HIGHLIGHTS OF PRESCRIBING INFORMATION

These highlights do not include all the information needed to use ZOMACTON® safely and effectively. See full prescribing information for ZOMACTON.

ZOMACTON® (somatropin) for injection, for subcutaneous use

Initial U.S. Approval: 1995

RECENT MAJOR CHANGES

Indications and Usage (1)	1/2018
Dosage and Administration (2)	1/2018
Contraindications (4)	1/2018
Warnings and Precautions (5)	1/2018

INDICATIONS AND USAGE

ZOMACTON is a recombinant human growth hormone indicated for:

- *Pediatric:* Treatment of pediatric patients with growth failure due to inadequate secretion of endogenous growth hormone (GH), short stature associated with Turner syndrome, idiopathic short stature (ISS), short stature or growth failure in short stature homeobox-containing gene (SHOX) deficiency, and short stature born small for gestational age (SGA) with no catch-up growth by 2 years to 4 years. (1.1)
- *Adult:* Replacement of endogenous GH in adults with GH deficiency (1.2)

DOSAGE AND ADMINISTRATION

- Administer by subcutaneous injection to the back of upper arm, abdomen, buttock, or thigh with regular rotation of injection sites (2.1)
- *Pediatric dosage:* Divide the calculated weekly dosage into equal doses given either 3, 6, or 7 days per week (2.2)
  - *GH deficiency:* 0.18 mg/kg/week to 0.3 mg/kg/week (2.2)
  - *Turner syndrome:* Up to 0.375 mg/kg/week (2.2)
  - *ISS:* Up to 0.37 mg/kg/week (2.2)
  - *SHOX deficiency:* 0.35 mg/kg/week (2.2)
  - *SGA:* Up to 0.47 mg/kg/week (2.2)
- *Adult dosage:* Either of the following two dosing regimens may be used:
  - *Non-weight based dosing*: Initiate with a dose of approximately 0.2 mg/day (range, 0.15 mg/day to 0.3 mg/day) and increase the dose every 1 to 2 months by increments of approximately 0.1 mg/day to 0.2 mg/day, according to individual patient requirements (2.3)
  - *Weight-based dosing (Not recommended for obese patients)*: Initiate at 0.006 mg/kg daily and increase the dose according to individual patient requirements to a maximum of 0.0125 mg/kg daily (2.3)
- See Full Prescribing Information for reconstitution instructions (2.4)

DOSAGE FORMS AND STRENGTHS

ZOMACTON for injection is available as (3):

- 5 mg vial with 5 mL vial of bacteriostatic 0.9% sodium chloride (preserved with benzyl alcohol)
- 10 mg vial with syringe of 1 mL of bacteriostatic water (preserved with 0.33% metacresol), with a 25G reconstitution needle
- 10 mg vial with syringe of 1 mL of bacteriostatic water (preserved with 0.33% metacresol), with a vial adapter

CONTRAINDICATIONS

- Acute critical illness (4,5.1)
- Pediatric patients with Prader-Willi syndrome who are severely obese, have a history of upper airway obstruction or sleep apnea, or have severe respiratory impairment due to risk of sudden death (4, 5.2)
- Active malignancy (4)
- Hypersensitivity to ZOMACTON, its excipients, or diluents (4)
- Active proliferative or severe non-proliferative diabetic retinopathy (4)
- Pediatric patients with closed epiphyses (4)

WARNINGS AND PRECAUTIONS

- *Increased Risk of Neoplasm:* Second neoplasms have occurred in childhood cancer survivors. Monitor patients with preexisting tumors for progression or recurrence. (5.3)
- *Glucose Intolerance and Diabetes Mellitus:* ZOMACTON may decrease insulin sensitivity, particularly at higher doses. Monitor glucose levels periodically in all patients receiving ZOMACTON, especially in patients with existing diabetes mellitus or at risk for development. (5.4)
- *Intracranial Hypertension (IH):* Has been reported usually within 8 weeks of initiation. Perform fundoscopic examinations prior to initiation and periodically thereafter. If papilledema occurs, stop treatment. (5.5)
- *Hypersensitivity:* Serious hypersensitivity reactions may occur. In the event of an allergic reaction, seek prompt medical attention. (5.6)
- *Fluid Retention:* May occur in adults and may be dose dependent. (5.7)
- *Hypoadrenalism:* Monitor patients for reduced serum cortisol levels and/or need for glucocorticoid dose increases in those with known hypoadrenalism. (5.8)
- *Hypothyroidism:* Monitor thyroid function periodically as hypothyroidism may occur or worsen after initiation of somatropin. (5.9)
- *Slipped Capital Femoral Epiphysis in Pediatric Patients:* May occur; evaluate patients with onset of a limp or hip/knee pain. (5.10)
- *Progression of Preexisting Scoliosis in Pediatric Patients:* Monitor patients with scoliosis for progression. (5.11)
- *Pancreatitis:* Has been reported; consider pancreatitis in patients with abdominal pain, especially pediatric patients. (5.12)
- *Risk of Serious Adverse Reactions in Infants due to Benzyl Alcohol Preservative:* Serious and fatal adverse reactions can occur in neonates and infants treated with benzyl alcohol-preserved drugs, including the diluent for ZOMACTON 5 mg. If administering ZOMACTON 5 mg to infants, reconstitute with 0.9% sodium chloride injection. (5.13)

ADVERSE REACTIONS

Common adverse reactions reported in adult and pediatric patients include: upper respiratory infection, fever, pharyngitis, headache, otitis media, edema, arthralgia, paresthesia, myalgia, carpal tunnel syndrome, peripheral edema, flu syndrome, hypothyroidism, hyperglycemia, and impaired glucose tolerance. (6)

To report SUSPECTED ADVERSE REACTIONS, contact Ferring Pharmaceuticals Inc. at 1-888-337-7464 or FDA at 1-800-FDA-1088 or www.fda.gov/medwatch.

DRUG INTERACTIONS

- *Glucocorticoids:* Patients treated with glucocorticoid for hypoadrenalism may require an increase in their maintenance or stress doses following initiation of ZOMACTON (7)
- *Pharmacologic Glucocorticoid Therapy and Supraphysiologic Glucocorticoid Treatment:* Adjust glucocorticoid replacement dosing in pediatric patients receiving glucocorticoid treatment to avoid both hypoadrenalism and an inhibitory effect on growth. (7)
- *Cytochrome P450-Metabolized Drugs:* ZOMACTON may alter the clearance. Monitor carefully if used with ZOMACTON (7)
- *Oral Estrogen:* Larger doses of ZOMACTON may be required (7)
- *Insulin and/or Other Hypoglycemic Agents:* Dose adjustment of insulin or hypoglycemic agent may be required (5.4, 7)

USE IN SPECIFIC POPULATIONS

- *Pregnancy and Lactation*: If ZOMACTON 5 mg is needed, reconstitute with 0.9% sodium chloride injection or use the ZOMACTON 10 mg benzyl alcohol-free formulation. (8.1, 8.2)

See 17 for PATIENT COUNSELING INFORMATION and FDA-approved patient labeling.

Revised: 7/2018

2 mg/L. Throughout 8 years of this same study, two patients (0.6%) had binding capacity >2 mg/L. Neither patient demonstrated a decrease in growth velocity at or near the time of increased antibody production. It has been reported that growth attenuation from pituitary-derived GH may occur when antibody concentrations are >1.5 mg/L.

6.3 Post-Marketing Experience

Because the following adverse events are reported voluntarily from a population of uncertain size, it is not always possible to reliably estimate their frequency or establish a causal relationship to drug exposure.

Severe Hypersensitivity Reactions — Serious systemic hypersensitivity reactions including anaphylactic reactions and angioedema

Neurologic — Headaches (common in pediatric patients and occasional in adults)

Skin — Increase in size or number of cutaneous nevi

Endocrine — Gynecomastia.

