
Prior Authorization DRUG Guidelines

LEUKINE® (Sargramostim)

Effective Date: 7/28/05

Date Developed: 7/12/05 by C. Wilhelmy MD

Last Approval Date: 1/27/15, 1/24/17, 1/23/18, 1/22/19

(Archived 1/22/19)

Leukine is a Colony Stimulating Factor. It stimulates proliferation, differentiation and functional activity of neutrophils, eosinophils, monocytes, and macrophages.

Pre-Authorization Criteria:

- Patient must have one of the below listed FDA approved indications
AND
- Failure or clinically significant adverse effects to Neupogen^R (filgrastim) where Neupogen has similar indication as Leukine.

FDA Approved Indications:

- Following induction chemotherapy in Acute Myelogenous Leukemia (AML): For use following Induction chemotherapy in older patients with AML to shorten neutrophil recovery time and to reduce the incidence of severe and life-threatening infections and infections resulting in death
- Mobilization and following transplantation of autologous Peripheral Blood Progenitor Cells (PBPC) : To mobilize hematopoietic progenitor cells into peripheral blood for collection by leukapheresis
- Myeloid reconstitution after autologous bone marrow transplantation: In patients with Non-Hodgkin's Lymphoma (NHL), Acute Lymphoblastic Leukemia (ALL), and Hodgkin's disease undergoing autologous bone marrow transplant
- Myeloid reconstitution after allogeneic bone marrow transplantation: For acceleration of myeloid recovery in patients undergoing allogeneic bone marrow transplant from Human Lymphocyte Antigen (HLA)-matched related donors

- Bone marrow transplantation failure or engraftment delay: For patients who have undergone allogeneic or autologous bone marrow transplant in which engraftment is delayed or has failed
- Peripheral stem cell transplantation

VCHCP requires that Leukine be prescribed by an oncologist.

MONITORING PARAMETERS — Vital signs, weight, CBC with differential, platelets, renal/liver function tests, especially with previous dysfunction, WBC with differential, pulmonary function.

General Information:

- Liver and renal function tests should be obtained on a biweekly basis in patients with preexisting renal or hepatic impairment.
- Complete blood count should be monitored twice per week in order to avoid potential complications of excessive leukocytosis (WBC > 50,000 cells/mm³; Absolute Neutrophil count (ANC) > 20,000 cells/mm³).
- Because of potential sensitivity of rapidly dividing hematopoietic progenitor cells, Leukine should not be administered simultaneously with cytotoxic chemotherapy or radiotherapy or within 24 hours preceding or following chemotherapy or radiotherapy.
- Once Leukine therapy is initiated, it should be continued until an ANC of > 1500 cells/mm³ is achieved for 3 days (or a maximum of 42 days) following induction chemotherapy in older adults with AML or until an ANC of > 1500 cells/mm³ is achieved for 3 days in allogeneic or autologous bone marrow transplant, or post-transplant PBPC.
- Use Leukine with caution in patients with pre-existing fluid retention, pulmonary infiltrates, or CHF.
- The National Cancer Institute warned of the potential to stimulate the HIV virus when GM-CSF is used alone for the treatment of AIDS. Controversy is present as to whether the serum human immunodeficiency virus p24 antigen increases with concurrent GM-CSF. More research is warranted before recommending GM-CSF alone (without concurrent zidovudine) to increase neutrophil counts in patients with HIV

DOSING: ADULTS

Existing clinical data suggest that starting GM-CSF between 24 and 72 hours subsequent to chemotherapy may provide optimal neutrophil recover. Continue therapy until the occurrence of an absolute neutrophil count of 10,000/ μ L after the neutrophil nadir.

