## 1. NAME OF THE MEDICINAL PRODUCT

GENOTROPIN 5.3 mg, or 12 mg, powder and solvent for solution for injection.

## 2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Somatropin (INN) recombinant DNA-derived human growth hormone produced in *E. coli*.

GENOTROPIN 5.3 mg powder and solvent for solution for injection, with preservative. One cartridge contains 5.3 mg somatropin*. After reconstitution the concentration of somatropin is 5.3 mg/ml.

GENOTROPIN 12 mg powder and solvent for solution for injection, with preservative. One cartridge contains 12 mg somatropin*. After reconstitution the concentration of somatropin is 12 mg/ml.

* Produced in *Escherichia coli* cells by recombinant DNA technology.

For a full list of excipients, see section 6.1.

## 3. PHARMACEUTICAL FORM

Two-chamber cartridge: Powder and solvent for solution for injection. In the two-chamber cartridge there is a white powder in the front compartment and a clear solution in the rear compartment.

The two-chamber cartridge is supplied for use in a sealed disposable multidose pre-filled pen (GoQuick).

## 4. CLINICAL PARTICULARS

### 4.1 THERAPEUTIC INDICATIONS

Children

Growth disturbance due to insufficient secretion of growth hormone (growth hormone deficiency, GHD) and growth disturbance associated with Turner syndrome or chronic renal insufficiency.

Growth disturbance [current height standard deviation score (SDS) < - 2.5 and parental adjusted height SDS < - 1] in short children born small for gestational age (SGA), with a birth weight and/or length below - 2 SD, who failed to show catch-up growth [height velocity (HV) SDS <0 during the last year] by 4 years of age or later.

Prader-Willi syndrome (PWS), for improvement of growth and body composition. The diagnosis of PWS should be confirmed by appropriate genetic testing.

Adults

Replacement therapy in adults with pronounced growth hormone deficiency.

*Adult Onset:* Patients who have severe growth hormone deficiency associated with multiple hormone deficiencies as a result of known hypothalamic or pituitary pathology, and who have at least one known deficiency of a pituitary hormone not being prolactin. These patients should

undergo an appropriate dynamic test in order to diagnose or exclude a growth hormone deficiency.

*Childhood Onset:* Patients who were growth hormone deficient during childhood as a result of congenital, genetic, acquired, or idiopathic causes. Patients with childhood onset GHD should be re-evaluated for growth hormone secretory capacity after completion of longitudinal growth. In patients with a high likelihood for persistent GHD, i.e. a congenital cause or GHD secondary to a pituitary/hypothalamic disease or insult, an insulin-like growth factor-I (IGF-I) SDS < - 2 off growth hormone treatment for at least 4 weeks should be considered sufficient evidence of profound GHD.

All other patients will require IGF-I assay and one growth hormone stimulation test.

## 4.2 POSOLOGY AND METHOD OF ADMINISTRATION

The dosage and administration schedule should be individualized.

The injection should be given subcutaneously and the site varied to prevent lipoatrophy.

*Growth Disturbance due to Insufficient Secretion of Growth Hormone in Children:*

Generally a dose of 0.025 – 0.035 mg/kg body weight per day or 0.7 – 1.0 mg/m$^2$ body surface area per day is recommended. Even higher doses have been used.

Where childhood onset GHD persists into adolescence, treatment should be continued to achieve full somatic development (e.g. body composition, bone mass). For monitoring, the attainment of a normal peak bone mass defined as a T score > - 1 (i.e. standardized to average adult peak bone mass measured by dual energy X-ray absorptiometry taking into account sex and ethnicity) is one of the therapeutic objectives during the transition period. For guidance on dosing see adult section below.

*Prader-Willi Syndrome, for Improvement of Growth and Body Composition in Children:*

Generally a dose of 0.035 mg/kg body weight per day or 1.0 mg/m$^2$ body surface area per day is recommended. Daily doses of 2.7 mg should not be exceeded. Treatment should not be used in children with a growth velocity of less than 1 cm per year and near closure of epiphyses.

*Growth Disturbance due to Turner Syndrome:*

A dose of 0.045 – 0.050 mg/kg body weight per day or 1.4 mg/m$^2$ body surface area per day is recommended.

*Growth Disturbance in Chronic Renal Insufficiency:*

A dose of 0.045 - 0.050 mg/kg body weight per day (1.4 mg/m² body surface area per day) is recommended. Higher doses can be needed if growth velocity is too low. A dose correction can be needed after six months of treatment.

*Growth Disturbance in Short Children Born Small for Gestational Age (SGA)*:

A dose of 0.035 mg/kg body weight per day (1 mg/m² body surface area per day) is usually recommended until final height is reached (see section 5.1). Treatment should be discontinued after the first year of treatment if the height velocity SDS is below + 1. Treatment should be discontinued if height velocity is <2 cm/year and, if confirmation is required, bone age is

>14 years (girls) or >16 years (boys), corresponding to closure of the epiphyseal growth plates.

| Dosage Recommendations in Pediatric Patients | | |
|---|---|---|
| **Indication** | **Daily Dose** | |
| | mg/kg body weight dose per day | $mg/m^2$ body surface area dose per day |
| **Growth hormone deficiency in children** | 0.025 – 0.035 | 0.7 – 1.0 |
| **Prader-Willi syndrome in children** | 0.035 | 1.0 |
| **Turner syndrome** | 0.045 – 0.050 | 1.4 |
| **Chronic renal insufficiency** | 0.045 – 0.050 | 1.4 |
| **Children born small for gestational age** | 0.035 | 1.0 |

*Growth Hormone Deficient Adult Patients:*

In patients who continue growth hormone therapy after childhood GHD, the recommended dose to restart is 0.2 – 0.5 mg per day. The dose should be gradually increased or decreased according to individual patient requirements as determined by the IGF-I concentration.

In patients with adult-onset GHD, therapy should start with a low dose, 0.15 – 0.3 mg per day. The dose should be gradually increased according to individual patient requirements as determined by the IGF-I concentration.

In both cases treatment goal should be IGF-I concentrations within 2 SDS from the age corrected mean. Patients with normal IGF-I concentrations at the start of the treatment should be administered growth hormone up to an IGF-I level into upper range of normal, not exceeding the 2 SDS. Clinical response and side effects may also be used as guidance for dose titration. It is recognised that there are patients with GHD who do not normalize IGF-I levels despite a good clinical response, and thus do not require dose escalation. The maintenance dose seldom exceeds 1.0 mg per day. Women may require higher doses than men, with men showing an increasing IGF-I sensitivity over time. This means that there is a risk that women, especially those on oral oestrogen replacement are under-treated while men are over-treated. The accuracy of the growth hormone dose should therefore be controlled every 6 months. As normal physiological growth hormone production decreases with age, dose requirements are reduced. In patients above 60 years, therapy should start with a dose of 0.1 - 0.2 mg per day and should be slowly increased according to individual patient requirements. The minimum effective dose should be used. The maintenance dose in these patients seldom exceeds 0.5 mg per day.

## 4.3 CONTRAINDICATIONS

Hypersensitivity to the active substance or to any of the excipients listed in section 6.1.

Somatropin must not be used when there is any evidence of activity of a tumour. Intracranial tumours must be inactive and antitumour therapy must be completed prior to starting growth hormone therapy. Treatment should be discontinued if there is evidence of tumour growth.

GENOTROPIN should not be used for growth promotion in children with closed epiphyses.

Patients with acute critical illness suffering complications following open heart surgery, abdominal surgery, multiple accidental trauma, acute respiratory failure or similar conditions should not be treated with GENOTROPIN (regarding patients undergoing substitution therapy, see section 4.4).

## 4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE

Diagnosis and therapy with GENOTROPIN should be initiated and monitored by physicians who are appropriately qualified and experienced in the diagnosis and management of patients with the therapeutic indication of use.

Myositis is a very rare adverse event that may be related to the preservative metacresol. In the case of myalgia or disproportionate pain at injection site, myositis should be considered and if confirmed, a GENOTROPIN presentation without metacresol should be used.

The maximum recommended daily dose should not be exceeded (see section 4.2).

Insulin sensitivity

Somatropin may reduce insulin sensitivity. For patients with diabetes mellitus, the insulin dose may require adjustment after somatropin therapy is instituted. Patients with diabetes, glucose intolerance, or additional risk factors for diabetes should be monitored closely during somatropin therapy.

