The T cell receptor repertoire of tumor infiltrating T cells is predictive and prognostic for cancer survival

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Presenter: Pin-Jun Chen **Date/Time:** 2022/09/15 15:10-16:10

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Background:

Checkpoint blockade (CPB) immunotherapy is a type of cancer treatment that helps the immune system fight cancer. Their effect has transformed life expectancy in multiple deadly cancer types, such as melanoma, lung cancer, certain colorectal cancer, and lymphomas. For now, there is a lack of biomarkers to judge the prognosis of patients after immunotherapy. For effective anticancer immune responses, the immune system plays an important role, and it detects and destroys abnormal cells. For example, tumor-infiltrating lymphocytes (TIL/Tc) kill cancer cells and prevent metastasis.

Objective/Hypothesis:

In this study, the authors examined whether TCR repertoire in TIL/Tc identify which patients will benefit from CPB before the treatment.

Results:

In melanoma before PD1 treatment, overall survival correlated with higher TIL/Tc TCR clonality. More than that, high TCR diversity in pre-treatment TIL/Tc was prognostic for overall survival in melanoma patients who did not achieve anti-PD1 treatments. Finally, the authors found that high TCR diversity in the TIL/Tc was associated with improved survival in other cancers.

Conclusion:

According to the results, TIL/Tc with high TCR diversity identified the patients whose immune system control tumors without anti-PD1 therapy. And high TIL/Tc clonality corroborate which patients will develop a potent anti-PD1-induced immune response.

References:

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2. Jiang Y, Zhao X, Fu J, Wang H. Progress and Challenges in Precise Treatment of Tumors With PD-1/PD-L1 Blockade. Front Immunol. 2020 Mar 12;11:339.