

## HIGHLIGHTS OF PRESCRIBING INFORMATION

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

TANZEUM (albiglutide) for injection, for subcutaneous use  
Initial U.S. Approval: 2014

### WARNING: RISK OF THYROID C-CELL TUMORS

See full prescribing information for complete boxed warning.

- Carcinogenicity of albiglutide could not be assessed in rodents, but other glucagon-like peptide-1 (GLP-1) receptor agonists have caused thyroid C-cell tumors in rodents at clinically relevant exposures. Human relevance of GLP-1 receptor agonist induced C-cell tumors in rodents has not been determined. It is unknown whether TANZEUM causes thyroid C-cell tumors, including medullary thyroid carcinoma (MTC), in humans (5.1, 13.1).
- TANZEUM is contraindicated in patients with a personal or family history of MTC or in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2). Counsel patients regarding the potential risk of MTC and symptoms of thyroid tumors (4.1, 5.1).

### INDICATIONS AND USAGE

TANZEUM is a GLP-1 receptor agonist indicated as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes mellitus. (1)

Limitations of Use:

- Not recommended as first-line therapy for patients inadequately controlled on diet and exercise. (1, 5.1)
- Has not been studied in patients with a history of pancreatitis. Consider other antidiabetic therapies in patients with a history of pancreatitis. (1, 5.2)
- Not for treatment of type 1 diabetes mellitus or diabetic ketoacidosis. (1)
- Not for patients with pre-existing severe gastrointestinal disease. (1)
- Has not been studied in combination with prandial insulin. (1)

### DOSAGE AND ADMINISTRATION

- Administer once weekly at any time of day, without regard to meals. (2.1)
- Inject subcutaneously in the abdomen, thigh, or upper arm. (2.1)
- Initiate at 30 mg subcutaneously once weekly. Dose can be increased to 50 mg once weekly in patients requiring additional glycemic control. (2.1)
- If a dose is missed, administer within 3 days of missed dose. (2.1)
- See Full Prescribing Information and Patient Instructions for Use for reconstitution of lyophilized powder and administration. (2.4, 2.5, 17)

### DOSAGE FORMS AND STRENGTHS

For injection: 30 mg or 50 mg in a single-dose Pen. (3)

### CONTRAINDICATIONS

- TANZEUM is contraindicated in patients with a personal or family history of medullary thyroid carcinoma or in patients with Multiple Endocrine Neoplasia syndrome type 2. (4.1)
- TANZEUM is contraindicated in patients with a prior serious hypersensitivity reaction to albiglutide or any of the product components. (4.2, 5.4)

### WARNINGS AND PRECAUTIONS

- **Thyroid C-Cell Tumors:** See Boxed Warning. (5.1)
- **Pancreatitis:** Discontinue promptly if suspected. Do not restart if confirmed. Consider other antidiabetic therapies in patients with a history of pancreatitis. (5.2)
- **Hypoglycemia:** Can occur when used in combination with insulin secretagogues (e.g., sulfonylureas) or insulin. Consider lowering sulfonylurea or insulin dosage when starting TANZEUM. (5.3)
- **Hypersensitivity Reactions:** Discontinue TANZEUM if suspected. Monitor and treat promptly per standard of care until signs and symptoms resolve. (5.4)
- **Renal Impairment:** Monitor renal function in patients with renal impairment reporting severe adverse gastrointestinal reactions. (5.5)
- **Macrovascular Outcomes:** There have been no clinical trials establishing conclusive evidence of macrovascular risk reduction with TANZEUM or any other antidiabetic drug. (5.6)

### ADVERSE REACTIONS

Adverse reactions reported in  $\geq 5\%$  of patients treated with TANZEUM and more frequently than in patients on placebo were upper respiratory tract infection, diarrhea, nausea, injection site reaction, cough, back pain, arthralgia, sinusitis, and influenza. (6.1)

To report SUSPECTED ADVERSE REACTIONS, contact GlaxoSmithKline at 1-888-825-5249 or FDA at 1-800-FDA-1088 or [www.fda.gov/medwatch](http://www.fda.gov/medwatch).

### DRUG INTERACTIONS

TANZEUM delays gastric emptying. May impact absorption of concomitantly administered oral medications. (7)

### USE IN SPECIFIC POPULATIONS

- **Pregnancy:** TANZEUM may cause fetal harm; only use if potential benefit justifies potential risk to fetus. (8.1)
- **Nursing Mothers:** Discontinue nursing or discontinue TANZEUM. (8.3)
- **Renal Impairment:** No dosage adjustment recommended. Monitor renal function in patients with renal impairment reporting severe adverse gastrointestinal reactions. (5.5, 8.6)

See 17 for PATIENT COUNSELING INFORMATION and Medication Guide.