Gastrointestinal — Pancreatitis

Metabolic — New-onset type 2 diabetes mellitus

Neoplasia — Leukemia has been reported in a small number of GH deficient pediatric patients treated with somatropin, somatrem (methionylated rhGH), and GH of pituitary origin.

7 DRUG INTERACTIONS

Table 7 includes a list of drugs with clinically important drug interactions when administered concomitantly with ZOMACTON and instructions for preventing or managing them.

Table 7: Clinically Important Drug Interactions with ZOMACTON

Glucocorticoids	
Clinical Impact:	Microsomal enzyme 11β-hydroxysteroid dehydrogenase type 1 (11βHSD-1) is required for conversion of cortisone to its active metabolite, cortisol, in hepatic and adipose tissue. ZOMACTON inhibits 11βHSD-1. Consequently, individuals with untreated GH deficiency have relative increases in 11βHSD-1 and serum cortisol. Initiation of ZOMACTON may result in inhibition of 11βHSD-1 and reduced serum cortisol concentrations.
Intervention:	Patients treated with glucocorticoid replacement for hypoadrenalism may require an increase in their maintenance or stress doses following initiation of ZOMACTON *[see Warnings and Precautions (5.8)]*.
Examples:	Cortisone acetate and prednisone may be affected more than others since conversion of these drugs to their biologically active metabolites is dependent on the activity of 11βHSD-1.
Pharmacologic Glucocorticoid Therapy and Supraphysiologic Glucocorticoid Treatment	
Clinical Impact:	Pharmacologic glucocorticoid therapy and supraphysiologic glucocorticoid treatment may attenuate the growth promoting effects of ZOMACTON in pediatric patients.
Intervention:	Carefully adjust glucocorticoid replacement dosing in pediatric patients receiving glucocorticoid treatments to avoid both hypoadrenalism and an inhibitory effect on growth.
Cytochrome P450-Metabolized Drugs	
Clinical Impact:	Limited published data indicate that somatropin treatment increases cytochrome P450 (CP450)-mediated antipyrine clearance. ZOMACTON may alter the clearance of compounds known to be metabolized by CP450 liver enzymes.
Intervention:	Careful monitoring is advisable when ZOMACTON is administered in combination with drugs metabolized by CP450 liver enzymes.
Oral Estrogen	
Clinical Impact:	Oral estrogens may reduce the serum IGF-1 response to ZOMACTON.
Intervention:	Patients receiving oral estrogen replacement may require greater ZOMACTON dosages *[see Dosage and Administration (2.2)]*.
Insulin and/or Other Hypoglycemic Agents	
Clinical Impact:	Treatment with ZOMACTON may decrease insulin sensitivity, particularly at higher doses.
Intervention:	Patients with diabetes mellitus may require adjustment of their doses of insulin and/or other hypoglycemic agents *[see Warnings and Precautions (5.4)]*.

8 USE IN SPECIFIC POPULATIONS

8.1 Pregnancy

Risk Summary

The ZOMACTON 5 mg diluent contains benzyl alcohol. Because benzyl alcohol is rapidly metabolized by a pregnant woman, benzyl alcohol exposure in the fetus is unlikely. However, adverse reactions have occurred in premature neonates and low birth weight infants who received intravenously administered benzyl alcohol-containing drugs *[see Warnings and Precautions (5.13) and Use in Specific Populations (8.4)]*. Therefore, if ZOMACTON 5mg is needed during pregnancy, reconstitute with 0.9% sodium chloride injection, use only one dose per vial, and discard the unused portion, or use a ZOMACTON 10 mg benzyl alcohol-free formulation.

Limited published data do not report an association with somatropin and major birth defects, miscarriage, or adverse maternal or fetal outcomes when somatropin is used in pregnancy. Published reports indicate that somatropin does not cross the placenta. Animal reproduction studies have not been conducted with ZOMACTON.

The estimated background risk of major birth defects and miscarriage for the indicated population is unknown. All pregnancies have a background risk of birth defect, loss, or other adverse outcomes. In the U.S. general population, the estimated background risk of major birth defects and miscarriage in clinically recognized pregnancies is 2-4% and 15-20%, respectively.

8.2 Lactation

Risk Summary

The ZOMACTON 5mg diluent contains benzyl alcohol. Because benzyl alcohol is rapidly metabolized by a lactating woman, benzyl alcohol exposure in the breastfed infant is unlikely. However, adverse reactions have occurred in premature neonates and low birth weight infants who received intravenously administered benzyl alcohol-containing drugs *[see Warnings and Precautions (5.13) and Use in Specific Populations (8.4)]*. If ZOMACTON 5mg is needed during lactation, reconstitute with 0.9% sodium chloride injection, use only one dose per vial, and discard after use or use a ZOMACTON 10 mg benzyl alcohol-free formulation.

There is no information regarding the presence of somatropin in human milk. Limited published data indicate that exogenous somatropin does not increase normal breastmilk concentrations of growth hormone. No adverse effects on the breastfed infant have been reported with somatropin. The developmental and health benefits of breastfeeding should be considered along with the mother's clinical need for ZOMACTON and any potential adverse effects on the breastfed child from ZOMACTON or from the underlying maternal condition.

8.4 Pediatric Use

Safety and effectiveness of ZOMACTON in pediatric patients have been established in growth failure due to inadequate secretion of endogenous growth hormone, short stature associated with Turner syndrome, idiopathic short stature (ISS), short stature or growth failure in SHOX deficiency, and short stature in children born small for gestational age (SGA) with no catch-up growth by 2 years to 4 years of age.

Growth Failure due to Inadequate Secretion of Endogenous Growth Hormone

Safety and effectiveness of ZOMACTON have been established in pediatric patients with growth failure due to growth hormone deficiency based on data from a multi-center, open-label study in 164 pediatric patients conducted for a two-year period *[see Clinical Studies (14.1)]*.

Short Stature associated with Turner Syndrome

Safety and effectiveness of ZOMACTON have been established in pediatric patients with short stature associated with Turner syndrome based on data from one long-term, randomized, open-label, Canadian multicenter, concurrently controlled study; two long-term, open-label multicenter, historically controlled US studies; and one long-term, randomized, US dose-response study with another somatropin product in 181 pediatric patients *[see Clinical Studies (14.2)]*.

Idiopathic Short Stature (ISS)

Safety and effectiveness of ZOMACTON have been established in pediatric patients with ISS based on data from two randomized, multicenter studies, one placebo-controlled study and one dose-response study with another somatropin product in 310 pediatric patients *[see Clinical Studies (14.3)]*.

Short Stature or Growth Failure in SHOX Deficiency

Safety and effectiveness of ZOMACTON have been established in pediatric patients with short stature or growth failure in SHOX deficiency based on data from a randomized, controlled, two-year, three-arm, open-label study with another somatropin product in 52 pediatric patients *[see Clinical Studies (14.4)]*.

Short Stature in Children Born Small for Gestational Age (SGA) with No Catch-up Growth by Age 2 Years to 4 Years of Age

Safety and effectiveness of ZOMACTON have been established in pediatric patients with short stature born SGA with no catch-up growth based on data from two clinical studies with another somatropin product in 228 pediatric patients *[see Clinical Studies (14.5)]*.

Toxicity (Gasping Syndrome) with Benzyl Alcohol-Preserved Solution

Serious adverse reactions including fatal reactions and the "gasping syndrome" occurred in premature neonates and infants in the intensive care unit who received drugs containing benzyl alcohol as a preservative. In these cases, benzyl alcohol dosages of 99 mg/kg/day to 234 mg/kg/day produced high levels of benzyl alcohol and its metabolites in the blood and urine (blood levels of benzyl alcohol were 0.61 mmol/L to 1.378 mmol/L). The maximal daily uptake of benzyl alcohol is 39 mg at ZOMACTON doses of 0.067 mg/kg/day.

