

# University of Maryland School of Medicine Department of Radiation Oncology

## DTRS



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Vice Chair for Research



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Countermeasures

Current NIH awards >\$33.3 million. Other current large federal awards (including BARDA and DoD) >\$17 million

The Division of Translational Radiation Sciences (DTRS) is bridging the gap between first-in-class radiation science and research to improve cancer cure rates, reduce treatment-related toxicity, and increase the likelihood of survival in the case of a radiological or nuclear incident by:

- Accelerating the discovery and clinical implementation of new therapeutic strategies
- Implementing a multidisciplinary approach addressing knowledge gaps through biology and physics to facilitate discovery and innovation

Keeping the division's mission at the forefront by:

- Identifying new therapeutic targets and optimizing treatment plans
- Advancing tumor imaging and radiation delivery precision
- Developing new drugs to treat side-effects and radiation sickness
- Transitioning novel science discoveries from the lab to patient trials

**DTRS Basic and Translational Radiation Research Program Areas**

- **Mechanisms and Therapeutic Strategies for Clinically Relevant Normal Tissue Injury:** addressing the otherwise unmet need for treatments to alleviate radiation therapy side effects
- **Imaging and Precision Radiotherapy:** research focused on small-animal image-guided radiotherapy
- **Proton Microbeam and Ion Beam Therapy:** designing new patient care strategies at MPTC using scanned particle beams
- **Hyperthermia Therapy:** using gentle heat to sensitize tumors and enhance the effectiveness of other treatments
- **Tumor Biology and Radioresistance:** studying DNA damage and repair and the related effects on cell integrity

**DTRS Medical Countermeasure Program**

- **Conducting studies in animal models of radiation injury** to advance development of potential mitigators of acute radiation syndrome (ARS) and delayed effects of radiation exposure (DEARE)
- **Collaborating with government agencies**, including BARDA, NIAID/NIH, and NASA, through contracts and grants to develop medical countermeasures against ARS and DEARE
- **Contracts with multiple companies** to perform preclinical and IND-enabling studies to develop drug pathways

**Current location & lab space:** >20,000 square feet in MSTF/BRB

**Team:** 10 faculty, 2 post-docs, 4 fellows, and >30 administrative, technical, and regulatory personnel

Program in FLASH radiation therapy, evaluating the efficacy of ultra-high dose radiation therapy for heart and lung injuries

NIH U Center funding:

- U19 CMCR INTERACT
- U54 ROBIN OligoMET Center