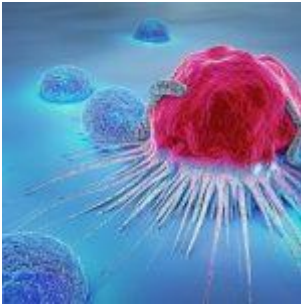


Interrogation of the T cell landscape in pediatric brain tumors



Central nervous system tumors are the most common cause of solid tumors in children and are a clinical need. Immunotherapy is a [therapeutic](#) strategy that aims at modulating the immune system to defeat cancer. However, immunotherapy has not shown benefit in pediatric brain cancer.

The tumor microenvironment, in particular the immune cell compartment, remains poorly studied in children brain [tumors](#). The authors of [Intra-tumoral T cells in pediatric brain tumors display clonal expansion and effector properties | Nature Cancer](#) employed transcriptomics analysis and interrogated T cell clonality to unravel the status of T cells in pediatric brain cancer.

In this study, the authors observed a clonal expansion of tumor infiltrating T cells, suggesting the generation of [anti-tumor immune responses](#). They also saw a correlation between the presence of neoantigen specific T cells in clonally expanded T cells and improved survival. Moreover, multiple tumor-infiltrating lymphocytes display many T cell receptor specificity groups. Clonally expanded T cells were also linked to T cell states related to tumor immunity. A correlation between signatures enriched in immune checkpoint blockade patients was found in clonally expanded T cells, as well as signatures involved in immune mediation such as antigen

presentation, cytokine signaling and immunogenic cell death. These observations suggest the generation of a T cell response in pediatric brain cancer.

PD-1 blockade is the most used immune checkpoint strategy in cancer. With that in mind, the authors evaluated PD-1 expression in CD4 and CD8 cells in pediatric brain cancer and found a correlation with cytotoxic features, suggesting that PD-1-expressing T cells are functional.

This report characterizes the transcriptomes and clonality of T cells in pediatric brain cancer and sheds light into the status of the [immune compartment in this cancer type](#). Moreover, a detail analysis of T cell responses in pediatric brain cancer may help in the selection of patients for immunotherapy.

Journal article: Updahye, A., et al., 2024. [Intra-tumoral T cells in pediatric brain tumors display clonal expansion and effector properties](#). *Nature Cancer*.

Summary by Anna Salamero Boix