Department of Radiation Oncology

The Department of Radiation Oncology (http://radonc.wustl.edu/) was created on July 1, 2001, after having been part of the Mallinckrodt Institute of Radiology for many decades. The department has a broad academic program that focuses on excellence in patient care and the development of new treatment paradigms; innovative research in each of the three divisions of clinical, physics and biology; and teaching for graduate students, medical students, residents in radiation oncology, and allied health personnel. The department is one of the largest, most academically balanced, and best equipped in the country, and it is responsible for all radiation therapy procedures at Washington University Medical Center. Our faculty have gained international recognition for innovative technological advances in physics and treatment planning, biological research, computer applications and clinical investigation.

Milestones

- Implementation of novel respiratory gating algorithms
- Development of biomarkers of DNA repair capacity of tumors
- Demonstrated the use of proton therapy
- Implementation of first Mevion S250 single-room proton therapy system
- Implementation of real-time MRI guidance for radiation therapy treatment with the ViewRay system (Real-time MRI guidance provides the ability to see tumors move in real time during a patient's entire treatment process. This helps to ensure that tumor targets are hit and that healthy tissue is spared.)
- Acquisition of high-intensity focused ultrasound with MRI thermometry mapping

The Department of Radiation Oncology currently occupies a large and convenient clinical facility on the lower level of the Center for Advanced Medicine. The downtown clinical facility includes nine treatment rooms, three simulator rooms, and a brachytherapy center with two high dose rate treatment units. Furthermore, the facility houses the latest Gamma Knife, the ICON unit. We have advanced treatment planning computer systems for 3D conformal and intensity-modulated radiation therapy. We have six linear accelerators with on-board CT imaging capability. The brachytherapy suite includes capabilities for high dose rate remote afterloading and for image-guided permanent prostate seed implants. Interstitial and external hyperthermia treatments are also available.

In March 2017, all of the Washington University in St. Louis/ Barnes-Jewish Hospital Radiation Oncology facilities achieved accreditation for the American Society for Radiation Oncology (ASTRO) Accreditation Program for Excellence (APex). The department provides radiation therapy treatment at Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine, Siteman Cancer Center-South County, Siteman Cancer Center at Barnes-Jewish West County Hospital, Siteman Cancer Center at Northwest HealthCare, Siteman Cancer Center at Barnes-Jewish St. Peters Hospital, Siteman Cancer Center at Memorial Hospital East, and Alton Memorial Hospital.

Physics faculty have research laboratories and offices on the fourth floor of the Clinical Sciences Research Building plus designated areas adjacent to the clinical facility in the Center for Advanced Medicine building. The Radiation Biology laboratory and faculty offices are housed at the 4511 Forest Park Building, the Wohl Hospital Building and the BJC Institute of Health Building.

Website: http://radonc.wustl.edu

Faculty

Department Head
Dennis Hallahan, MD (https://radonc.wustl.edu/people/dennis-hallahan/)

Clerkship Director
Maria Thomas, MD (https://radonc.wustl.edu/people/maria-a-thomas-md-phd/)

Director of Education in Medical Physics
Rao Khan, PhD (https://radonc.wustl.edu/people/rao-khan-phd/)

Visit our website for more information about our faculty (https://radonc.wustl.edu/faculty/) and their appointments.

A

Christopher Abraham, MS, MD
Assistant Professor of Radiation Oncology (primary appointment)
Assistant Professor of Medicine
BS Medical College Georgia 2005
MS Washington Univ in St. Louis 2011
MD Saint Louis University 2006

Michael Bernard Altman, PHD
Assistant Professor of Radiation Oncology (primary appointment)
PHD University of Chicago 2010

Anthony John Apicelli III, MD, PHD
Assistant Professor of Radiation Oncology (primary appointment)
MD Washington Univ in St. Louis 2009
BS Princeton University 1999
Abdelkareem Azab, PHD
Associate Professor of Radiation Oncology (primary appointment)
PHD Hebrew University 2007

Shahed Nicolas Badiyan, MD
Assistant Professor of Radiation Oncology (primary appointment)
BS University of Texas Austin 2005
MD University of Texas Austin 2009

Brian Christopher Baumann, MD
Assistant Professor of Radiation Oncology (primary appointment)
MD University of Pennsylvania 2012
BA Princeton University 2003

Carmen Renee Bergom, PHD, MS, MD
Associate Professor of Radiation Oncology (primary appointment)
PHD Medical College of Wisconsin 2006
MS Cambridge University 1999
MD Medical College of Wisconsin 2008
BS Mass Inst of Technology (MIT) 1998

