ROSI Radiation Oncology Strategic Initiatives

SEED AWARDS PROGRAM
Since 2017

THE UNIVERSITY OF TEXAS
MD Anderson Cancer Center

Making Cancer History®

EXECUTIVE SUMMARY

The Division of Radiation Oncology launched the ROSI Seed Award Program in 2017, to provide critical infrastructure and resources toward the acceleration of breakthroughs in radiation oncology research. Since its inception, the ROSI Seed Award Program has been utilized as a platform to provide over four million dollars to investigators to help catalyze innovative research projects that have the potential to change the cancer care landscape. With a focus on interdisciplinary collaboration, cutting-edge technologies, and translational research, this program aims to make significant impacts by:

1. **Fostering collaborations**: The program provides a framework by which the Division provides funding opportunities to radiation oncology faculty and trainees to initiate and pursue cancer research projects through a team science approach with multidisciplinary researchers and clinicians.
2. **Accelerating discovery:** We adopt a peer-reviewed "high risk, high reward approach" by seeding novel projects that need support to mature and be well positioned to secure extramural funding. By providing initial "seed" support to these projects, we seek to expedite discoveries in radiation oncology sciences and technologies and new emerging areas in radiation oncology research, with the eventual goal of translating scientific discoveries to clinical practice and patient care.
3. **Cultivating a supportive and learning environment:** The program highlights our commitment to providing support and training for early-stage faculty, trainees, and students to enable their pursuit and success in academic medicine.

This program offers competitive grant opportunities throughout the year to faculty and trainees within the Division of Radiation Oncology. Funding opportunities target applicants at various stages of career development. Proposals are assessed through a rigorous peer-reviewed process that is modeled after the National Institutes of Health (NIH) to help select projects with the greatest potential for impact.

Since its inception, many of the ROSI Seed Program awardees have found excellent success in obtaining extramural funding sponsored by the NIH and other federal or governmental agencies, foundations, and industry partners. Our faculty and researchers continue to ask and address the key scientific questions that drive progress in the major areas of radiation oncology research including advanced imaging, immune-radiation therapy, value and access, technology-driven radiation sciences (e.g., FLASH, heavy ions), and data and computational sciences, to name a few priorities. This program has become a cornerstone of the division roadmap, enabling our investigators to pursue impactful science for the benefit of patients worldwide.

BOOT WALK AWARDS

$445K

2023

- **Lauren Andring, MD** - MR-assisted Diagnosis of Pelvic Floor Atrophy After Pelvic Chemoradiation for Anal Cancer in a Prospective Study of Patient-reported Dysfunction and Quality of Life
- **Gabriel Sawakuchi, PhD** - Exploiting Inhibition of Microhomology-mediated End Joining for Selective Radiosensitization of Tumors

2021

- **Yuan-Hao Lee, PhD** - Mechanistic Effects of Ultrahigh Dose Rate Proton Radiotherapy (FLASH-PRT) on Normal Tissue Sparing in the Central Nervous System
- **Steven Lin, MD, PhD** - Delineate the Single-cell Level Functional Heterogeneity of Tumor Microenvironment and Its Association with Chemoradiation Responses in Esophageal Adenocarcinoma

2020

- **Boyi Gan, PhD** - Targeting a Novel Ferroptosis Defense Pathway in Radioresistance Alignment with Strategic Initiative Platforms
- **Olsi Gjyshi, MD** - Evaluating the Safety of Chemoradiation Combined with PDS0101 Immunotherapy in Treating Locally Advanced Cervical Cancer (IMMUNOCERV)

2019

- **Fada Guan, PhD** - Advancing Microdosimetry and DNA Damage-based RBE Models for Proton Therapy
- **Lilie Lin, MD** - Phase 1b Study of Nelfinavir and Chemoradiotherapy for Locally Advanced Vulvar Cancer
- **Dadi Jiang, PhD -** Harnessing the Tumor Microenvironment and DNA Repair Defects Using He- and C-ions for Enhanced Anti-Tumor Immunity

2018

- **David Grosshans, MD, PhD** - Enhancing the Biological Effects of IMPT using a Novel Beam Delivery Strategy
- **Eugene Koay, MD, PhD** - MR guided Radiotherapy for Hepatobiliary and Pancreatic Cancers
- **Simona Shaitelman, MD, EdM** - Omission of Surgery in Excellent Responders to MRI-Guided Stereotactic Ablative Radiotherapy to Breast Cancer
- **Jing Li, MD, PhD** - Evaluation of Feasibility and Implementation of a Radiation Auto-planning System at Anhui Provincial Hospital in China

SHARK TANK AWARDS

$650K

2023

- **Emil Schueler, PhD & Michael Spiotto, PhD, MD** – Revving Up the Anti-Tumor Immune Response with FLASH Radiation Therapy
- **Lauren Colbert, MD** - Lactic acid bacteria: the ultimate "Trojan Horse" missile for tumor- exclusive targeted radionuclide delivery to enhance Radiation Therapy
- **Wen Jiang, MD, PhD & Dadi Jiang, PhD** - Combining Radiotherapy with a Microbial-inspired Antibody-toxin Conjugate to Enhance Antitumor Immunity against Pancreatic Ductal Adenocarcinoma (PDAC)
- **Ryan Park, MD & Marian Kalocsay, PhD** - Novel biochemical and functional genomics approaches to identify Cul5-Cish substrates that regulate T cell radiosensitivity and polyfunctionality
- **Ethan Ludmir, MD & Chad Tang, MD** - EXTENDing efficacy of systemic therapy with local consolidative therapy for Oligo-Progressive metastatic disease (EXTEND-OP): A randomized phase II basket trial

