Duke Radiation Oncology Research Scholars (RORS)

- Flexibility
- PGY1 (Internship)
- PGY2 and PGY3 (Clinical Training)
- Holman Pathway (21 months for dedicated research in PGY4 and PGY5)
- Opportunity to continue in a mentored research position for 2 additional years
  - Instructor with role as an attending caring for patients 1 day per week
  - Apply for Career Development Grants (K38, K08, K99-R00, etc)
- Transition to Scientific Independence

International Journal of Radiation Oncology biology • physics

www.redjournal.org

Scientific Letters

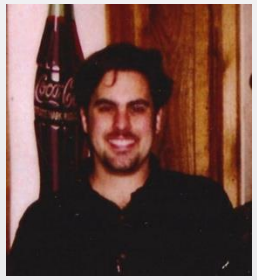
Fostering Radiation Oncology Physician Scientist Trainees Within a Diverse Workforce: The Radiation Oncology Research Scholar Track

Joseph K. Salama, MD, FASTRO,* Scott R. Floyd, MD, PhD,*,† Christopher G. Willett, MD, FASTRO,* and David G. Kirsch, MD, PhD, FASTRO*,†

Departments of *Radiation Oncology and †Pharmacology and Cancer Biology, Duke University Medical Center, Durham, North Carolina

Received Nov 2, 2020, and in revised form Dec 23, 2020. Accepted for publication Dec 30, 2020.

Education and Career Path

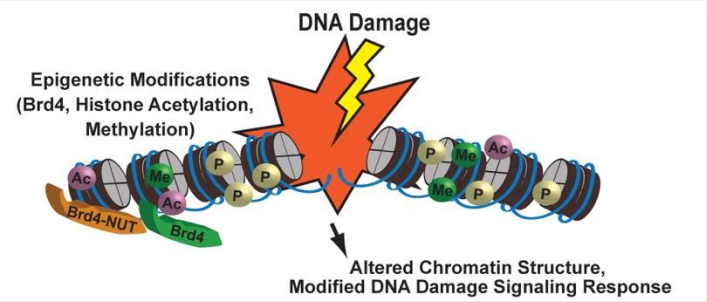


MD/PhD
1994-2002

HARVARD RADIATION ONCOLOGY PROGRAM

Rad Onc Residency
Holman Pathway
2003-2007

Post-doc
2005-2011
ASTRO CDA, Broad SPARC, R21



Publication/
Scientific Niche

Beth Israel-Deaconess/MIT

Instructor, CNS Service, 2007-2015
Clinical Investigator, 2012-2015

Burroughs-Wellcome CAMS

Duke Radiation Oncology
Duke University School of Medicine

Associate Professor
2015-present, CNS Service
R21, ACS, R01, U01, Foundation Awards

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Office of Physician-Scientist Development

Education and Career Path

Duke MSTP
2006-2014

Brigham/MGH/Beth Israel Residency
2014-2019

Duke
2019-2021
Instructor

Duke
2021-present
Asst Professor

21-month Holman

Brain tumor mutation discovery/characterization (Hai Yan lab)

Single cell "omics", DNA damage response (Beroukhim/Bandopadhayay labs)

…. papers accepted late 2019, 2022

Developed GEMM colony, hired staff (Kirsch lab)

Alex's Lemonade Stand
St. Baldrick's
Peds. Brain Tumor Found.
Chad Tough
SoSo Strong
K08

Current goals:
R01
Publications
Advance the field…

Zach Reitman MD, PhD
Duke CNS Rad Onc
Physician-Scientist

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Duke Undergrad (2000-2004) → Duke MD/PhD (2004-2012) → Harvard Radiation Oncology Program (2012-2017) → Instructor/Mentored Physician Scientist (Massachusetts General Hospital) 2017-2020 → Instructor/Mentored Physician Scientist (Duke University) 2020-2023 → Butler-Harris Assistant Professor, Duke University 2023-date

UGrad Mentor:
Marilyn Telen
Sickle cell adhesion
To ECM

PhD Mentor:
Jeremy Rich
NO in Glioma
Stem Cells

HOLMAN (21 Mo)

