

Ioannis I. Verginadis, M.Sc., Ph.D.

Research Assistant Professor of Radiation Oncology
Perelman School of Medicine, University of Pennsylvania

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PROFESSIONAL SUMMARY

Dr. Verginadis is a Research Assistant Professor in the Department of Radiation Oncology at the University of Pennsylvania, with a background in molecular biology, physiology and radiation biology. His laboratory studies normal tissue responses to radiation, particularly radiation-induced fibrosis of the intestine, heart and skin, the integrated stress response and the tumor microenvironment, and the biology of FLASH proton radiotherapy. He has developed a series of clinically relevant, image-guided mouse models of radiation injury and tumor response that are now used to test radioprotectors, radiosensitizers and combinations of radiotherapy with immunotherapy and cell therapy. He has authored more than 55 peer-reviewed research articles including first- or co-first-author papers in Nature Cell Biology, Cancer Research, PNAS, The Lancet and Radiotherapy and Oncology. He currently holds NIH and multiple foundation awards as Principal Investigator, serves on the International Advisory Board of the FLASH Radiotherapy and Particle Therapy (FRPT) Conference, and reviews grants for the ERC, UKRI, SNSF and the DOD CDMRP.

EDUCATION

2006	B.S., Molecular Biology — Department of Biological Applications and Technology, University of Ioannina, Greece
2006	M.Sc., Molecular Biology — Department of Biological Applications and Technology, University of Ioannina, Greece
2011	Ph.D., Physiology / Radiation Biology — Department of Physiology, School of Medicine, University of Ioannina, Greece

POSTGRADUATE TRAINING

2012–2013	Postdoctoral Fellow, Laboratory of Biological Chemistry, Medical School, University of Ioannina, Greece
2013–2016	Postdoctoral Fellow, Department of Radiation Oncology, Perelman School of Medicine, University of Pennsylvania
2013–2016	Postdoctoral Fellow, Bodossaki Foundation, Greece

ACADEMIC APPOINTMENTS

2017–2019	Research Associate, Department of Radiation Oncology, Perelman School of Medicine, University of Pennsylvania
2020–2023	Senior Research Investigator, Department of Radiation Oncology, University of Pennsylvania
2022–2023	Adjunct Assistant Professor of Radiation Oncology, University of Pennsylvania
2023–present	Research Assistant Professor of Radiation Oncology , University of Pennsylvania

HONORS AND AWARDS

2023–2024	Thomas B. and Jeannette E. Laws McCabe Award; Buz Cooper Scholar; ACS IRG Pilot Project Award
2021, 2022, 2023	Best Oral Presentation / Best Abstract Awards, FLASH Radiotherapy & Particle Therapy Conference (FRPT)
2021, 2022	Early Career Investigator Travel Award, Radiation Research Society
2020–2021	Career Development Award, Radiation Research Foundation
2007–2008	Fellowship, European Programme Interreg III/A Greece–Italy

ACTIVE RESEARCH SUPPORT

2026–2031	Targeting ATF4 in radiation-induced myocardial fibrosis. NHLBI. Verginadis (PI), \$3,852,384.
2026–2028	Advancing treatment of BRCA1/2-deficient triple-negative breast cancer with FLASH proton radiotherapy and immunotherapy. Bassett Center for BRCA. Verginadis (PI), \$400,000.
2025–2028	Therapeutic synergy of TTFIELDS with radiation therapy and immunotherapy in preclinical PDAC models. AACR–Novocure Cancer Research Grant. Verginadis (PI), \$350,000.
2024–2027	Assessing radiation-induced coronary artery disease (RICAD) in a preclinical model. Alavi Gift Fund. Verginadis (PI), \$150,000.

2026–2027	Genomic biomarkers of normal tissue toxicity following cardiac radiotherapy. Abramson Cancer Center. Tabrizi (PI); Verginadis (co-PI), \$75,000.
2026–2031	SMART-CURE: SMART-SEED and Modeling-Augmented Radiotherapy for Curative Local and Abscopal Cancer Eradication. ARPA-H. Busch (PI); Verginadis (Co-I), \$4,889,675.
2022–2027	Translational Studies in FLASH Particle Radiotherapy. NCI P01 CA257904. Koumenis (PI); Verginadis (Co-I), \$11,836,500.
2023–2026	Speckle x-ray imaging: detecting early changes in lung microstructure. NHLBI R01 HL166236. Noel (PI); Verginadis (Co-I), \$2,435,650.

Completed support includes awards from the PA Breast Cancer Coalition, the University Research Foundation, the Abramson Cancer Center ACS IRG, the McCabe Fund, NCATS (UL1TR001878), the Radiation Research Foundation and the Bodossaki Foundation.

