

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF RADIATION ONCOLOGY

Meredith Morgan, Ph.D., associate professor of radiation oncology, with tenure, Department of Radiation Oncology, Medical School, is recommended for promotion to professor of radiation oncology, with tenure, Department of Radiation Oncology, Medical School.

Academic Degrees:

Ph.D.	2002	West Virginia University
B.S.	1995	Fairmont State College

Professional Record:

2018-present	Associate Professor of Radiation Oncology, with tenure, University of Michigan
2013-2018	Assistant Professor of Radiation Oncology, University of Michigan
2009-2013	Research Assistant Professor of Radiation Oncology, University of Michigan
2005-2009	Research Investigator of Radiation Oncology, University of Michigan

Summary of Evaluation:

Teaching: As an associate professor in the Department of Radiation Oncology, Dr. Morgan is actively involved in the education of residents, medical fellows, post-doctoral fellows, medical students, graduate students, and undergraduate students. In terms of didactic lectures, Dr. Morgan participates in the Radiobiology course taught for residents in the Department of Radiation Oncology, covering topics such as cell cycle regulation, DNA damage response and repair, tumor growth kinetics, and radiation sensitivity. Dr. Morgan receives excellent evaluations from both the clinical and physics residents attending this course. Dr. Morgan also teaches an undergraduate Radiation Biology course instructing students in the Nuclear Engineering and Radiological Sciences program (NERS584) and has agreed, starting this year, to participate in a course for Nuclear Medicine/Radiology Fellows. Since Dr. Morgan's last promotion, she has successfully graduated a student within the MSTP (Medical Scientist Training Program; Carl Engelke Ph.D., 2019; MD 2022) who is now a resident at The Ohio State University. Furthermore, Dr. Morgan mentored Matthew McMillan throughout his M.D. education at the University of Michigan resulting in a first-author publication and book chapter as well as acceptance into the Radiation Oncology Residency Program at Memorial Sloan Kettering. Dr. Morgan mentored two visiting scholars over the past four years both producing first-author publications describing their research in Dr. Morgan's laboratory. Furthermore, this spring Dr. Morgan accepted the role of primary mentor for a Cancer Biology student within PIBS (Program in Biomedical Sciences; Victoria Valvo) and served as a thesis committee member to Ben Chandler (PIBS; Ph.D. 2020) and Nick Warren (Dartmouth; Ph.D. 2018).

Research: Dr. Morgan leads a research program with a strong translational focus on improving radiation therapy for locally advanced cancers, especially pancreatic, through experimental therapeutics targeting the DNA damage response. Since her last promotion, Dr. Morgan made the critical decision to extend her tumor *radiosensitization* research program into the field of tumor immunology. In this new research direction, Dr. Morgan's group made key discoveries revealing a mechanistic basis for the use of DNA damage response therapeutics to enhance radiation-induced innate immune response and immunotherapy efficacy in pancreatic cancer. Her successes in this new area of research are evidenced by publications (e.g., Zhang et al, *Cancer Res*, 2019), a successful R01

application, and a recently approved multi-center, national clinical trial combining PARP inhibitor with radiation and immunotherapy. (Dr. Morgan is the Translational PI.) A common element of Dr. Morgan's research is the translation of laboratory studies to early-phase clinical trials. In 2019, her laboratory's preclinical research focused on CHK1 and WEE1 inhibitors were fully translated to *bench to bedside* as noted by a publication of the resulting clinical trial combining the WEE1 inhibitor adavosertib with chemoradiation in patients with pancreatic cancer (Cuneo et al, *J Clin Onc*, 2019). This is highly significant given that this clinical trial was based solely on Dr. Morgan's laboratory research and the biomarker studies in this trial (also developed by her lab; Parsels et al, *Clin Cancer Res*, 2011) was conducted by her group. Finally, another notable area of advancement in Dr. Morgan's research program is the expansion of her tumor *radiosensitization* program into pediatric H3.3K27M mutant diffuse midline glioma, a cancer of greatest unmet clinical need. While this is still an active area of growth for the Morgan Lab, success so far is evident by current and pending grants and collaborative publications with pediatric brain tumor experts at the University of Michigan.