Thyroid function

Growth hormone increases the extrathyroidal conversion of T4 to T3 which may result in a reduction in serum T4 and an increase in serum T3 concentrations. Whereas the peripheral thyroid hormone levels have remained within the reference ranges in the majority of healthy subjects, hypothyroidism theoretically may develop in subjects with subclinical hypothyroidism. Consequently, monitoring of thyroid function should therefore be conducted in all patients. In patients with hypopituitarism on standard replacement therapy, the potential effect of growth hormone treatment on thyroid function must be closely monitored.

Hypoadrenalism

Introduction of somatropin treatment may result in inhibition of 11βHSD-1 and reduced serum cortisol concentrations. In patients treated with somatropin, previously undiagnosed central (secondary) hypoadrenalism may be unmasked and glucocorticoid replacement may be required. In addition, patients treated with glucocorticoid replacement therapy for previously diagnosed hypoadrenalism may require an increase in their maintenance or stress doses, following initiation of somatropin treatment (see section 4.5).

Use with oral oestrogen therapy

If a woman taking somatropin begins oral oestrogen therapy, the dose of somatropin may need to be increased to maintain the serum IGF-1 levels within the normal age-appropriate range. Conversely, if a woman on somatropin discontinues oral oestrogen therapy, the dose of somatropin may need to be reduced to avoid excess of growth hormone and/or side effects (see section 4.5).

In growth hormone deficiency secondary to treatment of malignant disease, it is recommended to pay attention to signs of relapse of the malignancy. In childhood cancer survivors, an increased risk of a second neoplasm has been reported in patients treated with somatropin after their first neoplasm. Intracranial tumours, in particular meningiomas, in patients treated with radiation to the head for their first neoplasm, were the most common of these second neoplasms.

In patients with endocrine disorders, including growth hormone deficiency, slipped epiphyses of the hip may occur more frequently than in the general population. Children limping during treatment with somatropin, should be examined clinically.

Benign intracranial hypertension

In case of severe or recurrent headache, visual problems, nausea and/or vomiting, a funduscopy for papilloedema is recommended. If papilloedema is confirmed, a diagnosis of benign intracranial hypertension should be considered and, if appropriate, the growth hormone treatment should be discontinued. At present there is insufficient evidence to give specific advice on the continuation of growth hormone treatment in patients with resolved intracranial hypertension. If growth hormone treatment is restarted, careful monitoring for symptoms of intracranial hypertension is necessary.

Leukaemia

Leukaemia has been reported in a small number of growth hormone deficiency patients, some of whom have been treated with somatropin. However, there is no evidence that leukaemia incidence is increased in growth hormone recipients without predisposition factors.

Antibodies

As with all somatropin containing products, a small percentage of patients may develop antibodies to GENOTROPIN. GENOTROPIN has given rise to the formation of antibodies in approximately 1% of patients. The binding capacity of these antibodies is low and there is no effect on growth rate. Testing for antibodies to somatropin should be carried out in any patient with otherwise unexplained lack of response.

Elderly patients

Experience in patients above 80 years is limited. Elderly patients may be more sensitive to the action of GENOTROPIN, and therefore may be more prone to develop adverse reactions.

Acute critical illness

The effects of GENOTROPIN on recovery were studied in two placebo controlled trials involving 522 critically ill adult patients suffering complications following open heart surgery, abdominal surgery, multiple accidental trauma or acute respiratory failure. Mortality was higher in patients treated with 5.3 or 8 mg GENOTROPIN daily compared to patients receiving placebo, 42% vs. 19%. Based on this information, these types of patients should not be treated with GENOTROPIN. As there is no information available on the safety of growth hormone substitution therapy in acutely critically ill patients, the benefits of continued treatment in this situation should be weighed against the potential risks involved.

In all patients developing other or similar acute critical illness, the possible benefit of treatment with GENOTROPIN must be weighed against the potential risk involved.

Pancreatitis

Although rare, pancreatitis should be considered in somatropin-treated patients, especially children who develop abdominal pain.

Prader-Willi syndrome

In patients with Prader-Willi syndrome, treatment should always be in combination with a calorie-restricted diet.

There have been reports of fatalities associated with the use of growth hormone in pediatric patients with Prader-Willi syndrome who had one or more of the following risk factors: severe obesity (those patients exceeding a weight/height of 200%), history of respiratory impairment or sleep apnoea, or unidentified respiratory infection. Patients with one or more of these factors may be at increased risk.

Before initiation of treatment with somatropin in patients with Prader-Willi syndrome, signs for upper airway obstruction, sleep apnoea, or respiratory infections should be assessed.

If during the evaluation of upper airway obstruction, pathological findings are observed, the child should be referred to an Ear, nose and throat (ENT) specialist for treatment and resolution of the respiratory disorder prior to initiating growth hormone treatment.

Sleep apnoea should be assessed before onset of growth hormone treatment by recognised methods such as polysomnography or overnight oxymetry, and monitored if sleep apnoea is suspected.

If during treatment with somatropin patients show signs of upper airway obstruction (including onset of or increased snoring), treatment should be interrupted, and a new ENT assessment performed.

All patients with Prader-Willi syndrome should be monitored if sleep apnoea is suspected.

Patients should be monitored for signs of respiratory infections, which should be diagnosed as early as possible and treated aggressively.

All patients with Prader-Willi syndrome should also have effective weight control before and during growth hormone treatment.

Scoliosis is common in patients with Prader-Willi syndrome. Scoliosis may progress in any child during rapid growth. Signs of scoliosis should be monitored during treatment.

Experience with prolonged treatment in adults and in patients with Prader-Willi syndrome is limited.

Small for gestational age

In short children born SGA other medical reasons or treatments that could explain growth disturbance should be ruled out before starting treatment.

In SGA children it is recommended to measure fasting insulin and blood glucose before start of treatment and annually thereafter. In patients with increased risk for diabetes mellitus (e.g. familial history of diabetes, obesity, severe insulin resistance, acanthosis nigricans) oral glucose tolerance testing (OGTT) should be performed. If overt diabetes occurs, growth hormone should not be administered.

In SGA children it is recommended to measure the IGF-I level before start of treatment and twice a year thereafter. If on repeated measurements IGF-I levels exceed +2 SD compared to references for age and pubertal status, the IGF-I / IGFBP-3 ratio could be taken into account to consider dose adjustment.

Experience in initiating treatment in SGA patients near onset of puberty is limited. It is therefore not recommended to initiate treatment near onset of puberty. Experience in patients with Silver-Russell syndrome is limited.

Some of the height gain obtained with treating short children born SGA with growth hormone may be lost if treatment is stopped before final height is reached.

Chronic renal insufficiency

In chronic renal insufficiency, renal function should be below 50 percent of normal before institution of therapy. To verify growth disturbance, growth should be followed for a year preceding institution of therapy. During this period, conservative treatment for renal insufficiency (which includes control of acidosis, hyperparathyroidism and nutritional status) should have been established and should be maintained during treatment. The treatment should be discontinued at renal transplantation.

To date, no data on final height in patients with chronic renal insufficiency treated with GENOTROPIN are available.

Sodium content

This medicinal product contains less than 1 mmol sodium (23 mg) per dose. Patients on low sodium diets can be informed that this medicinal product is essentially ‘sodium free’.

## 4.5 INTERACTION WITH OTHER MEDICINAL PRODUCTS AND OTHER FORMS OF INTERACTION

Concomitant treatment with glucocorticoids inhibits the growth-promoting effects of somatropin containing products. Patients with Adrenocorticotropic hormone (ACTH) deficiency should have their glucocorticoid replacement therapy carefully adjusted to avoid any inhibitory effect on growth. Therefore, patients treated with glucocorticoids should have their growth monitored carefully to assess the potential impact of glucocorticoid treatment on growth.

Growth hormone decreases the conversion of cortisone to cortisol and may unmask previously undiscovered central hypoadrenalism or render low glucocorticoid replacement doses ineffective (see section 4.4).

Data from an interaction study performed in growth hormone deficient adults, suggests that somatropin administration may increase the clearance of compounds known to be metabolised by cytochrome P450 isoenzymes. The clearance of compounds metabolised by cytochrome P 450 3A4 (e.g. sex steroids, corticosteroids, anticonvulsants and ciclosporin) may be especially increased resulting in lower plasma levels of these compounds. The clinical significance of this is unknown.

Also see section 4.4 for statements regarding diabetes mellitus and thyroid disorder.
In women on oral oestrogen replacement, a higher dose of growth hormone may be required to achieve the treatment goal (see section 4.4).

