

ROBIN OligoMET Center

Monthly Research Update: June 2024

Publications

JUNE AT A GLANCE TOTALS	
Publications	11
Grants and contracts	
New awards	0
Submitted	1
Oral Presentations	3
Abstracts	11
Clinical trials	
TERPS	2
Awards/Honors	1

Please submit all monthly updates to Jadyne Stewart at jadynstewart@som.umaryland.edu by second Wednesday of each month.

- Alexander GS, Krc RF, Assif JW, Sun K, Molitoris JK, **Tran P**, **Rana Z**, **Mishra MV**. [Conditional Risk and Predictive Factors Associated With Late Toxicity in Patients With Prostate Cancer Treated With External Beam Radiation Therapy Alone in the Randomized Trial RTOG 0126](#). *Int J Radiat Oncol Biol Phys*. 2024 Nov 15;120(4):990-998. doi: 10.1016/j.ijrobp.2024.05.023. Epub 2024 Jun 1. PMID: 38825251.
- Bentzen SM**, Vogelius IR, Hodgson D, Howell R, Jackson A, Hua CH, Olch AJ, Ronckers C, Kremer L, Milano M, Marks LB, Constine LS. [Radiation Dose-Volume-Response Relationships for Adverse Events in Childhood Cancer Survivors: Introduction to the Scientific Issues in PENTEC](#). *Int J Radiat Oncol Biol Phys*. 2024 Jun 1;119(2):338-353. doi: 10.1016/j.ijrobp.2023.11.028. PMID: 38760115.
- Boufaied N, Chetta P, Hallal T, Cacciatore S, Lalli D, Luthold C, Homsy K, **Imada EL**, Syamala S, Photopoulos C, Di Matteo A, de Polo A, Storaci AM, Huang Y, Giunchi F, Sheridan PA, Michelotti G, Nguyen QD, Zhao X, Liu Y, Davicioni E, Spratt DE, Sabbioneda S, Maga G, Mucci LA, Ghigna C, **Marchionni L**, Butler LM, Ellis L, Bordeleau F, **Loda M**, Vaira V, Labbé DP, Zadra G. [Obesogenic High-Fat Diet and MYC Cooperate to Promote Lactate Accumulation and Tumor Microenvironment Remodeling in Prostate Cancer](#). *Cancer Res*. 2024 Jun 4;84(11):1834-1855. doi: 10.1158/0008-5472.CAN-23-0519. PMID: 38831751; PMCID: PMC11148549.
- Cheng HR, Qu M, Zafari Z, **Bentzen SM**, Armstrong TS, Gondi V, Brown PD, Mehta M, **Mishra MV**. [Evaluating the sensitivity of EQ-5D-5L in patients with brain metastases: a secondary analysis of NRG CC001](#). *J Natl Cancer Inst*. 2024 Jun 7;116(6):983-989. doi: 10.1093/jnci/djae020. PMID: 38281073; PMCID: PMC11160499.
- Constine LS, Olch AJ, Marks LB, Jackson A, **Bentzen SM**. [PENTEC Dedication and Acknowledgments](#). *Int J Radiat Oncol Biol Phys*. 2024 Jun 1;119(2):315. doi: 10.1016/j.ijrobp.2023.09.006. PMID: 38760114.
- Krc R, Mendes W, Molitoris J, Ferris M, Song Y, Shetty A, Mehra R, Papadimitriou JC, Hatten K, Taylor R, Wolf J, Sun K, **Bentzen S**, Regine W, **Tran P**, Witek M. [Proton therapy re-irradiation outcomes and genomic landscape of patients with recurrent head and neck cancer](#). *Oral Oncol*. 2024 Jul;154:106875. doi: 10.1016/j.oraloncology.2024.106875. Epub 2024 Jun 1. PMID: 38824813.
- Min J, Zaslavsky A, Fedele G, McLaughlin SK, Reczek EE, De Raedt T, Guney I, Strohlic DE, MacConaill LE, Beroukhim R, Bronson RT, Ryeom S, Hahn WC, **Loda M**, Cichowski K. [Author Correction: An oncogene-tumor suppressor cascade drives metastatic prostate cancer by coordinately activating Ras and nuclear factor- \$\kappa\$ B](#). *Nat Med*. 2024 Jun;30(6):1790. doi: 10.1038/s41591-024-02866-2. Erratum for: *Nat Med*. 2010 Mar;16(3):286-94. doi: 10.1038/nm.2100. PMID: 38383797.