Walter R Bosch, BE, MS, PHS
Associate Professor of Radiation Oncology (primary appointment)
BE Washington Univ in St. Louis 1980
MS Washington Univ in St. Louis 1983
PHS Washington Univ in St. Louis 1990

Bin Cai, PHD
Assistant Professor of Radiation Oncology (primary appointment)
PHD Ohio University 2011

Douglas Ford Caruthers, MS
Instructor in Radiation Oncology (primary appointment)
MS Univ Texas Health Science Ctr 2010

Aadel Ahmed Chaudhuri, MD
Assistant Professor of Radiation Oncology (primary appointment)
Assistant Professor of Computer Science and Engineering
Assistant Professor of Genetics
BS Mass Inst of Technology (MIT) 2004
MD Stanford University 2013

David T Curiel, MD, PHD
Distinguished Professor of Radiation Oncology (primary appointment)
Professor of Medicine
Professor of Obstetrics and Gynecology
MD Emory University 1982
PHD University of Groningen 2000
BA West Georgia College 1978

Arash Darafsheh, MS, PHD, MS, PHD
Assistant Professor of Radiation Oncology (primary appointment)
MS Shahid Behesht University 2007
PHD University of NC Charlotte 2013
BS University of Tehran 2004
MS University of NC Charlotte 2011
PHD University of Pennsylvania 2015

Carl J. DeSelm, MD, PHD
Assistant Professor of Radiation Oncology (primary appointment)
MD Washington Univ in St. Louis 2012
PHD Washington Univ in St. Louis 2016
BS Dartmouth College 2004

Venkata Rao Devineni, MD
Associate Professor of Clinical Radiation Oncology (primary appointment)
MD Osmania Medical College 1973

Igor Dmitriev, PHD
Assistant Professor of Radiation Oncology (primary appointment)
PHD SRC Vector 1994

H Michael Gach, PHD
Associate Professor of Radiation Oncology (primary appointment)
Associate Professor of Radiology
PHD University of Pittsburgh 1998

Jose L Garcia, MS
Assistant Professor of Radiation Oncology (primary appointment)
MS Finch Univ of Health Sciences 1997
BS University of Puerto Rico 1995

Hiram Alberto Gay, MD
Professor of Radiation Oncology (primary appointment)
BS University of Puerto Rico 1996
MD University of Puerto Rico 2000

Sreekrishna M Goddu, MS, PHD
Professor of Radiation Oncology (primary appointment)
MS Andhra University 1985
PHD Andhra University 1991
BS Andhra University 1983

Olga Leonidovna Green, MS, PHD
Associate Professor of Radiation Oncology (primary appointment)
BS Washington Univ in St. Louis 2002
MS Washington Univ in St. Louis 2004
PHD Washington Univ in St. Louis 2008

Perry W Grigsby, MBA, MD, MS
Professor of Radiation Oncology (primary appointment)
Professor of Obstetrics and Gynecology
Professor of Radiology
Yuxing Gu, PHD
Assistant Professor of Radiation Oncology (primary appointment)
PHD University of MO St Louis 2014

H

Lannis Hall, MD, M PH
Associate Professor of Clinical Radiation Oncology (primary appointment)
MD Howard University 1992
M PH Saint Louis University 1995
BA University of Michigan 1988

Dennis E Hallahan, MD
Professor of Radiation Oncology (primary appointment)
Elizabeth H and James S McDonnell III Distinguished Professor of Medicine
Head of the Department of Radiation Oncology
Professor of Biomedical Engineering
Professor of Cell Biology and Physiology
Professor of Molecular Microbiology
Professor of Pathology and Immunology
BS University of Illinois 1980
MD Rush University 1984

Yao Hao, PHD
Instructor in Radiation Oncology (primary appointment)
BS Shanxi Medical University 2004
PHD Univ of Massachusetts Lowell 2016

Lauren Elizabeth Henke, MD, MSCI
Assistant Professor of Radiation Oncology (primary appointment)
MD Washington Univ in St. Louis 2014
BS St Olaf College 2010
MSCI Washington Univ in St. Louis 2018

Jiayi Huang, MD
Associate Professor of Radiation Oncology (primary appointment)
MD University of Massachusetts 2007

Geoffrey Douglas Hugo, PHD
Professor of Radiation Oncology (primary appointment)
Professor of Computer Science and Engineering
PHD University of CA Los Angeles 2003

K

Vaishali Kapoor, MS, PHD
Assistant Professor of Radiation Oncology (primary appointment)
MS All-India Inst of Medical Sci 2008
BA Delhi University 2006
PHD All-India Inst of Medical Sci 2013