## 4.6 PREGNANCY AND LACTATION

Pregnancy

Animal studies are insufficient with regard to effects on pregnancy, embryofoetal development, parturition or postnatal development (see section 5.3). No clinical studies on exposed pregnancies are available. Therefore, somatropin containing products are not recommended during pregnancy and in women of childbearing potential not using contraception.

Breast-feeding

There have been no clinical studies conducted with somatropin containing products in breast-feeding women. It is not known whether somatropin is excreted in human milk, but absorption of intact protein from the gastrointestinal tract of the infant is extremely unlikely. Therefore caution should be exercised when somatropin containing products are administered to breast-feeding women.

## 4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES

No effects on the ability to drive and use machines have been observed.

## 4.8 UNDESIRABLE EFFECTS

Patients with growth hormone deficiency are characterized by extracellular volume deficit. When treatment with somatropin is started this deficit is rapidly corrected. In adult patients adverse effects related to fluid retention, such as oedema peripheral, face oedema, musculoskeletal stiffness, arthralgia, myalgia and paraesthesia are common. In general these adverse effects are mild to moderate, arise within the first months of treatment and subside spontaneously or with dose-reduction.

The incidence of these adverse effects is related to the administered dose, the age of patients, and possibly inversely related to the age of patients at the onset of growth hormone deficiency. In children such adverse effects are uncommon.

GENOTROPIN has given rise to the formation of antibodies in approximately 1% of the patients. The binding capacity of these antibodies has been low and no clinical changes have been associated with their formation, see section 4.4.

Tabulated list of adverse reactions

Table 1 shows the adverse reactions ranked under headings of System Organ Class and frequency for children and adults using the following convention: very common (≥1/10); common (≥1/100 to <1/10); uncommon (≥1/1,000 to < 1/100); rare (≥1/10,000 to <1/1,000); very rare (<1/10,000); not known (cannot be estimated from the available data).

**Table 1: Tabulated list of adverse reactions**

| System organ class | Very common (⩾1/10) | Common (⩾1/100 to <1/10) | Uncommon (⩾1/1,000 to <1/100) | Rare (⩾1/10,000 to <1/1000) | Very rare (<1/10,000) | Not known (cannot be estimated from available data) |
|---|---|---|---|---|---|---|
| Neoplasms benign, | | | (Children) Leukaemia† | | | |

**Table 1: Tabulated list of adverse reactions**

| System organ class | Very common (⩾1/10) | Common (⩾1/100 to <1/10) | Uncommon (⩾1/1,000 to <1/100) | Rare (⩾1/10,000 to <1/1000) | Very rare (<1/10,000) | Not known (cannot be estimated from available data) |
|---|---|---|---|---|---|---|
| malignant, and unspecified (including cysts and polyps) | | | | | | |
| Metabolism and nutrition disorders | | | | | | (Adults and Children) Type 2 diabetes mellitus |
| Nervous system disorders | | (Adults) Paraesthesia*<br><br>(Adults) Carpal tunnel syndrome | (Children) Benign intracranial hypertension<br><br>(Children) Paraesthesia* | | | (Adults) Benign intracranial hypertension<br><br>(Adults and Children) Headache |
| Skin and subcutaneous tissue disorders | | | (Children) Rash**, Pruritus**, Urticaria** | | | (Adults) Rash**, Pruritus**, Urticaria** |
| Musculoskeletal and connective tissue disorders | (Adults) Arthralgia* | (Adults) Myalgia*<br><br>(Adults) Musculoskeletal stiffness*<br><br>(Children) Arthralgia* | (Children) Myalgia* | | | (Children) Musculoskeletal stiffness* |
| Reproductive system and breast disorders | | | (Adults and Children) Gynaecomastia | | | |
| General disorders and administration site conditions | (Adults) Oedema peripheral* | (Children) Injection-site reaction$ | (Children) Oedema peripheral* | | | (Adults and Children) Face oedema*<br><br>(Adults) Injection-site reaction$ |

**Table 1: Tabulated list of adverse reactions**

| System organ class | Very common (⩾1/10) | Common (⩾1/100 to <1/10) | Uncommon (⩾1/1,000 to <1/100) | Rare (⩾1/10,000 to <1/1000) | Very rare (<1/10,000) | Not known (cannot be estimated from available data) |
|---|---|---|---|---|---|---|
| Investigations | | | | | | (Adults and Children) Blood cortisol decreased‡ |

* In general, these adverse effects are mild to moderate, arise within the first months of treatment, and subside spontaneously or with dose-reduction. The incidence of these adverse effects is related to the administered dose, the age of the patients, and possibly inversely related to the age of the patients at the onset of growth hormone deficiency.
** Adverse Drug Reactions (ADR) identified post-marketing.
$ Transient injection site reactions in children have been reported.
‡ Clinical significance is unknown
† Reported in growth hormone deficient children treated with somatropin, but the incidence appears to be similar to that in children without growth hormone deficiency.

Reduced serum cortisol levels

Somatropin has been reported to reduce serum cortisol levels, possibly by affecting carrier proteins or by increased hepatic clearance. The clinical relevance of these findings may be limited. Nevertheless, corticosteroid replacement therapy should be optimised before initiation of GENOTROPIN therapy.

Prader-Willi syndrome

In the post-marketing experience rare cases of sudden death have been reported in patients affected by Prader-Willi syndrome treated with somatropin, although no causal relationship has been demonstrated.

Leukaemia

Cases of leukaemia have been reported in children with a GH deficiency, some of whom were treated with somatropin and included in the post-marketing experience. However, there is no evidence of an increased risk of leukaemia without predisposition factors, such as radiation to the brain or head.

Slipped capital femoral epiphysis and Legg-Calve-Perthes disease

Slipped capital femoral epiphysis and Legg-Calve-Perthes disease have been reported in children treated with GH. Slipped capital femoral epiphysis occurs more frequently in case of endocrine disorders and Legg-Calve-Perthes is more frequent in case of short stature. But, it is unknown if these 2 pathologies are more frequent or not while treated with somatropin. Their diagnosis should be considered in a child with a discomfort or pain in the hip or knee.

Other adverse drug reactions

Other adverse drug reactions may be considered somatropin class effects, such as possible hyperglycaemia caused by decreased insulin sensitivity, decreased free thyroxin level and benign intra-cranial hypertension.

## 4.9 OVERDOSE

Symptoms

Acute overdosage could lead initially to hypoglycaemia and subsequently to hyperglycaemia.

Long-term overdosage could result in signs and symptoms consistent with the known effects of human growth hormone excess.

## 5. PHARMACOLOGICAL PROPERTIES

## 5.1 PHARMACODYNAMIC PROPERTIES

Pharmacotherapeutic group: Anterior pituitary lobe hormones and analogues, ATC code: H01A C01

Somatropin is a potent metabolic hormone of importance for the metabolism of lipids, carbohydrates and proteins. In children with inadequate endogenous growth hormone, somatropin stimulates linear growth and increases growth rate. In adults, as well as in children, somatropin maintains a normal body composition by increasing nitrogen retention and stimulation of skeletal muscle growth, and by mobilization of body fat. Visceral adipose tissue is particularly responsive to somatropin. In addition to enhanced lipolysis, somatropin decreases the uptake of triglycerides into body fat stores. Serum concentrations of IGF-I (Insulin-like Growth Factor-I), and IGFBP-3 (Insulin-like Growth Factor Binding Protein 3) are increased by somatropin. In addition, the following actions have been demonstrated:

- Lipid metabolism: Somatropin induces hepatic LDL cholesterol receptors, and affects the profile of serum lipids and lipoproteins. In general, administration of somatropin to growth hormone deficient patients results in reductions in serum LDL and apolipoprotein B. A reduction in serum total cholesterol may also be observed.

- Carbohydrate metabolism: Somatropin increases insulin but fasting blood glucose is commonly unchanged. Children with hypopituitarism may experience fasting hypoglycemia. This condition is reversed by somatropin.

- Water and mineral metabolism: Growth hormone deficiency is associated with decreased plasma and extracellular volumes. Both are rapidly increased after treatment with somatropin. Somatropin induces the retention of sodium, potassium and phosphorus.

- Bone metabolism: Somatropin stimulates the turnover of skeletal bone. Long-term administration of somatropin to growth hormone deficient patients with osteopenia results in an increase in bone mineral content and density at weight-bearing sites.

