

Checkpoint Inhibitors

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Introduction

Immune checkpoints are a usual part of the immune system. Their role is to prevent an immune response from being so robust that it abolishes healthy cells in the body. Immune checkpoints involve when proteins on the surface of immune cells called T cells identify and bind to spouse proteins on other cells, such as some tumor cells. These proteins are called immune checkpoint proteins. When the checkpoint and partner proteins bind together, they send an “off” signal to the T cells. This can prevent the immune system from abolishing the cancer. Immunotherapy drugs called immune checkpoint inhibitors work by blocking checkpoint proteins from compulsory with their partner proteins. This prevents the “off” signal from being sent, letting the T cells to kill cancer cells. One such drug acts against a checkpoint protein called CTLA-4. Other immune checkpoint inhibitors act against a checkpoint protein called PD-1 or its partner protein PD-L1. Some tumors turn down the T cell response by producing lots of PD-L1 (Figures 1).

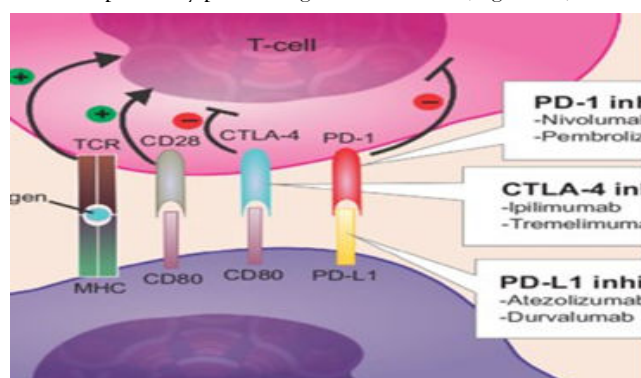


Figure 1: Immune check point inhibitors.

Immune checkpoint inhibitors can cause side effects that affect people in different ways. The side effects may have and how they make you feel will depend on how healthy you are before treatment, your type of cancer, how advanced it is, the type of immune checkpoint inhibitor you are receiving, and the dose. Doctors and nurses cannot know for sure when or if side effects will occur or how serious they will be. So, it is important to know which signs to look for and what to do if they occur.

Rarer side effects of immune checkpoint inhibitors can include widespread inflammation.

- Changes in skin color, rash, and feeling itchy, produced by skin inflammation
- Cough and chest pains, produced by inflammation in the lungs
- Belly pain and diarrhea, produced by inflammation in the colon
- Diabetes, caused by inflammation in the pancreas
- Nephritis (inflammation of the kidney) and impaired kidney function
- Hepatitis (inflammation of the liver)
- Hypophysitis (inflammation of the pituitary gland)
- Myocarditis (inflammation of the heart muscle)
- Feverish or underactive thyroid

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