

## 免疫治療的利與弊，得與失

### Understanding immunotherapy: What are the pros and con

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In recent years, the impressive number of cancer immunotherapy drugs approved has been unprecedented-building on over a century of understanding on how the immune system combats cancer, and how cancer evades it. Leading the charge are the immune checkpoint inhibitor monoclonal antibodies, and adoptive cell therapy with chimeric- antigen-receptor (CAR)-T cell therapy. These breakthrough therapies have led to improved survival in patients with many advanced cancers. Some of the clinical outcomes have been striking, and may even be potentially curative in some terminal cancer patients. While immune checkpoint inhibitors work by blocking regulatory immune checkpoint signals between cancer and the immune cells to awaken an effective anticancer immunity, CAR-T cell therapy targets specific molecules on cancer cells. Tumor antigens as cancer targets take many forms and may not necessarily be proteins related to known functional cellular mechanisms. The convergence of cutting edge omics, bioinformatics, protein synthesis, immunobiology and immunotherapy have led to novel, potentially highly effective cancer targeting against neoantigens, hence reviving the quest for anticancer vaccines. Combinations of immunotherapies through rational design are underway aiming to further improve clinical outcomes. Blockage of PD-1/PD-L1 pathway reactivates and enhances T cell effector function for anti- cancer immunity, however, this may induce immune-related adverse events (irAEs), in particular, in patients with preexisting autoimmune diseases. The development of irAEs and disease flare up was not clear in patients with preexisting autoimmune diseases. Further studies to identify predictive factors for the development of irAEs are required to maximize the therapeutic benefits of immune checkpoint inhibitors (ICIs). Moving forward, cancer immunotherapy will gain even more momentum from the discovery of more cancer targets-both on the cancer itself and in the tumor microenvironment as well as the identification of biomarkers of treatment resistance and efficacy.