Dr. Morgan's research is supported by an extensive external funding track record with support from the National Institutes of Health and the National Cancer Institute, as well as several smaller (past and pending) internal and external grants. She also recently received a fundable score as the co-principal investigator on a very large National Cancer Institute Specialized Programs of Research Excellence (SPORE) application which will continue her work and others on maximizing the immune effects of radiation. As the associate chair of her division, Dr. Morgan has been intensely focused for the past year on multi-investigator center grants as a means of supporting research beyond her individual laboratory and on to a broader scale in Radiation Oncology and the Rogel Cancer Center. As such, her most important accomplishment was the submission of two Specialized Program of Research Excellence (SPORE) applications for which she served as a co-director, as well as project leader.

Dr. Morgan's scholarly works includes peer-reviewed publications. In the context of the recent expansion of her laboratory research program into tumor immunology, Dr. Morgan has published three primary data articles directly from her group and participated in an additional three collaborative primary data articles. In addition, she has a deep publication track record in the fields of tumor radiosensitization and basic DNA repair mechanisms. Dr. Morgan's excellence in research is evidenced by several significant scholarly bodies of work including those focused on tumor radiosensitization, tumor immunology, and basic discoveries in the DNA damage response and repair. These scholarly works are defined by impactful publications in journals including *Cancer Research*, *Clinical Cancer Research*, and *Nucleic Acids Research*, extramurally funded grants (R01, U01 and Project 1 within her pending SPORE) as well as national and international invited presentations (Radiation Research Society, European Society for Therapeutic Radiation Oncology, International Congress for Radiation Research).

Recent and Significant Publications:

- Parsels LA, Engelke CG, Parsels J, Flanagan SA, Zhang Q, Tanska D, Wahl DR, Canman CE, Lawrence TS, Morgan MA, "Combinatorial efficacy of olaparib with radiation and ATR inhibitor requires PARP1 protein in homologous recombination proficient pancreatic cancer," *Mol Cancer Ther* 20: 263-73, 2021. PM33268569
- Parsels LA, Zhang Q, Karnak D, Parsels JD, Lam K, Willers H, Green MD, Rehemtulla A, Lawrence TS, Morgan MA, "Translation of DNA Damage Response Inhibitors as Chemoradiation Sensitizers From the Laboratory to the Clinic," *Int J Radiat Oncol Biol Phys* 111(5): e38-e53, 2021. PM34348175/PMC8602768

- Zhang Q, Green MD, Lang X, Lazarus J, Parsels JD, Wei S, Parsels LA, Shi J, Ramnath N, Wahl DR, Pasca di Magliano M, Frankel TL, Kryczek I, Lei YL, Lawrence TS, Zou W, Morgan MA, “Inhibition of ATM Increases Interferon Signaling and Sensitizes Pancreatic Cancer to Immune Checkpoint Blockade Therapy,” *Cancer Research* 79(15): 3940-3951, 2019. PMC6684166
- Cuneo KC, Morgan MA, Sahai V, Schipper MJ, Parsels LA, Parsels JD, Devasia T, Al-Hawaray M, Cho CS, Nathan H, Maybaum J, Zalupski MM, Lawrence TS, “Dose Escalation Trial of the Wee1 Inhibitor Adavosertib (AZD1775) in Combination With Gemcitabine and Radiation for Patients With Locally Advanced Pancreatic Cancer,” *J Clin Oncol* 37(29): 2643-2650, 2019. PM31398082
- Zhang Q, Mady A, Ma Y, Ryan C, Lawrence TS, Nikolovska-Coleska Z, Sun Y, Morgan MA, “The WD40 domain of FBXW7 is a poly(ADP-ribose)-binding domain that mediates the early DNA damage response,” *Nucleic Acids Research* 47(8): 4039-4053, 2019. PMC6486556