Additional adverse reactions included gradual neurological deterioration, seizures, intracranial hemorrhage, hematologic abnormalities, skin breakdown, hepatic and renal failure, hypotension, bradycardia, and cardiovascular collapse. Preterm, low-birth weight infants may be more likely to develop these reactions because they may be less able to metabolize benzyl alcohol. When administering ZOMACTON 5 mg to infants, reconstitute with 0.9% sodium chloride injection, not with the diluent provided. Use only one dose per vial and discard the unused portion *[see Warnings and Precautions (5.13)]*.

8.5 Geriatric Use

The safety and effectiveness of somatropin in patients aged 65 years and over has not been evaluated in clinical studies. Elderly patients may be more sensitive to the action of somatropin, and therefore may be more prone to development of adverse reactions. A lower starting dose and smaller dose increments should be considered for geriatric patients *[see Dosage and Administration (2.3)]*.

9 DRUG ABUSE AND DEPENDENCE

9.1 Controlled Substance

ZOMACTON contains somatropin, which is not a controlled substance.

9.2 Abuse

Inappropriate use of somatropin may result in significant negative health consequences.

9.3 Dependence

Somatropin is not associated with drug related withdrawal adverse reactions.

10 OVERDOSAGE

Acute overdosage may lead initially to hypoglycemia and subsequently to hyperglycemia. Overdose with somatropin is likely to cause fluid retention. Long-term overdosage may result in signs and symptoms of gigantism or acromegaly consistent with the known effects of excess growth hormone.

11 DESCRIPTION

ZOMACTON (somatropin) for injection, is a recombinant human growth hormone. It is a polypeptide of recombinant DNA origin, has 191 amino acid residues and a molecular weight of about 22,124 daltons. It has an amino acid sequence identical to that of human growth hormone of pituitary origin. ZOMACTON is produced in a strain of *Escherichia coli* modified by insertion of the human growth hormone gene.

ZOMACTON is a sterile, white, lyophilized powder, for subcutaneous use, after reconstitution with the accompanying diluent.

ZOMACTON 5 mg vial contains recombinant somatropin 5 mg and mannitol 30 mg. The 5 mg vial is supplied in a combination package with an accompanying 5 mL vial of diluting solution. The diluent contains bacteriostatic 0.9% sodium chloride injection, USP, (normal saline), 0.9% benzyl alcohol as a preservative, and water for injection.

ZOMACTON 10 mg vial contains recombinant somatropin 10 mg, mannitol 10 mg, disodium phosphate dodecahydrate 3.57 mg, and sodium dihydrogen phosphate dihydrate 0.79 mg. The 10 mg vial is supplied in a combination package with an accompanying 1 mL syringe of diluting solution. The diluent contains bacteriostatic water for injection with 0.33% metacresol as a preservative.

Reconstituted solutions have a pH in the range of 7 to 9.

12 CLINICAL PHARMACOLOGY

12.1 Mechanism of Action

Somatropin binds to dimeric GH receptors located within the cell membranes of target tissue cells. This interaction results in intracellular signal transduction and subsequent induction of transcription and translation of GH-dependent proteins including IGF-1, IGF BP-3 and acid-labile subunit. Somatropin has direct tissue and metabolic effects or effects mediated indirectly by IGF-1,

including stimulation of chondrocyte differentiation, and proliferation, stimulation of hepatic glucose output, protein synthesis, and lipolysis.

Somatropin stimulates skeletal growth in pediatric patients with GHD as a result of effects on the growth plates (epiphyses) of long bones. The stimulation of skeletal growth increases linear growth rate (height velocity) in most somatropin-treated pediatric patients. Linear growth is facilitated in part by increased cellular protein synthesis.

12.2 Pharmacodynamics

Subcutaneous administration of a single dose of 4 mg ZOMACTON in healthy subjects (n=54) with suppressed endogenous growth hormone results in an increased mean (SD) IGF-1 level from 233 (95) ng/mL predose to maximal level of 414 (120) ng/mL after approx. 24 hours. After 96 hours, the subjects displayed a mean (SD) IGF-1 concentration of 228 (74) ng/mL, comparable to the predose value.

12.3 Pharmacokinetics

Absorption — Somatropin has been studied following subcutaneous, and intravenous administration in adult healthy subjects. A single subcutaneous dose of 4 mg ZOMACTON in healthy subjects (n=54) with suppressed endogenous growth hormone resulted in a mean (SD) Cmax of 38.1 (19.3) ng/mL after approximately 4.5 hours. The absolute bioavailability of somatropin is approximately 70% after subcutaneous administration.

Distribution — The mean (SD) apparent volume of distribution of somatropin after single dose subcutaneous administration of 4 mg ZOMACTON in healthy subjects is 53.3 (24.6) L.

Elimination

Metabolism — Extensive metabolism studies have not been conducted. The metabolic fate of somatropin involves classical protein catabolism in both the liver and kidneys.

Excretion - In healthy subjects, mean somatropin clearance is 0.133 L/min following intravenous administration. The mean elimination half-life of intravenous somatropin is 0.42 hours, whereas subcutaneously administered somatropin has a mean half-life of 2.3 hours. The longer half-life observed after subcutaneous administration is due to slow absorption from the injection site. Urinary excretion of intact somatropin has not been measured.

Specific Populations

Geriatric patients — The pharmacokinetics of somatropin have not been studied in patients greater than 65 years of age.

Pediatric patients — The pharmacokinetics of somatropin in pediatric patients are similar to those of adults.

Male and Female Patients — No gender-specific pharmacokinetic studies have been performed with somatropin. The available literature indicates that the pharmacokinetics of somatropin are similar in men and women.

Patients with Renal or Hepatic Impairment — No studies have been performed with somatropin.

13 NONCLINICAL TOXICOLOGY

13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

ZOMACTON has shown no potential for mutagenicity in the Ames Test. Carcinogenesis and fertility studies have not been conducted with ZOMACTON.

14 CLINICAL STUDIES

14.1 Pediatric Patients with Growth Failure Due to Inadequate Secretion of Endogenous Growth Hormone

A 2-year open-label, multi-center study with ZOMACTON was conducted in the United States and in Israel in 164 pediatric patients with short stature due to GHD. The subjects ranged in age from 2.1 to 17.7 years with a mean of 10.8 years. One hundred twenty (73%) of the subjects were male and 44 (27%) were female. Two subjects were Asian, 12 were Black, 130 were Caucasian, and 20 were categorized as ‘other’.

The primary efficacy of the product was assessed by calculating height velocity. Mean cumulative increases in height velocity from baseline of 6.6, 4.6, and 6.3 cm/year were attained by 24 weeks of treatment ($p < 0.01$) in Naïve Type I (serum GH < 10 ng/mL in response to at least two provocative pharmacological tests), Naïve Type II (integrated GH level < 3.5 ng/mL with or without at least one serum GH ≥ 10 ng/mL), and Non-Naïve (treated with GH up to study Day 1, or previously treated and discontinued GH treatment at least 6 months prior to study Day 1) subjects, respectively. After 12 months of treatment, the mean cumulative increases in height velocity from baseline were 5.7, 4.4 and 5.3 cm/year ($p= 0.01$) in Naïve Type I, Naïve Type II, and Non-Naïve subjects, respectively.

14.2 Pediatric Patients with Short Stature Associated with Turner Syndrome

One long-term, randomized, open-label, Canadian multicenter, concurrently controlled study; two long-term, open-label multicenter, historically controlled US studies; and one long-term, randomized, US dose-response study were conducted to evaluate the efficacy of another somatropin product for treatment of short stature due to Turner syndrome.

The Canadian randomized study compared near-adult height outcomes for patients treated with another somatropin product to those of a concurrent control group who received no injections. Patients received a dosage of 0.3 mg/kg/week given in divided doses 6 times per week from a mean age of 12 years for a mean duration of 5 years. Puberty was induced with a standardized estrogen regimen initiated at 13 years of age for both treatment groups.

