

[Home](#)

2. Somatropin

Somatropin

Pronunciation: *soe-ma-TROE-pin*

Brand names: [Genotropin](#), [Humatrope](#), [Omnitrope](#), [Nutropin](#), [Saizen](#), ... [show all 11 brands](#)

Dosage form: subcutaneous injection

Drug class: [Growth hormones](#)

Medically reviewed by [Melisa Puckey, BPharm](#). Last updated on Feb 13, 2025.

[Uses](#) [Side effects](#) [Warnings](#) [Before taking](#) [Dosage](#) [Interactions](#)

What is Somatropin?

Somatropin is a [human growth hormone](#) (HGH, hGH) important for the growth of bones and muscles.

Somatropin is used to treat growth failure in children and adults who lack natural growth hormone; this includes people with short stature due to [Turner syndrome](#), [Prader-Willi syndrome](#), short stature at birth with no catch-up growth, and other causes. Some brands of somatropin injection are also used for short bowel syndrome (Zorbtive brand) and HIV-associated wasting ([Serostim](#) brand).

The mechanism of action (MOA) of somatropin is identical to natural human growth hormone (HGH), mimicking its effects on growth, metabolism, and cell regeneration. Somatropin works like a natural human growth hormone by binding to the GH receptor on target cells which signals skeletal growth, muscle growth, and protein production. Natural somatropin is a hormone produced in the pituitary gland at the base of the brain. If the pituitary gland doesn't make enough, or any, human growth hormone it causes a condition called a growth-related disorder.

Somatropin is given as subcutaneous (under-the-skin) injections using a pen device, cartridge, or vials.

Brands of somatropin used to treat growth failure by specific causes include [Genotropin](#), [Humatrope](#), [Norditropin](#), [Nutropin AQ](#), [Omnitrope](#), [Saizen](#), [Tev-Tropin](#), and [Zomacton](#).

Who can use somatropin?

Somatropin injection is an FDA-approved human growth hormone to be used for growth failure in patients who have:

- Growth failure due to an inadequate secretion of endogenous growth hormone
- Prader-Willi syndrome (PWS) which has been confirmed by appropriate genetic testing
- Turner syndrome
- Idiopathic short stature (ISS), also called non-growth hormone-deficient short stature in pediatric patients whose epiphyses are not closed and for whom diagnostic evaluation excludes other causes associated with short stature

that should be observed or treated by other means.

- Treatment of growth failure associated with chronic kidney disease
- Treatment of growth failure in children born small for gestational age who fail to manifest catch-up growth by 2 years of age (Genotropin, Omnitrope) or by 2 to 4 years of age
- Treatment of short stature or growth failure associated with short stature homeobox gene (SHOX) deficiency
- Treatment of short stature associated with Noonan syndrome
- HIV-associated wasting, cachexia
- Short bowel syndrome
- Adult Onset (AO) Patients who have growth hormone deficiency, either alone or associated with multiple hormone deficiencies (hypopituitarism), as a result of pituitary disease, hypothalamic disease, surgery, radiation therapy, or trauma; or
- Childhood Onset (CO): Patients who were growth hormone deficient during childhood as a result of congenital, genetic, acquired, or idiopathic causes.

Not all brands of somatropin are the same. **Different brands of somatropin are FDA approved for different indications and patient groups.**

Somatropin side effects

Common side effects of somatropin

Common somatropin side effects may include:

- pain, itching, or skin changes where the medicine was injected;
- swelling, rapid weight gain;
- muscle or joint pain;
- numbness or tingling;
- stomach pain, gas;
- headache, back pain; or
- cold or flu symptoms, stuffy nose, sneezing, sore throat, ear pain.

Get emergency medical help if you have signs of an allergic reaction: hives; difficulty breathing; swelling of your face, lips, tongue, or throat.

Serious somatropin side effects

Serious breathing problems may occur in patients with Prader-Willi syndrome who use Genotropin injection. If you have Prader-Willi syndrome, call your doctor promptly if you develop signs of lung or breathing problems such as [shortness of breath](#), coughing, or new or increased snoring.

Also, call your doctor at once if you have:

- pain in your knees or hips, walking with a limp;

- ear pain, swelling, warmth, or drainage;
- numbness or tingling in your wrist, hand, or fingers;
- severe swelling or puffiness in your hands and feet;
- changes in behavior;
- vision problems, unusual headaches;
- changes in the shape or size of a mole;
- pain or swelling in your joints;
- [pancreatitis](#) - severe pain in your upper stomach spreading to your back, nausea and vomiting;
- [high blood sugar](#) - increased thirst, increased urination, dry mouth, fruity breath odor;
- increased pressure inside the skull - severe headaches, ringing in your ears, dizziness, nausea, vision problems, pain behind your eyes; or
- signs of an adrenal gland problem - extreme weakness, severe dizziness, weight loss, changes in skin color, feeling very weak or tired.