- Physical capacity: Muscle strength and physical exercise capacity are improved after long-term treatment with somatropin. Somatropin also increases cardiac output, but the mechanism has yet to be clarified. A decrease in peripheral vascular resistance may contribute to this effect.

In clinical trials in short children born SGA doses of 0.033 and 0.067 mg/kg body weight per day have been used for treatment until final height. In 56 patients who were continuously treated and have reached (near) final height, the mean change from height at start of treatment

was +1.90 SDS (0.033 mg/kg body weight per day) and +2.19 SDS (0.067 mg/kg body weight per day). Literature data from untreated SGA children without early spontaneous catch-up suggest a late growth of 0.5 SDS.

## 5.2 PHARMACOKINETIC PROPERTIES

Absorption

The bioavailability of subcutaneously administered somatropin is approximately 80% in both healthy subjects and growth hormone deficient patients. A subcutaneous dose of 0.035 mg/kg of somatropin results in plasma $C_{max}$ and $t_{max}$ values in the range of 13-35 ng/ml and 3-6 hours respectively.

Elimination

The mean terminal half-life of somatropin after intravenous administration in growth hormone deficient adults is about 0.4 hours. However, after subcutaneous administration, half-lives of 2-3 hours are achieved. The observed difference is likely due to slow absorption from the injection site following subcutaneous administration.

Sub-populations

The absolute bioavailability of somatropin seems to be similar in males and females following S.C. administration.

Information about the pharmacokinetics of somatropin in geriatric and pediatric populations, in different races and in patients with renal, hepatic or cardiac insufficiency is either lacking or incomplete.

## 5.3 PRECLINICAL SAFETY DATA

In studies regarding general toxicity, local tolerance and reproduction toxicity no clinically relevant effects have been observed.

*In vitro* and *in vivo* genotoxicity studies on gene mutations and induction of chromosome aberrations have been negative.

An increased chromosome fragility has been observed in one *in-vitro* study on lymphocytes taken from patients after long term treatment with somatropin and following the addition of the radiomimetic drug bleomycin. The clinical significance of this finding is unclear.

In another study, no increase in chromosomal abnormalities was found in the lymphocytes of patients who had received long term somatropin therapy.

# 6. PHARMACEUTICAL PARTICULARS

## 6.1 LIST OF EXCIPIENTS

Front compartment (powder):

Glycine
Mannitol
Sodium dihydrogen phosphate, monohydrate
Disodium phosphate, dodecahydrate

Rear compartment (solvent):

Water for injections
Metacresol
Mannitol

## 6.2 INCOMPATIBILITIES

In the absence of compatibility studies, this medicinal product must not be mixed with other medicinal products.

## 6.3 SHELF-LIFE

Please see expiry date on the outer carton.

Chemical and physical in-use stability has been demonstrated for 28 days at 2°C - 8°C.

From a microbiological point of view, once reconstituted, the product may be stored for 28 days at 2°C - 8°C. Other in-use storage times and conditions are the responsibility of the user.

## 6.4 SPECIAL PRECAUTIONS FOR STORAGE

Before reconstitution

Store in a refrigerator (2°C – 8°C), or for a maximum of 1 month at or below 25°C. Keep the pre-filled pen in the outer carton in order to protect from light.

After reconstitution

Store in a refrigerator (2°C – 8°C). Do not freeze. Keep the pre-filled pen in the outer carton in order to protect from light. For storage conditions of the reconstituted medicinal product, see section 6.3.

## 6.5 NATURE AND CONTENTS OF CONTAINER

Powder and 1 ml solvent in a two-chamber glass cartridge (type I glass) separated by a rubber plunger (bromobutyl). The cartridge is sealed at one end with a rubber disc (bromobutyl) and an aluminium cap and at the other end by a rubber stopper (bromobutyl). The two-chamber cartridge is supplied for use in a sealed disposable multidose pre-filled pen, GoQuick.

The 5.3 mg pre-filled pen GoQuick is colour coded blue. The 12 mg pre-filled pen GoQuick is colour coded purple.

| Presentation | Package size |
|---|---|
| GENOTROPIN 5.3 mg | 1 x 5.3 mg pre-filled pen, 5 x 5.3 mg pre-filled pens |
| GENOTROPIN 12 mg | 1 x 12 mg pre-filled pen, 5 x 12 mg pre-filled pens |

Some product strengths or pack sizes may not be available in your country.

## 6.6 INSTRUCTIONS FOR USE AND HANDLING

Only reconstitute the powder with the solvent supplied.

*Two-chamber cartridge*: The solution is prepared by screwing the GoQuick pre-filled pen sections together so that the solvent will be mixed with the powder in the two-chamber cartridge. Gently dissolve the powder by gently tipping it back and forth. Do not shake vigorously, this might cause denaturation of the active substance. The reconstituted solution is almost colourless or slightly opalescent. The reconstituted solution for injection is to be inspected prior to use and only clear solutions without particles should be used.

*Disposal instructions*: Any unused product or waste material should be disposed of in accordance with local requirements. Empty GoQuick pre-filled pens should never be refilled and must be properly discarded.

## GOQUICK® INSTRUCTIONS FOR USE: 5.3 mg

Please read these instructions completely before using GoQuick Pen. If you have any questions about your dose or your treatment with GENOTROPIN, call your doctor or nurse.

### About GoQuick

GoQuick is a pre-filled, multidose, disposable injection pen that holds 5.3 mg of somatropin. Your pen can deliver doses from 0.1 mg to 1.5 mg of Genotropin. Each click of the black ring changes the dose by 0.05 mg. The GENOTROPIN in your pen is mixed only once, when you start a new pen. You never have to change cartridges. When your pen is empty, you just start a new pen.

Your pen has dose memory. The dose is set once on a new pen. Your pen then allows you to draw up the same set dose for each injection. This will prevent you from drawing more than your set dose.

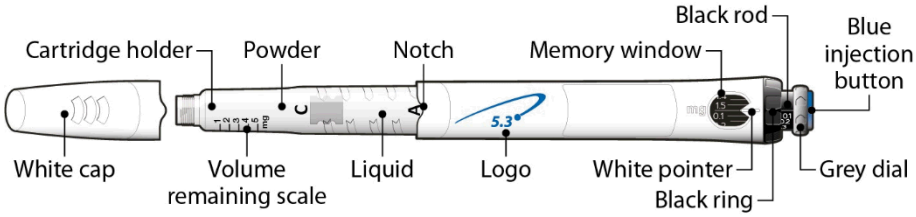
### Important Information

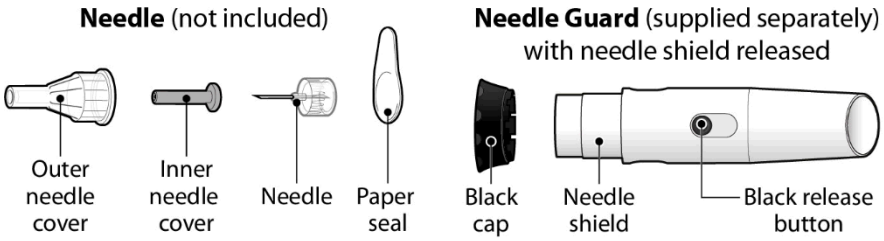
- **Do not** mix the powder and liquid of your pen unless a needle is on your pen.
- **Do not** store your pen with the needle attached. The Genotropin may leak from your pen and air bubbles may form in the cartridge. Always remove the needle and attach your pen cap or needle guard cap before storing.
- Take care not to drop your pen. If you drop your pen and any part of it appears broken or damaged, **do not** use it. Contact your doctor or nurse for another pen. If you drop your pen and it is not damaged or broken, you must perform another prime as described in Step 6 (Setting up and using a new GoQuick Pen).
- Clean your pen with a damp cloth. **Do not** put your pen in water.
- Always use a new needle for each injection. **Do not** share your pen needles.
- The volume remaining scale along the side of the cartridge holder is a guide to show the volume of Genotropin left in your pen.

### Storage and Disposal

- Store your pen in the refrigerator (2°C to 8°C) in the outer carton to protect from light. **Do not** freeze or expose it to frost.
- **Do not** use your pen after its expiry date.
- 28 days after mixing, throw away (dispose of) your pen even if there is some medicine left.
- See section 6.4 for how to store your GoQuick Pen.
- Follow your local health and safety laws to throw away (dispose of) your pen. Ask your doctor or nurse if you are not sure what to do.