In two of the US studies, the effect of long-term treatment with another somatropin product (0.375 mg/kg/week given in divided doses either 3 times per week or daily) on adult height was determined by comparing adult heights in the treated patients with those of age-matched historical controls with Turner syndrome who received no growth-promoting therapy. Puberty was induced with a standardized estrogen regimen initiated after 14 years of age in one study; in the second study patients treated early (before 11 years of age) were randomized to begin pubertal induction at either age 12 (n=26) or 15 (n=29) years (conjugated estrogens, 0.3 mg escalating to 0.625 mg daily); those whose treatment was initiated after 11 years of age began estrogen replacement after 1 year of treatment with another somatropin product.

In a dose-response study in the US, patients were treated from a mean age of 11 years for a mean duration of 5 years with a weekly dosage of either 0.27 mg/kg or 0.36 mg/kg of another somatropin product administered in divided doses 3 or 6 times weekly.

In summary, patients with Turner syndrome (total n=181 from the 4 studies above) treated to adult height achieved statistically significant average height gains ranging from 5.0 to 8.3 cm (see Table 8).

Table 8: Height Gain Results[a] of Studies with Another Somatropin Product in Patients with Turner Syndrome

Study	Group	Study Design[b]	Another Somatropin Product Treated Number at Adult Height	GH Age (yr)	Estrogen Age (yr)	GH Duration (yr)	Adult Height Gain (cm)[c]
Canadian		**RCT**	27	11.7	13	4.7	5.4
US 1		**MHT**	17	9.1	15.2	7.6	7.4
US 2	**A[e]**	**MHT**	29	9.4	15	6.1	8.3
	B[f]		26	9.6	12.3	5.6	5.9
	C[g]		51	12.7	13.7	3.8	5
US 3		**RDT**	31	11.1	8-13.5	5.3	~5[d]

[a] Data shown are mean values.
[b] RCT: randomized controlled trial; MHT: matched historical controlled trial; RDT: randomized dose-response trial.
[c] Analysis of covariance vs. controls.
[d] Compared with historical data.
[e] GH age <11 yr, estrogen age 15 yr.
[f] GH age <11 yr, estrogen age 12 yr.
[g] GH age >11 yr, estrogen at month 12.

14.3 Pediatric Patients with Idiopathic Short Stature

Two randomized, multicenter studies, 1 placebo-controlled and 1 dose-response, were conducted with another somatropin product in pediatric patients with idiopathic short stature. The diagnosis of idiopathic short stature was made after excluding other known causes of short stature, as well as GH deficiency. The placebo-controlled study enrolled 71 pediatric patients (55 males, 16 females) 9 to 15 years old (mean age 12 ± 1.5 years), with short stature, 68 of whom received another somatropin product. Patients were predominately prepubertal (Tanner I, 45%) or in early puberty (Tanner II, 47%) at baseline. In this double-blind study, patients received subcutaneous injections of either another somatropin product 0.222 mg/kg/week, or placebo given in divided doses 3 times per week until height velocity decreased to ≤1.5 cm/year ("final height"). Final height measurements were available for 33 subjects (22 treated, 11 placebo) after a mean treatment duration of 4.4 years (range 0.1-9.1 years).

Results are presented in Table 9. The number of patients whose final height was above the 5th percentile of the general population height standard for age and sex was significantly greater in the treated group than the placebo group (41% vs. 0%), as was the number of patients who gained at least 1 SDS unit in height across the duration of the study (50% vs. 0%).

Table 9: Baseline Height Characteristics and Effect of Another Somatropin Product on Final Height in Placebo-Controlled Study[a,b]

	Placebo (n=11) Mean (SD)	Another Somatropin Product (n=22) Mean (SD)	Treatment Effect Mean (95% CI)	p-value
Baseline height SDS	-2.75 (0.6)	-2.7 (0.6)	NA	0.77
BPH SDS	-2.3 (0.8)	-2.1 (0.7)	NA	0.53
Final height SDS[c]	-2.3 (0.6)	-1.8 (0.8)	0.51 (0.10, 0.92)	0.017
FH SDS – baseline height SDS	0.4 (0.2)	0.9 (0.7)	0.51 (0.04, 0.97)	0.034
FH SDS – BPH SDS	-0.1 (0.6)	0.3 (0.6)	0.46 (0.02, 0.89)	0.043

[a] Abbreviations: BPH=baseline predicted height; CI=confidence interval; FH=final height; NA=not applicable; SDS=standard deviation score.
[b] For final height population.
[c] Between-group comparison was performed using analysis of covariance with baseline predicted height SDS as the covariate. Treatment effect is expressed as least squares mean (95% CI).

The dose-response study included 239 pediatric patients (158 males, 81 females), 5 to 15 years old, (mean age 10 ± 2 years). Mean ± SD baseline characteristics included: height SDS -3.21 ± 0.70, predicted adult height SDS -2.63 ± 1.08, and height velocity SDS -1.09 ± 1.15. All but 3 patients were prepubertal. Patients were randomized to one of three treatment groups: 0.24 mg/kg/week; 0.24 mg/kg/week for 1 year, followed by 0.37 mg/kg/week; and 0.37 mg/kg/week. Height velocity was assessed by dose during the first 2 years of therapy. After completing the initial 2-year dose-response phase of the study, 50 patients were followed to final height.

Patients who received the dosage of 0.37 mg/kg/week had a significantly greater increase in mean height velocity after 2 years of treatment than patients who received 0.24 mg/kg/week (4.04 vs. 3.27 cm/year, p=0.003). The results are presented in Table 10. While no patient had height above the 5th percentile in any dosage group at baseline, 82% of the patients who received 0.37 mg/kg/week and 47% of the patients who received 0.24 mg/kg/week achieved final heights above the 5th percentile of the general population height standards (p=NS).

Table 10: Idiopathic Short Stature Study Results: Final Height Minus Baseline Predicted Height[a]

	Placebo-controlled Trial 3x per week dosing		Dose Response Trial 6x per week dosing		
	Placebo (n=10)	**Another Somatropin Product 0.22 mg/kg (n=22)**	**Another Somatropin Product 0.24 mg/kg (n=13)**	**Another Somatropin Product 0.24/0.37 mg/kg (n=13)**	**Another Somatropin Product 0.37 mg/kg (n=13)**
FH – Baseline PH Mean (95% CI), cm	-0.7 (-3.6, 2.3)	+2.2 (0.4, 3.9)	+5.4 (2.8, 7.9)	+6.7 (4.1, 9.2)	+7.2 (4.6, 9.8)

[a] Abbreviations: FH=final height; PH=predicted height; CI=confidence interval; cm=centimeters.

14.4 Pediatric Patients with Short Stature or Growth Failure with SHOX Deficiency

A randomized, controlled, two-year, three-arm, open-label study was conducted to evaluate the efficacy of another somatropin product for treatment of short stature in pediatric patients with SHOX deficiency who were not GH–deficient. A total of 52 patients (24 male, 28 female) with SHOX deficiency, 3 to 12 years of age, were randomized to either a treated arm (27 patients; mean age 7 ± 2 years) or an untreated control arm (25 patients; mean age 8 ± 3 years). To determine the comparability of treatment effect between patients with SHOX deficiency and patients with Turner syndrome, the third study arm enrolled 26 patients with Turner syndrome, 5 to 12 years of age (mean age 8 ± 2 years), to treatment. All patients were prepubertal at study entry. Patients in the treated group(s) received daily subcutaneous injections of 0.05 mg/kg of another somatropin product, equivalent to 0.35 mg/kg/week. Patients in the untreated group received no injections. The results are presented in Table 11.