This is not a complete list of side effects and others may occur. Call your doctor for medical advice about side effects. You may report side effects to the FDA at 1-800-FDA-1088.

 [Somatropin side effects](#) (more detail)

Related/similar drugs

Norditropin

Norditropin is used to treat growth hormone deficiency (GHD) in adults and children and other ...

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Omnitrope

Omnitrope (somatropin) is a form of human growth hormone used to treat adults and children with ...

Reviews & ratings

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Skytrofa

Skytrofa injection is a once-weekly,

slow-release human growth hormone
(lonapegsomatropin) ...

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Genotropin is a human growth hormone used to treat growth failure in children and adults who lack ...

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Warnings

You should not use Genotropin injection if you have cancer, [diabetic retinopathy](#), or if you are being treated for Prader-Willi syndrome and you are overweight or have severe breathing problems. You should not use this medicine if you have a serious illness due to lung failure or complications from recent surgery, injury, or medical trauma.

Before taking this medicine

You should not use these injections if you are allergic to the active ingredient somatropin, [benzyl alcohol](#), or if you have:

- a serious illness due to lung failure, or complications from recent surgery, injury, or medical trauma;
- closed epiphyses;
- active cancer;
- eye problems caused by diabetes (diabetic retinopathy); or
- you are being treated for Prader-Willi syndrome and you are overweight or have severe breathing problems (including sleep apnea).

To make sure somatropin injection is safe for you, tell your doctor if you have:

- cancer (especially during childhood);
- diabetes;
- breathing problems, sleep apnea (breathing stops during sleep);
- a pituitary gland disorder;
- abnormal curvature of the spine (scoliosis);
- [underactive thyroid](#);
- a [head injury](#) or brain tumor; or
- childhood [brain cancer](#) and radiation treatment.

In some cases, some brands of somatropin should not be used in a child. Certain brands of somatropin contain an ingredient that can cause serious side effects or death in very young infants or premature babies. Do not give this medicine to a child without medical advice.

Tell your doctor if you are pregnant or breastfeeding.

 [Somatropin pregnancy and breastfeeding warnings](#) (more detail)

How should I use somatropin?

The weekly dose should be divided into 6 or 7 subcutaneous (under the skin) injections, depending on the brand. Check your doctor's instructions. Somatropin must not be injected intravenously.

A healthcare provider will teach you how to properly use the medication by yourself.

Do not inject the subcutaneous injection (under the skin) into the same place two times in a row.

Follow all directions on your prescription label and read all medication guides or instruction sheets. Use the medicine exactly as directed. Do not use Genotropin if you don't understand all the instructions for proper use. Ask your doctor or pharmacist if you have questions. Read the full directions for your device or read the full Instructions for Use.

Prepare your injection only when you are ready to give it. Do not shake the medicine. Do not use if the medicine looks cloudy, has changed colors, or has particles in it. Call your pharmacist for new medicine.

Choose an injection site (thigh, buttocks, or abdomen) as recommended by your healthcare provider. Choose a different site each time you give yourself an injection. Each new injection should be given at least 1 inch from the site you used before.

Avoid areas that are bony, bruised, red, sore, or hard. You should also avoid areas of the skin that have scars or skin problems.

Clean the injection site with the alcohol swab.

Firmly pinch a fold of skin at the injection area. Use the Pen device or syringe to push the needle fully into the skin fold at a 90° angle.

For a pen drive push the pen device injection button until it clicks. Wait while counting slowly for 5 seconds, and then remove the needle from the skin. This is to make sure that the entire dose has been injected.

For a syringe press the plunger down and when complete remove the needle from the skin.

 [Detailed Somatropin dosage information](#)

What happens if I miss a dose?

Use the medicine as soon as you can, but skip the missed dose if it is almost time for your next dose. Do not use two doses at one time.

Call your doctor if you miss more than 3 doses in a row.

What happens if I overdose?

Seek emergency medical attention or call the Poison Help line at 1-800-222-1222.

Overdose can cause tremors or shaking, cold sweats, increased hunger, headache, drowsiness, weakness, dizziness, [fast heartbeat](#), and nausea. Long-term overdose may cause excessive growth.

Who should not use somatropin?