**Parts of Your Go Quick Pen**




Pen needles are **not included** with your GoQuick Pen. You will need to get pen needles up to a length of 8 mm from your pharmacy.

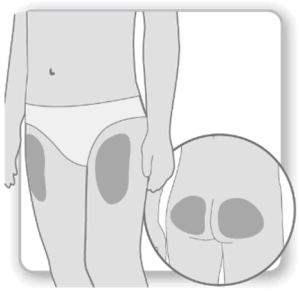
- Needles to use with your GoQuick Pen:
  - 31G or 32G (Becton Dickinson and Company)
  - 31G or 32G (Novo Nordisk®)
  - 32.5G or 34G (Terumo)

**Setting up and using a new GoQuick Pen**

**Step 1 Preparation**

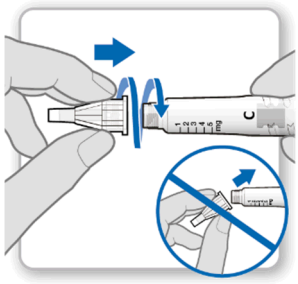
- **Wash and dry** your hands.
- **Gather** the following supplies on a clean flat surface:
  - A new GoQuick Pen
  - A new needle (not included)
  - Suitable sharps container (not included).
- **Check** the expiry date on your pen label. **Do not** use your pen if the pen has passed its expiry date.

**Step 2 Choose Injection Site**



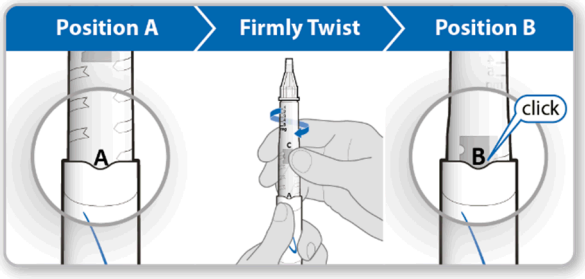
- **Choose and clean** an injection site as recommended by your doctor or nurse. Choose a different site each time you give yourself an injection. Each new injection should be given at least 2 cm from the site you used before.
- Avoid areas that are bony, bruised, red, sore or hard, and areas of the skin that have scars or skin conditions.

### Step 3 Attach New Needle



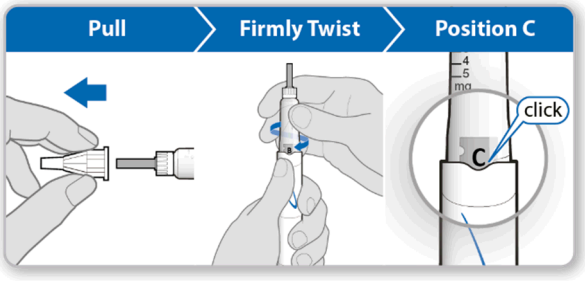
- **Pull** the white cap straight off your pen.
- Take a new needle and peel off the paper seal.
- **Gently push and then screw** the needle onto your pen. **Do not** overtighten.
  **Note:** Be careful not to attach the needle at an angle. This may cause your pen to leak.
- Leave both needle covers on the needle.

### Step 4 Mix the Genotropin




- **Hold** your pen with the needle-end pointing up and the **"A"** facing you.
- **Firmly** twist the cartridge holder into your pen until **"B"** clicks into the notch.
- **Gently tilt** your pen from side to side to help dissolve the powder completely. **Do not** shake. Shaking can damage the growth hormone.
- **Check** that the liquid in the cartridge is clear and all the powder is dissolved.
  - If the liquid is cloudy or you see any powder, gently tilt your pen from side to side a few more times.
  - If the liquid is still cloudy or you see any powder, **do not** use the pen and try again with a new pen.

### Step 5 Remove the Air from Your Pen

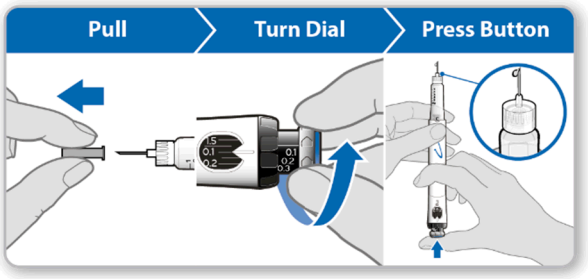



- **Pull** the outer needle cover off. Keep it to remove the needle after your injection.
- Leave the inner needle cover on.

**Note:** You should see an inner needle cover after you have removed the outer cover. If you do not see this, try to attach the needle again.

- **Hold** your pen with the needle-end pointing up.
- **Gently tap** the cartridge holder to help any trapped air move to the top.
- **Firmly twist** the cartridge holder into your pen until **"C"** clicks into the notch.
  - Some liquid may appear around the inner needle cover. This is normal.

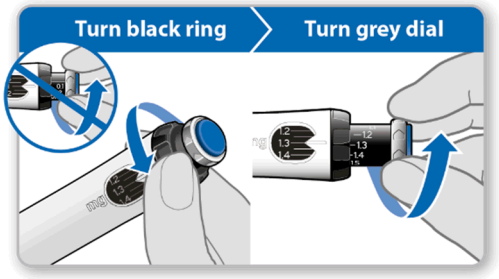
### Step 6 Prime Your Pen




Priming removes any remaining air by pushing a small amount of liquid out of your pen. The priming dose is 0.1 mg and is different from the dose your doctor or nurse has prescribed. **Only prime your pen the first time you use it.**

- **Pull** the inner needle cover off and throw it away.
  **Caution: Do not** touch the needle to avoid a needle stick.
- **Check** that 0.1 mg is set in the memory window.
- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.
- **Hold** your pen with the needle pointing **straight** up.
- **Push** the blue injection button all the way in.
- **Check** for liquid at the needle tip. If liquid appears, your pen is primed.
  - If liquid does not appear, repeat the priming steps up to two additional times.
  - If liquid still does not appear, do not use your pen. Contact your doctor or nurse for advice.

### Step 7 Set and Draw Up Your Dose

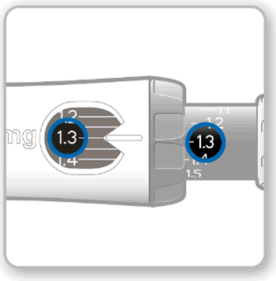



The first time you use your pen you will set the dose that your doctor or nurse has prescribed.
You do not need to set the dose again until you start a new pen or your doctor or nurse tells you.

- **Turn** the **black ring counterclockwise** until your dose is lined up with the white pointer in the memory window. **Be careful not to turn the grey dial.**
  - If you turn your dose past the white pointer, turn the black ring back to set your correct dose.

  **Note:** If you cannot turn the black ring, press the blue injection button until it stops clicking. Then try and set your dose again. Note that liquid will come out of the needle.
- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.

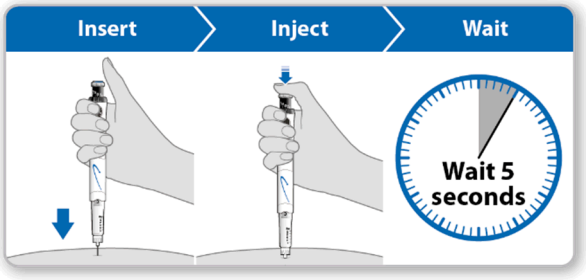
### Step 8 Check Your Dose



Your dose on the black rod should **line up** with the white pointer.

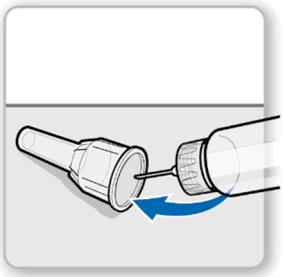
- **Check** that the dose you drew up on the black rod is the same as the dose you set in the memory window.
  - If the doses match, your pen is ready to give your injection.
  - If the doses do not match, make sure you have turned the grey dial in the direction of the arrows until it does not click anymore.

### Step 9 Give Your Injection of Genotropin




- **Hold** your pen over the injection site.
- **Insert** the needle straight into the skin.
- **Push** the blue injection button down until it stops clicking.
- **Wait** for a full 5 seconds to ensure that your complete dose is injected. Keep lightly pressing on the blue injection button while you count.
- After 5 seconds, pull the needle straight out of your skin.
  **Note:** If you see a drop of liquid at the injection site or needle tip, then with your next injection try pressing the blue injection button for longer before pulling the needle out of your skin.