James Alexander Kavanaugh, PHD, MS
Assistant Professor of Radiation Oncology (primary appointment)
BS University of Saint Thomas 2008
PHD Louisiana St University 2020
MS Louisiana St University 2011

Rao Fawwad Khan, MD, PHD
Associate Professor of Radiation Oncology (primary appointment)
Associate Professor of Biomedical Engineering
MD Quaid-Azam University 1997
PHD McMaster University 2003

Hyun Kim, MD
Assistant Professor of Radiation Oncology (primary appointment)
MD University of Pittsburgh 2012
BS University of California 2006

Taeho Kim, PHD
Associate Professor of Radiation Oncology (primary appointment)
PHD Washington Univ in St. Louis 2007

Nels C Knutson, MS, PHD
Assistant Professor of Radiation Oncology (primary appointment)
MS Louisiana St University 2012
BS University of Montana Missoula 2009
PHD Univ of Massachusetts Lowell 2016

Susan Joy Laduzinsky, MD
Assistant Professor of Radiation Oncology (primary appointment)
MD University of Illinois 1983

Jason Dole Lee, PHD, MD
Assistant Professor of Radiation Oncology (primary appointment)
PHD Duke University 2009
MD Duke University 2010

Hui Li, PHD, MS
Professor of Radiation Oncology (primary appointment)
PHD Friedrich-Alexander Universit 2001
BS Huashong University of Science 1992
MS Chinese Academy of Sciences 1995

Alexander Justin Lin, PHD, MD, MA
Assistant Professor of Radiation Oncology (primary appointment)
PHD University of CA Irvine 2016
BA University of Nebraska 2016
MD University of CA Irvine 2016
MA University of CA Irvine 2016

Hsiu-San Lin, MD, PHD
Professor Emeritus of Radiation Oncology (primary appointment)
MD National Taiwan University 1960
PHD University of Chicago 1968
PHD University of Mississippi Med 1999  
BS Fudan University 1990

M

Stephanie Markovina, MD  
Assistant Professor of Radiation Oncology (primary appointment)  
MD University of Wisconsin-Madiso 2010

Nichole M Maughan, PHD  
Instructor in Radiation Oncology Instructor in Radiation Oncology (Pending Deans Approval) (primary appointment)  
PHD Washington Univ in St. Louis 2017

Thomas Rolf Mazur, PHD  
Assistant Professor of Radiation Oncology (primary appointment)  
PHD University of Texas Austin 2014  
BS Union College New York 2007

Jeff Michael Michalski, MBA, MD  
Carlos Perez Distinguished Professor of Radiation Oncology (primary appointment)  
Vice Chairman of Radiation Oncology  
BS Univ of Wisconsin Madison 1982  
MBA Washington Univ in St. Louis 2001  
MD Univ of Wisconsin Madison 1986

Timothy John Mitchell, MS, PHD, PHD  
Instructor in Radiation Oncology (primary appointment)  
MS Washington Univ in St. Louis 2007  
PHD Washington Univ in St. Louis 2011  
PHD University of MO St Louis 2014  
BS John Carroll University 2005

Robert J Myerson, PHD, MD  
Professor Emeritus of Radiation Oncology (primary appointment)  
BA Princeton University 1969  
PHD University of California 1974  
MD University of Miami 1980

P

Stephanie Mabry Perkins, MD  
Associate Professor of Radiation Oncology (primary appointment)  
BS Union University 2001  
MD University of Tenn Memphis 2005

James Vernon Piephoff, MD  
Instructor in Clinical Radiation Oncology (primary appointment)  
BS Citadel 1985  
MD University of South Carolina 1989

Michael Thomas Prusator, MS, PHD  
Instructor in Radiation Oncology (primary appointment)  
MS Univ of Oklahoma Health Sci 2014  
BS University of Ozarks 2012  
PHD Univ of Oklahoma Health Sci 2018

James A Purdy, PHD, MA  
Emeritus Professor of Radiation Oncology (primary appointment)  
BS Lamar University 1967  
PHD University of Texas Austin 1971  
MA University of Texas Austin 1969

R

Francisco Javier Reynoso, PHD, MS  
Assistant Professor of Radiation Oncology (primary appointment)  
PHD Georgia Tech 2014  
MS Georgia Tech 2008

Clifford Grant Robinson, MD  
Professor of Radiation Oncology (primary appointment)  
Professor of Medicine  
BS University of Pittsburgh 2000  
MD Case Western Reserve Univ 2004

