

Immunotherapy in Cancer

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Immunotherapy in cancer has revolutionized oncology by harnessing the body's immune system to combat malignancies. The tumor microenvironment (TME) plays a crucial role, as it can either suppress or promote immune responses. Modifying the TME to enhance immune activity has become a key focus. Immune checkpoint inhibitors (ICIs) such as PD-1/PD-L1 and CTLA-4 antibodies have shown significant efficacy by preventing cancer cells from evading immune surveillance. New antibodies targeting novel checkpoints and pathways are under development, broadening the scope of immunotherapy. Following this strategy, bispecific antibodies represent an innovative strategy, simultaneously engaging T cells and tumor antigens to potentiate targeted killing. These agents are designed to overcome resistance mechanisms inherent to conventional therapies. Identifying new targets for immuno-oncology, such as TIM-3, LAG-3, and TIGIT, is critical for developing next-generation immunotherapies. Clinical trials continue to yield promising results, with combinations of ICIs, bispecific antibodies, and other modalities like CAR-T cell therapy demonstrating enhanced efficacy and survival benefits in various cancers. These advancements highlight the dynamic and evolving landscape of cancer immunotherapy, offering hope for more effective and durable treatments for patients with refractory and advanced malignancies.