

# Adjuvant Immunotherapies and Their Role in Advancing Cancer Care

Javed Zhao\*

Department of Clinical Immunology, Sorbonne University, Paris, France

## ABOUT THE STUDY

Adjuvant immunotherapies represent a potential approach to cancer treatment that improves the body's immune system to fight cancer, particularly after the primary treatment such as surgery, chemotherapy, or radiation. These therapies are used to prevent the recurrence of cancer by targeting and eliminating any remaining cancer cells that may not be detectable but could later lead to relapse. The concept of "adjuvant" refers to additional treatments that complement the primary therapy, working to improve outcomes and reduce the risk of cancer recurrence.

### Role of adjuvant immunotherapy

Immunotherapy works by stimulating or modulating the body's immune system to recognize and attack cancer cells. Normally, the immune system protects the body from foreign invaders like bacteria and viruses, but cancer cells can often evade detection by producing signals that suppress immune activity. Immunotherapies aim to overcome this suppression by enhancing the immune system's ability to identify and eliminate cancer cells.

In the case of adjuvant immunotherapies, the immune system is stimulated after the primary cancer treatment has been completed. This helps prevent cancer cells from growing back. For example, after a tumor has been removed through surgery, adjuvant immunotherapy can target any small clusters of cancer cells that may be left behind, reducing the likelihood of the cancer returning. It also works by "training" the immune system to recognize the cancer as foreign, prompting a more aggressive immune response.

### Types of adjuvant immunotherapies

Types of adjuvant immunotherapies include checkpoint inhibitors, monoclonal antibodies, cancer vaccines and cytokine therapies, each designed to improve the immune system's ability to target and destroy cancer cells more effectively.

**Checkpoint inhibitors:** One of the most widely used forms of immunotherapy, checkpoint inhibitors, works by blocking proteins that stop immune cells (T-cells) from attacking cancer cells. Cancer cells often produce these proteins (such as PD-L1) to protect themselves from immune detection. By using checkpoint inhibitors like pembrolizumab or nivolumab (anti-PD-1 drugs), the immune system can overcome this protection and attack the cancer more effectively. This type of immunotherapy has shown significant benefits in cancers like melanoma, non-small cell lung cancer and others.

**Monoclonal antibodies:** These laboratory-created antibodies can target specific proteins or antigens found on the surface of cancer cells. For example, trastuzumab (Herceptin) is used to treat breast cancer by targeting HER2, a protein overexpressed in some breast cancers. Monoclonal antibodies can work by directly targeting cancer cells, recruiting immune cells to destroy them, or even delivering toxic drugs directly to the cancer cells.

**Cancer vaccines:** Unlike traditional vaccines that prevent infections, cancer vaccines help stimulate the immune system to fight existing cancer. For instance, sipuleucel-T is used in prostate cancer and is designed to prompt the immune system to recognize and destroy prostate cancer cells. These vaccines often work as adjuvant therapies by enhancing immune memory, ensuring the body can respond more effectively if cancer cells return.

**Cytokine therapy:** Cytokines are proteins that regulate the immune response by promoting the growth and activity of immune cells. In some forms of immunotherapy, cytokines like interferon and interleukin are used to enhance immune responses. These treatments help to boost the body's immune system, making it more capable of fighting cancer cells.

### Challenges and limitations

Despite the benefits, adjuvant immunotherapy does have some limitations:

**Response variability:** Not all patients respond to immunotherapy. Some cancers may not be as sensitive to immune system activation and factors such as a patient's genetic

**Correspondence to:** Javed Zhao, Department of Clinical Immunology, Sorbonne University, Paris, France, E-mail: zhaoj@gmail.com

**Received:** 28-Nov-2024, Manuscript No. IDIT-24-36364; **Editor assigned:** 02-Dec-2024, PreQC No. IDIT-24-36364 (PQ); **Reviewed:** 17-Dec-2024, QC No. IDIT-24-36364; **Revised:** 24-Dec-2024, Manuscript No. IDIT-24-36364 (R); **Published:** 31-Dec-2024, DOI: 10.35248/2593-8509.24.9.204

**Citation:** Zhao J (2024). Adjuvant Immunotherapies and Their Role in Advancing Cancer Care. *Immunol Disord Immunother*. 9: 204.

**Copyright:** © 2024 Zhao J. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

makeup and immune system function can affect how well the therapy works.

**Side effects:** While immunotherapies often have fewer side effects than traditional treatments, they can still cause complications, such as inflammation, autoimmune reactions, or skin problems.

**Resistance:** Some cancer cells may develop resistance to immunotherapy by altering their surface markers or by evolving mechanisms that prevent immune cells from targeting them effectively.

**Cost:** Immunotherapy treatments can be expensive and access may be limited, especially in resource-limited regions or for patients without adequate insurance.

Adjuvant immunotherapies offer a highly potential advancement in cancer treatment, helping to reduce the risk of cancer recurrence and improve patient outcomes. By utilizing the body's immune system to fight residual cancer cells after primary treatment, immunotherapy provides a more targeted, personalized approach with fewer side effects compared to traditional therapies.