Pegfilgrastim (Neulasta®)

Pronounce: peg-fil-GRAS-tim

Classification: Colony Stimulating Factor

About Pegfilgrastim (Neulasta®)

Pegfilgrastim is a type of colony stimulating factor, which is a group of medications that stimulate the production and function of blood cells, including white blood cells, red blood cells and platelets. Granulocyte colony-stimulating factor (G-CSF) is a protein produced by the body to increase production of white blood cells. Pegfilgrastim is a long-acting, man-made version of G-CSF that stimulates white blood cell production, and in particular, neutrophil production. A neutrophil is a type of white blood cell that is responsible for fighting infection and is often decreased during cancer therapy. When the number of these cells drops below 1000/mm3, it is called neutropenia and puts the patient at significant risk of infection. Pegfilgrastim is used to prevent or treat neutropenia related to chemotherapy.

Pegfilgrastim is **not** a cancer treatment, but a supportive care medicine. This means it is used to lessen the bone marrow suppression (reduced blood counts) caused by cancer and its treatments (medication and radiation therapy).

How to Take Pegfilgrastim

Pegfilgrastim is given as an injection under the skin. This medication also comes in an on-body injector formulation which is addressed in a separate article.

It is typically given as a single dose for each chemotherapy cycle, no sooner than 24 hours after the last dose of chemotherapy, and no more than 14 days before beginning the next chemotherapy cycle. To lessen the sting of the injection, it should be taken out of the refrigerator 30 minutes ahead of time.

Storage and Handling

Pegfilgrastim should be refrigerated. To lessen the sting of the injection, it should be taken out of the refrigerator 30 minutes ahead of time.

Do not reuse single dose vials, syringes, or needles. Do not throw the vials, syringes, or needles in the household trash. Dispose of all used needles and syringes in a puncture-proof disposable container with a lid. The FDA provides further information about the disposal of vials, syringes, and needles. Keep the vials out of the reach of children.

Where do I get this medication?

Depending on your insurance coverage, pegfilgrastim may be administered in your doctor’s office or provided through home infusion or a specialty pharmacy. Your oncology team will work with your major medical and prescription drug plans to identify where you should receive this medication.

Insurance Information

This medication may be covered under your major medical plan or prescription drug plan. Patient assistance

may be available to qualifying individuals without prescription drug coverage. Co-pay cards, which reduce the patient co-pay responsibility for eligible commercially (non-government sponsored) insured patients, may also be available. Your care team can help you find these resources, if they are available.

Possible Side Effects of Pegfilgrastim

There are a number of things you can do to manage the side effects of pegfilgrastim. 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:

Bone or Muscle Pain

Pegfilgrastim stimulates the bone marrow to produce many white blood cells, which can lead to pain in the bones. This pain is often felt in the bones or muscles of the thighs, hips, and upper arms. Your healthcare team may not want you to take acetaminophen (Tylenol®) because it can "mask" a fever, so talk to them about what pain relievers you can take. Anti-histamines like loratidine (Claritin) may help lessen bone pain. Ask your provider or pharmacist if you should take this or any other medications to help manage this side effect.

Irritation or Burning at the Injection Site

Some people experience redness, swelling, or itching at the site of injection. This is usually temporary. The injection is known to sting or burn if given when it is cold. Take the medication out of the refrigerator 30 minutes ahead of time to allow it to come up to room temperature before administration.

Less common but important side effects can include:

- ***Rupture of the spleen:*** Your healthcare team will monitor you for an enlarged spleen or rupture while using this medication. If you have pain in the left side of your abdomen or shoulder pain after receiving pegfilgrastim, notify your healthcare team immediately.
- ***Acute Respiratory Distress Syndrome (ARDS)/Alveolar Hemorrhage:*** This medication can cause a series lung problems called acute respiratory distress syndrome. If you experience shortness of breath, fever, breathing trouble, or a fast rate of breathing, contact your healthcare team or go to the emergency room.
- ***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 injection, let your nurse know immediately.
- ***Sickle Cell Crisis***: In patients with sickle cell anemia, pegfilgrastim can cause a sickle cell crisis. Contact your healthcare team immediately if you have symptoms of a sickle cell crisis including pain and trouble breathing.
- ***Kidney Problems***: Pegfilgrastim can cause a decrease in kidney function or damage to the kidney. For this reason, your healthcare team will monitor your kidney function with blood tests while taking pegfilgrastim. Some patients will need to stop the medication due to kidney function changes. Notify your provider if you notice any blood in your urine, decrease in urination or darkening of the urine.
- ***Capillary Leak Syndrome:*** Capillary leak syndrome is a condition in which blood, and components of blood, leak out of vessels and into body cavities and muscles. The movement of this fluid out of the vessels can cause hypotension (low blood pressure) and organ failure. Signs and symptoms of capillary leak syndrome include: a sudden drop in blood pressure, weakness, fatigue, sudden swelling of the arms, legs or other parts of the body, nausea, and lightheadedness. If you are having any of these symptoms notify your healthcare provider immediately.
- ***Aortitis:*** This medication can cause an inflammation of your aorta (the largest artery in your body), which can occur as early as the first week of starting treatment with filgrastim. Sign of aortitis include

fever, abdominal pain, fatigue, and back pain. Be sure to call your provider right away if you are experiencing any of these symptoms.

- ***Low Platelet Count (Thrombocytopenia)***: Platelets help your blood clot, so when the count is low you are at a higher risk of bleeding. Let your oncology care team know if you have any excess bruising or bleeding, including nose bleeds, bleeding gums, or blood in your urine or stool. If the platelet count becomes too low, you may receive a transfusion of platelets.
    - Do not use a razor (an electric razor is fine).
    - Avoid contact sports and activities that can result in injury or bleeding.
    - Do not take aspirin (salicylic acid), non-steroidal, anti-inflammatory medications (NSAIDs) such as Motrin/Advil (ibuprofen), Aleve (naproxen), Celebrex (celecoxib) etc. as these can all increase the risk of bleeding. Please consult with your healthcare team regarding use of these agents and all over the counter medications/supplements while on therapy.
    - Do not floss or use toothpicks and use a soft-bristle toothbrush to brush your teeth.
- ***Secondary Cancer:*** A secondary cancer is one that develops as a result of cancer treatment for another cancer. This is quite rare, but you should be aware of the risk. People who have received this medication along with chemotherapy and/or radiation to treat breast or lung cancer may have an increased risk of developing MDS or AML. This can occur years after treatment. Your provider will monitor your labs closely. Consider having a complete blood count with differential checked annually by your healthcare provider.

Reproductive Concerns

Exposure of an unborn child to this medication could cause birth defects, so you should not become pregnant or father a child while on this medication. Effective birth control is necessary during treatment. Even if your menstrual cycle stops or you believe you are not producing sperm, you could still be fertile and conceive. You should consult with your healthcare team before breastfeeding while receiving this medication.

Current Biosimilars

There are biosimilar versions of pegfilgrastim. A biosimilar is a medication that has been approved by the FDA because it is very similar to an FDA-approved medication (called a reference product, or the medication it is being compared to), and that there are no meaningful differences between the biosimilar product and the reference product. These medications may be used interchangeably.

The biosimilar versions of this medication include pegfilgrastim-jmdb (Fulphila®), pegfilgrastim-cbqv (Udenyca®) and pegfilgrastim-bmez (Ziextenzo™).