

Department of Radiation Oncology

Monthly Research Update: August 2024

Maryland at ASTRO 2024

AUGUST AT A GLANCE TOTALS

Clinical trials

Total enrolled	35
GCC, other	6
NRG, NCI, co-ops	5
PCG, other registries	24

Grants and contracts

New awards	2
Submitted	1

Articles published

4

Information for this monthly update should be provided no later than the second Wednesday of each month to Miek Segers at msegers@som.umaryland.edu. The update will be published on the second Friday of each month.

Have questions about identifying a funding source? Finding research partners across the UMB/UM campuses or at another university? Defining future research strategies? Or organizing your thoughts on (virtual) paper? Contact Nancy Knight, PhD, Director of Academic and Professional Development for the department, at nknight@umm.edu

The 2024 Annual Meeting of the American Society for Radiation Oncology (ASTRO) will be held September 29–October 2 in Washington, DC. The theme of this year's meeting will be "Targeting provider wellness for exceptional patient care." Faculty members, residents, postdoctoral students, and others from the Maryland Department of Radiation Oncology are scheduled to make more than 40 presentations, including 11 podium (oral) and 4 Quick-Pitch oral talks. These will include reports of scientific research, as well as invited lectures and service as session moderators and on discussion panels. A highlight of the meeting will be the department Welcome Dinner Reception on the evening of September 29 at Elizabeth's on L Street.

Again this year 2 of the presentations in the ASTRO media webcast/press session (selected in a small group from >2,000 submissions) will report on work from our department: **Hua-Ren (Ryan) Cherg, MD**, PGY-5 resident, will review his oral presentation "Evaluating neurocognitive recovery following stereotactic radiosurgery and whole brain radiation therapy: Insights from a pooled analysis of 3 phase III trials," and **Charlyn Gomez**, UMSOM medical student, will review her oral presentation on "Centering Black voices: Factors influencing a cancer patient's decision to join a clinical trial." Coauthors for both research works include many of our faculty and trainees.

On September 29, **Phuoc Tran, MD, PhD**, will present "The space-time continuum in metastatic castration-sensitive prostate cancer: The final frontier?" as part of the Presidential Session. A preliminary brochure summarizing our participation in the meeting is attached to this issue of the Monthly Research Update.

Clinical Trial Enrollment

- 24 patients at MPTC on the **Proton Collaborative Group Registry**
- 2 patients at UMMC on **GCC 2380**: A single arm phase II trial evaluating selective adjuvant therapy for HPV-mediated oropharynx SCCs based on residual circulating tumor DNA levels (SAVAL)
- 3 patients at Eastern Shore and 1 at MPTC on **NRG GU010**: Parallel phase III randomized trials of genomic risk stratified unfavorable intermediate risk prostate cancer: De-intensification and intensification clinical trial evaluation (Guidance)
- 2 patients at UMMC on **GCC 2384**: Evaluation of improved onboard patient imaging with the Varian HyperSight platform on Truebeam 4.1
- 1 patient at Eastern Shore on **NRG GU009**: Parallel phase III randomized trials for high-risk prostate cancer evaluating de-intensification for lower genomic risk and intensification of concurrent therapy for higher genomic risk with radiation (Predict-R*)
- 1 patient at MPTC on **GCC 2032**: Feasibility of strength training with androgen deprivation and proton therapy for high-risk prostate cancer
- 1 patient at MPTC **GCC 2048**: A phase I dose escalation study of hypofractionated accelerated pelvic nodal radiotherapy delivered with a simultaneously integrated prostate boost for patients with localized, intermediate- and high-risk prostate cancer

Grants and Contracts

Funded

- **Lei Ren, PhD**, MPI/Liangzhong Shawn Xiang-Contact PI (UC Irvine), 1U01CA288351, NIH U01 grant collaboration with University of California, Irvine, for “3D in vivo dosimetry for FLASH proton therapy,” 08/2024–07/2029 (\$972,590).
- **Lei Ren, PhD**, MPI/Gaylkalova-Contact PI (UMB IGS), 1R01DE33426, NIH R01 grant for “Study of biological and radiographic biomarkers and association with ancestry and survival disparities in oral cavity squamous cell carcinoma using AI approaches,” 08/2024–5/2029 (\$3,292,352).