Revised: 9/2016

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1 **FULL PRESCRIBING INFORMATION**

2 **WARNING: RISK OF THYROID C-CELL TUMORS**

- 3 • **Carcinogenicity of albiglutide could not be assessed in rodents, but other glucagon-like**  
4 **peptide-1 (GLP-1) receptor agonists have caused thyroid C-cell tumors in rodents at**  
5 **clinically relevant exposures. Human relevance of GLP-1 receptor agonist induced C-**  
6 **cell tumors in rodents has not been determined. It is unknown whether TANZEUM<sup>®</sup>**  
7 **causes thyroid C-cell tumors, including medullary thyroid carcinoma (MTC), in**  
8 **humans [see Warnings and Precautions (5.1), Nonclinical Toxicology (13.1)].**
- 9 • **TANZEUM is contraindicated in patients with a personal or family history of MTC or**  
10 **in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2). Counsel**  
11 **patients regarding the potential risk of MTC with the use of TANZEUM and inform**  
12 **them of the symptoms of thyroid tumors (e.g., mass in the neck, dysphagia, dyspnea,**  
13 **persistent hoarseness). Routine monitoring of serum calcitonin or using thyroid**  
14 **ultrasound monitoring is of uncertain value for early detection of MTC in patients**  
15 **treated with TANZEUM [see Contraindications (4.1), Warnings and Precautions (5.1)].**

16 **1 INDICATIONS AND USAGE**

17 TANZEUM is indicated as an adjunct to diet and exercise to improve glycemic control in adults  
18 with type 2 diabetes mellitus [see Clinical Studies (14)].

19 **Limitations of Use:**

- 20 • TANZEUM is not recommended as first-line therapy for patients inadequately controlled on  
21 diet and exercise because of the uncertain relevance of the rodent C-cell tumor findings to  
22 humans. Prescribe TANZEUM only to patients for whom the potential benefits are  
23 considered to outweigh the potential risk [see Warnings and Precautions (5.1)].
- 24 • TANZEUM has not been studied in patients with a history of pancreatitis [see Warnings and  
25 Precautions (5.2)]. Consider other antidiabetic therapies in patients with a history of  
26 pancreatitis.
- 27 • TANZEUM is not indicated in the treatment of patients with type 1 diabetes mellitus or for  
28 the treatment of patients with diabetic ketoacidosis. TANZEUM is not a substitute for insulin  
29 in these patients.
- 30 • TANZEUM has not been studied in patients with severe gastrointestinal disease, including  
31 severe gastroparesis. The use of TANZEUM is not recommended in patients with pre-  
32 existing severe gastrointestinal disease [see Adverse Reactions (6.1)].
- 33 • TANZEUM has not been studied in combination with prandial insulin.

## 34 **2 DOSAGE AND ADMINISTRATION**

### 35 **2.1 Dosage**

36 The recommended dosage of TANZEUM is 30 mg once weekly given as a subcutaneous  
37 injection in the abdomen, thigh, or upper arm region. The dosage may be increased to 50 mg  
38 once weekly if the glycemic response is inadequate.

39 TANZEUM may be administered at any time of day without regard to meals. Instruct patients to  
40 administer TANZEUM once a week on the same day each week. The day of weekly  
41 administration may be changed if necessary as long as the last dose was administered 4 or more  
42 days before.

43 If a dose is missed, instruct patients to administer as soon as possible within 3 days after the  
44 missed dose. Thereafter, patients can resume dosing on their usual day of administration. If it is  
45 more than 3 days after the missed dose, instruct patients to wait until their next regularly  
46 scheduled weekly dose.

### 47 **2.2 Concomitant Use with an Insulin Secretagogue (e.g., Sulfonylurea) or with** 48 **Insulin**

49 When initiating TANZEUM, consider reducing the dosage of concomitantly administered insulin  
50 secretagogues (e.g., sulfonylureas) or insulin to reduce the risk of hypoglycemia [*see Warnings*  
51 *and Precautions (5.3)*].

### 52 **2.3 Dosage in Patients with Renal Impairment**

53 No dose adjustment is needed in patients with mild, moderate, or severe renal impairment (eGFR  
54 15 to 89 mL/min/1.73 m<sup>2</sup>). Use caution when initiating or escalating doses of TANZEUM in  
55 patients with renal impairment. Monitor renal function in patients with renal impairment  
56 reporting severe adverse gastrointestinal reactions [*see Warnings and Precautions (5.5), Use in*  
57 *Specific Populations (8.6)*].