Mentor 1 – RT-induced enhancer reorganization

Mentor 2 – RT in mouse GEMMS

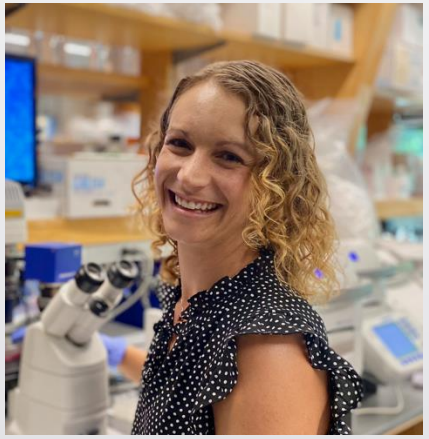
Mentor 3:
Brad Bernstein
In Situ DNA DSB labeling and sequencing

Epigenetics of RT response

Single cell assessments of small molecule resistance

Mentor 4:
Kris Wood
Treatment induced tumor evolution (epigenetic, collateral sensitivities)

Gene regulation assessments using functional and topologic assays



Christine Eyler, MD PhD
Duke Radiation Oncology

RSNA Resident Research Award

Harvard Catalyst KL2 Award

Duke Strong Start Award

AGA Research Scholar Award (Try #2)

NIH/NCI K08 (Try #2)

V Foundation Award

Research focus:
- Treatment induced tumor evolution (AML, Colorectal….)
- Nuclear architecture and functional regulators of tumor suppressor and oncogene regulation

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Office of Physician-Scientist Development

DePaul Undergrad (2005-2009)

Univ. Utah MD/PhD (2011-2019)

Duke Radiation Oncology RORS (2020-2024)

Instructor/ Mentored Physician Scientist

Duke Radiation Oncology 2024-present

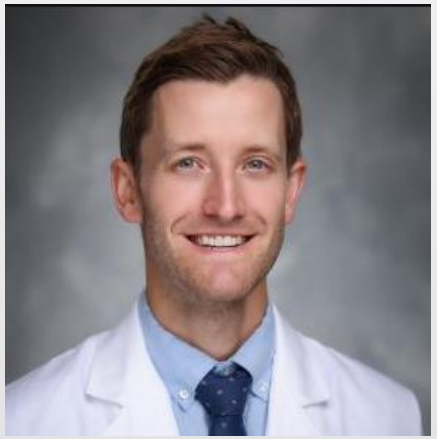
UGrad Mentor:

PhD Mentor:
Brad Cairns
Genetic and epigenetic control of embryonic genome activation

HOLMAN (21 Mo)

Mentor 1 – David Kirsch

Mentor 2 – Kris Wood



Pete Hendrickson, MD PhD
Duke Radiation Oncology

Research focus:
- Disease mechanisms and epigenetic vulnerabilities in sarcoma
- Mouse models of cancer

ASTRO Seed Grant

ASCO Young Investigator Award

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Duke RORS Training Pathway in Radiation Oncology

Duke Radiation Oncology Standard Training Pathway

***23 Months** of **Protected Research Time** in Residency

***2 Years Mentored Research** as Instructor

Duke RORS Research Intensive Training Pathway

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Clinical Research Both

Clinical Research Both

Duke University School of Medicine

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Office of Physician-Scientist Development

Duke R38 ROR StARR Support

- Supports Resident Research Effort for 12 to 21 months
- $20,000 to support research expenses
- $2,000 for travel to a meeting
- Can apply for technician support
  (50% Dean's Office and 50% Mentor)
- Eligible to apply for K38 StAARTS (Transition Scholar)
  - 2 years of funding for 80% effort for research

Duke University School of Medicine

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Office of Physician-Scientist Development

Class of 2024 Radiation Oncology
R38 Resident-Investigators

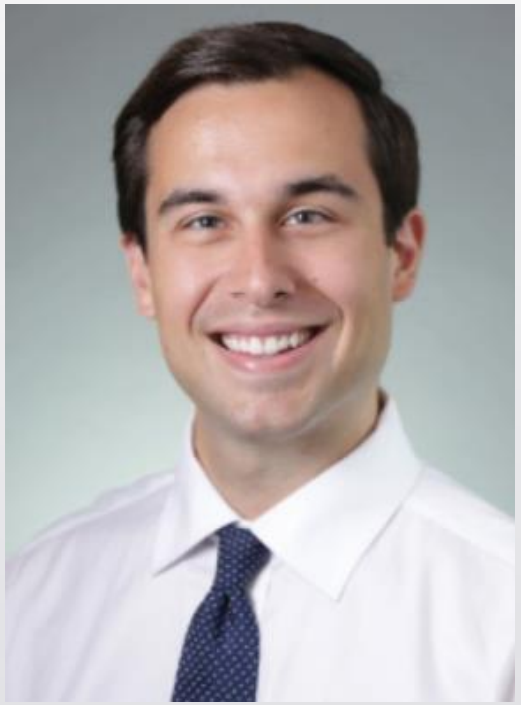
Peter Hendrickson, MD, PhD
Radiation Oncology Research Scholar Resident
Holman Pathway

