Sargramostim (Leukine®, GM-CSF)

**Pronounced:** sar-GRUH-moe-STIM

**Classification:** Colony Stimulating Factor

### About Sargramostim (Leukine®, GM-CSF)

Sargramostim is a man-made version of GM-CSF, a protein that stimulates white blood cell (WBC) production, and in particular, neutrophil, macrophage, and dendritic cell production. These types of WBCs are responsible for fighting infection and are often decreased during cancer therapy.

Neutrophils are the first WBCs to respond to fight infection. When the number of these cells drops below 1000/mm³, it is called neutropenia. This puts the patient at significant risk of infection. Macrophages fight infection by ingesting bacteria, but are longer acting than neutrophils. Dendritic cells make up only 1% of WBCs, but are constantly scanning the area, notifying neutrophils and macrophages when they detect infection.

Sargramostim is **not** a cancer treatment, but a supportive care medicine. This means it is used to lessen the bone marrow suppression (reduced blood counts) secondary to cancer and its cytotoxic treatments.

### How to Take Sargramostim

Sargramostim can be given as a subcutaneous injection (given under the skin), or directly into a vein (intravenous, IV). It is given once a day, preferably at the same time of day, until the patient is no longer neutropenic. The actual dose is determined by your healthcare provider and is based on your body size. Sargramostim should be started no sooner than 24 hours after completion of chemotherapy or radiation. You will have lab work drawn frequently to monitor your blood cell counts while on sargramostim. You may receive this medication in your provider's office, from a home infusion company, or you may be taught to give it to yourself.

### Storage and Handling

Store this medication in the refrigerator, in the original container. Do not shake or freeze the medication. To lessen the sting of the injection, take it out of the refrigerator 30 minutes prior to administration. 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 vials out of reach of children and pets. Ask your oncology team where to return any unused medication for disposal. Do not flush down the toilet or throw in the trash.

### Where do I get this medication?

Depending on your insurance coverage, you may receive this medication at your doctor’s office or at home. You or a caregiver will be taught how to give injections if you are receiving this medication at home. If you receive this medication at home it will be supplied by a home infusion company or through a specialty pharmacy. Your oncology team will work with your prescription drug plan to identify an in-network specialty pharmacy for distribution of this medication and shipment directly to your home.

### Insurance Information
This medication may be covered under your major medical plan OR your prescription plan. Your oncology team will work with your insurance company and pharmacy plan to determine who will supply the medication. Patient assistance may be available to qualifying individuals without prescription drug coverage. Co-pay assistance through private, third party foundations may also be available to those who meet income and diagnosis requirements. Your care team can help you find these resources, if they are available.

Possible Side Effects of Sargramostim

There are a number of things you can do to manage the side effects of sargramostim. 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 Pain**
Sargramostim 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 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.

**Fever and Infection**
Sargramostim can cause a low fever, but this could also be a sign of infection. Any fever (temperature > 100.4°F (38°C)) should be reported to your healthcare team right away. Signs of infection that should be reported to your care team include chills, sore throat, congestion and burning with urination. Be sure you have a contact number for evenings and weekends when the office is closed.

**Injection Site Reactions**
Some people experience redness, swelling, or itching at the site of injection. This is usually temporary. The injection can 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. Rotate the sites where the injection is given, inject slowly (over 30-60 seconds) and/or numb the area with ice for one minute before and after the injection.

**Allergic Reaction**
An allergic reaction is uncommon, but potentially serious. Signs of a reaction include a skin rash, hives, trouble breathing, fast pulse, sweating and feeling faint. If you develop any of these symptoms, report them to your healthcare provider immediately.

**Less common, but important side effects can include:**

- **Swelling and Fluid Retention:** Patients receiving this medication should report any new or worsening shortness of breath, cough, swelling in arms, legs or face to the healthcare team immediately.
- **Breathing Problems and Heart Rate Changes:** Notify your provider if you have any new or worsening shortness of breath, or feel your heart pounding, beating fast or irregularly.

**Reproductive Concerns**
It is not known if exposure of an unborn child to this medication could cause birth defects. If you are pregnant, are trying to become pregnant, or are breastfeeding, you should consult your doctor before taking this medication.

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