### 58 **2.4 Reconstitution of the Lyophilized Powder**

59 The lyophilized powder contained within the Pen must be reconstituted prior to administration.  
60 See Patient Instructions for Use for complete administration instructions with illustrations. The  
61 instructions may also be found at [www.TANZEUM.com](http://www.TANZEUM.com). Instruct patients as follows:

#### 62 **Pen Reconstitution**

- 63 a) Hold the Pen body with the clear cartridge pointing up to see the [1] in the number window.
- 64 b) To reconstitute the lyophilized powder with the diluent in the Pen, twist the clear cartridge on  
65 the Pen in the direction of the arrow until the Pen is felt/heard to “click” into place and the  
66 [2] is seen in the number window. This mixes the diluent with the lyophilized powder.
- 67 c) Slowly and gently rock the Pen side-to-side 5 times to mix the reconstituted solution of  
68 TANZEUM. Advise the patient to not shake the Pen hard to avoid foaming.
- 69 d) Wait 15 minutes for the 30-mg Pen and 30 minutes for the 50-mg Pen to ensure that the  
70 reconstituted solution is mixed.

71 **Preparing Pen for Injection**

- 72 e) Slowly and gently rock the Pen side-to-side 5 additional times to mix the reconstituted  
73 solution.
- 74 f) Visually inspect the reconstituted solution in the viewing window for particulate matter. The  
75 reconstituted solution will be yellow in color. After reconstitution, use TANZEUM within  
76 8 hours.
- 77 g) Holding the Pen upright, attach the needle to the Pen by pushing it straight down until there  
78 is a click and the needle snaps into place. Gently tap the clear cartridge to bring large bubbles  
79 to the top.

80 See *Dosage and Administration (2.5)* for important administration instructions, including the  
81 injection procedure.

82 **Alternate Method of Reconstitution (Healthcare Professional Use Only)**

83 The Patient Instructions for Use provide directions for the patient to wait 15 minutes for the 30-  
84 mg Pen and 30 minutes for the 50-mg Pen after the lyophilized powder and diluent are mixed to  
85 ensure reconstitution.

86 Healthcare professionals may utilize the following alternate method of reconstitution. Because  
87 this method relies on appropriate swirling and visual inspection of the solution, it should only be  
88 performed by healthcare professionals.

- 89 a) Follow Step A (Inspect Your Pen and Mix Your Medication) in the Instructions for  
90 Use. Make sure you have:
- 91 • Inspected the Pen for [1] in the number window and expiration date.
  - 92 • Twisted the clear cartridge until [2] appears in the number window and a “click”  
93 is heard. This combines the medicine powder and liquid in the clear cartridge.
- 94 b) Hold the Pen with the clear cartridge pointing up and maintain this orientation  
95 throughout the reconstitution.
- 96 c) Gently swirl the Pen in small circular motions for at least one minute. Avoid  
97 shaking as this can result in foaming, which may affect the dose.
- 98 d) Inspect the solution, and if needed, continue to gently swirl the Pen until all the  
99 powder is dissolved and you see a clear yellow solution that is free of particles. A  
100 small amount of foam, on top of the solution at the end of reconstitution, is normal.
- 101 • For 30-mg Pen: Complete dissolution usually occurs within 2 minutes but may  
102 take up to 5 minutes, as confirmed by visual inspection for a clear yellow  
103 solution free of particles.
  - 104 • For 50-mg Pen: Complete dissolution usually occurs within 7 minutes but may  
105 take up to 10 minutes.
- 106 e) After reconstitution, continue to follow the steps in the Instructions for Use, starting  
107 at Step B: Attach the Needle.

## 108 **2.5 Important Administration Instructions**

109 Instruct patients as follows:

- 110 • The pen should be used within 8 hours of reconstitution prior to attaching the needle.
- 111 • After attaching the supplied needle, remove air bubbles by slowly twisting the Pen until you  
112 see the [3] in the number window. At the same time, the injection button will be  
113 automatically released from the bottom of the Pen.
- 114 • Use immediately after the needle is attached and primed. The product can clog the needle if  
115 allowed to dry in the primed needle.
- 116 • After subcutaneously inserting the needle into the skin in the abdomen, thigh, or upper arm  
117 region, press the injection button. Hold the injection button until you hear a “click” and then  
118 hold the button for 5 additional seconds to deliver the full dose.

119 When using TANZEUM with insulin, instruct patients to administer as separate injections and to  
120 never mix the products. It is acceptable to inject TANZEUM and insulin in the same body region  
121 but the injections should not be adjacent to each other.

122 When injecting in the same body region, advise patients to use a different injection site each  
123 week. TANZEUM must not be administered intravenously or intramuscularly.

## 124 **3 DOSAGE FORMS AND STRENGTHS**

125 TANZEUM is supplied as follows:

- 126 • For injection: 30-mg lyophilized powder in a single-dose Pen (pen injector) for  
127 reconstitution.
- 128 • For injection: 50-mg lyophilized powder in a single-dose Pen (pen injector) for  
129 reconstitution.

## 130 **4 CONTRAINDICATIONS**

### 131 **4.1 Medullary Thyroid Carcinoma**

132 TANZEUM is contraindicated in patients with a personal or family history of medullary thyroid  
133 carcinoma (MTC) or in patients with Multiple Endocrine Neoplasia syndrome type 2 (MEN 2)  
134 *[see Warnings and Precautions (5.1)]*.