CIC-DUX4 Sarcomas

Research Mentors:
David Kirsch, MD, PhD,
Kris Wood, PhD

Eugene Vaios, MD, MBA

Radiation and Immunotherapy for Brain Tumors



Research Mentors: Scott Floyd, MD, PhD,
Zachary Reitman, MD, PhD

Pooja Karukonda, MD

Radiation + Pembrolizumab for Esophageal Cancer

Research Mentor:
Manisha Palta, MD

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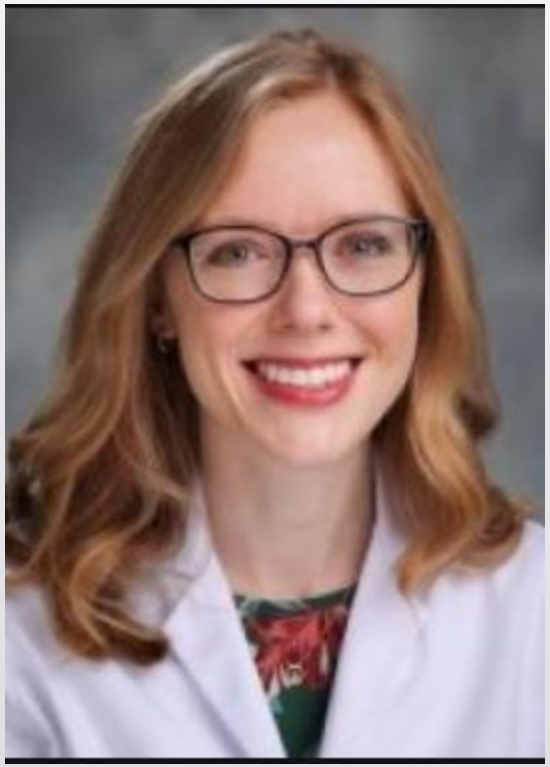
Class of 2025 Radiation Oncology
R38 Resident-Investigators

Scarlett Acklin-Wehnert, MD,

Hippo pathway in treatment response/ resistance of rectal cancer



Research Mentors:
Christine Eyler, MD, PhD
Jatin Roper, MD

Alex Gooding, MD, PhD
Radiation Oncology Research Scholar Resident
Holman Pathway

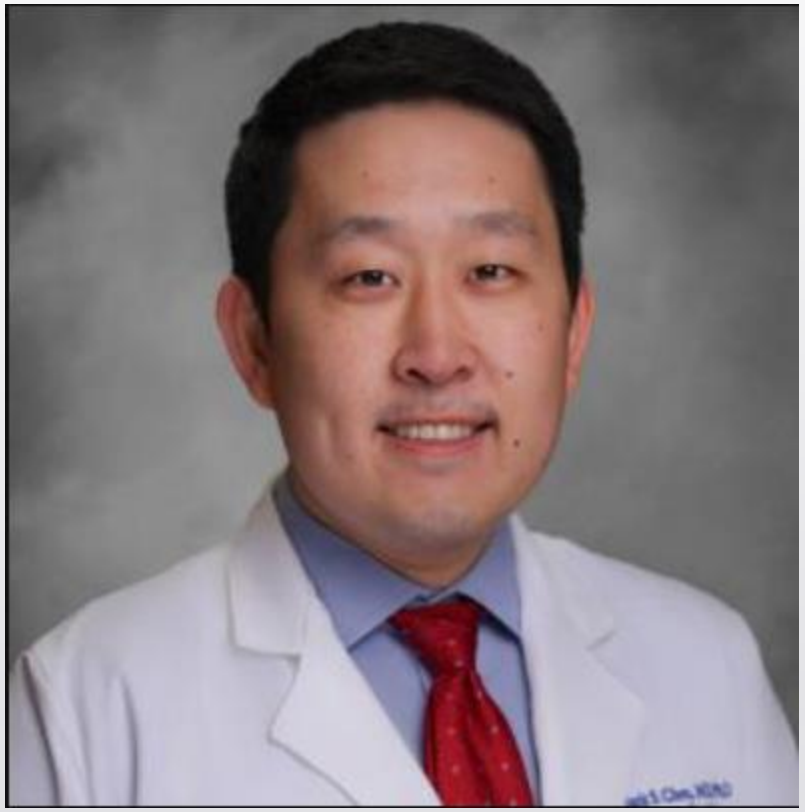
The intra-tumoral microbiome in lung cancer and radiation responses