1. Recommended Dosing Regimen and Authorization Limit:

Drug	Dosing Regimen	Authorization Limit
Leukine ^R	<u>Acute myeloid leukemia following induction chemotherapy:</u> 250 mcg/m ² /day IV over 4 hr starting approximately day 11 or 4 days following the completion of induction chemotherapy. Continue Leukine until ANC > 1500 cells/mm ³ for 3 consecutive days or a maximum of 42 days	<u>Acute myeloid leukemia following induction chemotherapy:</u> Up to 42 days
	<u>Peripheral blood stem cell harvest, mobilization:</u> 250 mcg/m ² /day IV over 24 hours or SC once daily	<u>Peripheral blood stem cell harvest, mobilization:</u> Length of benefit
	<u>Myeloid reconstitution after autologous or allogeneic bone marrow transplant:</u> 250 mcg/m ² /day as a 2-hour IV infusion beginning 2 to 4 hours after the bone marrow infusion and $\geq$ 24 hours after the last dose of chemotherapy or radiotherapy	<u>Myeloid reconstitution after autologous or allogeneic bone marrow transplant:</u> Length of benefit
	<u>Bone marrow transplant failure or engraftment delay:</u> 250 mcg/m ² /day for 14 days as a 2-hour IV infusion. The dose can be repeated after 7 days off therapy if engraftment has not occurred.	<u>Bone marrow transplant failure or engraftment delay:</u> Up to 42 days

	If engraftment still has not occurred, a third course of 500 mcg/m²/day for 14 days may be tried after another 7 days off therapy.	
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The available data suggest that rounding the dose to the nearest vial size may enhance patient convenience and reduce costs without clinical detriment.

Dosing is complicated. Please refer to [Lexi-Comp Online™](#) for details.

DOSING: PEDIATRIC — Refer to adult dosing.

DOSING: ELDERLY — Refer to adult dosing.

DOSAGE FORMS

Injection, powder for reconstitution: 250 mcg

Injection, solution: 500 mcg/mL (1 mL) [contains benzyl alcohol]

ADMINISTRATION — Can premedicate with analgesics and antipyretics; control bone pain with non-narcotic analgesics. Sargramostim is administered as a subcutaneous injection or intravenous infusion; intravenous infusion should be over at least 2 hours; continuous infusions may be more effective than short infusion or bolus injection. An in-line membrane filter should not be used for intravenous injection. When administering GM-CSF subcutaneously, rotate injection sites.

CONTRAINDICATIONS — Hypersensitivity to sargramostim, yeast-derived products, or any component of the formulation; concurrent myelosuppressive chemotherapy or radiation therapy. The solution for injection contains benzyl alcohol and should not be used in neonates.

WARNINGS / PRECAUTIONS — Simultaneous administration, or administration 24 hours preceding/following cytotoxic chemotherapy or radiotherapy is not recommended. Use with caution in patients with pre-existing cardiac problems, hypoxia, fluid retention, pulmonary infiltrates or CHF, renal or hepatic impairment.

Rapid increase in peripheral blood counts: If ANC >20,000/mm³ or platelets >500,000/mm³, decrease dose by 50% or discontinue drug (counts will fall to normal within 3-7 days after discontinuing drug)

Growth factor potential: Use with caution with myeloid malignancies. Precaution should be exercised in the usage of GM-CSF in any malignancy with myeloid characteristics. GM-CSF can potentially act as a growth factor for any tumor type, particularly myeloid

malignancies. Tumors of nonhematopoietic origin may have surface receptors for GM-CSF.

DRUG INTERACTIONS — Increased toxicity: Lithium, corticosteroids may potentiate myeloproliferative effects.

PREGNANCY RISK FACTOR — C

PREGNANCY IMPLICATIONS — Clinical effects to the fetus: Animal reproduction studies have not been conducted. It is not known whether sargramostim can cause fetal harm when administered to a pregnant woman or can affect reproductive capability. Sargramostim should be given to a pregnant woman only if clearly needed.

LACTATION — Excretion in breast milk unknown

TOXICOLOGY / OVERDOSE COMPREHENSIVE — The maximum amount that can be safely administered in single or multiple doses has not been determined. Symptoms include dyspnea, malaise, nausea, fever, rash, sinus tachycardia, headache, and chills. All of these adverse events were reversible after discontinuation of sargramostim. Discontinue therapy and carefully monitor the patient for WBC increase and respiratory symptoms.

PATIENT EDUCATION — You may experience bone pain (request analgesic), nausea and vomiting (small frequent meals may help), hair loss (reversible). Report fever, chills, unhealed sores, severe bone pain, difficulty breathing, swelling or pain at infusion site. Avoid crowds or exposure to infected persons; you will be susceptible to infection.

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