Table 11: Summary of Results in Patients with SHOX deficiency and Turner Syndrome

	SHOX Deficiency			Turner Syndrome
	Untreated (n=24) Mean (SD)	**Another Somatropin Product (n=27) Mean (SD)**	**Treatment Difference[a] Mean (95% CI)**	**Another Somatropin Product (n=26) Mean (SD)**
Height Velocity (cm/yr)				
1st Year	5.2 (1.1)	8.7 (1.6)[b]	+3.5 (2.8, 4.2)	8.9 (2.0)
2nd Year	5.4 (1.2)	7.3 (1.1)[b]	+2.0 (1.3, 2.6)	7.0 (1.1)
Height Gain (cm)				
Baseline to 1st Year	+5.4 (1.2)	+9.1 (1.5)[b]	+3.7 (2.9, 4.5)	+8.9 (1.9)
Baseline to 2nd Year	+10.5 (1.9)	+16.4 (2.0)[b]	+5.8 (4.6, 7.1)	+15.7 (2.7)
Height SDS Gain				
Baseline to 1st Year	+0.1 (0.5)	+0.7 (0.5)[b]	+0.5 (0.3, 0.8)	+0.8 (0.5)
Baseline to 2nd Year	+0.2 (0.5)	+1.2 (0.7)[b]	+1.0 (0.7, 1.3)	+1.2 (0.2)
Patients with height SDS > -2.0 at 2 years	1 (4%)	11 (41%)[c]	--	8 (31%)

[a] Positive values favor somatropin
[b] Statistically significantly different from untreated, $p<0.001$.
[c] Statistically significantly different from untreated, $p<0.05$.

14.5 Pediatric Patients Born Small for Gestational Age (SGA) Who Fail to Demonstrate Catch-up Growth by 2 Years to 4 Years of Age

A 2-year, open-label, multicenter, European study enrolled 193 prepubertal, non-GH deficient children with mean chronological age 7 ± 2 years (range: 3 to 12). Study entry criteria included birth weight <10th percentile and/or birth length SDS <-2 for gestational age, and height SDS for chronological age ≤-3. Exclusion criteria included syndromal conditions (e.g., Turner syndrome), chronic disease (e.g., diabetes mellitus), and tumor activity. The primary objective was to demonstrate that the increase from baseline in height SDS after 1 year of treatment with another somatropin product would be similar when treatment is administered according to an individually adjusted dose (IAD) regimen or a fixed high dose (FHD) regimen. The height increases would be considered similar if the lower bound of the 95% confidence interval (CI) for the mean difference between the groups (IAD – FHD) was greater than -0.5 height SDS. Pediatric patients were randomized to either a FHD (0.067 mg/kg/day; n=99) or an IAD treatment group (n=94). The initial dosage in the IAD treatment group was 0.035 mg/kg/day. The dosage was increased to 0.067 mg/kg/day in those patients in the IAD group whose 1-year height gain predicted at Month 3 was <0.75 height SDS (n=40) or whose actual height gain measured at Year 1 was <0.75 height SDS (n=11). Approximately 85% of the randomized patients completed 2 years of therapy.

The results are presented in Table 12. The results were similar when children who entered puberty during the study were removed from the analysis.

Table 12: Results for Height SDS and Change from Baseline in Height SDS at Year 1 and Year 2 After Treatment with Another Somatropin Product of Short Children Born SGA Who Fail to Demonstrate Catch-up Growth[a]

	IAD Group 0.035 to 0.067 mg/kg/day Mean (SD)	FHD Group 0.067 mg/kg/day Mean (SD)	Between-Group Difference IAD - FHD[b]
Baseline	(n=86) -3.9 (0.6)	(n=93) -3.9 (0.7)	-0.0 ± 0.1 (-0.2, 0.2) p-value = 0.95
Year 1 Height SDS Change from baseline	(n=86)[c] -3.0 (0.7) 0.9 (0.4)	(n=93)[c] -2.7 (0.7) 1.1 (0.4)	-0.3 ± 0.1 (-0.4, -0.2) p-value <0.001
Year 2 Height SDS Change from baseline	(n=82)[c] -2.5 (0.8) 1.4 (0.5)	(n=88)[c] -2.2 (0.7) 1.6 (0.5)	-0.3 ± 0.1 (-0.4, -0.1) p-value = 0.003

[a] Abbreviations: IAD=individually adjusted dose; FHD=fixed high dose; SD=standard deviation; SDS=standard deviation score

[b] Least squares mean difference ± standard error and 95% confidence interval based on ANCOVA model with treatment and gender as fixed effects, and baseline height SDS, baseline chronological age, baseline bone age, and mid-parental target height SDS as covariates.

[c] Only children with actual height measurements were included in the Year 1 and Year 2 analyses.

An open-label, multicenter, single arm study conducted in France, during which 35 prepubertal, non-GH deficient children were treated for 2 years with another somatropin product 0.067 mg/kg/day. Mean chronological age at baseline was 9 ± 0.9 years (range: 7 to 11). Additional study entry criteria included birth length SDS <-2 or <3rd percentile for gestational age, and height SDS for chronological age <-2. Exclusion criteria included syndromal conditions (e.g., Turner syndrome), chronic disease (e.g., diabetes mellitus), and any active disease. All 35 patients completed the study. Mean height SDS increased from a baseline value of -2.7 (SD 0.5) to -1.5 (SD 0.6) after 2 years of treatment.

14.6 Adult Patients with Growth Hormone Deficiency

Two studies in patients with adult-onset GH deficiency (total n=98) and two studies in adult patients with childhood-onset GH deficiency (total n=67) were designed to assess the effects of replacement therapy with another somatropin product. Adult-onset patients and childhood-onset patients differed by diagnosis (organic vs. idiopathic pituitary disease), body size (average vs. small [mean height and weight]), and age (mean 44 vs. 29 years). These four studies each included a 6-month randomized, blinded, placebo-controlled phase, during which approximately half of the patients received placebo injections, while the other half received injections with another somatropin product. The 6-month, double-blind phase was followed by 12 months of open-label somatropin treatment for all patients. The dosages of this other somatropin product for all studies were identical: 1 month of treatment at 0.00625 mg/kg/day followed by 0.0125 mg/kg/day for the next 5 months. The primary efficacy measures were body composition (lean body mass and fat mass) and lipid parameters. Lean body mass was determined by bioelectrical impedance analysis (BIA), validated with potassium 40. Body fat was assessed by BIA and sum of skinfold thickness. Lipid subfractions were analyzed by standard assay methods in a central laboratory.

In patients with adult-onset GH deficiency, treatment with another somatropin product (vs. placebo) resulted in an increase in mean lean body mass (2.59 vs. -0.22 kg, p<0.001) and a decrease in body fat (-3.27 vs. 0.56 kg, p<0.001). Similar changes were seen in childhood-onset GH deficient patients. Changes in lean body mass persisted throughout the 18-month period for both the adult-onset and childhood-onset groups; the changes in fat mass persisted in the childhood-onset group. Serum concentrations of high-density lipoprotein (HDL) cholesterol which were low at baseline (mean, 30.1 mg/mL and 33.9 mg/mL in adult-onset and childhood-onset patients, respectively) had normalized by the end of 18 months of treatment with this other somatropin product (mean change of 13.7 mg/dL and 11.1 mg/dL for the adult-onset and childhood-onset groups, respectively p<0.001).

16 HOW SUPPLIED/STORAGE AND HANDLING

16.1 How Supplied

ZOMACTON for injection is a white, lyophilized powder available as:

NDC	ZOMACTON	Diluent	Additional Items
NDC 55566-1801-1	5 mg vial	5 mL vial bacteriostatic 0.9% sodium chloride	
NDC 55566-1901-1	10 mg vial	1 mL syringe bacteriostatic water	25G reconstitution needle
NDC 55566-1902-1	10 mg vial	1 mL syringe bacteriostatic water	vial adapter

16.2 Storage and Handling

Before Reconstitution

Refrigerate ZOMACTON vials at 36° to 46°F (2° to 8°C). Avoid freezing the accompanying diluent.

After Reconstitution

ZOMACTON 5 mg is stable for 14 days when reconstituted with bacteriostatic 0.9% sodium chloride and refrigerated at 36° to 46°F (2° to 8°C). Do not freeze.

ZOMACTON 10 mg is stable for 28 days when reconstituted with bacteriostatic water and refrigerated at 36° to 46°F (2° to 8°C). Do not freeze.

17 PATIENT COUNSELING INFORMATION

Advise the patient to read the FDA-approved patient labeling (Instructions for Use).