SELECTED PUBLICATIONS

- Verginadis II**, Avgousti H, Monslow J, et al. A stromal Integrated Stress Response activates perivascular cancer-associated fibroblasts to drive angiogenesis and tumor progression. **Nature Cell Biology** 24:940–953, 2022.
- Verginadis II**, Citrin DE, Ky B, et al. Radiation-induced toxicities: mechanisms, management, and future directions. **The Lancet** 405:338–352, 2025.
- Amit U#, Uslu U#, **Verginadis II#**, et al. Radiation boosts the efficacy of mesothelin-targeting chimeric antigen receptor T cell therapy in pancreatic cancer. **PNAS** 121:e2403002121, 2024. (#equal contribution)
- Verginadis II#**, Velapoulou A#, Kim MM, et al. FLASH proton reirradiation, with or without hypofractionation, reduces chronic toxicity in the normal murine intestine, skin, and bone. **Radiotherapy and Oncology** 205:110744, 2025. (#equal contribution)
- Verginadis II**, Kanade R, Bell B, et al. A novel mouse model to study image-guided, radiation-induced intestinal injury and preclinical screening of radioprotectors. **Cancer Research** 77:908–917, 2017.
- Diffenderfer ES\$, **Verginadis II\$**, Kim MM, et al. Design, implementation and in vivo validation of a novel proton FLASH radiotherapy system. **Int J Radiat Oncol Biol Phys** 106:440–448, 2020. (\$equal contribution)
- Kim MM*, **Verginadis II***, Goia D, et al. Comparison of FLASH proton entrance and spread-out Bragg peak dose regions in the sparing of mouse intestinal crypts and in a pancreatic tumor model. **Cancers** 13:4244, 2021. (*equal contribution)
- Tameire F, **Verginadis II**, Leli NM, et al. ATF4 couples MYC-dependent translational activity to bioenergetic demands during tumour progression. **Nature Cell Biology** 21:889–899, 2019.
- Velapoulou A, Karagounis IV, Cramer GM, ... **Verginadis II**. FLASH proton radiotherapy spares normal epithelial and mesenchymal tissues while preserving sarcoma response. **Cancer Research** 81:4808–4821, 2021.
- Lu Z, **Verginadis II**, Kumazoe M, et al. Modified C-type natriuretic peptide normalizes tumor vasculature, reinvigorates antitumor immunity, and improves solid tumor therapies. **Science Translational Medicine** 16:eadn0904, 2024.
- Loo BW Jr, **Verginadis II**, Sørensen BS, et al. Navigating the critical translational questions for implementing FLASH in the clinic. **Seminars in Radiation Oncology** 34:351–364, 2024.
- Ameri P, Madonna R, ... **Verginadis II**, et al. Quality standards for preclinical research in cardio-oncology: a Scientific Statement of the ESC Council of Cardio-Oncology. **European Heart Journal**, 2026 (accepted).

PROFESSIONAL SERVICE

2022–present	International Advisory Board, FLASH Radiotherapy & Particle Therapy (FRPT) Conference; session Chair at FRPT (2022, 2023, 2024) and the Radiation Research Society Annual Meeting (2024)
Grant review	European Research Council (ERC); UK Research and Innovation (UKRI); Swiss National Science Foundation (SNSF); ETH Domain; DOD CDMRP-CET; American Heart Association; Kom op tegen Kanker (Belgian Cancer Society); PA Breast Cancer Coalition; Great Plains IDeA-CTR Network
Editorial	Editorial Board member, In Vivo (2024–present). Ad hoc reviewer for Cell, Clinical Cancer Research, Advanced Science, Cell Reports Medicine, Autophagy, Radiotherapy and Oncology, Int J Radiat Oncol Biol Phys, Radiation Research, Medical Physics and JACC: CardioOncology
Societies	Radiation Research Society (2014–), AACR (2015–), ASTRO (2024–), ESTRO (2024–)
Institutional	Research Strategic Plan group and Community Engagement Committee, Department of Radiation Oncology, Penn; graduate thesis committee member (5 students, 2023–present)

TEACHING

2015–present	Instructor and Journal Club coordinator, Summer Undergraduate Program for Educating Radiation Scientists (SUPERS), University of Pennsylvania — “Radiation Biology Primer,” “Tumor Microenvironment and Resistance,” “Bioethics: Lab Notebooks and Data Management”
2023–present	Radiobiology and FLASH radiotherapy, MPHY 606 Physics of Radiation Therapy, University of Pennsylvania
2024–present	Radiation-Induced Hereditary Effects, Teratogenesis and Radiation Protection — Dr. Karl Prado Physics & Radiobiology Review Course, University of Maryland
2026	Overcoming Tumor Resistance with Targeted Therapy and Radiotherapy — M.Sc. programme, Democritus University of Thrace, Greece

SELECTED INVITED LECTURES

2026	“Decoding FLASH immunobiology: systemic immune responses and tumor microenvironment remodeling,” FlashForward Consortium, Varian
2026	“Normal tissue reactions to photon, particle beam, and FLASH treatments,” 72nd Annual Meeting of the Radiation Research Society
2025	“FLASH Effect of Particle Therapy” and “Radiation Biology for Proton Therapy and Heavier Particles,” 1st Siriraj International Conference on Particle Therapy, Mahidol University, Bangkok
2025	“Targeting STAT3 in cancer-associated fibroblasts reprograms the stroma and enhances CD8+ T cell-mediated immunity in PDAC,” AACR Conference on Pancreatic Cancer
2024	“Emerging perspectives on intestinal stem cell regeneration through single-cell and spatial analysis,” ESTRO
2023	“Integrated Stress Response — harnessing a master regulator of the tumor microenvironment for therapeutic interventions,” Department of Radiation Oncology, Stanford Medicine