



Pembrolizumab (Keytruda®)

Pronounce: pem-broe-LIZ-ue-mab

Classification: Monoclonal antibody

About Pembrolizumab (Keytruda®)

The immune system works by creating antibodies, which are proteins that attach to antigens found on the surface of a cell. The antibody “calls” the immune system to attack the cell it is attached to, resulting in the immune system killing the cell. Monoclonal antibodies are created in a lab to attach to the antigens found on specific types of cancer cells. These antibodies can work in different ways, including stimulating the immune system to kill the cell, blocking cell growth or other functions necessary for cell growth.

Pembrolizumab is a type of monoclonal antibody which works to stimulate the immune system to destroy cancer cells. T-cells are a type of white blood cell that are very important to the normal functioning of the immune system. Pembrolizumab works as a form of immunotherapy by binding to the "programmed death receptor" (PD1) found on T-cells to stimulate the immune system to find and kill cancer cells.

How to Take Pembrolizumab

Pembrolizumab is administered intravenously (IV, into a vein). The dosage may be based on your height and weight. Your provider will determine how many doses you should receive and how often.

Make sure your care team is aware of all medications (including prescription and over-the-counter), supplements, and vitamins you are taking. Steroids should be avoided while on immunotherapy, unless directed by your care team.

Tell your care team about all your medical conditions, including those that are autoimmune in nature (Crohn’s disease, lupus, rheumatoid arthritis, etc.) as these can get worse with immunotherapy.

Possible Side Effects of Pembrolizumab

There are a number of things you can do to manage the side effects of pembrolizumab. Talk to your care team about these recommendations. They can help you decide what will work best for you. These are some of the most common or important side effects:

Immune Reactions

This medication stimulates (revs up) your immune system. Your immune system can attack normal organs and tissues in your body, leading to serious or life-threatening complications. It is important to notify your healthcare provider right away if you develop any of the following symptoms:

- **Diarrhea/Intestinal problems (colitis, inflammation of the bowel):** Abdominal pain, diarrhea, cramping, mucus or blood in the stool, dark or tar-like stools, fever. Diarrhea means different things to different people. Any increase in your normal bowel patterns can be defined as diarrhea and should be reported to your healthcare team.
- **Bowel obstruction or perforation:** Abdominal pain, fever, constipation, bloating, and cramping. Any decrease in your normal bowel patterns should be reported.

- **Skin reactions:** Report rash, with or without itching (pruritis), sores in your mouth, blistering or peeling skin, as these can become severe and require treatment with corticosteroids.
- **Lung problems (pneumonitis, inflammation of the lung):** New or worsening cough, shortness of breath, trouble breathing, or chest pain.
- **Liver problems (hepatitis, inflammation of the liver):** Yellowing of the skin or eyes, your urine appears dark or brown, pain in your abdomen, bleeding or bruising more easily than normal, or severe nausea and vomiting.
- **Brain and/or nerve problems:** Report any headache, drooping of eyelids, double vision, trouble swallowing, weakness of arms, legs, or face, or numbness or tingling in the hands or feet to your healthcare team.
- **Kidney problems (kidney inflammation or failure):** Decreased urine output, blood in the urine, swelling in the ankles, loss of appetite.
- **Hormone abnormalities:** Immune reactions can affect the pituitary, thyroid, pancreas, and adrenal glands, resulting in inflammation of these glands, which can affect their production of certain hormones. Some hormone levels can be monitored with blood work. It is important that you report any changes in how you are feeling to your care team. Symptoms of these hormonal changes can include: headaches, nausea, vomiting, constipation, rapid heart rate, increased sweating, extreme fatigue, weakness, changes in your voice, changes in memory and concentration, increased hunger or thirst, increased urination, weight gain, hair loss, dizziness, feeling cold all the time, and changes in mood or behavior (including irritability, forgetfulness, and decreased sex drive).
- **Eye problems:** Report any changes in vision, blurry or double vision, and eye pain or redness.
- **Heart problems:** Inflammation in the heart muscle can happen in rare cases. If you develop any of these symptoms, report them to your provider right away: chest pain, shortness of breath, trouble breathing when lying down or waking up gasping for air, heart palpitations (feeling like your heart is racing), swelling in your feet or legs, lightheadedness or fainting.

Fatigue

Fatigue is very common during cancer treatment and is an overwhelming feeling of exhaustion that is not usually relieved by rest. While on cancer treatment, and for a period after, you may need to adjust your schedule to manage fatigue. Plan times to rest during the day and conserve energy for more important activities. Exercise can help combat fatigue; a simple daily walk with a friend can help. Talk to your healthcare team for helpful tips on dealing with this side effect.

Allergic Reactions

In some cases, patients can have an allergic reaction to this medication. Signs of a reaction can include shortness of breath or difficulty breathing, chest pain, rash, flushing or itching, or a decrease in blood pressure. If you notice any changes in how you feel during the infusion, let your nurse know immediately. The infusion will be slowed or stopped if this occurs.

Important but Less Common Side Effects

- **Allogeneic Stem Cell Transplant Reactions:** Patients who receive this medication before or after having an allogeneic stem cell transplant can be at an increased risk of graft vs. host disease, veno-occlusive disease, and fever syndrome. Your providers will monitor you closely for these side effects.
- **Solid Organ Transplant:** This medication can cause rejection of a solid organ transplant. Contact your provider if you have any signs of rejection.

Reproductive Concerns

Exposure of an unborn child to this medication could cause harm to the fetus, so you should not become pregnant or father a child while on this medication or for 4 months following the last dose. Effective birth control is necessary during treatment, even if your menstrual cycle stops or you believe you are not making sperm, you could still be fertile and conceive. You may be given a pregnancy test prior to starting treatment to confirm that you are not pregnant. A woman should not breastfeed while receiving this medication and for 4 months after treatment.

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