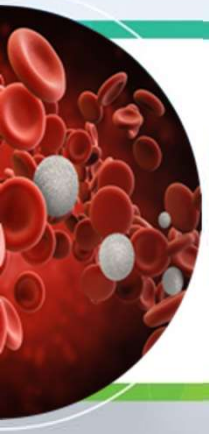
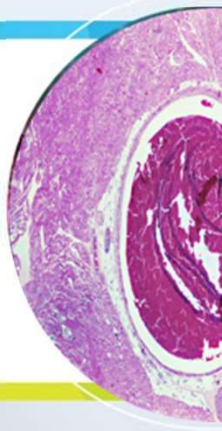
UNIVERSITY of MARYLAND
SCHOOL OF MEDICINE

DEPARTMENT OF RADIATION ONCOLOGY




Research Highlights

Strengths & Innovation

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RADIATION ONCOLOGY

$50+ Mn

FUNDING OF USD 50 MILLION
FEDERAL AND INDUSTRY SPONSORED

48+

GRANTS AND CONTRACTS AWARDED

200+

RESEARCH PUBLICATIONS

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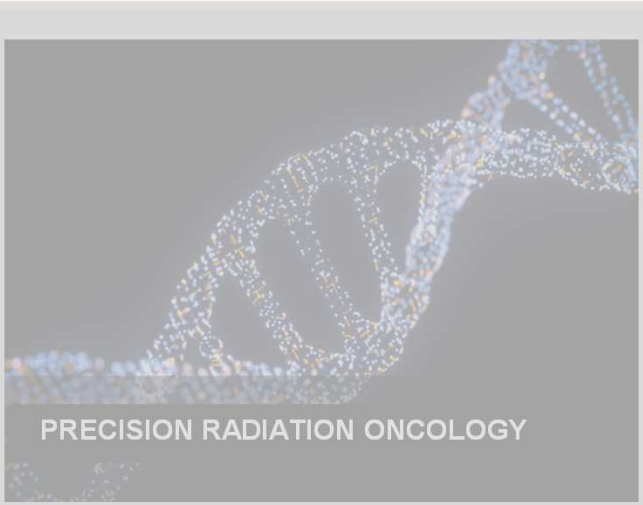
Medical Countermeasures Program



- **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 pre-clinical and IND-enabling studies to develop drug pathways

Erika Davies, PhD, MS
Assistant Professor
Radiation Oncology
Director, Medical
Countermeasures Program

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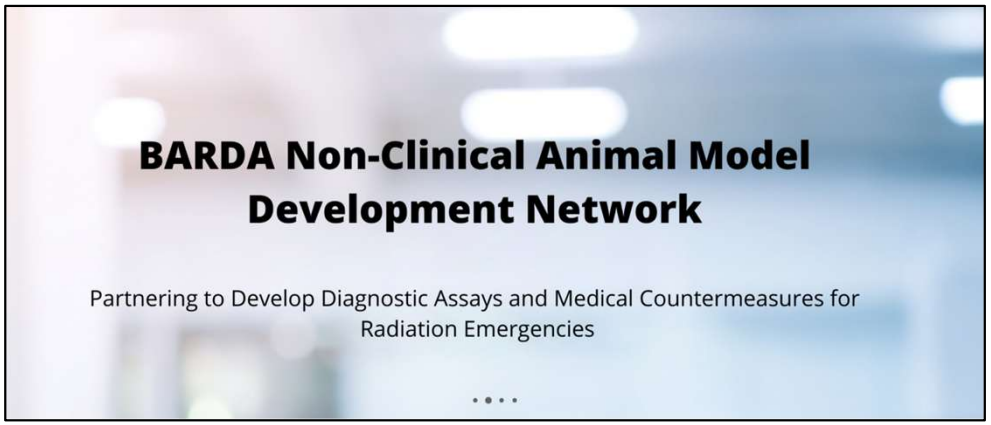
Medical Countermeasure Program was successful in **capturing two out of three major federal initiatives** in the last five years **generating >$33 million in funding**



- BARDA contracts **generated $22 million over 7 years**
- **GLP** capabilities is a **mandatory requirement** for the life cycle of the award