Submitted

- **Phuoc Tran, MD, PhD**, PI UMB (Partnering submission with JHU), DOD CDMRP Prostate Cancer Research Program Data Science Award for “Novel metastatic biology elucidated from digital pathology artificial intelligence coupled with spatial transcriptomics in oligometastatic prostate cancer (\$777,286).

Articles Published

Entered into PubMed August 9–September 11. Titles link to PubMed abstracts, many of which contain full-text links.

1. Correia D, Indelicato DJ, Paulino AC, Ermoian R, Mihalcik S, Perkins SM, Hill-Kayser C, Mangona VS, Lee J, Chang JH, Laack NN, **Kwok Y**, Perentesis J, Vatner R, Dave R, Gallotto SL, Lawell MP, Bajaj BVM, Allison KW, Perry A, Yock TI. [Evolution of proton radiation therapy brainstem constraints on the Pediatric Proton/Photon Consortium Registry](#). *Pract Radiat Oncol*. 2024 Aug 10:S1879-8500(24)00194-2. Online ahead of print.
2. Onal C, Guler OC, Torun N, Elmali A, Sutera P, Deek MP, Reyhan M, Yavuz M, **Tran PT**. [Impact of definitive radiotherapy on metabolic response measured with ⁶⁸Ga-PSMA-PET/CT in patients with intermediate-risk prostate cancer](#). *Prostate*. 2024 Aug 6. Online ahead of print.
3. **Savla B, Jatzcak J, Molitoris JK**, Witek ME, **Marter K, Zakhary MJ, Xu J**, Snow GE, Guardiani EA, **Ferris MJ**. [Pencil beam scanning proton therapy as single vocal cord irradiation for early-stage glottic cancer](#). *Int J Part Ther*. 2024 Jul 17;13:100623.
4. Subraveti SN, Nader MG, AziziHariri P, John VT, **Lamichhane N**, Raghavan SR. [Vesicle-micelle transitions driven by ROS, light and heat](#). *Nanoscale*. 2024 Aug 29. Online ahead of print.

Important Dates for Upcoming Funding Submissions

Below is an updated calendar with firm due dates for upcoming major standard NIH deadlines (RFA/PA dates may differ). Contact the Department Office of Research Administration (msegers@som.umd.edu) ASAP if you plan to submit any funding proposal, regardless of funder.

NIH deadline	DORA budget, prelim materials	Dean/SOM prelim materials	FINAL Dean/SOM/SPA
R01/U01 New Oct 5	09/24/2024	09/26/2024	09/30/2024
R21 New Oct 16	10/03/2024	10/07/2024	10/09/2024
R01/U01 Resub Nov 5	10/23/2024	10/25/2024	10/29/2024
R21 Resub Nov 16	11/05/2024	11/07/2024	11/11/2024

Our Achievements in the SOM News and Buzz

How is information on publications and productivity sent to UM Public Affairs for the *SOM News* and *Buzz* and other announcements? Faculty members should send e-mails on recent publications, presentations, and honors to nknight@umm.edu. Each faculty name is also looked up in PubMed to identify new publications. Research administration provides data on grants and contracts. This information is reformatted per SOM requirements and sent on the second Friday of each month to *SOM News* and *Buzz* staff, where a small selection of items is chosen for inclusion. Items often appear several months after being forwarded from our department.

UNIVERSITY OF MARYLAND
DEPARTMENT OF RADIATION ONCOLOGY

SCHEDULE OF
PRESENTATIONS AND ACTIVITIES



ASTRO 2024

Targeting Provider Wellness
FOR EXCEPTIONAL PATIENT CARE

2024 Annual Meeting
Washington, DC
September 29–October 2

SUNDAY, SEPTEMBER 29 PRESENTATIONS

11:40–11:55 AM Ballroom A/B/C Oral, Presidential Session

The space-time continuum in metastatic castration-sensitive prostate cancer: The final frontier?