- Neoplasms – Advise childhood cancer survivors/caregivers that individuals treated with brain/head radiation are at increased risk of secondary neoplasms and as a precaution need to be monitored for recurrence. Advise patients/caregivers to report marked changes in behavior, onset of headaches, vision disturbances and/or changes in skin pigmentation or changes in the appearance of pre-existing nevi.
- Fluid Retention - Advise patients that fluid retention during ZOMACTON replacement therapy in adults may frequently occur. Inform patients of the clinical manifestations of fluid retention (e.g. edema, arthralgia, myalgia, nerve compression syndromes including carpal tunnel syndrome/paresthesias) and to report to their healthcare provider any of these signs or symptoms occur during treatment with ZOMACTON.
- Pancreatitis - Advise patients/caregivers that pancreatitis may develop and to report to their healthcare provider any new onset abdominal pain.
- Hypoadrenalism - Advise patients/caregivers who have or who are at risk for pituitary hormone deficiency(s) that hypoadrenalism may develop and to report to their healthcare provider if they experience hyperpigmentation, extreme fatigue, dizziness, weakness, or weight loss.
- Hypothyroidism - Advise patients/caregivers that undiagnosed/untreated hypothyroidism may prevent an optimal response to ZOMACTON. Advise patients/caregivers they may require periodic thyroid function tests.
- Intracranial Hypertension - Advise patients/caregivers to report to their healthcare provider any visual changes, headache, and nausea and/or vomiting.
- Hypersensitivity Reactions – Advise patients/caregivers that serious systemic hypersensitivity reactions (anaphylaxis and angioedema) are possible and that prompt medical attention should be sought if an allergic reaction occurs.
- Glucose Intolerance/ Diabetes Mellitus – Advise patients/caregivers that new onset impaired glucose intolerance/diabetes mellitus or exacerbation of preexisting diabetes mellitus can occur and monitoring of blood glucose during treatment with ZOMACTON may be needed.
- Females of Reproductive Potential – Instruct patients to inform their healthcare provider if they are pregnant or planning to become pregnant as they may potentially require the use of a different formulation of ZOMACTON.

MANUFACTURED FOR:

FERRING PHARMACEUTICALS INC.
PARSIPPANY, NJ 07054

Origin Germany

XXXXXXXXXX
Rev. 07/2018

Instructions for Use
ZOMACTON®
(zoh-MACK-ton)
[somatropin]
for Injection

Read the Instructions for Use that come with your ZOMACTON® before you start using it and each time you get a refill. There may be new information. This leaflet does not take the place of talking to your healthcare provider about your medical condition or treatment. Before you use ZOMACTON for the first time, make sure your healthcare provider shows you the right way to use it.

Supplies needed for your ZOMACTON Injection

- **ZOMACTON 5mg (See Figure A)** containing:
  - 1 vial of ZOMACTON 5mg growth hormone in a powder
  - 1 vial of liquid (diluent) containing Bacteriostatic 0.9% Sodium Chloride Injection, USP (5mL). This is used to mix your ZOMACTON 5mg.

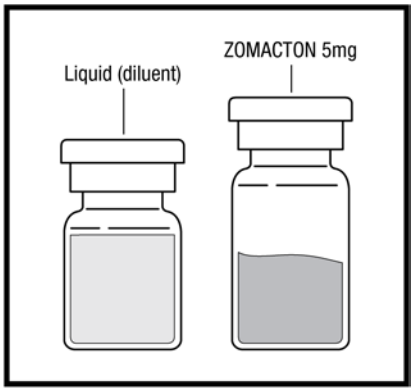

Figure A

or

- **ZOMACTON 10mg (See Figure B)** containing:
  - 1 vial of ZOMACTON 10mg growth hormone in a powder
  - 1 syringe of liquid (diluent) containing Bacteriostatic Water for Injection with 0.33% Metacresol as a preservative (1 mL). This is used to mix your ZOMACTON 10mg.
  - 25 gauge mixing needle

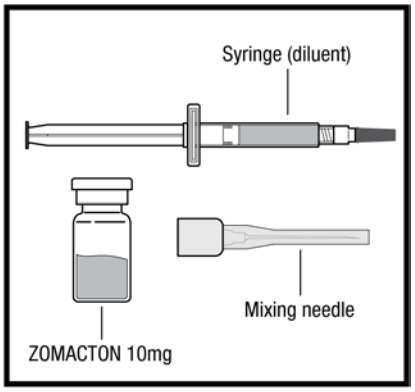

Figure B

The following additional supplies **(See Figure C)** will be needed:

- Syringe and needle for injection. Your healthcare provider will tell you the size of the syringe and needle to use.
- Alcohol swab
- Puncture-resistant container **(See Step 4: Disposing of used syringes, needles, and vials)**

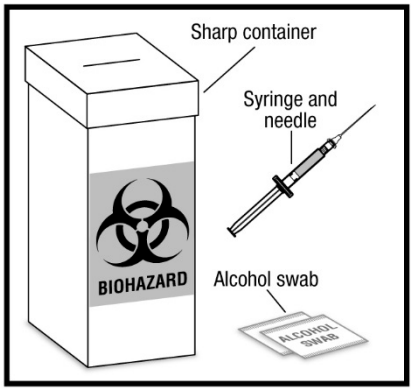

Figure C

Preparing for Your ZOMACTON Injection

- Place the supplies you will need on a clean, flat surface in a well-lit area.
- Wash your hands thoroughly with soap and water.

Important: The liquids are different for the 5mg and 10mg vials.

- **Do not** use the 5mg liquid with the 10mg ZOMACTON.
- **Do not** use the 10mg liquid with the 5mg ZOMACTON.

Preparing ZOMACTON 5mg Liquid for Injection:

- Remove the hard plastic cap from the top of the liquid vial by gently pushing up on the edge of the cap **(See Figure D)**. **Do not** remove the rubber stopper.

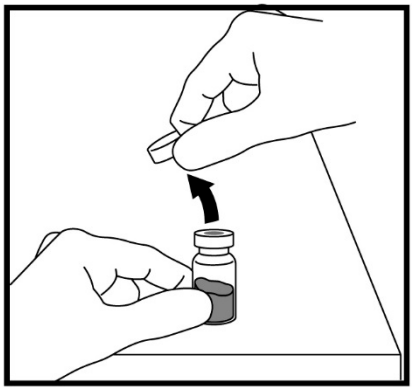

Figure D

- Use an alcohol swab to wipe off the top of the liquid vial **(See Figure E)**. After cleaning, **do not** touch the rubber stopper.

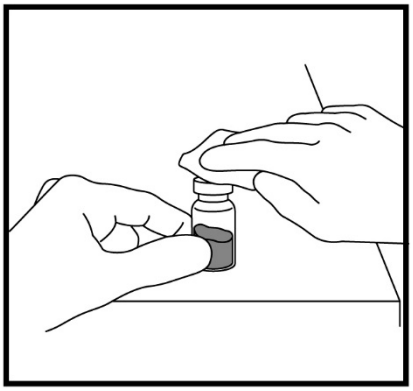

Figure E

- Remove the needle cap from the syringe while making sure you **do not** touch the needle **(See Figure F)**. **Do not** throw away the needle cap.

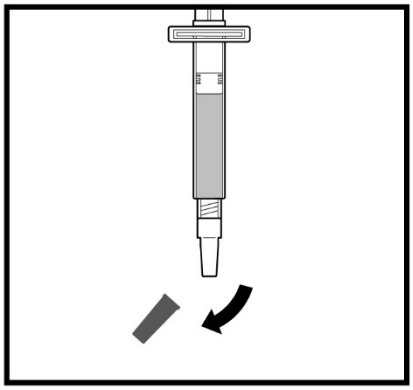

Figure F

- Hold the barrel of the syringe with **1** hand and pull back on the plunger with the other hand until you have drawn up the amount of air that is the same as the amount of liquid your healthcare provider has prescribed **(See Figure G)**.