- U19 award budget is >$12 million
- Multispecies Efficacy and Pharmacometrics Modeling (GLP) Core **received the highest score** with a **five-year budget** of **$3.9 million**
- Additional **supplemental award opportunities**

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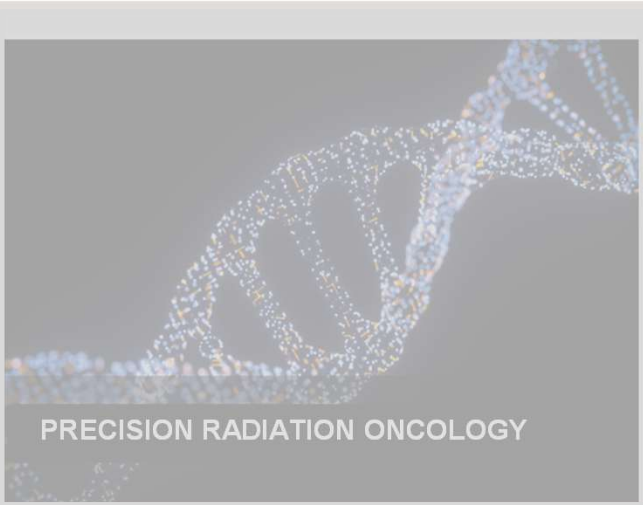
FLASH Radiotherapy Program



- **FLASH Radiotherapy**: novel radiotherapy defined as ultra-high dose-rate (≥ 40 Gy/s) radiotherapy or >400x faster than conventional
- **UM SOM FLASH Physics**: only institution with electron and proton FLASH capabilities and precision image-guided proton FLASH RT

Amit Sawant, PhD
Professor of Radiation Oncology
Vice Chair Chair Physics

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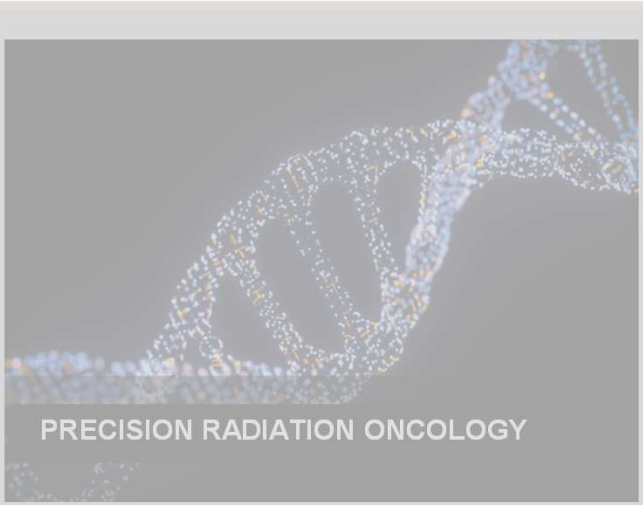
FLASH Radiotherapy Program



- **FLASH Radiotherapy**: novel radiotherapy defined as ultra-high dose-rate (≥ 40 Gy/s) radiotherapy or >400x faster than conventional
- **UM SOM FLASH Physics**: only institution with electron and proton FLASH capabilities and precision image-guided proton FLASH RT
- **UM SOM FLASH Biology**: studying DNA damage and repair, and the differential impact on normal tissue cell integrity versus cancer
- Departmental investment ~$2M and Industry contract-collaborations

France Carrier, PhD
Professor of Radiation Oncology
Director, Division of Translational Radiation Sciences (DTRS)

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Precision Radiation Oncology (PRO)

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Precision Medicine:
Digital Fingerprint of Cancer