### 135 **4.2 Hypersensitivity**

136 TANZEUM is contraindicated in patients with a prior serious hypersensitivity reaction to  
137 albiglutide or to any of the product components *[see Warnings and Precautions (5.4)]*.

## 138 **5 WARNINGS AND PRECAUTIONS**

### 139 **5.1 Risk of Thyroid C-Cell Tumors**

140 Carcinogenicity of albiglutide could not be assessed in rodents due to the rapid development of  
141 drug-clearing, anti-drug antibodies *[see Nonclinical Toxicology (13.1)]*. Other GLP-1 receptor  
142 agonists have caused dose-related and treatment–duration-dependent thyroid C-cell tumors

143 (adenomas or carcinomas) in rodents. Human relevance of GLP-1 receptor agonist induced C-  
144 cell tumors in rodents has not been determined. It is unknown whether TANZEUM causes  
145 thyroid C-cell tumors, including MTC, in humans [see *Boxed Warning, Contraindications (4.1)*].

146 Across 8 Phase III clinical trials [see *Clinical Studies (14)*], MTC was diagnosed in 1 patient  
147 receiving TANZEUM and 1 patient receiving placebo. Both patients had markedly elevated  
148 serum calcitonin levels at baseline. Cases of MTC in patients treated with liraglutide, another  
149 GLP-1 receptor agonist, have been reported in the postmarketing period; the data in these reports  
150 are insufficient to establish or exclude a causal relationship between MTC and GLP-1 receptor  
151 agonist use in humans.

152 TANZEUM is contraindicated in patients with a personal or family history of MTC or in patients  
153 with MEN 2. Counsel patients regarding the potential risk for MTC with the use of TANZEUM  
154 and inform them of symptoms of thyroid tumors (e.g., a mass in the neck, dysphagia, dyspnea, or  
155 persistent hoarseness).

156 Routine monitoring of serum calcitonin or using thyroid ultrasound is of uncertain value for early  
157 detection of MTC in patients treated with TANZEUM. Such monitoring may increase the risk of  
158 unnecessary procedures, due to the low specificity of serum calcitonin testing for MTC and a  
159 high background incidence of thyroid disease. Significantly elevated serum calcitonin may  
160 indicate MTC and patients with MTC usually have calcitonin values >50 ng/L. If serum  
161 calcitonin is measured and found to be elevated, the patient should be further evaluated. Patients  
162 with thyroid nodules noted on physical examination or neck imaging should also be further  
163 evaluated.

## 164 **5.2 Acute Pancreatitis**

165 In clinical trials, acute pancreatitis has been reported in association with TANZEUM.

166 Across 8 Phase III clinical trials [see *Clinical Studies (14)*], pancreatitis adjudicated as likely  
167 related to therapy occurred more frequently in patients receiving TANZEUM (6 of 2,365 [0.3%])  
168 than in patients receiving placebo (0 of 468 [0%]) or active comparators (2 of 2,062 [0.1%]).

169 After initiation of TANZEUM, observe patients carefully for signs and symptoms of pancreatitis  
170 (including persistent severe abdominal pain, sometimes radiating to the back and which may or  
171 may not be accompanied by vomiting). If pancreatitis is suspected, promptly discontinue  
172 TANZEUM. If pancreatitis is confirmed, TANZEUM should not be restarted.

173 TANZEUM has not been studied in patients with a history of pancreatitis to determine whether  
174 these patients are at increased risk for pancreatitis. Consider other antidiabetic therapies in  
175 patients with a history of pancreatitis.

## 176 **5.3 Hypoglycemia with Concomitant Use of Insulin Secretagogues or Insulin**

177 The risk of hypoglycemia is increased when TANZEUM is used in combination with insulin  
178 secretagogues (e.g., sulfonylureas) or insulin. Therefore, patients may require a lower dose of  
179 sulfonylurea or insulin to reduce the risk of hypoglycemia in this setting [see *Dosage and*  
180 *Administration (2.2), Adverse Reactions (6.1)*].

## 181 **5.4 Hypersensitivity Reactions**

182 Across 8 Phase III clinical trials [see *Clinical Studies (14)*], a serious hypersensitivity reaction  
183 with pruritus, rash, and dyspnea occurred in a patient treated with TANZEUM. If  
184 hypersensitivity reactions occur, discontinue use of TANZEUM; treat promptly per standard of  
185 care, and monitor until signs and symptoms resolve [see *Contraindications (4.2)*].