Tran P

Oral, Presidential Session

2:45–4:15 PM Hall C Poster

Rates of attrition in black patients with prostate cancer enrolled on clinical trials: A pooled secondary analysis of RTOG 9601, 9902, 0126, and 0415

Hamza M, Cherng H-R, Sun K, Tran P, Bentzen S, Mishra M

3:37–3:47 PM Room 140 Oral, invited

Challenges and solutions for capturing better normal tissue dose/volume/outcome data to facilitate its analyses: Perspective and implications

Bentzen S

4:45–6:00 PM Hall C Poster

Improving liver SBRT target localization with hybrid MRI/CBCT technology

Chen M, Zhang Z, Lu K, Zhong H, Jiang Z, Yin F-F, Ren L

4:45–6:00 PM Hall C Poster

One fiducial for all modalities: Optimized trackability and minimized beam perturbation for fiducials used across multi-modalities

Liu J, Bamberger C, Iqbal N, Reynolds K, Shah S, Li X, Wang P, Fan J, Choe K, Chawla A, Kim D, Rahimi R

4:45–6:00 PM Hall C Poster

Integrating radiation-induced functionally weighted airway damage modeling with radiation-induced parenchymal damage modeling improves prediction of post-RT ventilation loss

Vicente EN, Gutierrez N, Oakes J, Cammin J, Gopal A, Kipritidis J, Modiri A, Mossahebi S, Mohindra P, Citron W, Matuszak MM, Timmerman, RD, Sawant A

4:45–6:00 PM Hall C Poster

Clinical background of the tolerance of the in-air spot size variation of proton beams

Yi BY, MacFarlane M, Yao W, Zakhary M

5:05–5:15 PM Room 147 Oral

Evaluating neurocognitive recovery following stereotactic radiosurgery and whole brain radiation therapy: Insights from a pooled analysis of three phase III trials

Cherng H-R, Sun K, Bentzen S, Brown PD, Armstrong TS, Gondi V, Mehta MP, Mishra MV

UNIVERSITY OF MARYLAND DEPARTMENT OF RADIATION ONCOLOGY WELCOME DINNER RECEPTION

Sunday, September 29

6:30–9:30 PM

Elizabeth's on L Street

1341 L Street NW, Suite 2

Washington, DC

MONDAY, SEPTEMBER 30 PRESENTATIONS

8:00–9:00 AM Hall C Poster

Interstitial high-dose rate brachytherapy with or without interstitial hyperthermia for gynecologic malignancies

Thompson AD, Pollock AE, Savla B, Mohindra P, Krc RF, Cohen JD, Sun K, Rodrigues D, Guerrero M, Lamichhane N, McAvoy SA, Molitoris JK, Rana ZH, Kunaprayoon D, Marter K, Roque DM, Rao G, Bentzen SM, Nichols EM

10:45 AM–10:55 PM Room 150 Oral

Assessment of circulating tumor cells in oligometastatic castration-sensitive prostate cancer patients from the ORIOLE trial

Bazyar S, Sutura P, Deek MP, Wang J, Phillips R, Radwan N, Marshall C, Mishra M, Rana Z, Molitoris J, Kwok Y, Gupta A, Wenstrup R, DeWeese TL, Song DY, Pienta KJ, Antonarakis ES, Kiess A, Tran PT

10:45 AM–12:00 PM Hall C Poster

Identifying risk factors associated with outcomes for patients with recurrent and progressive meningiomas: A secondary analysis of SWOG S9005

Cherng H-R, Woodworth GF, Ahmad H, Pham L, Kwok Y, Regine WF, Mishra MV

10:55–11:05 AM Room 140 Oral

Centering Black voices: Factors influencing a cancer patient's decision to join a clinical trial

Gomez C, Baker K, Eggleston C, Ferris M, Molitoris J, Rana Z, McAvoy S, Nichols E, Regine W, Bentzen S, Vyfhuis MAL

3:00–4:00 PM Hall C Poster

Comparison between proton LET-dependent RBE dose and photon physical dose for acute radiation dermatitis in Caucasian and African-American breast cancer patients undergoing radiation therapy

Biswal NC, Lee SW, Zhang B, Jatczak J, McAvoy S, Cheston S, Yi BY, Nichols EN, Yao W

3:00–4:00 PM Hall C Poster

Can surface-guided radiation therapy (SGRT) be used to monitor intrafraction motion of patients receiving accelerated partial breast irradiation (APBI)?

Zhou J, Chen S, Zhang B, Lasio G, Xu H, Xu J, Chen Q, Benda R

3:10–3:20 PM Room 232 Oral

Optimized hybrid model for radiation incident reporting in multi-site centers

Li X, Rahimi R, Su F-C, Chawla A, Miner A, Fan J

MONDAY, SEPTEMBER 30 PRESENTATIONS (CONT.)

