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Multistep 'accidental' discoveries: Role of inflammation in altering immune responses toward tumorigenesis and angiogenesis

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Factors involved in failed cancer targeted therapies include lack of systematic and logical understanding of the loss of immune surveillance that control growth of cancer or other chronic diseases. In 1980's we established models of acute and chronic inflammatory diseases that included tumorigenesis and angiogenesis. We demonstrated multistep interactions and synergies between host immune cells (e.g., mast, goblet & B cells) and recruiting cells (e.g., eosinophils, TAMs) during altered immune dynamics and induction of tumors in conjunctival-associated lymphoid tissues. Results of these studies became 'accidental' discoveries in cancer research and therapy. Without being in cancer research in 1980's, we presented systematic evidence on multiple first findings of early and late immune response dynamics toward tissue growth and angiogenesis. In 2008, acute inflammation was defined as balance between two biologically opposing arms, Yin (tumoricidal) and Yang (tumorigenic) of immunity. Chronic inflammation is loss of Yin-Yang and a common denominator in genesis of all age-associated diseases or cancer. Future research efforts should focus on systematic understanding of host-pathogen interactions that lead to carcinogenesis and to promote the Yin -Yang balance for effective immunity. Outcomes are expected to hold real promise in our understanding of how cancer cells become threat to body and for translation of cancer biology into cost-effective drug designs and clinical trials.

Biography:

Professor Mahin Khatami received her PhD on Molecular Biology from University of Pennsylvania (UPA) in 1980. She was a researcher and faculty of medicine at UPA involved in cell/molecular biology of diabetic retinopathy/maculopathy and ocular inflammatory diseases. In 1998, at National Cancer Institute (NCI)/NIH she was program director, involved in concept development for molecular diagnosis and prevention of cancer for large clinical trials (PLCO). At NCI, extension and promotion of her earlier discoveries initially met with severe opposition and denial. However, she awakened the cancer community to the importance of inflammation in cancer research and immunotherapy. In the last decade numerous funded programs have focused on the topic that she promoted. In 2009, she retired from NCI, as director of IMAT program and assistant director of technology program development, OTIR/OD/NCI, at professor level. Since her retirement, Dr. Khatami continued extension of her pioneering studies in several articles, edited 2 books on inflammatory diseases and cancer; involved in editorial activities; international lectures and collaborations.