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Genetic and epigenetic remodeling of the tumor microenvironment to boost anti-tumor immunity

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The tumor microenvironment is highly immunosuppressive, often attributing to the activity of subsets of suppressor cells that inhibit anti-tumor effector T-cells. Effective approaches to cancer immunotherapy, such as checkpoint inhibitors, depend on reviving the immunosuppression while boosting the effector cell activity. We have recently defined a new mechanism by which the genetic deletion of a transcription factor in immunosuppressive regulatory T-cells reprograms these cells into effector cells, which cooperate with both cellular and humoral anti-tumor components to control tumor growth. We have also discovered that the ablation of an epigenetic modifier in tumor cells reshapes the tumor microenvironment and enhances anti-tumor immunity, depending on the collaborative action of natural killer cells and CD4+ T-cells. Insights from these studies will facilitate the identification of new therapeutic targets, and provide critical strategies to develop novel cancer immunotherapies.

Recent Publications

1. Jianmei Wu Leavenworth, et.al, (2022). Immune Activity and Response Differences of Oncolytic Viral Therapy in Recurrent Glioblastoma: Gene Expression Analyses of a Phase IB Study. *Clinical cancer research: an official journal of the American Association for Cancer Research*. 28. 498-506.

2. Jianmei Wu Leavenworth, et.al, (2022). Editorial: Immune Cell Lineage Reprogramming in Cancer. *Frontiers in Immunology*. 12.838464
3. Jianmei Wu Leavenworth, et.al, (2021). Remodeling of the tumor microenvironment via disrupting Blimp1+ effector Treg activity augments response to anti-PD-1 blockade. *Molecular Cancer*. 20(1).

Biography

Jianmei Wu Leavenworth is an Associate Professor in the Department of Neurosurgery at the University of Alabama at Birmingham. Previously, she was at the Dana-Farber Cancer Institute and Harvard Medical School serving as a postdoctoral fellow and then as an instructor. Her research has been published in many prestigious journals, including *Nature Cancer*, *Molecular Cancer*, *Nature Immunology*, *Cell Reports*, *Proceedings of the National Academy of Sciences of the United States of America*, and *Journal of Clinical Investigation*. She has also been serving as a reviewer and editor for many reputed journals.

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