5:00–6:00 PM Hall C Poster

Investigating the role of TNIK in the pathogenesis of lung squamous cell carcinoma

Chang J, Dutta Chowdhury D, Council D, Nguyen T, Jagtap S, Chan A, Khan MA, Connis N, Torres-Ayuso P, Brognard J, Rezaee M, Lafargue A, Hann CL, Tran PT

5:00–6:00 PM Hall C Poster

Patient-derived pancreatic tumor organoids as a surrogate to predict radiation and chemotherapy response in individual patients: A model for precision medicine

Keepers Z, Roy S, Bhandary B, Carrier F, Lamichhane N, Molitoris J, Regine W, Shukla H

5:00–6:00 PM Hall C Poster

Modeling Twist1 overexpression in a pancreatic ductal adenocarcinoma mouse model

Khan MA, Chang J, Nguyen T, Council D, Dutta Chowdhury D, Shetty A, Song Y, Chan A, Patel P, Tran L, Chen J, Nugent K, Lemtiri-Chlieh G, Malek R, Thielman NR, Li K, Zheng L, Gabrielson K, Tran PT, Lafargue A

5:00–6:00 PM Hall C Poster

TWIST1-induced suppression of oncogene-induced senescence in non-small cell lung cancer requires the transactivation domain of TWIST1

Lafargue A, Wang H, Thiruganasambandam S, Gajula RP, Shetty A, Song Y, Simons BW, Nguyen T, Connis N, Dutta Chowdhury D, Chang J, Council D, Nugent K, Siddiqui I, Taparra K, Rezaee M, Zachara N, Morris ZS, McFarland C, Abdulkadir SA, Hann C, Tran PT

ADDITIONAL DEPARTMENT PRESENTATIONS

- **Ryan Cherng, MD**, radiation oncology resident, was selected to participate in the Annual ASTRO Press Program on September 30 with his presentation “Evaluating neurocognitive recovery following stereotactic radiosurgery and whole brain radiation therapy: Insights from a pooled analysis of three phase III trials”
- **Charlyn Gomez**, UMSOM medical student, was selected to participate in the Annual ASTRO Press Program on September 30 with her presentation “Centering Black voices: Factors influencing a cancer patient’s decision to join a clinical trial.”
- **Mariana Guerrero, PhD**, will be a panel participant in “Career pathways in radiation oncology” part of the Aspiring Scientists and Physicians Program (ASPP), from 11:00 AM to 2:30 PM on September 29. The ASPP hosts undergraduate, medical, and graduate students from institutions of higher learning in cities where ASTRO’s annual meeting is held to participate in a day of science discovery and career exploration.
- **Amit Sawant, PhD**, and **Jason Molitoris, MD, PhD**, will be participating in Varian User Meeting and exhibit booth events.

TUESDAY, OCTOBER 1 PRESENTATIONS

12:45–2:00 PM Hall C Poster

Promising pathologic response of spatially fractionated radiotherapy preceding standard neoadjuvant conventionally fractionated radiotherapy in aggressive soft tissue sarcoma

Olabumuyi AA, Brown MH, Bazzyar S, Kunaprayoon D, Ng V, Regine WF, Molitoris JK

2:30–3:45 PM Hall C Poster

Inequities in the NRG prostate cancer biobank are linked to non-White race, Hispanic/Latino ethnicity, and higher socioeconomic disadvantage

Kamran SC, Borges M, Spratt D, Vapiwala N, Efstathiou J, Miyamoto D, Mouw K, Vyfhuis M, Le Q-T, Willers H, Van Allen E, Huang F, Michalski J, Bahary J-P, Helou J, Lukka H, Pugh SL, Wenzel J, Feng F, Tran PT

2:50–3:00 PM Room 207 Oral (late-breaking abstract)

Outcomes of Radium-223 and SABR Versus SABR for oligometastatic prostate cancer – The RAVENS phase 2 randomized trial

Kiess A.....Tran PT

4:00–5:00 PM Hall C Poster

Multi-omics models can predict prostate-specific membrane antigen avidity for computed tomography lesions in oligometastatic castration-sensitive prostate cancer