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Publications (continued)

8. Nguyen T, Carrieri FA, Connis N, Lafargue A, Chang J, Chan A, Shetty AC, Song Y, Hoang T, Jagtap S, Chowdhury DD, Khan MA, Gabrielson KL, Rezaee M, Torres-Ayuso P, Brognard J, Hann CL, **Tran PT**. [TNIK Inhibition Sensitizes TNIK-Overexpressing Lung Squamous Cell Carcinoma to Radiotherapy](#). *Mol Cancer Ther*. 2024 Jun 10:OF1-OF11. doi: 10.1158/1535-7163.MCT-23-0412. Epub ahead of print. PMID: 38853421.
9. Nooruzzaman M, Johnson KEE, Rani R, Finkelsztein EJ, Caserta LC, Kodiyanplakkal RP, Wang W, Hsu J, Salpietro MT, Banakis S, Albert J, Westblade L, Zanettini C, **Marchionni L**, Soave R, Ghedin E, Diel DG, Salvatore M. [Emergence of transmissible SARS-CoV-2 variants with decreased sensitivity to antivirals in immunocompromised patients with persistent infections](#). medRxiv [Preprint]. 2024 Jun 18:2024.06.14.24308523. doi: 10.1101/2024.06.14.24308523. Update in: *Nat Commun*. 2024 Sep 18;15(1):7999. doi: 10.1038/s41467-024-51924-3. PMID: 38946967; PMCID: PMC11213110.
10. Sutura P, Song Y, Shetty AC, English K, Van der Eecken K, Guler OC, Wang J, Cao Y, Bazzyar S, Verbeke S, Van Dorpe J, Fonteyne V, De Laere B, **Mishra M, Rana Z**, Molitoris J, Ferris M, Kiess A, Song DY, DeWeese T, Pienta KJ, Barbieri C, **Marchionni L, Ren L, Sawant A, Simone N**, Berlin A, Onal C, **Tran PT**, Ost P, Deek MP. [Genomic Determinants Associated with Modes of Progression and Patterns of Failure in Metachronous Oligometastatic Castration-sensitive Prostate Cancer](#). *Eur Urol Oncol*. 2024 Jun 10:S2588-9311(24)00142-1. doi: 10.1016/j.euo.2024.05.011. Epub ahead of print. PMID: 38862340.
11. Theofilou VI, Ghita I, Elnaggar M, Chaisuparat R, Papadimitriou JC, **Bentzen SM**, Dyalram D, Lubek JE, Ord RA, Younis RH. [Histological pattern of tumor inflammation and stromal density correlate with patient demographics and immuno-oncologic transcriptional profile in oral squamous cell carcinoma](#). *Front Oral Health*. 2024 Jun 6;5:1408072. doi: 10.3389/froh.2024.1408072. PMID: 38903181; PMCID: PMC11187265.

Grants and Contracts

Funded:

- None reported

Submitted:

- Dario Rodrigues, PhD, lead, and **Lei Ren, PhD**, PI/PD, to National Institutes of Health PAR-21-166: Academic-Industrial Partnerships for Translation of Technologies for Diagnosis, and Treatment (R01) for “A non-invasive MRcompatible hyperthermia system for brain tumor treatment” (\$2,997,119).