Research Mentor:
Kris Wood, PhD

Class of 2026 Radiation Oncology
R38 Resident-Investigator

Mark Chen, MD, PhD
Radiation Oncology Research Scholar Resident
Holman Pathway

Role of phase separation in tumor response to radiation therapy with programmable synthetic condensates



Research Mentor:
Ashutosh Chilkoti, PhD

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Duke Office of Physician Scientist Development

- Research Careers Ahead workshop series
- OPSD Research Technician Award
- Concept Review
- STRONG START award
  - ($120,000 per year for 3 years)
- Lefkowitz Society
- Grant writing workshops

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Duke Pharmacology and Cancer Biology

Patrick John Casey
James B. Duke Distinguished Professor of Pharmacology and Cancer Biology

Christopher Chidley
Assistant Professor of Pharmacology and Cancer Biology

Christopher M. Counter
George Barth Geller Distinguished Professor of Pharmacology

Alicia Darnell
Assistant Professor of Pharmacology and Cancer Biology

Donald T Fox
Professor of Pharmacology & Cancer Biology

Sarah Catherine Goetz
Associate Professor of Pharmacology & Cancer Biology

Timothy Arthur James Haystead
Professor of Pharmacology and Cancer Biology

Michael Barry Kastan
William and Jane Shingleton Distinguished Professor of Pharmacology and Cancer Biology

Cynthia Moreton Kuhn
Professor of Pharmacology and Cancer Biology

David MacAlpine
Professor of Pharmacology and Cancer Biology

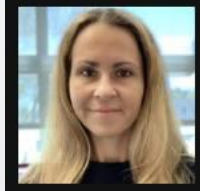
Donald Patrick McDonnell
Glaxo-Wellcome Distinguished Professor of Molecular Cancer Biology, in the School of Medicine

Christopher Bang Newgard
W. David and Sarah W. Stedman Distinguished Professor of Nutrition in the School of Medicine

Trudy G Oliver
Professor of Pharmacology and Cancer Biology

Ann Marie Pendergast
Anthony R. Means Cancer Biology Distinguished Professor

Theodore Alan Slotkin
Professor of Pharmacology and Cancer Biology

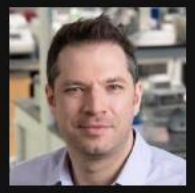


Nikoleta Georgieva Tsvetanova
Assistant Professor of Pharmacology and Cancer Biology

Antonius M. J. VanDongen
Associate Professor of Pharmacology and Cancer Biology

G. Greg Wang
Professor of Pharmacology and Cancer Biology

Xiao-Fan Wang
Donald and Elizabeth Cooke Distinguished Professor of Cancer Research, in the School of Medicine



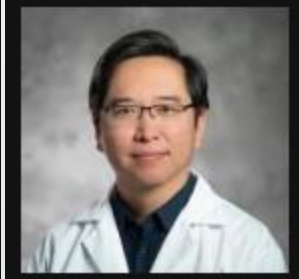
Andrew Bradley West
Professor of Pharmacology and Cancer Biology