### Step 10 Remove Needle

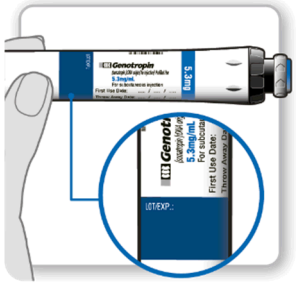


- **Carefully cover** the needle with the outer needle cover.
  **Caution: Do not** touch the needle to avoid a needle stick.
- Use the needle cover to unscrew the needle.
- **Throw away** (dispose of) the needle in a suitable sharps container.
- **Push** the white cap onto your pen.

- Store your pen in the refrigerator until your next injection.

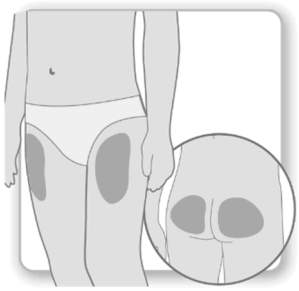
**Routine (daily) use of GoQuick Pen**

**Step 1 Preparation**



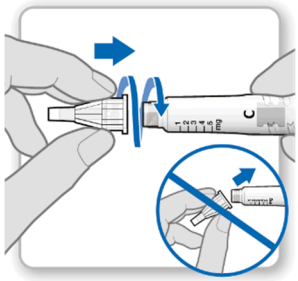
- **Wash and dry** your hands.
- **Gather** the following supplies on a clean flat surface:
  - An already mixed GoQuick Pen
  - A new needle (not included)
  - Suitable sharps container (not included).
- **Check** the expiry date on your pen label. **Do not** use your pen if the pen has passed its expiry date.
  **Do not** use your pen 28 days after first use.

**Step 2 Choose Injection Site**



- **Choose and clean** an injection site as recommended by your doctor or nurse. Choose a different site each time you give yourself an injection. Each new injection should be given at least 2 cm from the site you used before.
- Avoid areas that are bony, bruised, red, sore or hard, and areas of the skin that have scars or skin conditions.

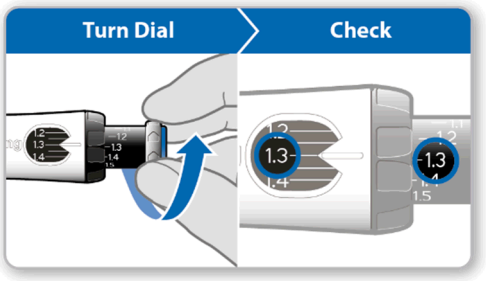
**Step 3 Attach New Needle**



- **Pull** the white cap straight off your pen.
- Take a new needle and peel off the paper seal.
- **Gently push and then screw** the needle onto your pen. **Do not** overtighten.
  **Note:** Be careful not to attach the needle at an angle. This may cause your pen to leak.

- **Remove** both needle covers.
  - Keep the outer needle cover to remove the needle after your injection.

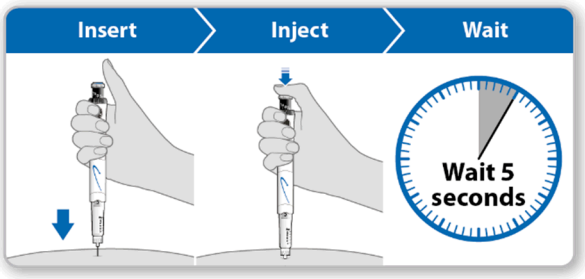
### Step 4 Draw Up Your Dose




- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.
- Your dose on the black rod should **line up** with the white pointer.
- **Check** that the dose you drew up on the black rod is the same as the dose you set in the memory window.
  - If the doses match, your pen is ready to give your injection.

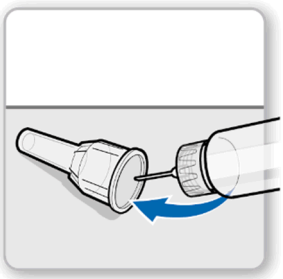
**Note:** If the dose you drew up is smaller, your pen does not have a full dose of Genotropin. Follow what your doctor or nurse told you to do when your pen does not have a full dose. Or contact your doctor or nurse for advice.

### Step 5 Give Your Injection of Genotropin




- **Hold** your pen over the injection site.
- **Insert** the needle straight into the skin.
- **Push** the blue injection button down until it stops clicking.
- **Wait** for a full 5 seconds to ensure that your complete dose is injected. Keep lightly pressing on the blue injection button while you count.
- After 5 seconds, pull the needle straight out of your skin.
  **Note:** If you see a drop of liquid at the injection site or needle tip, then with your next injection try pressing the blue injection button for longer before pulling the needle out of your skin.

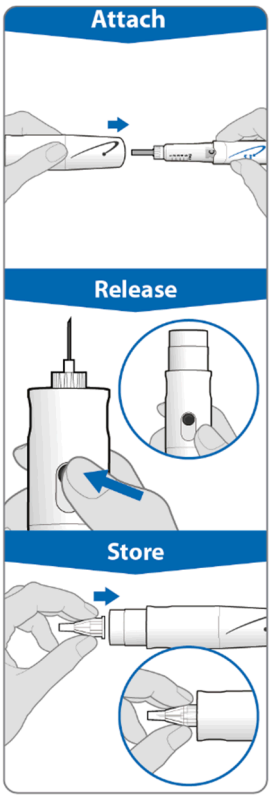
### Step 6 Remove Needle



- **Carefully cover** the needle with the outer needle cover.
  **Caution: Do not** touch the needle to avoid a needle stick.

- Use the needle cover to unscrew the needle.
- **Throw away** (dispose of) the needle in a suitable sharps container.
- **Push** the white cap onto your pen.
- Store your pen in the refrigerator until your next injection.

**Using the Needle Guard (Optional)**
The needle guard is an optional feature supplied separately to hide the needle during injection.




**Attach the needle guard:**
Attach the needle guard after Step 5 (Setting up and using a new GoQuick Pen) to avoid a needle stick.
- Pull the black cap off the needle guard.
  - If the needle shield slides out, push it back into the needle guard until it clicks into place.
- Line up the black logo on the needle guard with the blue logo on your pen. Carefully push the needle guard onto your pen until it snaps into place.
- After Step 6 (Setting up and using a new GoQuick Pen), press the black button to release the shield from the needle guard.
- Follow the instructions as described from Step 7 (Setting up and using a new GoQuick Pen).

**To remove the needle with needle guard in place:**
- Place the outer needle cover into the end of the needle shield.
- Use the outer needle cover to push in the needle shield until it locks into place.
- Use the needle cover to unscrew the needle and throw away (dispose of) in a suitable sharps container.
- Leave the needle guard on your pen.
- Place the black cap on the needle guard. Store your pen in the refrigerator.

**To remove the needle guard:**
- Remove the needle first, then gently pull the needle guard off the pen.
- **Do not** throw away the needle guard. It can be used with your next pen.

## GOQUICK® INSTRUCTIONS FOR USE: 12 mg

Please read these instructions completely before using your GoQuick Pen. If you have any questions about your dose or your treatment with GENOTROPIN, call your doctor or nurse.

### About GoQuick

GoQuick is a prefilled, multidose, disposable injection pen that holds 12 mg of somatropin. Your pen can deliver doses from 0.3 mg to 4.5 mg of Genotropin. Each click of the black ring changes the dose by 0.15 mg. The GENOTROPIN in your pen is mixed only once, when you

start a new pen. You never have to change cartridges. When your pen is empty, you just start a new pen.

Your pen has dose memory. The dose is set once on a new pen. Your pen then allows you draw up the same set dose for each injection. This will prevent you from drawing more than your set dose.