## 186 **5.5 Renal Impairment**

187 In patients treated with GLP-1 receptor agonists, there have been postmarketing reports of acute  
188 renal failure and worsening of chronic renal failure, which may sometimes require hemodialysis.  
189 Some of these events were reported in patients without known underlying renal disease. A  
190 majority of reported events occurred in patients who had experienced nausea, vomiting, diarrhea,  
191 or dehydration. In a trial of TANZEUM in patients with renal impairment [see *Clinical Studies*  
192 *(14.3)*], the frequency of such gastrointestinal reactions increased as renal function declined [see  
193 *Use in Specific Populations (8.6)*]. Because these reactions may worsen renal function, use  
194 caution when initiating or escalating doses of TANZEUM in patients with renal impairment [see  
195 *Dosage and Administration (2.3)*, *Use in Specific Populations (8.6)*].

## 196 **5.6 Macrovascular Outcomes**

197 There have been no clinical trials establishing conclusive evidence of macrovascular risk  
198 reduction with TANZEUM or any other antidiabetic drug.

## 199 **6 ADVERSE REACTIONS**

200 The following serious reactions are described below or elsewhere in the prescribing information:

- 201 • Risk of Thyroid C-Cell Tumors [see *Warnings and Precautions (5.1)*]
- 202 • Acute Pancreatitis [see *Warnings and Precautions (5.2)*]
- 203 • Hypoglycemia with Concomitant Use of Insulin Secretagogues or Insulin [see *Warnings and*  
204 *Precautions (5.3)*]
- 205 • Hypersensitivity Reactions [see *Warnings and Precautions (5.4)*]
- 206 • Renal Impairment [see *Warnings and Precautions (5.5)*]

### 207 **6.1 Clinical Trials Experience**

208 Because clinical trials are conducted under widely varying conditions, adverse reaction rates  
209 observed in the clinical trials of a drug cannot be directly compared with rates in the clinical  
210 trials of another drug and may not reflect the rates observed in practice.

#### 211 Pool of Placebo-Controlled Trials

212 The data in Table 1 are derived from 4 placebo-controlled trials. TANZEUM was used as  
213 monotherapy in 1 trial and as add-on therapy in 3 trials [see *Clinical Studies (14)*]. These data  
214 reflect exposure of 923 patients to TANZEUM and a mean duration of exposure to TANZEUM  
215 of 93 weeks. The mean age of participants was 55 years, 1% of participants were 75 years or  
216 older and 53% of participants were male. The population in these studies was 48% white, 13%  
217 African/African American, 7% Asian, and 29% Hispanic/Latino. At baseline, the population had

218 type 2 diabetes for an average of 7 years and had a mean HbA1c of 8.1%. At baseline, 17% of  
 219 the population in these studies reported peripheral neuropathy and 4% reported retinopathy.  
 220 Baseline estimated renal function was normal or mildly impaired (eGFR >60 mL/min/1.73 m<sup>2</sup>)  
 221 in 91% of the study population and moderately impaired (eGFR 30 to 60 mL/min/1.73 m<sup>2</sup>) in  
 222 9%.

223 Table 1 shows common adverse reactions excluding hypoglycemia associated with the use of  
 224 TANZEUM in the pool of placebo-controlled trials. These adverse reactions were not present at  
 225 baseline, occurred more commonly on TANZEUM than on placebo, and occurred in at least 5%  
 226 of patients treated with TANZEUM.

227 **Table 1. Adverse Reactions in Placebo-Controlled Trials Reported in ≥5% of Patients**  
 228 **Treated with TANZEUM<sup>a</sup>**

Adverse Reaction	Placebo (N = 468) %	TANZEUM (N = 923) %
Upper respiratory tract infection	13.0	14.2
Diarrhea	10.5	13.1
Nausea	9.6	11.1
Injection site reaction <sup>b</sup>	2.1	10.5
Cough	6.2	6.9
Back pain	5.8	6.7
Arthralgia	6.4	6.6
Sinusitis	5.8	6.2
Influenza	3.2	5.2

229 <sup>a</sup> Adverse reactions reported includes adverse reactions occurring with the use of glycemic  
 230 rescue medications which included metformin (17% for placebo and 10% for TANZEUM)  
 231 and insulin (24% for placebo and 14% for TANZEUM).

232 <sup>b</sup> See below for other events of injection site reactions reported.

233 **Gastrointestinal Adverse Reactions:** In the pool of placebo-controlled trials, gastrointestinal  
 234 complaints occurred more frequently among patients receiving TANZEUM (39%) than patients  
 235 receiving placebo (33%). In addition to diarrhea and nausea (see Table 1), the following  
 236 gastrointestinal adverse reactions also occurred more frequently in patients receiving  
 237 TANZEUM: vomiting (2.6% versus 4.2% for placebo versus TANZEUM), gastroesophageal  
 238 reflux disease (1.9% versus 3.5% for placebo versus TANZEUM), and dyspepsia (2.8% versus  
 239 3.4% for placebo versus TANZEUM). Constipation also contributed to the frequently reported  
 240 reactions. In the group treated with TANZEUM, investigators graded the severity of GI reactions  
 241 as “mild” in 56% of cases, “moderate” in 37% of cases, and “severe” in 7% of cases.  
 242 Discontinuation due to GI adverse reactions occurred in 2% of individuals on TANZEUM or  
 243 placebo.

