

University of Houston - Biomedical Engineering Seminar

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Via Zoom: <https://uofh.zoom.us/j/92470065206>

Modulating immunoinhibitory receptor reprograms myeloid cells for antitumor immunity and autoimmune diseases



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Abstract

Macrophages and dendritic cells are classically activated to clear pathogens and promote immunity, but these same cells can also be reprogrammed within the tumor microenvironment to become tumor-associated macrophages (TAMs) and tolerogenic dendritic cells, where they suppress anti-tumor immunity and promote tumor growth and metastasis. Studies investigating the biological mechanisms behind anti-tumor “M1-like” classical maturation versus tumor-promoting “M2-like” alternative activation possess significant therapeutic potential. Cell surface molecules have been identified to modulate the myeloid and TAM differentiation. We hypothesize that modulation of myeloid cells differentiation may control tumor progression and metastases or suppress the unnecessary over react autoimmune responses. Our studies may lead to the discovery of novel means by which TAMs/MDSC/DC can be targeted to combat the immune suppression associated with advanced malignancies. Ablation of immune suppression and preventing tumor invasion should significantly augment the efficacy of immune-based therapies for the treatment of advanced metastatic cancer.

Biosketch

Dr. Chen, is Professor in cancer immunotherapy, at Methodist. Previously she was on the faculty at Baylor. She has made significant contributions to the fields of gene therapy and cancer immunotherapy. Dr. Chen invented adenoviral gene delivery of suicide and immune modulatory genes for use in cancer immune therapies. Dr. Chen identified the novel immune checkpoint receptors on MDSC population. Her current research focuses on overcoming immune suppression in the tumor microenvironment, controlling MDSC/tumor associated macrophage differentiation, and developing effective immune therapeutic strategies for clinical use in cancer and autoimmune diseases. She has done pioneering work in gene therapy and immunotherapy.