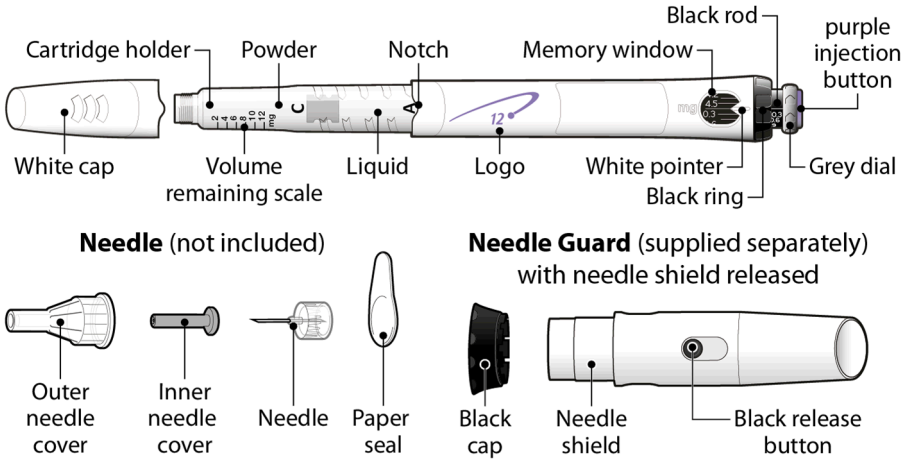
**Important Information**

- **Do not** mix the powder and liquid of your pen unless a needle is on your pen.
- **Do not** store your pen with the needle attached. The Genotropin may leak from your pen and air bubbles may form in the cartridge. Always remove the needle and attach your pen cap or needle guard cap before storing.
- Take care not to drop your pen. If you drop your pen and any part of it appears broken or damaged, **do not** use it. Contact your doctor or nurse for another pen. If you drop your pen and it is not damaged or broken, you must perform another prime as described in Step 6 (Setting up and using a new GoQuick Pen).
- Clean your pen with a damp cloth. **Do not** put your pen in water.
- Always use a new needle for each injection. **Do not** share your pen needles.
- The volume remaining scale along the side of the cartridge holder is a guide to show the volume of Genotropin left in your pen.

**Storage and Disposal**

- Store your pen in the refrigerator (2°C to 8°C) in the outer carton to protect from light. **Do not** freeze or expose it to frost.
- **Do not** use your pen after its expiry date.
- 28 days after mixing, throw away (dispose of) your pen even if there is some medicine left.
- See section 6.4 for how to store your GoQuick Pen.
- Follow your local health and safety laws to throw away (dispose of) your pen. Ask your doctor or nurse if you are not sure what to do.

**Parts of Your GoQuick Pen**




Pen needles are **not included** with your GoQuick Pen. You will need to get pen needles up to a length of 8 mm from your pharmacy.

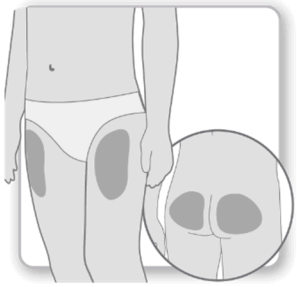
- Needles to use with your GoQuick Pen:
  - 31G or 32G (Becton Dickinson and Company)
  - 31G or 32G (Novo Nordisk®)
  - 32.5G or 34G (Terumo)

**Setting up and using a new GoQuick Pen**

**Step 1 Preparation**

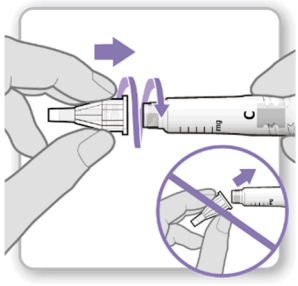
- **Wash and dry** your hands.
- **Gather** the following supplies on a clean flat surface:
  - A new GoQuick Pen
  - A new needle (not included)
  - Suitable sharps container (not included).
- **Check** the expiry date on your pen label. **Do not** use your pen if the pen has passed its expiry date.

**Step 2 Choose Injection Site**



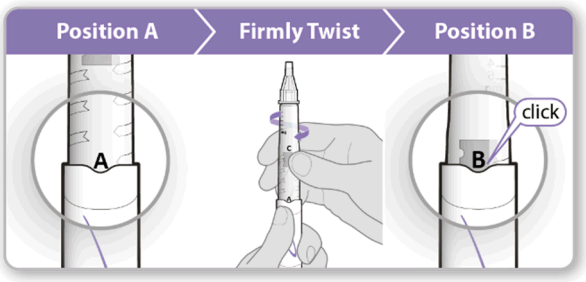
- **Choose and clean** an injection site as recommended by your doctor or nurse. Choose a different site each time you give yourself an injection. Each new injection should be given at least 2 cm from the site you used before.
- Avoid areas that are bony, bruised, red, sore or hard, and areas of the skin that have scars or skin conditions.

**Step 3 Attach New Needle**



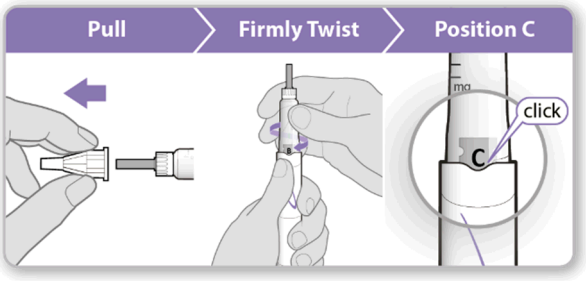
- **Pull** the white cap straight off your pen.
- Take a new needle and peel off the paper seal.
- **Gently push and then screw** the needle onto your pen. **Do not** overtighten.
  **Note:** Be careful not to attach the needle at an angle. This may cause your pen to leak.
- Leave both needle covers on the needle.

### Step 4 Mix the Genotropin



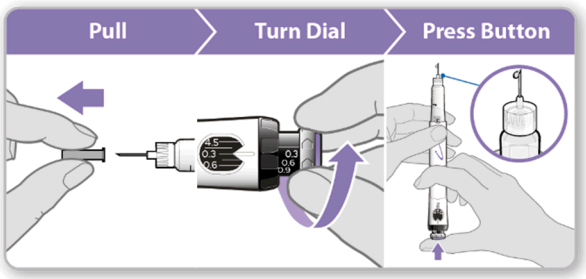

- **Hold** your pen with the needle-end pointing up and the **"A"** facing you.
- **Firmly** twist the cartridge holder into your pen until **"B"** clicks into the notch.
- **Gently tilt** your pen from side to side to help dissolve the powder completely. **Do not** shake. Shaking can damage the growth hormone.
- **Check** that the liquid in the cartridge is clear and all the powder is dissolved.
  - If the liquid is cloudy or you see any powder, gently tilt your pen from side to side a few more times.
  - If the liquid is still cloudy or you see any powder, **do not** use the pen and try again with a new pen.

### Step 5 Remove the Air from Your Pen




- **Pull** the outer needle cover off. Keep it to remove the needle after your injection.
- Leave the inner needle cover on.
  **Note:** You should see an inner needle cover after you have removed the outer cover. If you do not see this, try to attach the needle again.
- **Hold** your pen with the needle-end pointing up.
- **Gently tap** the cartridge holder to help any trapped air move to the top.
- **Firmly twist** the cartridge holder into your pen until **"C"** clicks into the notch.
  - Some liquid may appear around the inner needle cover. This is normal.

### Step 6 Prime Your Pen

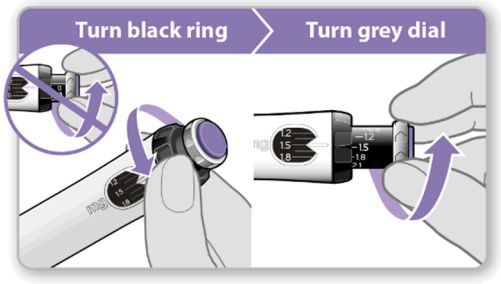



Priming removes any remaining air by pushing a small amount of liquid out of your pen. The priming dose is 0.3 mg and is different from the dose your doctor or nurse has prescribed. **Only prime your pen the first time you use it.**

- **Pull** the inner needle cover off and throw it away.
  **Caution: Do not** touch the needle to avoid a needle stick.

- **Check** that 0.3 mg is set in the memory window.
- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.
- **Hold** your pen with the needle pointing **straight** up.
- **Push** the purple injection button all the way in.
- **Check** for liquid at the needle tip. If liquid appears, your pen is primed.
  - If liquid does not appear, repeat the priming steps up to two additional times.
  - If liquid still does not appear, do not use your pen. Contact your doctor or nurse for advice.

### Step 7 Set and Draw Up Your Dose




The first time you use your pen you will set the dose that your doctor or nurse has prescribed.
You do not need to set the dose again until you start a new pen or your doctor or nurse tells you.

- **Turn** the **black ring counterclockwise** until your dose is lined up with the white pointer in the memory window. **Be careful not to turn the grey dial**.
  - If you turn your dose past the white pointer, turn the black ring back to set your correct dose.

