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You say, "Goodbye" ... and We say, "Hello"

Please join us in wishing Shelby McCauley and Poornima Dubey, PhD well in their new endeavors! They have contributed great things to our department and will be missed!



Please join us in welcoming the newest additions to our department!



Samuel Thompson has joined Dr. Takiar's lab as a Research Assistant.



Rashmi Rajan, PhD has joined Dr. Sertorio's lab as a Postdoctoral Fellow.

Genitta George has also joined Dr. Sertorio's lab as a Senior Research Assistant and Lab Manager.

Completion of FLASH FAST-01 Trial!

FAST-01, the first in-human trial of FLASH radiotherapy, completed accrual in October 2021. FLASH radiotherapy is the delivery of radiation at ultra-high dose rates, giving a radiation treatment that typically would take several minutes in just a fraction of a second. Pre-clinical studies of FLASH have shown that it can result in fewer treatment side effects while preserving its anti-tumor activity.

Ten patients with metastatic cancer to their arms or legs were treated with FLASH proton radiotherapy to evaluate the safety and efficacy of this treatment. Preliminary results show that the treatment is safe and **equally effective as conventional radiotherapy** and a complete report will be presented and published later this year.

This research study was carried out at the Cincinnati Children's/UC Health Proton Therapy Center in Liberty Township. This facility is the only one in the world capable of delivering conformal FLASH radiation to sites within the human body. The study was sponsored by Varian Medical Systems, a subsidiary of Siemens Corporation.

A follow-up study, **FAST-02**, will study using FLASH radiotherapy for the treatment of bone metastases in the thorax and is planned to open in the fall of 2022.

Acquisition of a new Precision CellRad+ cabinet irradiator!



The self-contained, benchtop CellRad+ allows for *in vitro* radiation and programmable display for repeat irradiation protocols.

Additional features include touch pad controls, energies up to 150 kv, automatic QA, and an adjustable and motorized shelf.

The cabinet irradiator is housed in the Radiation Oncology Vontz Lab space.

Please Congratulate...

Vinita Takiar, MD, PhD for being named MPI on the long-standing and successful T32 grant "Pathways to Cancer Therapeutics" with alongside Susan Waltz, PhD.

Mathieu Sertorio, PhD for receiving the University of Cincinnati Cancer Center Pilot Project Award!

Dr. Sertorio's project is entitled, "Enhancing pancreatic cancer immune response through oral bacterial immunization combined with radiotherapy".

Mathieu Sertorio, PhD for receiving additional funding through Varian for his research entitled, "Study of FLASH Proton Therapy Effect on The Tumor Immune Microenvironment in Head and Neck Squamous Cell Carcinoma."

Julianna Kornis, a graduate student in the lab of Dr. Vinita Takiar, earned 2nd place in the Junior Student Category of the Graduate Student Research Awards for 2021.

Christina Wicker, PhD, a post-doctoral fellow mentored by Drs. Vinita Takiar and Susan Waltz, for receiving an NIH K01 Award! Dr. Wicker's project is entitled, "Mentored Career Development Award: Isothiocyanates to Improve Response to Proton Therapy".

January-September 2022 Presentations

Emily Daugherty, MD

Oral Presentation: FLASH Clinical Trial

Varian Australia Oncology Summit 2022

January-September 2022 Publications

Wang, K., et al. "Coronary Artery Calcifications and Cardiac Risk after Radiation Therapy for Stage III Lung Cancer." *Int J Radiat Oncol Biol Phys* 112, no. 1 (Jan 1 2022): 188-96.

Chung, M. D., J. Kharofa, et al. "Elective Target Coverage for Pancreatic Cancer: When Less Does Not Clearly Achieve More." *Int J Radiat Oncol Biol Phys* 112, no. 1 (Jan 1 2022): 143-45.

Nelson, B., M. Lamba, ... **L. Lewis**, and **L. Pater**. "Normal Tissue Exposure and Second Malignancy Risk in Vertebral-Body-Sparing Craniospinal Irradiation." *Med Dosim* (Jan 4 2022).

Turner, K. M., ... **J. R. Kharofa**, et al. "Radiation Therapy in Borderline Resectable Pancreatic Cancer: A Review." *Surgery* (Jan 13 2022).

Dhou S., ... **Ionascu D.**, et al. Fluoroscopic 3D Image Generation from Patient-Specific PCA Motion Models Derived from 4D-CBCT Patient Datasets: A Feasibility Study. *J Imaging*. 2022 Jan 18;8(2):17. doi: 10.3390/jimaging8020017. PMID: 35200720; PMCID: PMC8879782.

Kornis, J., ... **V. Takiar**. "A Review of Plks: Thinking Outside the (Polo) Box." *Mol Carcinog* (Jan 20 2022). <http://dx.doi.org/10.1002/mc.23388>.