Oral Presentations

- **Amit S.**, Association of Physicists in Medicine (AAPM) (July 2024) “TrueBeam with HyperSight”
- **Lei R.**, Association of Physicists in Medicine (AAPM) (July 2024) “Road to trustworthy AI: Uncertainty management, interpretability and beyond”
- **Lei R.**, Association of Physicists in Medicine (AAPM) (July 2024) “Interpretable AI in Radiation Therapy”

Abstracts

- ByongYong Yi, Jason Molitoris, **Phuoc Tran**, Michael MacFarlane, Michelle Mundi, Weiguang Yao. Skewed Dose Gradient to Beam Direction for Bilateral Prostate Plans to Improve LET Distribution. Particle Therapy Cooperative Group (PTCOG) Annual Meeting 2024.
- Ding J, Vicente EM, Modiri A, **Sawant A**, Gopal A. Improving post-RT preservation of lung function through sparing airways and functional lung: Clinical validation of deliverability and dosimetric accuracy. Oral presentation at the AAPM Meeting 2024.
- Huang K, Byrne KE, Bazzyar S, **Tran P, Sawant A**, Jiang K. A Novel Collimator for High-Throughput Murine Hemi- and Whole-Thoracic Lung Irradiation Using Ultra-High Dose Rate Electron Beams. AAPM Meeting 2024.

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Abstracts (continued)

- Jiang Z, Lang Y, Wu QJ, Xiang L, **Ren L**. Towards General Deformable Medical Image Registration Using Large Models: A Preliminary Study. AAPM Meeting 2024.
- Jiang Z, Sharma VR, Cham M, Peterson SW, Mossahebi S, Gobbert MK, Polf JC, **Ren L**. Deep Learning-Based Prompt Gamma Imaging for Proton Range Verification: A Monte-Carlo Simulation Study on Patient Data. AAPM Meeting 2024. AAPM Meeting 2024.
- Lang Y, Rodrigues D, **Ren L**. Automatic Specific Absorption Rate (SAR) Prediction for Hyperthermia Treatment Planning (HTP) Using Deep Learning Method. Oral presentation at the AAPM Meeting 2024.
- Olaizola J, Gutierrez NG, Oakes JM, **Sawant A**, Vicente EM. Understanding the Impact of Radiation-Induced Airway Injury on Post-Radiotherapy Lung Ventilation: Insights from Computational Fluid Dynamics Modeling. AAPM Meeting 2024.
- Qiao Z, Yu B, Zhang Z, Jiang Z, Lee J, Lai Y, Fang R, Gong K, Wu D, **Ren L**, Huang M. Radiomics Features-Driven Implementatoin for the Enhancement of CBCT Images Via Multiple 2D and 3D Optimal Generative Adversarial Networks. AAPM Meeting 2024.
- Lang Y, Jiang Z, Surr L, Xiang L, **Ren L**. Enhancing Image Quality in Acoustic Imaging Using the Segment Anything Model (SAM). Oral presentation at the AAPM Meeting 2024.
- Sangal A, Choi J, Chang Y, Zhong H, **Ren L**. Development of a Digital Twin Xman Phantom Using Deep Learning-Based Diffusion Model for Imaging and Treatment Optimization in Liver Cancer Radiation Therapy. Oral presentation at the AAPM Meeting 2024.
- Cao Y, Sutera P, Mendes WS, Yousefi B, Hrinivich WT, Deek M, Phillips R, Song D, Kiess A, Guler OC, Torun N, Reyhan M, **Sawant A**, **Marchionni L**, **Simone NL**, **Tran P**, Onal C, Ren L Machine Learning Predicts Conventional Imaging Metastasis-Free Survival (MFS) for Oligometastatic Castration-Sensitive Prostate Cancer (omCSPC) Using Multi-Modality Imaging Prostate-Specific Membrane Antigen (PSMA) PET and CT Radiomics. AAPM Meeting 2024.

Clinical Trial Enrollment

- 2 patients were enrolled (22/122 total) on the **TERPS trial**.

Awards/Honors

- **Phuoc T.** among authors of the Conquer Cancer Merit Award winning presentation on STOMP & ORIOLE phase II randomized clinical trials for prostate cancer at American Society of Clinical Oncology (ASCO).

Please note that these examples are representative of productivity from the ROBIN OligoMET Center members and are not exclusively attributable to the U54 grant.