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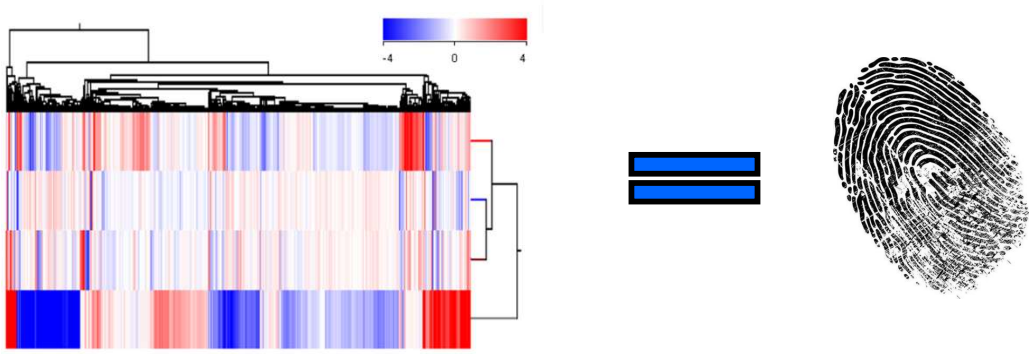
Precision Medicine:
Genomic Fingerprint of Cancer



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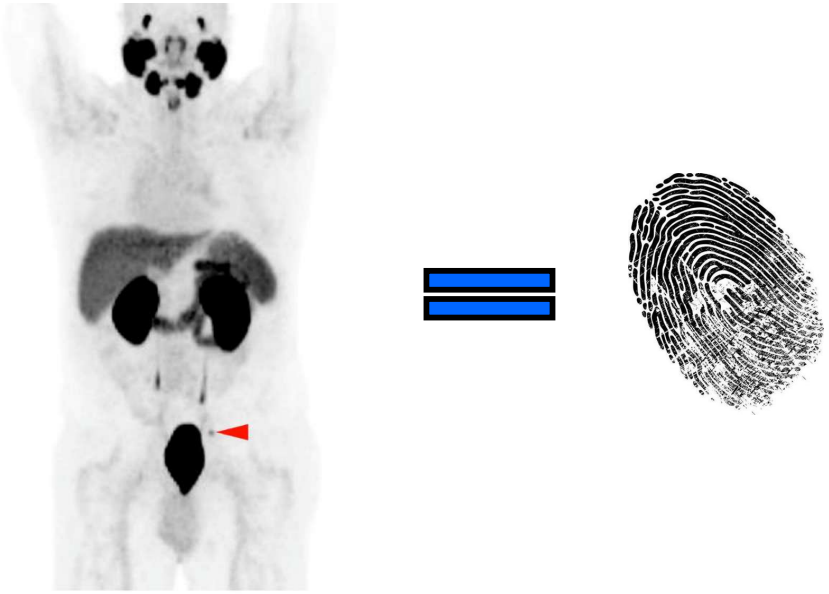
Precision Medicine:
Imaging Fingerprint of Cancer



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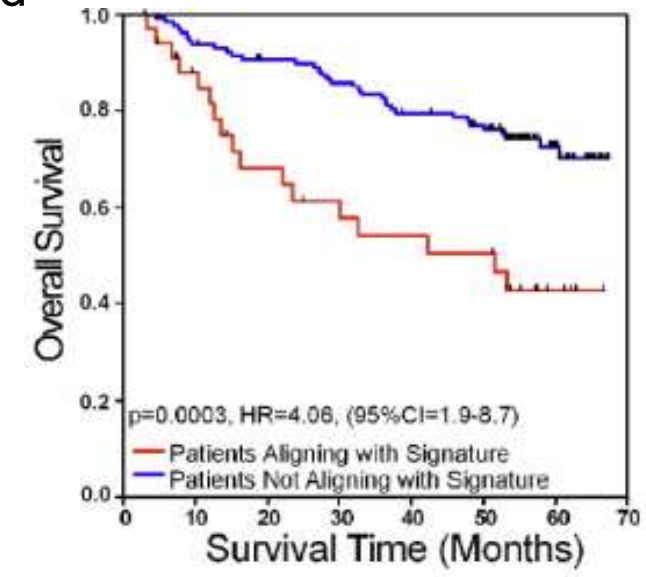
Precision Medicine:
Digital Fingerprint of Cancer