Genotropin injection should not be used in

- Acute Critical Illness due to complications following open heart surgery, abdominal surgery, or multiple accidental trauma, or those with acute respiratory failure
- Prader-Willi Syndrome in Children who are severely obese, have a history of upper airway obstruction or sleep apnea, or have a severe respiratory impairment. There have been reports of sudden death when somatropin was used in such patients.
- Active Malignancy. Any preexisting malignancy should be inactive and its treatment complete before starting therapy with somatropin. Since growth hormone deficiency may be an early sign of the presence of a pituitary tumor (or, rarely, other brain tumors), the presence of such tumors should be ruled out prior to initiation of treatment. Somatropin should not be used in patients with any evidence of progression or recurrence of an underlying intracranial tumor.
- Hypersensitivity to somatropin or any of its excipients. The 5 mg and 12 mg presentations of lyophilized powder

contain m-cresol as a preservative. Systemic hypersensitivity reactions have been reported with postmarketing use of somatropins.

- Diabetic Retinopathy in patients with active proliferative or severe non-proliferative diabetic retinopathy.
- Closed Epiphyses this medicine should not be used for growth promotion in pediatric patients with closed epiphyses.

What other drugs will affect somatropin?

Tell your doctor about all your other medicines, especially:

- [birth control pills](#) or hormone replacement therapy;
- insulin or oral diabetes medicine; or
- a steroid (prednisone, [dexamethasone](#), [methylprednisolone](#), and others).

This list is not complete. Other drugs may affect Genotropin, including prescription and over-the-counter medicines, vitamins, and [herbal products](#). Not all possible drug interactions are listed here.

 [Somatropin drug interactions](#) (more detail)

Does somatropin interact with my other drugs?

Enter medications to view a detailed interaction report using our [Drug Interaction Checker](#).

+

Add

Somatropin Biosimilars

Biosimilar and interchangeable products are biological products that are highly similar to and have no clinically meaningful differences from the reference product.

Reference products

These are biological products that have already been approved by the FDA, against which biosimilar products are compared. There are 11 for somatropin.

Accretropin (somatropin) - Emergent Biosolutions Canada Inc.



Formulation type	Strength
Multi-Dose Vial	5 mg/mL Discontinued, Voluntarily Revoked

View [Accretropin](#) information in detail.

Genotropin (somatropin) - Pharmacia & Upjohn Company LLC



Humatrope (somatropin) - Eli Lilly and Company	▼
Norditropin (somatropin) - Novo Nordisk Inc.	▼
Nutropin (somatropin) - Genentech, Inc.	▼
Nutropin AQ (somatropin) - Genentech, Inc.	▼
Omnitrope (somatropin) - Sandoz Inc.	▼
Saizen (somatropin) - EMD Serono, Inc.	▼
Serostim (somatropin) - EMD Serono, Inc.	▼
Zomacton (somatropin) - Ferring Pharmaceuticals Inc.	▼
Zorbtive/Serostim (somatropin) - EMD Serono, Inc.	▼

References

1. [Serostim Package Insert](#)
2. [Nutropin AQ Package Insert](#)
3. [Zorbtive Package Insert](#)
4. [Humatrope Package Insert](#)
5. [Genotropin Package Insert](#)

More about somatropin

- [Check interactions](#)
- [Compare alternatives](#)
- [Reviews \(37\)](#)
- [Side effects](#)
- [Dosage information](#)
- [During pregnancy](#)
- [Drug class: growth hormones](#)
- [Breastfeeding](#)
- [En español](#)

Patient resources

- [Somatropin, e-coli derived advanced reading](#)

- [Somatropin, mammalian derived \(Advanced Reading\)](#)
- [Somatropin \(rDNA origin - Nonrefrigerated\) \(SBS\)](#)
- [Somatropin \(rDNA origin\)](#)
- [Somatropin for Weight Gain](#)

Other brands

[Genotropin](#), [Norditropin](#), [Omnitrope](#), [Humatrope](#), ... +8 more

Professional resources

- [Somatropin monograph](#)

Other brands

[Genotropin](#), [Norditropin](#), [Omnitrope](#), [Humatrope](#), ... +6 more

Related treatment guides

- [Adult Human Growth Hormone Deficiency](#)
- [AIDS Related Wasting](#)
- [Burns, Nitrogen Retention](#)
- [Cachexia](#)

Further information

Always consult your healthcare provider to ensure the information displayed on this page applies to your personal circumstances.

[Medical Disclaimer](#)

DRUG STATUS

Availability

Rx Prescription only


[Pregnancy & Lactation](#)

 Risk data available

CSA Schedule*

N/A Not a controlled drug

Approval History

 Drug history at FDA



User Reviews & Ratings

7.6 / 10

[37 Reviews](#)

Images

[Genotropin \(somatropin\) multiple strengths](#)

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