2022

- **Bouthaina Dabaja, MD** - Low-Dose Total Body Irradiation For Immuno-conditioning before Stem Cell Transplantations: A Golden Opportunity and a Stepping Stone to Adopt it prior to Cellular Therapy
- **Lilie Lin, MD** - Overcoming Radiation Induced Immune Dysfunction During Treatment for Locally Advanced Cervical Cancers
- **Wendy Woodward, MD, PhD** - Cholesterol Mediated Radiation Resistance in Brain Metastases

2021

- **Chelsea Pinnix, MD, PhD** - A New Paradigm for Training Radiation Oncologists

2020

- **Cullen Taniguchi, MD, PhD** - Translating FLASH-RT to Improve Outcomes in Pancreatic Cancer INTRODUCTION
- **Clifton Fuller, MD, PhD** – Inhance: Imaging Innovation for Head And Neck Cancer Evaluation & Elimination of Toxicity
- **Laurence Court, PhD** – The TRIGON Trial: Target definition, Radiation toxicity, and Imaging biomarkers from Global Oncologic data

2019

- **Eugene Koay, MD, PhD** - Dynamic Targeting using MR Guidance for Precision Radiotherapy

2018

- **Steven Lin, MD, PhD** - Impacting Cancer Outcomes Through Enhanced Linear Energy Transfer Proton Therapy (Elpt)

PHILANTHROPY-SUPPORTED AWARDS
$1.3M

2023

- **John and Cheryl Floyd Prostate Cancer Research Award**

  - **Chad Tang, MD** - T-Cell priming with Metastasis-Directed RT in Oligometastatic Prostate Cancer (EXTEND): Effects of T-Cell Clonal Expansion and Exhaustion on Epitope Spread and Micrometastatic Disease Control
  - **Osama Mohamad, PhD** - Combined Analysis of RTOG 9601, 0534, and GETUG 16 for Patients with Post: Prostatectomy PSA Recurrence Receiving Salvage RT with or without HormONE Therapy: the CAPSTONE Consortium

2022

- **Gilbert Fletcher Rising Stars**

  - **Thomas Beckham, MD, PhD** - Development of [18F]DASA-PET at MDACC for Metabolic Imaging in Glioblastoma
  - **Devarati Mitra, MD, PhD** - Comparing Superficial Tissue Toxicity with FLASH-RT vs. CONV-RT

2019

- **J. Donald Childress Foundation on behalf of Mr. and Mrs. Don Childress**

  - **Cullen Taniguchi, MD, PhD** – Reduce SBRT Toxicity – in preclinical models – through the use of CDK4/6 inhibitors
  - **Simona Shaitelman, MD & Gabriel Sawakuchi, PhD** – Establishment of an IRB approved biomarker repository focused on identifying biomarkers that can predict toxicity and tumor response in radiation treatment

OTHER ROSI AWARDS
$1.66M

2023

- **Emil Schueler, PhD & Michael Spiotto, MD, PhD** - FLASH Radiotherapy to Increase the Immunogenicity of Solid Tumors
- **Debra Yeboa, MD** - Improving Quality and Safety of Spine Radiosurgery by using MR-Guided Linear Accelerators
- **Ethan Ludmir, MD** - Leveraging the MD Anderson Cancer Network to Identify and Address Demographic Disparities among Clinical Trial Participants
- **Grace Smith, MD, PhD, MPH** - Financial Toxicity: Defining Interventions in a Diverse Cancer Population through a Multi-Center Prospective Study
- **Devarati Mitra, MD, PhD** - SURFACE: Study on Ultra-high Dose Rate Radiotherapy For Any Cutaneous or Subcutaneous Tumor

2022

- **Ben Schrank, MD, PhD** - GIRO SOGI Data Collection Project
- **Scott Bright, PhD** - Potentiation of Ferroptosis by Glutaminase Inhibition Combined with Proton Radiotherapy to Augment Anti-tumor Immune Responses
- **Jay Paul Reddy, MD, PhD** - 3-5 Fraction Stereotactic Body Radiation Therapy for Palliation of Head and Neck Squamous Cell Carcinoma: the FAST Phase II Randomized Trial
- **Eun Young Han, PhD** - Developing cost-effective registration workflow to scale up the Radiation Planning Assistant (RPA) system in low- and middle-income countries
- **Steven Lin, MD, PhD** - Evaluating a Novel Exosome-based Detection Platform for Early Lung Cancer Screening and Recurrence Assessment After SBRT