Bad

Good



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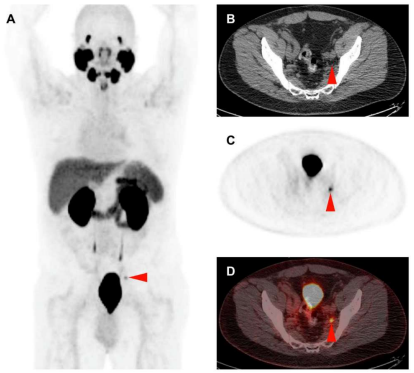
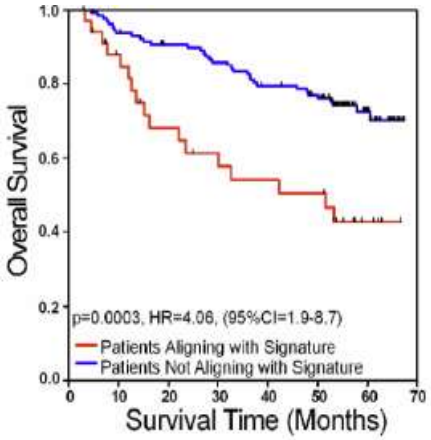
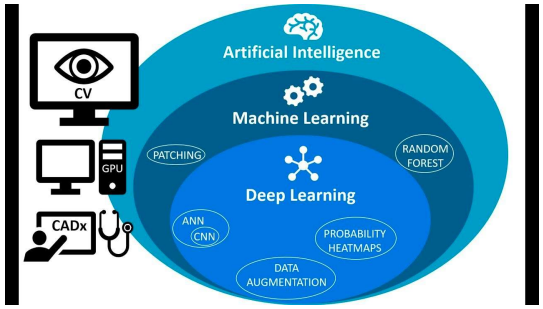
Center for Precision Radiation Oncology (PRO): Vision