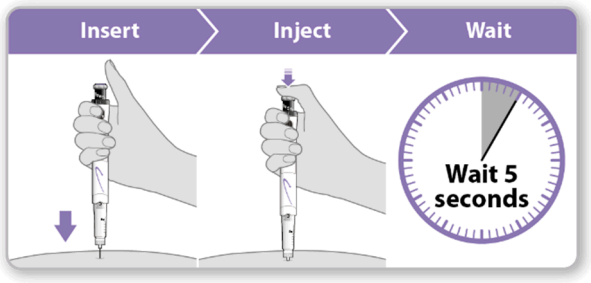
  **Note:** If you cannot turn the black ring, press the purple injection button until it stops clicking. Then try and set your dose again. Note that liquid will come out of the needle.
- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.

### Step 8 Check Your Dose

Your dose on the black rod should **line up** with the white pointer.

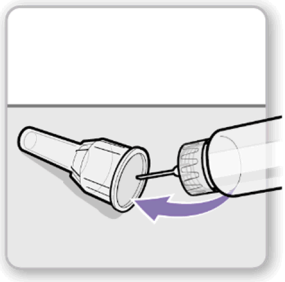
- **Check** that the dose you drew up on the black rod is the same as the dose you set in the memory window.
  - If the doses match, your pen is ready to give your injection.
  - If the doses do not match, make sure you have turned the grey dial in the direction of the arrows until it does not click anymore.

### Step 9 Give Your Injection of Genotropin




- **Hold** your pen over the injection site.
- **Insert** the needle straight into the skin.
- **Push** the purple injection button down until it stops clicking.
- **Wait** for a full 5 seconds to ensure that your complete dose is injected. Keep lightly pressing on the purple injection button while you count.
- After 5 seconds, pull the needle straight out of your skin.
  **Note:** If you see a drop of liquid at the injection site or needle tip, then with your next injection try pressing the purple injection button for longer before pulling the needle out of your skin.

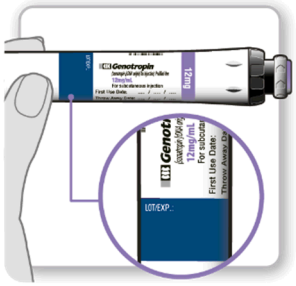
### Step 10 Remove Needle



- **Carefully cover** the needle with the outer needle cover.
  **Caution: Do not** touch the needle to avoid a needle stick.
- Use the needle cover to unscrew the needle.
- **Throw away** (dispose of) the needle in a suitable sharps container.
- **Push** the white cap onto your pen.
- Store your pen in the refrigerator until your next injection.

## Routine (daily) use of GoQuick Pen

### Step 1 Preparation

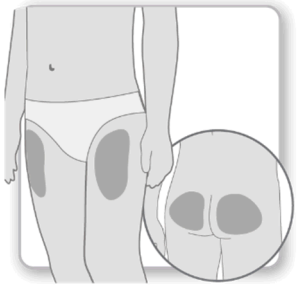


- **Wash and dry** your hands.
- **Gather** the following supplies on a clean flat surface:
  - An already mixed GoQuick Pen
  - A new needle (not included)

- Suitable sharps container (not included).

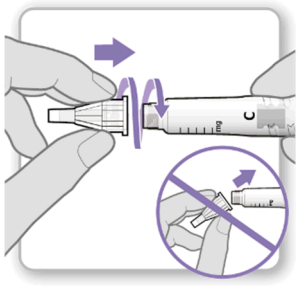
- **Check** the expiry date on your pen label. **Do not** use your pen if the pen has passed its expiry date.
  **Do not** use your pen 28 days after first use.

### Step 2 Choose Injection Site



- **Choose and clean** an injection site as recommended by your doctor or nurse. Choose a different site each time you give yourself an injection. Each new injection should be given at least 2 cm from the site you used before.
- Avoid areas that are bony, bruised, red, sore or hard, and areas of the skin that have scars or skin conditions.

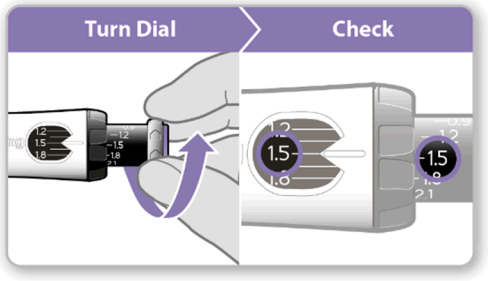
### Step 3 Attach New Needle



**Pull** the white cap straight off your pen.

- Take a new needle and peel off the paper seal.
- **Gently push and then screw** the needle onto your pen. **Do not** overtighten.
  **Note:** Be careful not to attach the needle at an angle. This may cause your pen to leak.
- **Remove** both needle covers.
  - Keep the outer needle cover to remove the needle after your injection.

### Step 4 Draw Up Your Dose

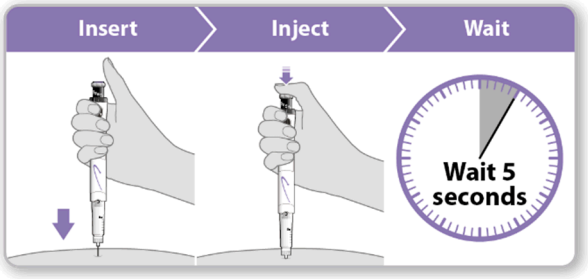



- **Turn** the **grey dial** in the direction of the arrows until it stops clicking.
- Your dose on the black rod should **line up** with the white pointer.
- **Check** that the dose you drew up on the black rod is the same as the dose you set in the memory window.
  - If the doses match, your pen is ready to give your injection.

**Note:** If the dose you drew up is smaller, your pen does not have a full dose of Genotropin.

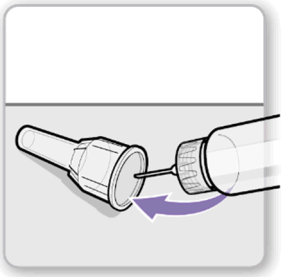
Follow what your doctor or nurse told you to do when your pen does not have a full dose. Or contact your doctor or nurse for advice.

**Step 5 Give Your Injection of Genotropin**




- **Hold** your pen over the injection site.
- **Insert** the needle straight into the skin.
- **Push** the purple injection button down until it stops clicking.
- **Wait** for a full 5 seconds to ensure that your complete dose is injected. Keep lightly pressing on the purple injection button while you count.
- After 5 seconds, pull the needle straight out of your skin.
  **Note:** If you see a drop of liquid at the injection site or needle tip, then with your next injection try pressing the purple injection button for longer before pulling the needle out of your skin.

**Step 6 Remove Needle**



- **Carefully cover** the needle with the outer needle cover.
  **Caution: Do not** touch the needle to avoid a needle stick.
- Use the needle cover to unscrew the needle.
- **Throw away** (dispose of) the needle in a suitable sharps container.
- **Push** the white cap onto your pen.
- Store your pen in the refrigerator until your next injection.

**Using the Needle Guard (Optional)**
The needle guard is an optional feature supplied separately to hide the needle during injection.

**Attach the needle guard:**
Attach the needle guard after Step 5 (Setting up and using a new GoQuick Pen) to avoid a needle stick.


- Pull the black cap off the needle guard.
  - If the needle shield slides out, push it back into the needle guard until it clicks into place.
- Line up the black logo on the needle guard with the purple logo on your pen. Carefully push the needle guard onto your pen until it snaps into place.
- After Step 6 (Setting up and using a new GoQuick Pen), press the black button to release the shield from the needle guard.
- Follow the instructions as described from Step 7 (Setting up and using a new GoQuick Pen).

**To remove the needle with needle guard in place:**
- Place the outer needle cover into the end of the needle shield.
- Use the outer needle cover to push in the needle shield until it locks into place.
- Use the needle cover to unscrew the needle and throw away (dispose of) in a suitable sharps container.
- Leave the needle guard on your pen.
- Place the black cap on the needle guard. Store your pen in the refrigerator.

**To remove the needle guard:**
- Remove the needle first, then gently pull the needle guard off the pen.
- **Do not** throw away the needle guard. It can be used with your next pen.

## 7. MANUFACTURER

Pfizer Manufacturing Belgium N.V.
Rijksweg 12
Puurs-Sint-Amands, 2870
Belgium

**Date of Revision: 21 JAN 2025**

**GENOTROPIN-0125**