



# International Journal of Alternative and Complementary Medicine

## Review Article

### Immunotherapy for cancer treatment

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### Abstract

Immunotherapy develops this body's immune system to fight against cancer disease. Other types of cancer therapies include chemotherapy, radiotherapy, surgery, phototherapy, precision therapy. To overcome the malignancies immune therapy activates the monoclonal antibodies, CAR therapy, TCRtherapy. Vaccines like sipuleucel, Talimogen laherparepvec, and bacillus Calmette –Guerin /BCG are used to treat cancers like prostate cancer, bladder cancer, and skin cancers. Combination therapy is a type of immune therapy that includes radiotherapy with immune therapy, immune therapy +chemotherapy, pairing immune therapies.

**Keywords:** Malignancy, monoclonal antibodies , immunotherapy , Sipuleucel.



### Article Info

Received: 10-01-2021

Revised: 22-02-2021

Accepted: 28-02-2021

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### Introduction

Immuno-oncology is the study and development of a therapy that composes everybody's immune system to attack cancer cells. It is an unnatural stimulation from the immune system to strike tumor cells, developing the immune system's natural strength to combat this infection. The immuno-oncology agents have become the fifth acknowledged cancer treatment [1].

Immunotherapy is a kind of biological treatment that uses items built from breathing bions to manage cancer. Cancer Immunotherapy yields the truth that

particles frequently beget cyst antigen fragments at their exterior part can be recognized by the antibody proteins from this immune system binding to them.

Normal antibodies attach to surface pathogens, but these transformed immunotherapy antigens hold on to tumor antigens marketing and targeting these cancer cells to the immune system to restrain or destroy these cells [2].

Many significant variations while endurance rates, observed across cancer types. More than 200 distinct types of cancers are recognized, the endurance is improving owing to the earlier

diagnosis and treatments. There are 4 major types of cancer treatments are - Surgery,Radiotherapy,Chemotherapy and Targeted cancer therapy [3].

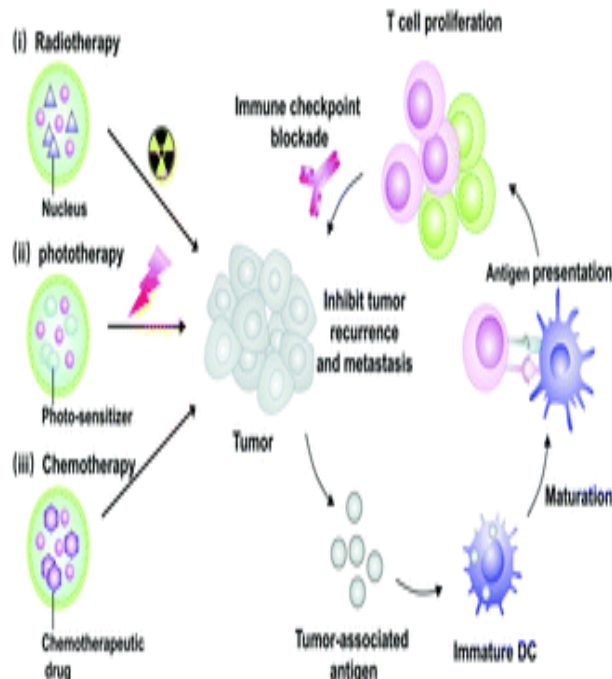


Fig: 01 Types of immune response against cancer cells

**Types of immune response against cancer cells**  
**Immune checkpoint inhibitors**

Invade bacteria and virus brakes the cell called check points. It is used to halt from attacking to healthy cells Cancer cells some time turn check points on /off. These drugs release the brakes on immune system Block proteins PD-1, PD - L1, CTLA -4 at the outside of the immune cells.

- PD -1** pembrolizumab , nivolumab , cemiplimab
- **PDL-1**atezolezumab,avelumab , durvalumab
  - **CTLA4** ipilimumab

**Adaptive cell therapy**

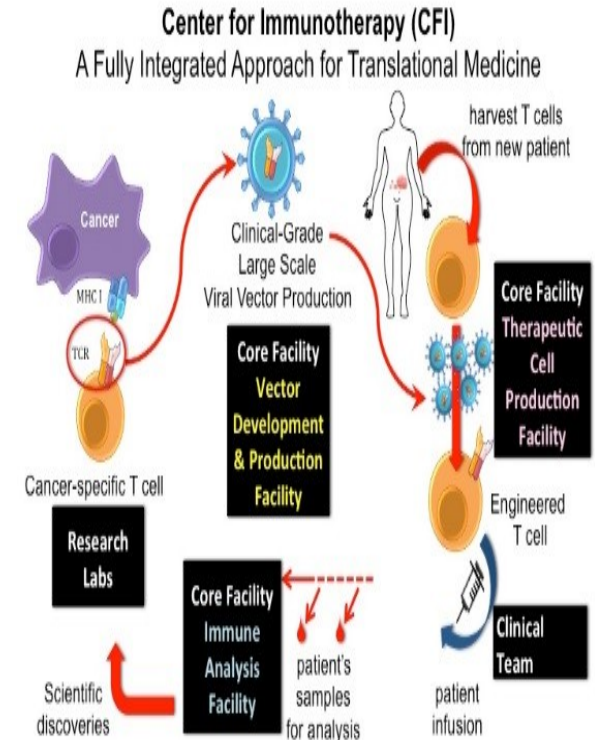
This type of therapy remove some of own immune cells and boost their number or change in lab so the changed cells find and kill the tumor cells [5].

**Tumour –infiltrating lymphocyte (TIL) therapy**

T–cells are the powerful cells and battle with infections. In this therapy the T – cells that are used to defeat the tumour is remove and grow in large amount is called TIL in lab then these are again replaced into the body for active fight against tumour cells

**Engineered T –cell Receptor (TCR) Therapy**

This type of therapy also remove T – cells from the body and reprogrammed in lab as in TIL so these can detect the cancer cells faster than TIL . These Engineered T Cells looks the tiny targets on cancer cell surface. TCR therapy are used often in tissue cancer and late stage melanoma skin cancer.



**Chimeric antigen receptor T – cell (CAR) therapy [6]**

In this treatment the doctors add special receptor to the T – cell surface. So they can lock on and destroy the exact type of tumor cells. Based on type of cancers the special receptors are added. There are only 2 types of CAR T – cells therapies are approved.

**Conclusion**

Immune therapy is an effective treatment for cancer, but it is highly expensive therapy and also shows some allergic reactions. When compare to chemotherapy and radiotherapy immune therapy shows more therapeutic outcomes and less side effects. Along with cancer treatment other diseases are also cured by activating immune system through immune therapy. Offers possibility for long term cancer remission and the risk of reoccurrence can be decreased by stimulating long lasting immune god against cancer.

### **Author Contribution**

All authors are Contributed Equally.

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