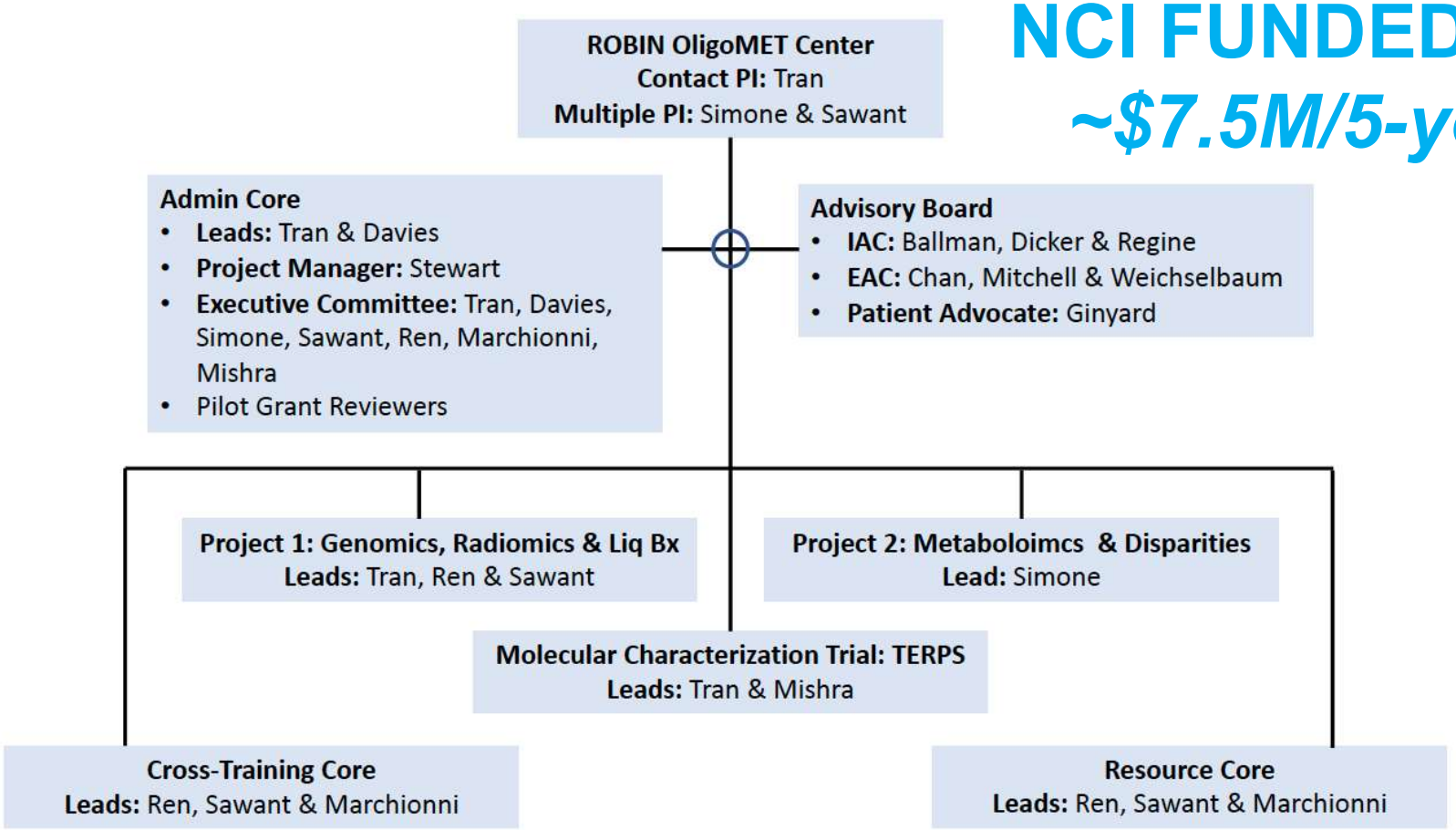


Imaging Genomics AI

Radiation Oncology-Biology Integration Network on Oligometastasis (ROBIN OligoMET) Center

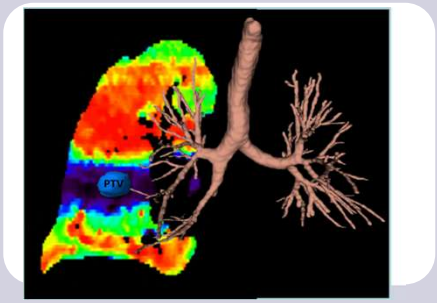
NCI FUNDED 3/40!

~$7.5M/5-years



Physics Research Areas

Multimodality Image-Guided Motion Modeling and Management



Functionally-Guided Radiotherapy

FLASH Radiotherapy

Artificial Intelligence in Radiation Oncology

2016-present

- 6 R01s with UMB as primary, including **4 active R01s**
- $14.6 million total costs in NIH funding

Amit Sawant, PhD, FAAPM
Department of Radiation Oncology
University of Maryland, Baltimore

Overview

Clinical Trial Portfolio

>40 prospective interventional studies spanning multiple disease sites & treatment modalities