Laura M. Wingler
Assistant Professor of Pharmacology and Cancer Biology

Kris Cameron Wood
Associate Professor of Pharmacology and Cancer Biology

Tso-Pang Yao
Professor of Pharmacology and Cancer Biology

Zhao Zhang
Assistant Professor of Pharmacology and Cancer Biology

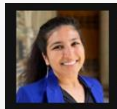


Lee Zou
George Barth Geller Distinguished Professor

Duke University School of Medicine

Office of Physician-Scientist Development

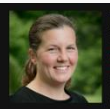
Duke Biomedical Engineering



Sonia Bansal

sonia.bansal@duke.edu

Assistant Professor of the Practice in the Department of Biomedical Engineering



Elizabeth K Bucholz

elizabeth.bucholz@duke.edu

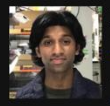
BME Director of Undergraduate Studies, Claude B. Williams and David M. Hesse Associate Professor of the Practice

Nenad Bursac

Professor of Biomedical Engineering

Research Interests

Embryonic and adult stem cell therapies for heart and muscle disease; cardiac and skeletal muscle tissue engineering; cardiac electrophysiology and arrhythmias; genetic modifications of stem...



Pranam D. Chatterjee

pranam.chatterjee@duke.edu

Assistant Professor of Biomedical Engineering

Research Interests

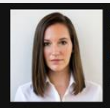
Integration of computational and experimental methodologies to design novel proteins for applications in genome editing, targeted protein modulation, and reproductive bioengineering

Ashutosh Chilkoti

Acting Chair of Biomedical Engineering, Alan L. Kaganov Distinguished Professor of BME

Research Interests

Focused on biomolecular materials and biointerface science and emphasizes the development of applications that span the range from bioseparations, biosensors, biomaterials, and targeted drug delivery.



Emma Jean Chory

emma.chory@duke.edu

Assistant Professor of Biomedical Engineering

Joel Collier

joel.collier@duke.edu

Associate Dean for Doctoral Education, Theodore Kennedy Professor of BME

Research Interests

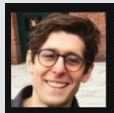
The design of biomaterials for a range of biomedical applications, with a focus on understanding and controlling adaptive immune responses. Most materials investigated are created...

Jessilyn Dunn

Assistant Professor of Biomedical Engineering

Research Interests

Use of large-scale biomedical datasets to model and guide personalized therapies.



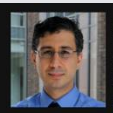
Timothy Dunn

timothy.dunn@duke.edu

Assistant Professor of Biomedical Engineering

Research Interests

Machine learning, computer vision, neurobiology, animal behavior, computational neuroscience, prognostic modeling, traumatic brain injury



Sina Farsiu

Director of Master's Studies, Anderson-Rupp Professor of BME

Research Interests

Focused on medical imaging and machine learning to improve the overall health and vision outcome of patients with ocular and neurological diseases (e.g., age-related macular...

Paul J Fearis

paul.fearis@duke.edu

Associate Director of Master's Studies, Associate Professor of the Practice in the Department of BME

Research Interests

Innovation & product development processes, design for manufacture

Sharon Gerecht

sharon.gerecht@duke.edu

Chair of Biomedical Engineering, Paul M. Gross Distinguished Professor

Research Interests

stem cells, biomaterials, hypoxia, blood vessels, physics of cancer, regenerative medicine

Charles Gersbach

Charles.gersbach@duke.edu

John W. Strohbehn Distinguished Professor of Biomedical Engineering

Research Interests

Gene therapy, genomics and epigenomics, biomolecular and cellular engineering, regenerative medicine, and synthetic biology.

Warren M. Grill

warren.grill@duke.edu

Edmund T. Pratt, Jr. School Distinguished Professor of Biomedical Engineering

Research Interests

Neural engineering and neural prostheses and include design and testing of electrodes and stimulation techniques, the electrical properties of tissues and cells, and computational neuroscience...

John Wirthlin Hickey

john.hickey@duke.edu

Assistant Professor of Biomedical Engineering

Research Interests

Using and developing systems biology tools and technologies to describe and control spatial relationships between cells in tissues, particularly in cell therapies.

Brenton D. Hoffman

brenton.hoffman@duke.edu

James L. and Elizabeth M. Vincent Associate Professor of Biomedical Engineering

Research Interests

Focused on understanding, on a molecular level, how mechanical and chemical cues from the environment are detected, integrated, and manipulated by cells to dictate physiological...

Roarke Horstmeyer

roarke.w.horstmeyer@duke.edu

Assistant Professor of Biomedical Engineering

Research Interests

Computational optics, machine learning, and designing new algorithms for image processing. A main focus is to improve how we capture and use images of microscopic...