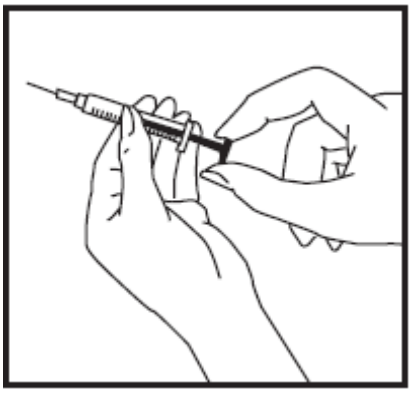

Figure G

- Insert the needle into the liquid vial through the center of the clean rubber stopper. Push down on the plunger until all the air is released into the vial **(See Figure H)**.

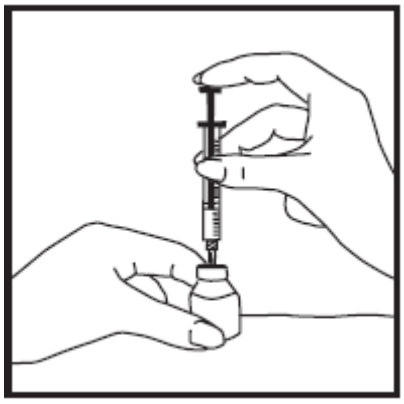

Figure H

- Hold the vial with **1** hand and carefully turn the vial upside down, making sure the syringe needle stays in the vial. **The tip of the needle should be below the surface of the liquid.**
- With your other hand, gently pull back the plunger until the amount of liquid your healthcare provider prescribed is in the syringe **(See Figure I)**.

Figure I

When the syringe is correctly filled with the liquid, remove the syringe and needle from the vial and recap the needle.

Preparing ZOMACTON 10mg Liquid for Injection:

- Remove the syringe tip cap from the top of the pre-filled liquid syringe and attach the **25G** mixing needle that comes with your ZOMACTON **(See Figure J)**.

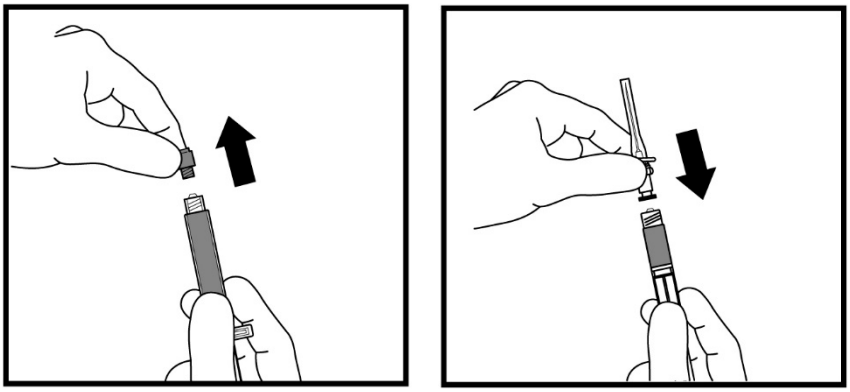

Figure J

Diluting Your ZOMACTON

- **Only** use the liquid that comes with the 5mg ZOMACTON to mix the 5mg growth hormone. **Only** use the liquid that comes with the 10mg ZOMACTON to mix the 10mg growth hormone.
- Remove the hard plastic cap of the growth hormone vial **(See Figure K)**.

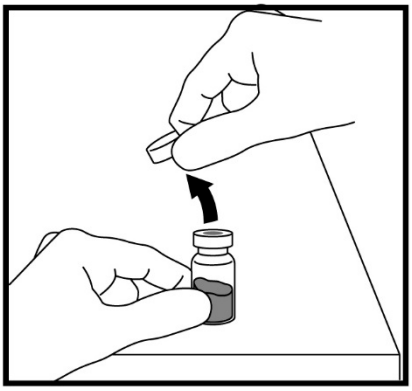

Figure K

- Clean the top of the growth hormone vial with an alcohol swab **(See Figure L)**.

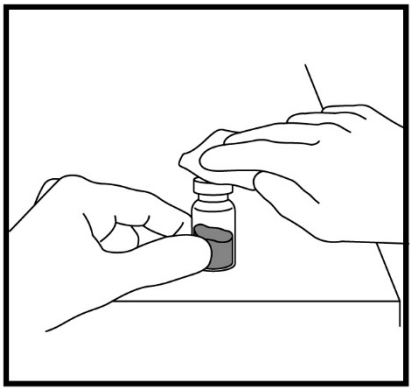

Figure L

- Remove the needle cap from the syringe filled with liquid and insert the needle into the center of the rubber stopper on the growth hormone vial **(See Figure M)**.

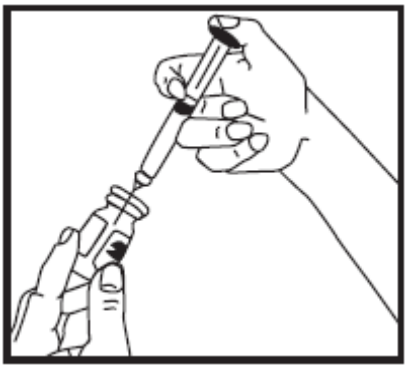

Figure M

- Point the needle toward the side of the vial and slowly push the plunger so that the liquid squirts onto the side of the vial and **not** directly onto the powder.
- When all the liquid is in the growth hormone vial, remove the needle from the vial **(See Figure N)**.

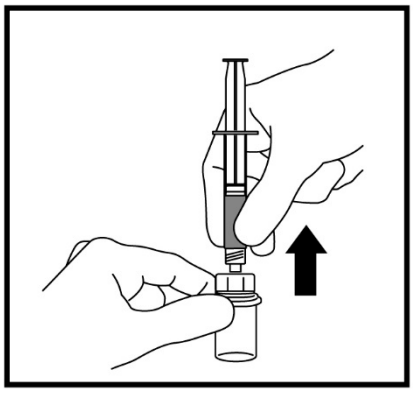

Figure N

- Recap the needle and throw away the syringe.

Mixing ZOMACTON

- Hold the vial between your hands and gently roll it until the mixture is clear. **Do not shake the vial.** Your ZOMACTON is ready for injection.
- Sometimes the vial may need to sit a few seconds before the mixture becomes clear. **Do not** use the mixture in the vial if it remains cloudy or you see particles floating in the mixture. If air bubbles appear, let the growth hormone sit for a while until they disappear.
- Write the date you mixed the growth hormone on the vial label. The **5** mg vial must be used within **14** days. The 10mg vial must be used within **28** days.
- Store your **mixed** growth hormone and all **unopened vials** of growth hormone in the refrigerator at 36°F to 46°F (2°C to 8°C). **Do not** freeze.

Step 1: Preparing the Injection

You are now ready for your ZOMACTON injection.

- Wash your hands thoroughly with soap and water.
- Check that the vial of growth hormone you are using is clear and that the date of mixing is within **14** days if you are using ZOMACTON **5**mg or **28** days if you are using ZOMACTON **10**mg.

- Clean the top of the growth hormone vial with an alcohol swab**. Do not** touch the rubber stopper after cleaning **(See Figure O)**.

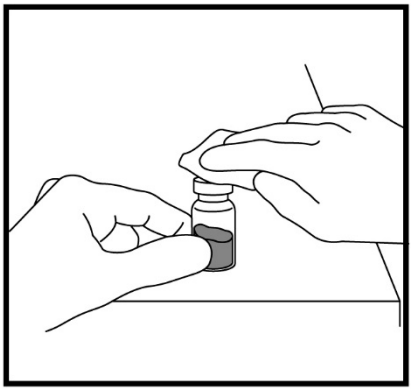

Figure O

- Remove the needle cap from the syringe and insert the needle into the center of the rubber stopper on the growth hormone vial **(See Figure P)**.