IITs, NCTN, industry-sponsored

Clinical Trial Infrastructure

~18 FTE Clinical Research Support staff across our practices

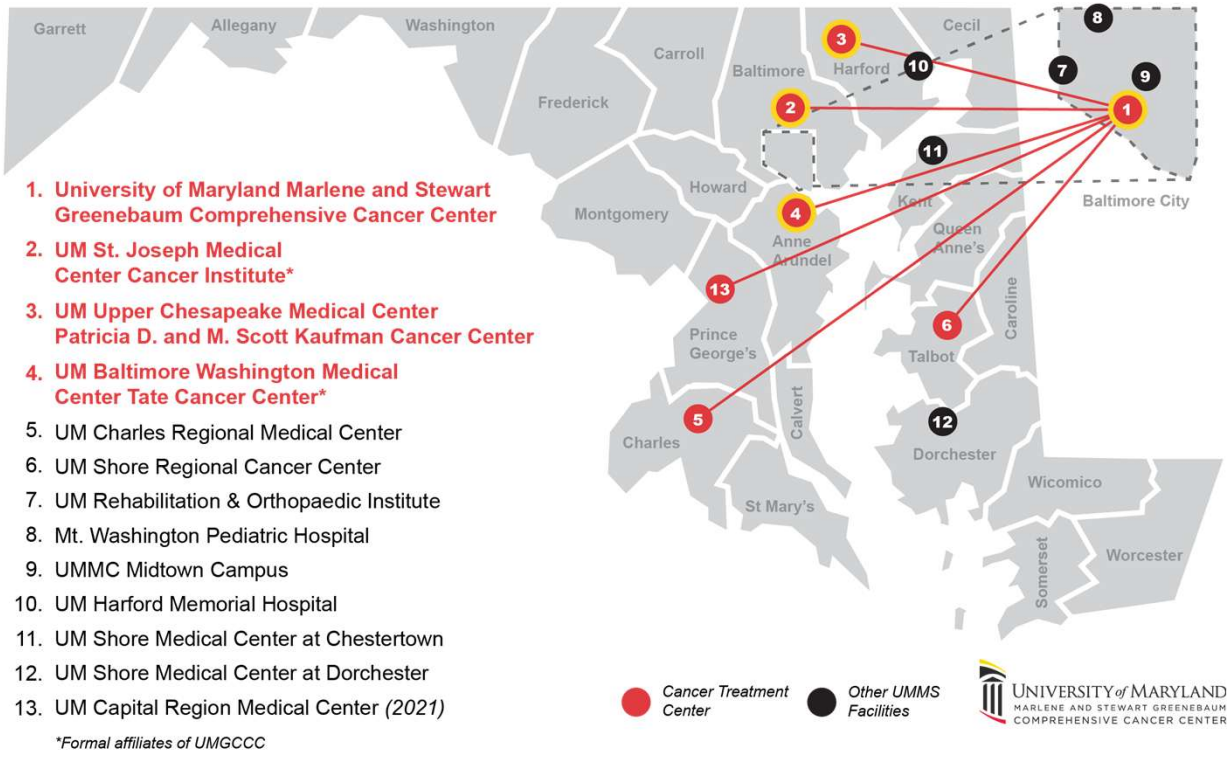
Internal auditing/monitoring program, in-house statistics support for trials

Clinical Research Expertise/Leadership

Disease-site focused clinical faculty across UMGCC Network

NCTN Study Chair/Co-Chairs for multiple NRG trials

Scope of UM Cancer Network



1. **University of Maryland Marlene and Stewart Greenebaum Comprehensive Cancer Center**
2. **UM St. Joseph Medical Center Cancer Institute***
3. **UM Upper Chesapeake Medical Center Patricia D. and M. Scott Kaufman Cancer Center**
4. **UM Baltimore Washington Medical Center Tate Cancer Center***
5. UM Charles Regional Medical Center
6. UM Shore Regional Cancer Center
7. UM Rehabilitation & Orthopaedic Institute
8. Mt. Washington Pediatric Hospital
9. UMMC Midtown Campus
10. UM Harford Memorial Hospital
11. UM Shore Medical Center at Chestertown
12. UM Shore Medical Center at Dorchester
13. UM Capital Region Medical Center *(2021)*

**Formal affiliates of UMGCCC*

	Analytic	Non-Analytic	Total
UMMC	2110	951	3185
BWMC	1075	290	1365
Shore Health	818	90	908
SJMC	791	166	957
UCH	743	207	950
Total	5537	1704	7365

One-third of new annual cancer cases in Maryland at treated within UM Cancer Network!

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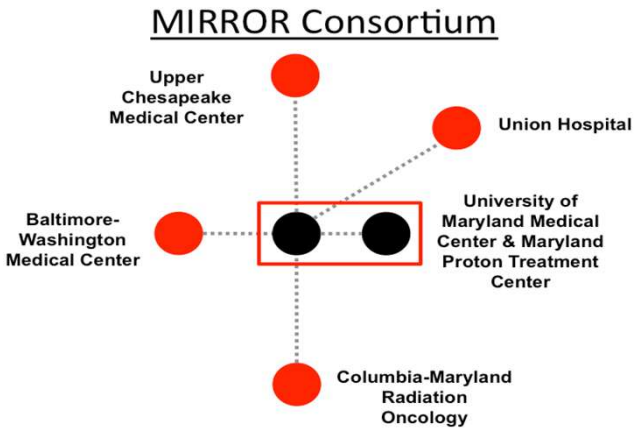
Rad Onc Clinical Research Division