244 **Injection Site Reactions:** In the pool of placebo-controlled trials, injection site reactions  
 245 occurred more frequently on TANZEUM (18%) than on placebo (8%). In addition to the term  
 246 injection site reaction (see Table 1), the following other types of injection site reactions also  
 247 occurred more frequently on TANZEUM: injection site hematoma (1.9% versus 2.1% for  
 248 placebo versus TANZEUM), injection site erythema (0.4% versus 1.7% for placebo versus

249 TANZEUM), injection site rash (0% versus 1.4% for placebo versus TANZEUM), injection site  
250 hypersensitivity (0% versus 0.8% for placebo versus TANZEUM), and injection site hemorrhage  
251 (0.6% versus 0.7% for placebo versus TANZEUM). Injection site pruritus also contributed to the  
252 frequently reported reactions. The majority of injection site reactions were judged as “mild” by  
253 investigators in both groups (73% for TANZEUM versus 94% for placebo). More patients on  
254 TANZEUM than on placebo: discontinued due to an injection site reaction (2% versus 0.2%),  
255 experienced more than 2 reactions (38% versus 20%), had a reaction judged by investigators to  
256 be “moderate” or “severe” (27% versus 6%) and required local or systemic treatment for the  
257 reactions (36% versus 11%).

### 258 Pool of Placebo- and Active-Controlled Trials

259 The occurrence of adverse reactions was also evaluated in a larger pool of patients with type 2  
260 diabetes participating in 7 placebo- and active-controlled trials. These trials evaluated the use of  
261 TANZEUM as monotherapy, and as add-on therapy to oral antidiabetic agents, and as add-on  
262 therapy to basal insulin [*see Clinical Studies (14)*]. In this pool, a total of 2,116 patients with  
263 type 2 diabetes were treated with TANZEUM for a mean duration of 75 weeks. The mean age of  
264 patients treated with TANZEUM was 55 years, 1.5% of the population in these studies was  
265 75 years or older and 51% of participants were male. Forty-eight percent of patients were white,  
266 15% African/African American, 9% Asian, and 26% were Hispanic/Latino. At baseline, the  
267 population had diabetes for an average of 8 years and had a mean HbA1c of 8.2%. At baseline,  
268 21% of the population reported peripheral neuropathy and 5% reported retinopathy. Baseline  
269 estimated renal function was normal or mildly impaired (eGFR >60 mL/min/1.73 m<sup>2</sup>) in 92% of  
270 the population and moderately impaired (eGFR 30 to 60 mL/min/1.73 m<sup>2</sup>) in 8% of the  
271 population.

272 In the pool of placebo- and active-controlled trials, the types and frequency of common adverse  
273 reactions excluding hypoglycemia were similar to those listed in Table 1.

### 274 Other Adverse Reactions

275 *Hypoglycemia:* The proportion of patients experiencing at least one documented symptomatic  
276 hypoglycemic episode on TANZEUM and the proportion of patients experiencing at least one  
277 severe hypoglycemic episode on TANZEUM in clinical trials [*see Clinical Studies (14)*] is  
278 shown in Table 2. Hypoglycemia was more frequent when TANZEUM was added to  
279 sulfonylurea or insulin [*see Warnings and Precautions (5.3)*].

280 **Table 2. Incidence (%) of Hypoglycemia in Clinical Trials of TANZEUM<sup>a</sup>**

<b>Monotherapy<sup>b</sup> (52 Weeks)</b>	<b>Placebo N = 101</b>	<b>TANZEUM 30 mg Weekly N = 101</b>
Documented symptomatic <sup>c</sup>	2%	2%
Severe <sup>d</sup>	-	-
<b>In Combination with Metformin Trial (104 Weeks)<sup>e</sup></b>	<b>Placebo N = 101</b>	<b>TANZEUM N = 302</b>
Documented symptomatic	4%	3%
Severe	-	-
<b>In Combination with Pioglitazone ± Metformin (52 Weeks)</b>	<b>Placebo N = 151</b>	<b>TANZEUM N = 150</b>
Documented symptomatic	1%	3%
Severe	-	1%
<b>In Combination with Metformin and Sulfonylurea (52 Weeks)</b>	<b>Placebo N = 115</b>	<b>TANZEUM N = 271</b>
Documented symptomatic	7%	13%
Severe	-	0.4%
<b>In Combination with Insulin Glargine (26 Weeks)</b>	<b>Insulin Lispro N = 281</b>	<b>TANZEUM N = 285</b>
Documented symptomatic	30%	16%
Severe	0.7%	-
<b>In Combination with Metformin ± Sulfonylurea (52 Weeks)</b>	<b>Insulin Glargine N = 241</b>	<b>TANZEUM N = 504</b>
Documented symptomatic	27%	17%
Severe	0.4%	0.4%
<b>In Combination with OADs in Renal Impairment (26 Weeks)</b>	<b>Sitagliptin N = 246</b>	<b>TANZEUM N = 249</b>
Documented symptomatic	6%	10%
Severe	0.8%	-