David F. Katz

Nello L. Teer, Jr. Distinguished Professor of Biomedical Engineering, in the Edmund T. Pratt, Jr. School of Engineering

Research Interests

Methods for prophylaxis against STD's, emphasizing topical microbicides and contraception; biofluid mechanics; rheology and transport phenomena; biophysical aspects of mammalian sperm motility, sperm transport, and...

Cameron M Kim

cameron.kim@duke.edu

Associate Director of Undergraduate Studies, Assistant Professor of the Practice in the Department of BME

Research Interests

Education advances in biomolecular/cellular engineering, mathematical modeling of biological systems, biotechnology design, and integrating ethics in BME curriculum. Expanding authentic research experiences in undergraduate education.

Aaron M Kyle

aaron.kyle@duke.edu

Professor of the Practice in the Department of Biomedical Engineering

Mark L. Palmeri

Professor of the Practice in the Department of Biomedical Engineering

Research Interests

Ultrasonic imaging, specifically using acoustic radiation force to characterize the mechanical properties of tissue, and finite element analysis of soft tissue response to impulsive radiation...

Nimmi Ramanujam

Robert W. Carr, Jr., Distinguished Professor of Biomedical Engineering

Research Interests

Biomedical engineering, biophotonics, women's cancers, global health, engineering design

Amanda Randles

amanda.randles@duke.edu

Alfred Winborne and Victoria Stover Mordecai Associate Professor of Biomedical Sciences

Research Interests

Biomedical simulation and high-performance computing

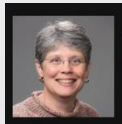
Daniel Reker

daniel.reker@duke.edu

Assistant Professor of Biomedical Engineering

Research Interests

Integration of active machine learning, biomedical data science, and biochemical experiments for the analysis and design of personalized therapeutic opportunities.



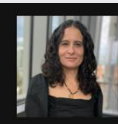
Ann Saterbak

ann.saterbak@duke.edu

Director, First-Year Design Program, Professor of the Practice in the Department of BME

Research Interests

Innovations in undergraduate engineering education, particularly new pedagogical methods that broaden students' problem solving skills and design thinking.



Tatiana Segura

tatiana.segura@duke.edu

Professor of Biomedical Engineering

Research Interests

The design of biomaterials to promote endogenous repair and reducing inflammation through the design of the geometry of the material, and delivering genes, proteins and...

Marc A. Sommer

marc.sommer@duke.edu

Professor of Biomedical Engineering

Research Interests

Neuronal circuits of the brain, including recording from single neurons and studying the effects of inactivating or stimulating well-defined brain areas. His goals are to...