Dubey P, Sertorio M, Takiar V. Therapeutic Advancements in Metal and Metal Oxide Nanoparticle-Based Radiosensitization for Head and Neck Cancer Therapy. *Cancers* (Basel). 2022 Jan 20;14(3):514. doi: 10.3390/cancers14030514. PMID: 35158781; PMCID: PMC8833418.

Koehler, A., ... **T. Struve**, et al. "A Case Study Using Papaya Leaf Extract to Reverse Chemotherapy-Induced Thrombocytopenia in a GBM Patient." *Integr Cancer Ther* 21 (Jan-Dec 2022): 15347354211068417.

Garrett M., ... **Lamba M.**, et al. Recurrent Glioblastoma is Associated with a Closed DNA Conformation. *Research Square*; 2022. DOI: 10.21203/rs.3.rs-922269/v2.

Turner, K. M., ... **J. R. Kharofa**, et al. "Systemic Therapy for Resected Pancreatic Adenocarcinoma: How Much Is Enough?" *Ann Surg Oncol* (Feb 9 2022).

Kreinbrink, P. J., L. M. Lewis, K. P. Redmond, and V. Takiar. "Reirradiation of Recurrent and Second Primary Cancers of the Head and Neck: A Review of the Contemporary Evidence." *Curr Treat Options Oncol* (Feb 28 2022).

Lazow, M. A., ... **J. C. Breneman**, et al. "Extraneural Metastases of Diffuse Midline Glioma, H3 K27m-Mutant at Diagnosis: Case Report, Review of the Literature, and Identifying Targetable Alterations." *J Pediatr Hematol Oncol* 44, no. 2 (Mar 1 2022): e597-e604.

Ruiz-Torres S., ... **Sertorio M.**, et al. Inherited DNA Repair Defects Disrupt the Structure and Function of Human Skin. *Cell Stem Cell*. 2021 Mar 4;28(3):424-435.e6. doi: 10.1016/j.stem.2020.10.012. Epub 2020 Nov 23. PMID: 33232662; PMCID: PMC7935766.

van der Perk, M. E. M., ... **L. Pater**, et al. "White Paper: Oncofertility in Pediatric Patients with Wilms Tumor." *Int J Cancer* (Mar 28 2022).

Turner, K. M., ... **J. R. Kharofa**, et al. "Is There a Benefit to Adjuvant Chemotherapy in Resected, Early Stage Pancreatic Ductal Adenocarcinoma?" *Ann Surg Oncol* (Mar 31 2022).

Wise-Draper, T. M., ... **V. Takiar**, et al. "Phase II Clinical Trial of Neoadjuvant and Adjuvant Pembrolizumab in Resectable Local-Regionally Advanced Head and Neck Squamous Cell Carcinoma." *Clin Cancer Res* 28, no. 7 (Apr 1 2022): 1345-52.

Chihanga T., ... **Sertorio M.**, et al. Head and Neck Cancer Susceptibility and Metabolism in Fanconi Anemia. *Cancers* (Basel). 2022 Apr 18;14(8):2040. doi: 10.3390/cancers14082040. PMID: 35454946; PMCID: PMC9025423.

Turner, K. M., ... **J. Kharofa**, et al. "A National Assessment of T2 Staging for Intrahepatic Cholangiocarcinoma and the Poor Prognosis Associated with Multifocality." *Ann Surg Oncol* (Apr 20 2022).

Frankart, A. J., ... **K. P. Redmond, W. L. Barrett**, ... **V. Takiar**. "A Phase I/II Trial of Concurrent Immunotherapy with Chemoradiation in Locally Advanced Larynx Cancer." *Laryngoscope Invest Otolaryngol* 7, no. 2 (Apr 2022): 437-43.

Buckstein, M. H., ... **J. Kharofa**, et al. "Crossing into New Therapies for Esophageal Cancer." *Int J Radiat Oncol Biol Phys* 113, no. 1 (May 1 2022): 5-10.

Shah, S., ... **L. Pater**, et al. "Complete Response of a Patient with a Mismatch Repair Deficient Aggressive Pituitary Adenoma to Immune Checkpoint Inhibitor Therapy: A Case Report." *Neurosurgery* (May 13 2022).

Garrett MC., ... **Lamba M.**, et al. Chromatin structure predicts survival in glioma patients. *Scientific reports*. 2022;12(1):8221.

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Howell J., ... **Vatner RE**, et al. Extraneural recurrence of an intracranial germinomatous germ cell tumor to cervical lymph nodes in a pediatric patient: Case report. *Cancer Rep (Hoboken)*. 2022 Aug;5(8):e1586. doi: 10.1002/cnr.2.1586. Epub 2021 Nov 18. PMID: 34796700; PMCID: PMC9351648.

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