Comprehensive Network Wide Clinical Research

- >30 interventional clinical trials
- >20 staff
- All major proton clinical trials
- Consistently top NRG enrollment site



NRG Oncology

Voting Member Institution

Top 10 Highest Enrolling Main Member Institution

2018 - Present

International Collaborations & Affiliations

1. Tata Memorial Hospital: Mumbai, India
2. Christie Hospital: Manchester, UK

University of Maryland Faculty as Study Chair/Co-Chair on NCTN Clinical Trials

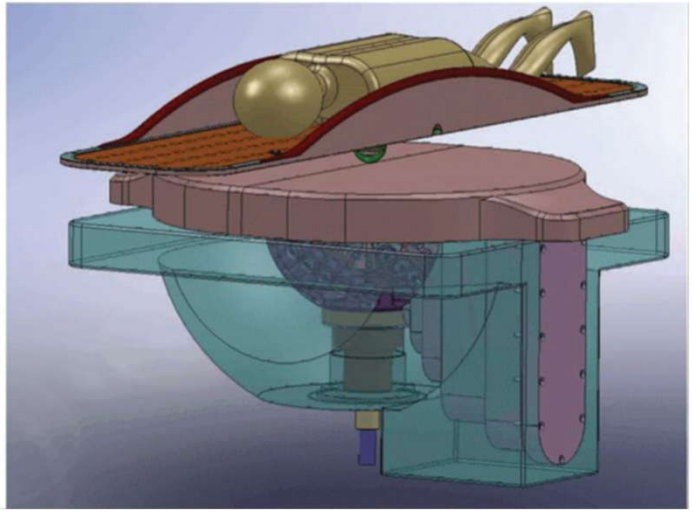
A031701: PHASE II STUDY OF DOSE-DENSE GEMCITABINE PLUS CISPLATIN (DDGC) IN PATIENTS WITH MUSCLE-INVASIVE BLADDER CANCER WITH BLADDER PRESERVATION FOR THOSE PATIENTS WHOSE TUMORS HARBOR DDR GENE ALTERATIONS
Study Co-Chair: Young Kwok, MD

NRG BN009: Phase III Trial of Salvage Stereotactic Radiosurgery (SRS) or SRS + Hippocampal-Avoidant Whole Brain Radiotherapy (HA-WBRT) for First or Second Distant Brain Relapse After Upfront SRS With Brain Metastasis Velocity ≥4 Brain
Study Co-Chair: Mark Mishra, MD

NRG CC009: Phase III Trial of Stereotactic Radiosurgery (SRS) Versus Hippocampal-Avoidant Whole Brain Radiotherapy (HA-WBRT) for 10 or Fewer Brain Metastases From Small Cell Lung Cancer
Study Co-Chair: Mark Mishra, MD

NRG HN009: Randomized Phase II/III Trial of Radiation Combined with High Dose Cisplatin (100 mg/m2) Every Three Weeks vs. Low Dose Weekly Cisplatin for Patients with Locoregionally Advanced SCCHN
Study Co-Chair: Matthew Witek, MD

GammaPod™: Breast specific stereotactic radiosurgery device



ACADEMIC CONSORTIUM LED BY UMSOM (Nichols)

GammaPod Registry: Tumor bed boost

Accelerated Partial Breast Irradiatiaon using GammaPod

Pre-operative breast approach

Thermal Therapy

- One of few centers using superficial and deep thermal therapy (hyperthermia) in combination with photons and protons
- **Deep thermal therapy: FDA approved site for HUD for patients with pelvic tumors**
- IITs under development (PI: Molitoris)

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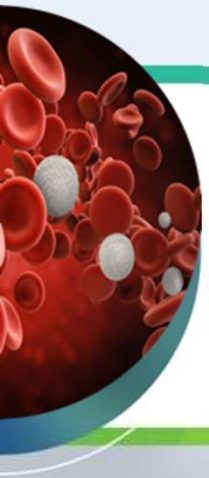


THANKS