Pengfei Song

pengfei.song@duke.edu

Visiting Associate Professor in the Department of Biomedical Engineering

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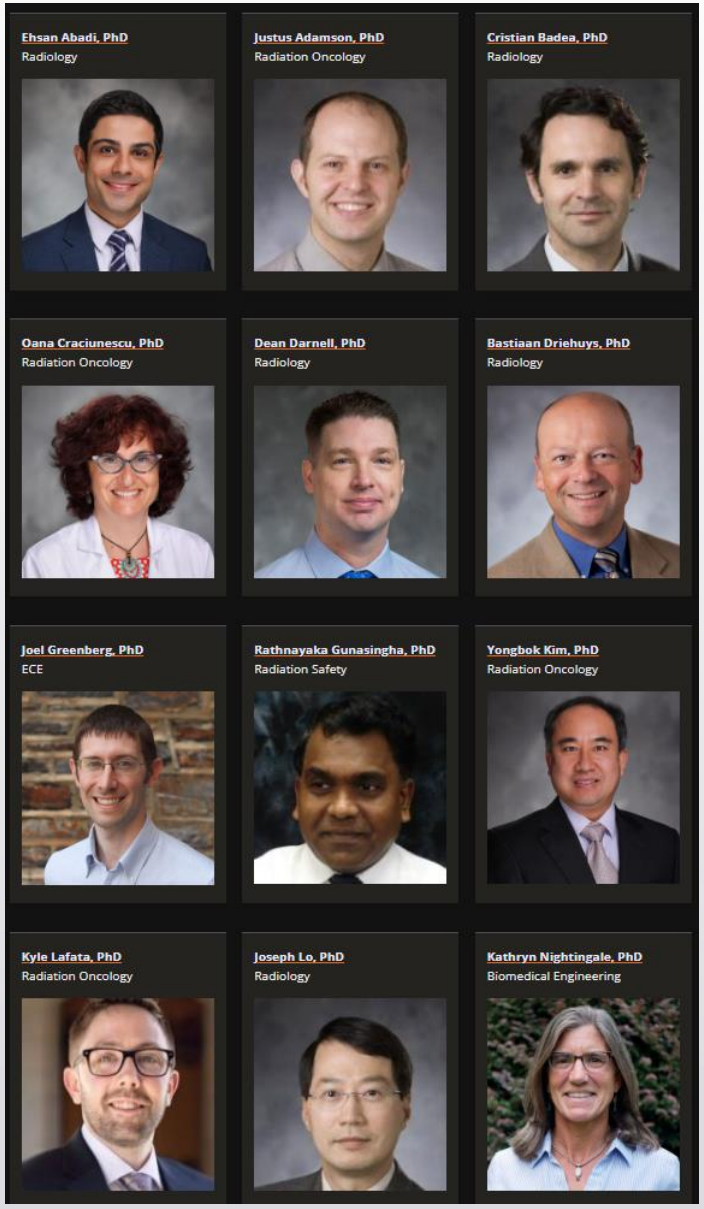
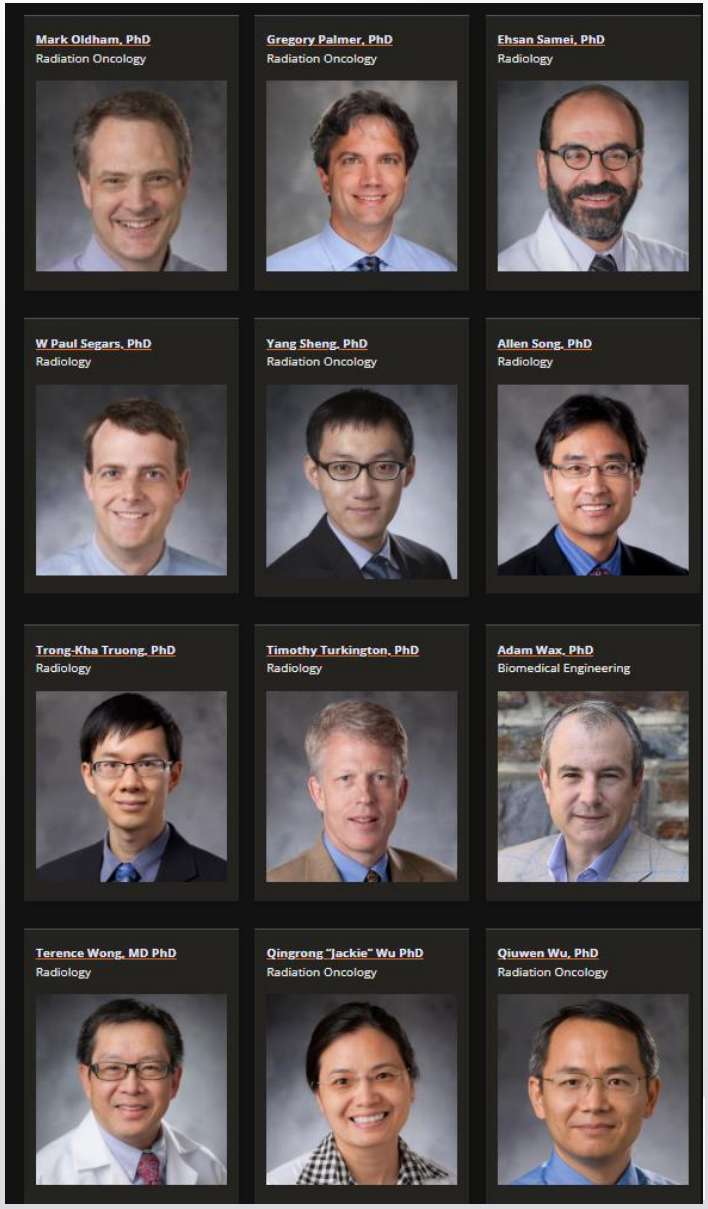
Office of Physician-Scientist Development

Duke Medical Physics





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