281 OAD = Oral antidiabetic agents.

282 <sup>a</sup> Data presented are to the primary endpoint and include only events occurring on-therapy with  
283 randomized medications and excludes events occurring after use of glycemic rescue  
284 medications (i.e., primarily metformin or insulin).

285 <sup>b</sup> In this trial, no documented symptomatic or severe hypoglycemia were reported for  
286 TANZEUM 50 mg and these data are omitted from the table.

287 <sup>c</sup> Plasma glucose concentration  $\leq 70$  mg/dL and presence of hypoglycemic symptoms.

288 <sup>d</sup> Event requiring another person to administer a resuscitative action.

289 <sup>e</sup> Rate of documented symptomatic hypoglycemia for active controls 18% (glimepiride) and 2%  
290 (sitagliptin).

291 *Pneumonia*: In the pool of 7 placebo- and active-controlled trials, the adverse reaction of  
292 pneumonia was reported more frequently in patients receiving TANZEUM (1.8%) than in

293 patients in the all-comparators group (0.8%). More cases of pneumonia in the group receiving  
294 TANZEUM were serious (0.4% for TANZEUM versus 0.1% for all comparators).

295 *Atrial Fibrillation/Flutter:* In the pool of 7 placebo- and active-controlled trials, adverse reactions  
296 of atrial fibrillation (1.0%) and atrial flutter (0.2%) were reported more frequently for  
297 TANZEUM than for all comparators (0.5% and 0%, respectively). In both groups, patients with  
298 events were generally male, older, and had underlying renal impairment or cardiac disease (e.g.,  
299 history of arrhythmia, palpitations, congestive heart failure, cardiomyopathy, etc.).

300 *Appendicitis:* In the pool of placebo- and active-controlled trials, serious events of appendicitis  
301 occurred in 0.3% of patients treated with TANZEUM compared with 0% among all comparators.

302 *Immunogenicity:* In the pool of 7 placebo- and active-controlled trials, 116 (5.5%) of 2,098  
303 patients exposed to TANZEUM tested positive for anti-albiglutide antibodies at any time during  
304 the trials. None of these antibodies were shown to neutralize the activity of albiglutide in an  
305 in vitro bioassay. Presence of antibody did not correlate with reduced efficacy as measured by  
306 HbA1c and fasting plasma glucose or specific adverse reactions.

307 Consistent with the high homology of albiglutide with human GLP-1, the majority of patients  
308 (approximately 79%) with anti-albiglutide antibodies also tested positive for anti-GLP-1  
309 antibodies; none were neutralizing. A minority of patients (approximately 17%) who tested  
310 positive for anti-albiglutide antibodies also transiently tested positive for antibodies to human  
311 albumin.

312 The detection of antibody formation is highly dependent on the sensitivity and specificity of the  
313 assay. Additionally, the observed incidence of antibody (including neutralizing antibody)  
314 positivity in an assay may be influenced by several factors including assay methodology, sample  
315 handling, timing of sample collection, concomitant medications, and underlying disease. For  
316 these reasons, the incidence of antibodies to albiglutide cannot be directly compared with the  
317 incidence of antibodies of other products.

318 *Liver Enzyme Abnormalities:* In the pool of placebo- and active-controlled trials, a similar  
319 proportion of patients experienced at least one event of alanine aminotransferase (ALT) increase  
320 of 3-fold or greater above the upper limit of normal (0.9% and 0.9% for all comparators versus  
321 TANZEUM). Three subjects on TANZEUM and one subject in the all-comparator group  
322 experienced at least one event of ALT increase of 10-fold or greater above the upper limit of  
323 normal. In one of the 3 cases an alternate etiology was identified to explain the rise in liver  
324 enzyme (acute viral hepatitis). In one case, insufficient information was obtained to establish or  
325 refute a drug-related causality. In the third case, elevation in ALT (10 times the upper limit of  
326 normal) was accompanied by an increase in total bilirubin (4 times the upper limit of normal)  
327 and occurred 8 days after the first dose of TANZEUM. The etiology of hepatocellular injury was  
328 possibly related to TANZEUM but direct attribution to TANZEUM was confounded by the  
329 presence of gallstone disease diagnosed on ultrasound 3 weeks after the event.

