

Tentative Outline

Special Issue for Current Medicinal Chemistry

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Cancer Immunotherapy and Immunomodulation

Aims & Scope:

Tumor immunotherapy has entered a phase of rapid development, based on the understanding that the immune system is the best tool humans have for fighting cancer by recognizing and eliminating malignant cells. Treatment with engineered CAR T cells, checkpoint antagonists including anti-cytotoxic T lymphocyte antigen-4 (anti-CTLA-4), anti-programmed death-receptor 1 (anti-PD-1), and anti-PD ligand-1 (anti-PD-L1), has induced striking responses in subsets of patients with a range of solid tumors. With the FDA approval of sipuleucel-T, ipilimumab (anti-CTLA-4; Bristol-Myers Squibb), and the two anti-PD-1 antibodies, pembrolizumab (formerly MK-3475 or lambrolizumab; Merck) and nivolumab (Bristol-Myers Squibb), immunotherapy has become a mainstream treatment option for some cancers. Such clinical advances also promote massive interest in the search for novel immunotherapy targets, and to understand the mechanism of action of current drugs. Despite the new treatment having shown unprecedented rates of durable clinical responses, with an activity range from 10% to 45% in the context of unselected populations affected by advanced solid tumors, many other patients with solid cancer resistant to immunotherapy such as colon, ovary, and pancreatic cancer have yet to benefit from the innovative therapeutic approaches. Further advances in the effectiveness of cancer immunotherapies will require targeting antitumor immune response at multiple levels, which may be accomplished through combination approaches. Ongoing evaluation is needed to define the most appropriate cancer patients that will benefit from immunotherapy therapy or combining these agents with existing therapies including systemic therapy and radiation. These reviews first summarize the landmark clinical trials in previous successful immunotherapy studies, key advances in the cancer immunotherapy field and then discusses the opportunities that the technology provides. The nature and breadth of molecular targets that are tractable to this approach are discussed, together with the challenges associated with finding them. Finally, we will discuss the challenges of immunotherapy in tumor patients, as well as valuable strategies for future therapy.

Keywords: Cancer, Immunotherapy, CAR-T cells, HDAC inhibitors, Natural products.

Sub topics:

1. Immune checkpoint inhibitors: advances in tumor therapeutics
2. Tumor reductive therapies and antitumor immunity: Are they hand-in hand?
3. CAR-T therapy against leukemia and lymphoma: systematic review of clinical results
4. Targeting CXCL12/CXCR4 axis in tumor immunotherapy
5. HDAC inhibitors as immune therapy
6. Natural products and derivatives as immune modulators in cancer treatment

Schedule:

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