goodrich, and Packer. Thieme Medical Publishers; 2nd edition 2013: 138-145 |
|  9. | **MacDonald SM.** Proton radiation for breast cancer. In: Radiation Medicine Rounds: Breast Cancer. Editor: Charles Thomas Jr. & Guest Editors: Alphonse G Taghian and Michele Halyard. 1st edition 2012:199-128 |
| 10. |  **MacDonald, SM,** Napolitano, B. Early breast cancer. In: Target Volume Delineation and Field Setup. Editors Nancy Y Lee and Jiade J Lu. 1st edition, 2013:73-78 |
| 11. | Sethi RV, **MacDonald SM,** Kim DY, Mukai S. Retinal tumors. In: Ophthalmic Radiation Therapy –Techniques and Applications. Editors Arun D Singh, David E Pelayes, Stefan Seregard, Roger Macklis. Dev Ophthalmol. 2013;52:58-74. |
| 12. | **MacDonald, SM**, Yock TI, and Tarbell NJ. Pediatrictumors. In: Clinical Radiation Oncology; Indication, Techniques and Results. 3rd edition.(in press) |
| 13. | **MacDonald SM,** Marcus KJ. Pediatric radiation oncology. In: Nathan and Orkin. Oncology of Infancy and Childhood. Editors Stuart H Orkin, David E Fischer, et al. 8th edition. (in press)  |
| 14. | **MacDonald, SM**. Pediatric CNS malignancies. In: Clinical Radiation Oncology. Editors: Leonard Gunderson and Joel E Tepper. 4th edition, 2013. (in press) |
| 15. | **MacDonald SM**, Jimenez R. Pediatric radiation. In: Craniopharyngiomas: A Comprehensive Guide to Diagnosis, Treatment and Outcome. Editors: James J Evans and Tyler J Kenning. 2013. (in press) |
| 16. | **MacDonald SM**, Sethi RV. Radiation late complications. In: Craniopharyngiomas: A Comprehensive Guide to Diagnosis, Treatment and Outcome. Editors: James J Evans and Tyler J Kenning. 2013. (in press) |

 17. **MacDonald SM,** Tarbell NJ. Pediatric Malignancies. In: Treatment Planning in Radiation

 Oncology. Editors: Paul Sperduto and Faiz Khan. 2015.

 18. McDuff SGR, **MacDonald SM**, Oh KS. Radiotherapy for Pineal, Thalamic, and Brainstem

 Tumors. In: Surgery of the Brainstem. Editors: Robert F Spetzler and M Yashar S Kalani. 2018

 (in press)

**Reviews**

|  |  |
| --- | --- |
|  1. | **MacDonald SM**, Taghian AG. Partial-breast irradiation: Towards a replacement for whole-breast irradiation? Expert Review. Anticancer Ther. 2007;7(2):123-34.  |

2.Depauw N,Batin E, Daartz J, Rosenfeld A, Adams J, Kooy H, **MacDonald SM**, Lu HM. A novel

 approach to postmastectomy radiation therapy using scanned proton beams. Review. Int J Radiat

 Oncol Biol Phys. 2015;91(2):427-34.

**Editorials**

|  |  |
| --- | --- |
| 1. | **MacDonald SM**, Taghian AG. Is it time to use protons for breast cancer? Cancer 2007;13(2):84-6.  |
| 2. | **MacDonald SM,** Taghian AG. Postmastectomy radiation and survival in older women with breast cancer. Breast Diseases: A Year Book Quarterly. 2007;18(3):295-96.  |
| 3. | **MacDonald SM,** Napolitano B. Long-term results of conservative surgery and radiotherapy for ductal carcinoma in situ using lung density correction: The University of Michigan Experience. Breast Diseases: A Year Book Quarterly. 2008;19(8):175-76.  |
| 4. | **MacDonald SM**, Taghian AG. Prognostic factors for local control after breast conservation: Does margin status still matter? J Clin Oncol. 2009;27(30):4929-4930. |
| 5. | **MacDonald SM**, Racsa-Alamgir, M. The acute skin and hear toxicity of a concurrent assocaiton of trastuzumab and locoregional breast radiotherapy including interanl mamary chain: A single-institution study. Breast Disease A Year Book Quarterly. 2011;22(3):310-311. |
| 6. 7. 8. | Cahlon O**, MacDonald SM.** Increased cardio cerebrovascular mortality in breast cancer patients treated with postmastectomy radiotherapy – 25 year follow-up of a randomized trial from the South Sweden Breast Cancer Group. Breast Diseases. 2015;26(1):74-75.**MacDonald SM**. Proton therapy for breast cancer: getting to the heart of the matter. Int J Radiation Oncol Biol Phys. 2016;95(1):46-48.**MacDonald SM**, Laack NN, Terezakis S. Humbling advances in technology: protons, brainstem necrosis and the Tesla Model X. Int J Radiat Oncol Biol Phys. 2017;97(2):216-219. |

[Professional educational materials or reports, in print or other media](http://cv.hms.harvard.edu/index.php?page=print)

1. Breast Cancer Atlas: White J, Tai A, Arthur D, Buchholz T, MacDonald SM, Marks L, Pierce L, Recht A, Rabinovitch R, Taghian A, Vicini F, Woodward W, Li XA. Available on RTOG website.
2. COG Germ Cell Tumor Atlas; MacDonald SM, Murphy E, Lavey DM, Merchant T, Donahue B. Available on QARC website.
3. RADCOMP Breast Atlas: MacDonald SM, Choonsik L, Fagundes M, Feigenberg S, Ho A, Jimenez R, Khan A, Mutter R, Bekelman J, Cahlon O. Available on RTOG website.

|  |  |
| --- | --- |
|  |  |

[Professional book publications](http://cv.hms.harvard.edu/index.php?page=print)

1. Bellon JR, Wong JS, **MacDonald SM**, Ho AY. Radiation Therapy Techniques and Treatment Planning for Breast Cancer. New York, NY: Springer; 2016.
2. Terezakis S & **MacDonald SM**. Target Volume Delineation for Pediatric Cancers. New York, NY: Springer. (in press)