Service: At an institutional level, Dr. Morgan’s most notable service includes her administrative appointment as the associate chair for radiation and cancer biology and the Lawrence-Krause Research Professor of Radiation Oncology (2020-present). In this capacity, Dr. Morgan oversees a division of thirteen faculty members representing all ranks and tracks as well as both scientists and physician-scientists. Dr. Morgan also plays an important role in the Rogel Cancer Center as she is the director of the Experimental Irradiation Shared Resource (2018-present). She is also a member of the Cancer Research Committee for the Rogel Cancer Center and as such provides grant review service for numerous internal grant programs. She served as the chair of the Biomedical Research Council (2018-2019) following two years of prior service to the council and was a member of the Faculty Senate (2019-2022). She provides numerous other institutional services as needed such as her service to the Chair Search Committee for the Department of Molecular and Integrative Physiology (2020-2021).

Nationally, Dr. Morgan’s most important service is as an active member of the National Institutes of Health/National Cancer Institute Study Section serving ad hoc in Cancer Etiology and Radiation Therapeutics and Biology (RTB) study sections with a commitment to becoming a full member of RTB beginning in 2023. Furthermore, she has served as an ad hoc reviewer for numerous other external grant programs such as the V Foundation and the Falk Foundation. Dr. Morgan is an active member of several professional societies including the American Association for Cancer Research and Radiation Research Society. Her role within the American Association for Cancer Research (AACR) is further accentuated by her commitment to numerous sub-committees within the American Association for Cancer Research such as the Radiation Science and Medicine working group (2017-2020) and Exhibits Committee (2019-2021), and Women in Cancer Research.

External Reviewers:

Reviewer A: “Dr Morgan is an exceptional scientist advancing radiobiology research into immunoproticient animal models of cancer. There are, in my view, less than ten scientists worldwide who are doing this with state-of-the-art immunoprofiling technology. This is challenging both academically and practically. Immunology is not the most accessible discipline, and the experiments are incredibly complex and expensive...Her work is rigorous and reproducible and highly respected. Dr. Morgan is among the top ten radiobiologists working to bridge Radiation Oncology and Immunology.”

Reviewer B: “Dr. Morgan has exemplified outstanding work in the field of translational radiobiology...Dr. Morgan is widely recognized as a world expert in radiation-induced DNA damage and repair...Dr. Morgan has also demonstrated outstanding characteristics of teaching and education...Dr. Morgan is an exemplary scientist based on her explorations into the impact of radiation-

induced DNA damage and the implications of this damage with respect immunotherapy...Her work will be extremely important moving forward in our field.”

Reviewer C: “Although there is breadth in the scope of her work across the ‘bench-to-bedside’ trajectory, there is admirable scientific focus in terms of the pathways and targets she studies...This work highlights Dr. Morgan’s discovery science credentials, which are particularly impressive in the context of the translational work she also publishes.”

Reviewer D: “...Dr. Morgan has had a significant impact on the field of radiation biology in particular in the area of combining targeted therapies with radiation therapy...Indeed, Dr. Morgan’s outstanding scholarship heightens the prestige of the University of Michigan...Dr. Morgan’s research productivity and impact make her a leader within the field of radiation research.”

Reviewer E: “[Dr. Morgan] publishes in good, relevant journals and the quality and quantity of her publications are excellent. There are few scientists currently that conduct outstanding studies in translational radiation biology that has potential application in the clinic. Meredith is an outstanding radiation biologist and in my view, she is in the top ten radiation biologists in the United States...Because of her outstanding contributions to the field of experimental radiation biology as it relates to radiation oncology, her commitment to basic science and translational research, and her devotion to teaching young investigators and physicians, the Department of Radiation Oncology would indeed be proud to recognize the accomplishments of Meredith Morgan with the promotion to Professor with tenure.”

Summary of Recommendation:

Dr. Morgan is a highly regarded scientist who specializes in using DNA damage response inhibitors to enhance radiation-induced immune responses and systemic antitumor immunity. She is a crucial collaborator with many of the faculty in the cancer biology division and plays a key role in collaborative research efforts. She has a well-balanced portfolio making contributions to education, research, and service missions. I am pleased to recommend Meredith Morgan, Ph.D. for promotion to professor of radiation oncology, with tenure, Department of Radiation Oncology, Medical School.



Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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