Kumar R, Zhang C, Sutera P, Hathout L, Jabbour A, Ren L, Tran PT, Nie K, Deek MP, Bazzyar S, Sutera P, Phillips R, Deek MP, Radwan N, Marshall CH, Mishra MV, Rana ZH, Molitoris JK, Kwok Y, Gupta S, Wenstrup R, DeWeese TL, Song D, Feng FY, Pienta K, Antonarakis ES, Kiess AP, Tran PT

4:00–5:00 PM Room 147 Panel moderator

Interpretability and uncertainty quantification: A way toward trustworthy AI in radiation oncology

Ren L

4:02–4:17 PM Room 147 Oral

Interpretable AI: Advancements, challenges and paths ahead

Ren L

4:40–4:50 PM Room 204 Quick pitch oral

A retrospective comparison of acute toxicities in patients receiving pelvise radiation for newly diagnosed gynecologic primaries with intensity modulated proton therapy and volume modulated arc therapy

Brown M, Pollock A, Li E, Sun K, Risher H, Rao G, Roque DM, Bentzen S, Mohindra P, McAvoy S, Nichols E

5:35–5:45 PM Room 152 Quick pitch oral

Genomic predictors of response to metastasis directed therapy with or without androgen deprivation therapy

Sutera P, Van der Eecken K, Song Y, Shetty AC, Hakansson A, Davicioni E, Verbeke S, Van Dorpe J, Fonteyne V, De Laere B, Hathout L, Ennis R, Jabbour SK, Rana Z, Molitoris J, Kiess A, Song DY, Tran PT, Ost P, Deek MP

WEDNESDAY, OCTOBER 1, PRESENTATIONS

8:00–8:10 AM Room 207 Oral

A digital pathology multimodal artificial intelligence algorithm is associated with pro-metastatic genomic pathways in oligometastatic prostate cancer

Song Y, Shetty A, Sutera P, Deek MP, Mendes AA, Van der Eecken K, Chen E, Showalter T, Royce TJ, Todorovic T, Huang H-C, Houck SA, Yamashita R, Kiess AP, Song DY, Lotan T, Esteva A, Feng FY, Ost P, Tran PT

8:10–8:20 AM Room 207 Oral

Validation of a digital pathology-based multimodal artificial intelligence model in oligometastatic castration-sensitive prostate cancer including in patients from the STOMP and ORIOLE phase II randomized clinical trials

Sutera P, Deek MP, Mendes AA, Song Y, Shetty A, Van der Eecken K, Chen E, Showalter T, Royce TJ, Todorovic T, Huang H-C, Houck SA, Yamashita R, Kiess AP, Song DY, Lotan T, Esteva A, Feng FY, Tran PT, Ost P

8:20–8:30 AM Room 147 Quick pitch oral

Plan-specific range tolerance method for CBCT triggered adaptive plans in intensity modulated proton therapy: Pilot study on head and neck

Yao W, Zhang B, Ferris M, Molitoris J, Huang M, Biswal NC, Yi BY

8:30–8:40 AM Room 207 Oral

Examination of Decipher prostate genomic classifier in patients with de novo metastatic disease from a large scale real-world clinical and transcriptomic data linkage

Moningi S, Ho YH, Proudfoot JA, Sutera P, Deek M, Phillips R, Rana Z, Molitoris J, Kwok Y, Mishra M, Spina C, Engelman A, Ross AE, Liu Y, Davicioni E, Jia A, Spratt DE, Leapman MS, Tran PT

10:30–11:45 AM Hall C Poster

CT-based radiomic biomarkers for predicting progression-free survival in head and neck squamous cell carcinoma

Ling X, Bazzyar S, Ferris M, Molitoris J, Allor E, Thomas H, Arons D, Schumaker L, Krc R, Mendes WS, Tran P, Mehra R, Gaykalova DA, Ren L

12:30–12:50 PM Room 151 Quick pitch oral

Investigating the roles of the epithelial-mesenchymal transition program in small cell lung cancer tumorigenesis and chemoradiation response

Nguyen T, Chang J, Gabrielson K, Shetty A, Song Y, Lafargue A, Jagtap S, Council D, Chan A, Dutta Chowdhury D, Khan MA, Connis N, Carrieri FA, Imada E, Sforza D, Gardner E, McFarland C, Marchionni L, Rezaee M, Hann C, Tran