2021

- **Emma Holliday, MD** - Evaluating a Comprehensive Patient Education Program for Patients with Anal Squamous Cell Carcinoma Receiving Pelvic Chemoradiation: Impact on Patient Comprehension, Satisfaction, and Quality of Life
- **Mitra Devarati, MD, PhD** - MelPORT: Post-operative Radiation Therapy for High-risk Sentinel Lymph Node Positive Melanoma Patients Planned for Immunotherapy
- **Julius Weng, MD** - Stereotatic MRI-guided Online Adaptive Radiotherapy for Central Non-small Cell Lung Cancer
- **Devarati Mitra, MD, PhD** - MelPORT: A Randomized Study of High-risk Sentinel Lymph Node Positive Melanoma Patients Receiving Adjuvant Anti-PD-1 ± Hypofractionated Adjuvant Radiation Therapy
- **Dadi Jiang, PhD** - Targeting the Tumor Microenvironment to Enhance Immunogenic Cell Death Induced by High-LET Proton Radiation Therapy for Pancreatic Cancer Treatment
- **Nan Li, PhD** - Using Drug Screening Approaches to identify ROR and Rev-erb agonist that contribute to radiation-induced type I IFN response

- **Carlos Cardenas, MD** - Core Infrastructure Development for Monitoring of Clinically-deployed Automatic Contouring and Radiotherapy Treatment Planning Tools

2020

- **Joshua Niedzielski, PhD** - Dose-Escalated Adaptive Treatment Approach for Personalized Radiation Therapy of Pancreatic Cancer
- **Abdallah Mohamed, MD, PhD** - Prevention and early detection of osteoradionecrosis for head and neck cancer patients using novel mandibular dose-volume parameters and imaging radiomic kinetics
- **Gabriel Sawakuchi, PhD** - Amplification of immune stimulation by using diffusing alpha-emitters radiation therapy (DaRT) and ATR inhibition
- **Rui Ye, PhD** - Tracking the Pre-existing Copy Number Alterations of Esophageal Adenocarcinoma that Confers Resistance to Chemoradiation at Single-cell Resolution
- **Xiaodong Zhang, PhD** - Mitigate the Cardiac Toxicity for Lung Cancer Patients based on Multi-Scale Personalized NTCP Model
- **Eugene Koay, MD, PhD** - Custom 3D Printed Stents for Head and Neck Radiation Therapy
- **Xing Liao, PhD** - New PET/CT Imaging for Radiotherapy Treatment Planning and Treatment Response Assessment of Lung Cancer
- **Chad Tang, MD** - Pilot Study Investigating PSMA PET/MRI in Detecting Recurrent Disease and Aid in Radiotherapy Planning for Patients with Biochemically Recurrent Prostate Cancer
- **Kristina Woodhouse, MD** - Targeted Telemedicine Training in Radiation Oncology
- **Benjamin Smith, MD** - Building Infrastructure to Collect Biometric and Sensor Data from the iWatch: A Feasibility Study

2019

- **Todd Pezzi, MD** - An Open Label, Phase I/II Trial Using Stereotactic Radiosurgery (SRS) as Definitive Management for a Limited Number of Small Cell Lung Cancer (SCLC) Brain Metastasis
- **Moon-Jong Kim, PhD** - Molecular Mechanism of Radiation-Induced Esophageal Regeneration (RIER) & Therapeutics/Preventative Approaches for Radiation-Induced Esophagitis (RIE)
- **Sonal Noticewala, MD** - A Phase I Safety and Tolerability Study of the Oral Biotherapeutic MRx0518 with Hypofractionated Preoperative Radiation for Resectable and Borderline Resectable Pancreatic Cancer

2018

- **Sam Beddar, PhD** - Proton Radiography and CT Using a Novel Image Detection System and Approach Based on a Monolithic Scintillator and sCMOS Cameras
- **Boyi Gan, PhD** - Targeting Glucose Dependency in Radiation Resistance of KEAP1-mutant Lung Cancer
- **Saumil Gandhi, MD, PhD** - Elucidation of the Predictive value of Tumor Mutational Burden and the Therapeutic Benefit of Radiation for NSCLC patients on Pembrolizumab
- **Grace Smith, MD, PhD, MPH** - Improved Radiation Planning Efficiency and Patient-Centered Outcomes: Establishing the Feasibility and Impact of 'Radiation Auto-Planning Distance Delivery' (RAPIDD) to Cervical Cancer Patients in a Lower Resource Nation

- **Steven Lin, MD, PhD** - Imaging Biomarkers of Early Cardiac Injury from Radiotherapy
- **Chad Tang, MD** - Feasibility Study to Establish SBRT as a Treatment Option for Renal Cell Carcinoma
- **Emma Holliday, MD** - IMPT-LET for Anal Cancer
- **Julie Pollard-Larkin, PhD** - Investigating FLASH Radiotherapy on Mitigating Radiation-Induced Lymphopenia
- **Karen Hoffman, MD, MPH** - Developing the Infrastructure to Conduct Large Scale MD Anderson Network Randomized Breast Radiation Trials: A SAPHIRE Pilot Study

2017

- **Caroline Chung, MD** - DCE-MRI and Dynamic FAZA-PET
- **Lillie Lin, MD** - FAZAPET/MR