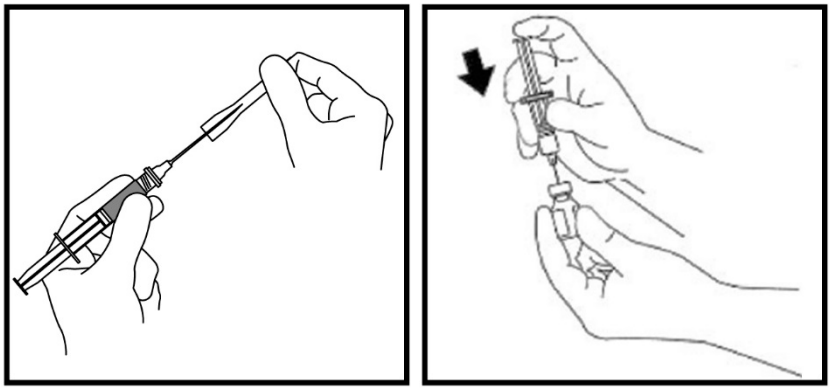

Figure P

- Gently pull back the plunger until the amount of growth hormone solution your healthcare provider has prescribed is in the syringe **(See Figure Q)**.

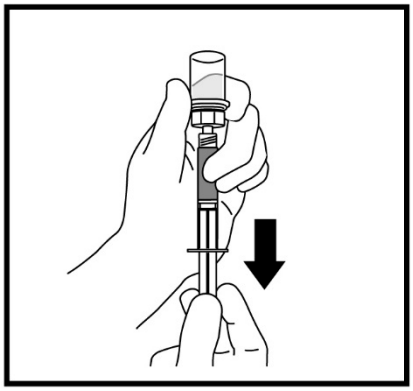

Figure Q

- Remove the needle from the vial when the syringe is correctly filled with the solution **(See Figure R)**. Recap the needle.

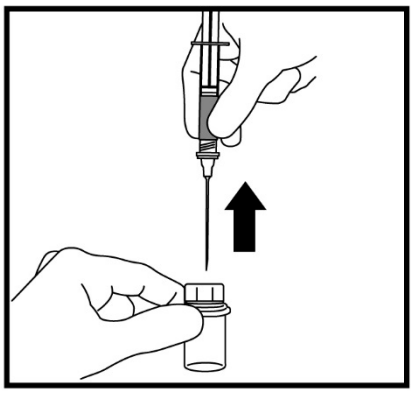

Figure R

Step 2: Choosing an Injection Site

- There are different sites you can use for your injections. These sites should be rotated **(See Figure S).**

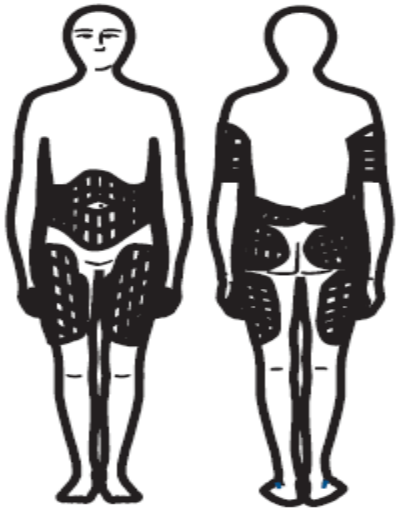

Figure S

If you notice any of the following signs, contact your healthcare provider:

- A lump, bruise or redness at the injection site that does not go away.
- Any sign of infection at the injection site (pus, redness, heat or persistent pain).
- Severe, sharp pain or ache at injection site that does not go away.
- Rash at the injection site.

Step 3: Injecting ZOMACTON

Using a circular motion, clean the injection site with an alcohol swab, starting at the injection site and moving outward about 2 inches. Let the skin air dry.

- Check that the correct dose is in the syringe.
- Remove the needle cap. Hold the syringe like a pencil in 1 hand**.**
- With your free hand, pinch the skin around the site with the thumb and forefinger of the other hand **(See Figure T)**. Quickly insert the needle into the skin at a 45° - 90° angle with a quick, dart-like motion.

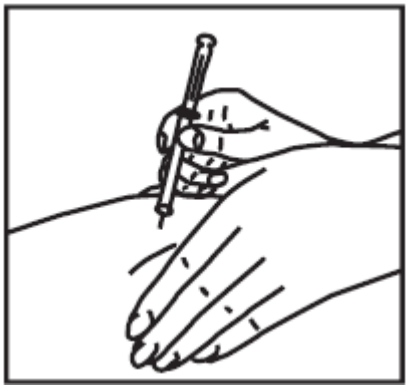

Figure T

- Holding the syringe in place, pull back a little on the plunger and check to see if any blood flows into the syringe **(See Figure U)**. If you **see blood in the syringe**, it means that you have entered a blood vessel. **Do not** inject ZOMACTON. Withdraw the needle. Throw away the syringe and needle in a puncture-resistant container. Do not use the same syringe or any of the other supplies that you used for this injection. Repeat the steps to prepare a new syringe for injection. Choose and clean a new injection site.

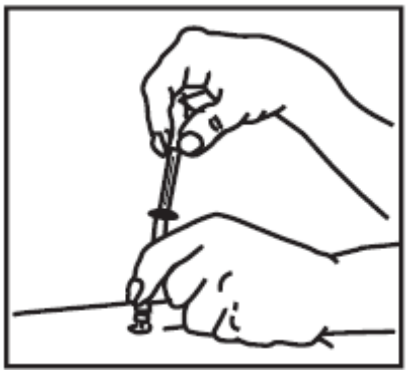

Figure U

- If no blood appears in the syringe, slowly push down plunger all the way until the syringe is completely empty **(See Figure V**).

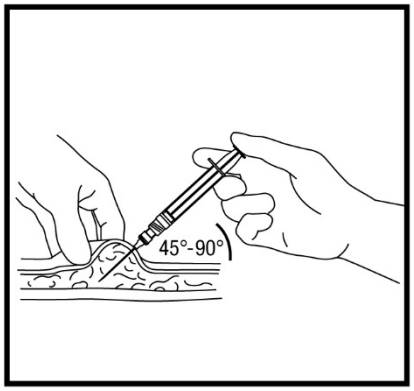

Figure V

- Quickly remove the needle from the skin and apply pressure to the injection site with a dry sterile gauze pad or cotton ball. A drop of blood may appear. Apply a small bandage if needed. Throw away the needle and syringe in your puncture-resistant disposal container.

- Do not share your syringes, needles, or vials with anyone else. You may give them or get an infection from them.

Step 4: Disposing of used syringes, needles, and vials

- To prevent needle-stick injury and spread of infection, do not try to re-cap the needle.
- Place used needles, syringes, and vials in a closeable, puncture-resistant container. You may use a sharps container (such as a red biohazard container), hard plastic container (such as a detergent bottle), or metal container (such as an empty coffee can). Do not use glass or clear plastic containers. Ask your healthcare provider for instructions on the right way to throw away (dispose of) the container. There may be state and local laws about how you should throw away used needles and syringes.
- If you do not have a FDA-cleared sharps disposal container, you may use a household container that is:
  - made of a heavy-duty plastic,
  - can be closed with a tight-fitting, puncture-resistant lid, without sharps being able to come out,
  - upright and stable during use,
  - leak-resistant, and
  - properly labeled to warn of hazardous waste inside the container.
- When your sharps disposal container is almost full, you will need to follow your community guidelines for the right way to dispose of your sharps disposal container. There may be state or local laws about how you should throw away used needles and syringes. For more information about safe sharps disposal, and for specific information about sharps disposal in the state that you live in, go to the FDA's website at: http://www.fda.gov/safesharpsdisposal
- **Do not throw used needles, syringes, or vials in your household trash or recycle.**
- Keep the disposal container, needles, syringes, and vials of ZOMACTON out of reach of children.

This Instructions for Use has been approved by the Food and Drug Administration.

MANUFACTURED FOR:

FERRING
PHARMACEUTICALS

FERRING PHARMACEUTICALS INC.
PARSIPPANY, NJ 07054

Origin Germany

XXXXXXXXXX
Rev. 1/2018