Immunoengineering the Tumor Microenvironment

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Chemistry Seminar on Immunoengineering of tumors

Monday Nov 9 at 4 pm in 126 Schrenk

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Abstract: Cancer incidence and mortality are projected to rise dramatically worldwide in the coming decades, underscoring the urgent need for innovative therapeutic strategies. Immunosuppressive cell infiltration within the breast tumor microenvironment dampens effector T cell responses, fuels tumor progression, and correlates with poor patient outcomes. Mapping the immune landscape of tumors is therefore essential to identify the drivers of tumor invasion and to pinpoint novel, model-specific therapeutic targets. In this seminar, we will discuss how modulating immune balance with nanomaterials can unlock new possibilities for precise and effective cancer treatment. Our focus will be on the synergistic application of radiotherapy and immunomodulators to remodel the tumor microenvironment and overcome barriers to enhance antitumor immunity.

About the speaker: Dr. Mostafa Yazdi is an Assistant Professor of Chemical and Biochemical Engineering at Missouri University of Science and Technology. He earned his B.Sc. in Chemical Engineering and his M.Sc. in Polymer Engineering, focusing on the development of innovative polymeric nanocomposites. With a strong background in engineering and specialization in nanotechnology and biomaterials, he conducted research at the Helmerich Advanced Technology Research Center at Oklahoma State University, where he developed biodegradable scaffolds for bone tissue regeneration. Dr. Yazdi received his Ph.D. in Pharmaceutics and Pharmaceutical Chemistry from the University of Utah, where his research explored how the physicochemical properties of nanoparticles influence protein corona composition, cellular uptake, toxicity, and genomic alterations. He subsequently completed postdoctoral training focused on developing advanced drug delivery systems to improve the efficacy of cancer immunotherapy. At Missouri S&T, Dr. Yazdi leads the Advanced Immunoengineering for Translational Medicine Laboratory. His research mission is to modulate the tissue microenvironment through innovative drug and gene delivery systems to enhance cancer immunotherapy and tissue regeneration, with the ultimate goal of translating these technologies into clinical applications.