



Therapeutic Vaccine for Tumor Treatment

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DESCRIPTION

Numerous studies have entered the clinical evaluation phase for tumour immunotherapy, which has advanced significantly over the past few decades. For tumor cell immunotherapy, the cancer vaccine is regarded as a promising therapeutic approach. Tumor antigens from cancer vaccines which may be given as whole cells, peptides, nucleic acids, etc. Stimulate the body's natural defences against tumour growth. The best cancer vaccines would stimulate both humoral and cellular immunity by overcoming the immune suppression to that tumours. Over the past ten years, cancer vaccines have undergone extensive research. The discovery of many tumour neoantigens is due to the accessibility and affordability of high sequencing technologies. Cancer treatment vaccines can be created in three ways:

1. They can be created using patient's own tumor cells. This means they are tailored to elicit an immune response against features specific to cancer.
2. They could be made from tumor-associated antigens found on cancer cells in a large number of people with a specific type of cancer. A vaccine of this type can elicit an immune response in any patient whose cancer produces that antigen. This vaccine is still in development.
3. They could be made from patient's own dendritic cells, which are immune cells. Dendritic cell vaccines prime immune system to react to an antigen found on tumor cells. Sipuleucel-T, a dendritic cell vaccine, has been approved for the treatment of some men with advanced prostate cancer.

Oncolytic virus therapy, a different type of cancer treatment, is sometimes referred to as a cancer treatment vaccine. It employs an Oncolytic virus, which infects and destroys cancer cells while causing no harm to normal cells. Vaccines for cancer treatment

are not the same as vaccines for viruses. These vaccines attempt to stimulate the immune system to launch an attack on cancer cells in the body. Instead of preventing disease, they are intended to stimulate the immune system to attack an existing disease.

Some cancer treatment vaccines are composed of cancer cells, cancer cell parts, or pure antigens (certain proteins on the cancer cells). To produce the vaccine, a patient's own immune cells are sometimes extracted and exposed to these substances in the lab. When the vaccine is complete, it is injected into the body to boost the immune response against cancer cells.

Vaccines are frequently combined with other substances or cells known as adjuvants, which help boost the immune response even more. Cancer vaccines stimulate the immune system to attack cells containing one or more antigens. Because the immune system has memory cells, it is hoped that the vaccine will continue to work long after it is administered.

Sipuleucel-T (Provenge)

This drug is used to treat advanced prostate cancer when hormone therapy is no longer effective. The most common side effects are fever, chills, fatigue, back and joint pain, nausea, and headaches. A few men may experience more severe symptoms, such as breathing difficulties and high blood pressure.

T-VEC (Talimogene Laherparepvec)

This vaccine is approved for the treatment of advanced melanoma skin cancer. It is made from a herpes virus that has been genetically modified in the lab to produce a cytokine, which the body naturally produces. This cytokine stimulates the immune system and can temporarily cause flu-like symptoms.

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