Buck Edward Rogers, MA, PHD  
Professor of Radiation Oncology (primary appointment)  
Adjunct Professor of Chemistry (Courtesy Affiliation)  
Professor of Radiology  
MA Washington Univ in St. Louis 1991  
BS Loyola University Chicago 1989  
PHD Washington Univ in St. Louis 1995

Tapan Roy, MS  
Instructor in Clinical Radiation Oncology (primary appointment)  
MS Baroda Medical College 1974

S

Pamela Parker Samson, MS, MA, MPH, MD  
Assistant Professor of Radiation Oncology (primary appointment)  
MS University of Cincinnati 2007  
BA University North Carolina 2001  
MA University of Washington 2003  
MPH Washington Univ in St. Louis 2020  
MD University of Cincinnati 2011

Julie K Schwarz, MD, PHD  
Professor of Radiation Oncology (primary appointment)  
Professor of Cell Biology and Physiology  
Vice Chair of Research Department of Radiation Oncology  
MD Washington Univ in St. Louis 2004  
BS Duke University 1995  
PHD Washington Univ in St. Louis 2004

Christopher Spencer, MD, BAS, MA  
Adjunct Instructor in Radiation Oncology (primary appointment)  
MD Saint Louis University 2010  
BAS Truman State University 2005  
MA Truman State University 2006

Matthew Benjamin Spraker, MD  
Assistant Professor of Radiation Oncology (primary appointment)  
MD University of Illinois 2013

William L Straube, MEE  
Associate Professor of Radiation Oncology (primary appointment)
Research Electives

Radiation Oncology Research Electives

The Cancer Biology division provides opportunities for graduate students in the Division of Biology and Biomedical Sciences (http://dbbs.wustl.edu/Pages/ (DBBS)) and the Medical Scientist Training Program (http://mstp.wustl.edu/Pages/) (MSTP) to train with faculty in the cancer biology research laboratories.

The Department of Radiation Oncology offers a clinical clerkship for medical students that can be selected as an elective through the medical school.

Please visit the Department of Radiation Oncology website (https://radonc.wustl.edu/education/) for more information about current research in the department.
Courses

Post-PhD Graduate Certificate/ Masters of Science in Medical Physics

For course information, please visit the Medical Physics (http://bulletin.wustl.edu/medicine/areas-of-study/medical-physics/#courses) page of this Bulletin.

MD/MSTP Programs

The Department of Radiation Oncology offers two courses that are open to students in the MD and MSTP (MD/PhD) programs. For course information, please visit the online course listings (https://acadinfo.wustl.edu/CourseListings/Semester/Listing.aspx).

**M92 RadOnc 740 Radiation Oncology Clerkship**

The four-week clerkship in Radiation Oncology will provide students with the opportunity to participate in the evaluation and management of a broad range of patients referred for consideration of radiation therapy. Clerkship activities will take place at the Barnes-Jewish Hospital/Siteman Cancer Center complex and at our satellite facilities. Students will conduct patient evaluations under the supervision of radiation oncology department residents and faculty. Students will attend many conferences throughout the weeks of this clerkship, with the workday starting between 7:00 and 7:30 a.m. Students will also have the opportunity to attend the appropriate multidisciplinary clinics, follow-up clinics, and multidisciplinary conferences (such as pediatric neuro-oncology, cardiothoracic oncology, lymphoma, GYN tumor conferences, and so on) pertaining to their rotation schedule. Instructional materials are available for students on the rotation. (Students are not expected to purchase any curricular materials for the clerkship.) Student performance will be evaluated by both resident and faculty members who supervise the student over the course of the four-week clerkship. Credit 154 units.

**M92 RadOnc 801 Clinical Radiation Oncology Subinternship**

The Radiation Oncology clinical division offers an elective with emphasis on the evaluation, planning, and administration of radiation therapy in patients with malignant tumors. Students will have the opportunity to enhance their knowledge of the natural history of cancer as well as its pathological and biological features. Students will sharpen their clinical skills by participating in the management of cancer patients. Students will be mentored to prepare and lead a department noon conference on the management of a specific patient's care, including literature review and discussion. Students will be expected to prepare for clinical consultations by reviewing patient records and relevant literature, obtaining the patient's history, and performing a physical examination. This will be followed by presenting findings and a proposed care plan to the attending and resident physicians. This course is designed for MS4 students who are entering the Radiation Oncology Match. If a student is an MS4 applying in another specialty but interested in a radiation oncology elective, we encourage them to pursue a two-week special study elective in Radiation Oncology.