330 *Gamma Glutamyltransferase (GGT) Increase:* In the pool of placebo-controlled trials, the  
331 adverse event of increased GGT occurred more frequently in the group treated with TANZEUM  
332 (0.9% and 1.5% for placebo versus TANZEUM).

333 **Heart Rate Increase:** In the pool of placebo-controlled trials, mean heart rate in patients treated  
334 with TANZEUM was higher by an average of 1 to 2 bpm compared with mean heart rate in  
335 patients treated with placebo across study visits. The long-term clinical effects of the increase in  
336 heart rate have not been established [see *Warnings and Precautions (5.6)*].

## 337 **7 DRUG INTERACTIONS**

338 TANZEUM did not affect the absorption of orally administered medications tested in clinical  
339 pharmacology studies to any clinically relevant degree [see *Clinical Pharmacology (12.3)*].  
340 However, TANZEUM causes a delay of gastric emptying, and thereby has the potential to  
341 impact the absorption of concomitantly administered oral medications. Caution should be  
342 exercised when oral medications are concomitantly administered with TANZEUM.

## 343 **8 USE IN SPECIFIC POPULATIONS**

### 344 **8.1 Pregnancy**

#### 345 Pregnancy Category C

346 There are no adequate and well-controlled studies of TANZEUM in pregnant women.  
347 Nonclinical studies have shown reproductive toxicity, but not teratogenicity, in mice treated with  
348 albiglutide at up to 39 times human exposure resulting from the maximum recommended dose of  
349 50 mg/week, based on AUC [see *Nonclinical Toxicology (13.1, 13.3)*]. TANZEUM should not  
350 be used during pregnancy unless the expected benefit outweighs the potential risks.

351 Due to the long washout period for TANZEUM, consider stopping TANZEUM at least 1 month  
352 before a planned pregnancy.

353 There are no data on the effects of TANZEUM on human fertility. Studies in mice showed no  
354 effects on fertility [see *Nonclinical Toxicology (13.1)*]. The potential risk to human fertility is  
355 unknown.

### 356 **8.3 Nursing Mothers**

357 There are no adequate data to support the use of TANZEUM during lactation in humans.

358 It is not known if TANZEUM is excreted into human milk during lactation. Given that  
359 TANZEUM is an albumin-based protein therapeutic, it is likely to be present in human milk.  
360 Decreased body weight in offspring was observed in mice treated with TANZEUM during  
361 gestation and lactation [see *Nonclinical Toxicology (13.3)*]. A decision should be made whether  
362 to discontinue nursing or to discontinue TANZEUM, taking into account the importance of the  
363 drug to the mother and the potential risks to the infant.

### 364 **8.4 Pediatric Use**

365 Safety and effectiveness of TANZEUM have not been established in pediatric patients (younger  
366 than 18 years).

### 367 **8.5 Geriatric Use**

368 Of the total number of patients (N = 2,365) in 8 Phase III clinical trials who received  
369 TANZEUM, 19% (N = 444) were 65 years and older, and <3% (N = 52) were 75 years and

370 older. No overall differences in safety or effectiveness were observed between these patients and  
371 younger patients, but greater sensitivity of some older individuals cannot be ruled out.

## 372 **8.6 Renal Impairment**

373 Of the total number of patients (N = 2,365) in 8 Phase III clinical trials who received  
374 TANZEUM, 54% (N = 1,267) had mild renal impairment (eGFR 60 to 89 mL/min/1.73 m<sup>2</sup>),  
375 12% (N = 275) had moderate renal impairment (eGFR 30 to 59 mL/min/1.73 m<sup>2</sup>) and 1%  
376 (N = 19) had severe renal impairment (eGFR 15 to <30 mL/min/1.73 m<sup>2</sup>).

377 No dosage adjustment is required in patients with mild (eGFR 60 to 89 mL/min/1.73 m<sup>2</sup>),  
378 moderate (eGFR 30 to 59 mL/min/1.73 m<sup>2</sup>), or severe (eGFR 15 to <30 mL/min/1.73 m<sup>2</sup>) renal  
379 impairment.

380 Efficacy of TANZEUM in patients with type 2 diabetes and renal impairment is described  
381 elsewhere [*see Clinical Studies (14.3)*]. There is limited clinical experience in patients with  
382 severe renal impairment (19 subjects). The frequency of GI events increased as renal function  
383 declined. For patients with mild, moderate, or severe impairment, the respective event rates  
384 were: diarrhea (6%, 13%, 21%), nausea (3%, 5%, 16%), and vomiting (1%, 2%, 5%). Therefore,  
385 caution is recommended when initiating or escalating doses of TANZEUM in patients with renal  
386 impairment [*see Dosage and Administration (2.3), Warnings and Precautions (5.5), Clinical*  
387 *Pharmacology (12.3)*].

## 388 **10 OVERDOSAGE**

389 No data are available with regard to overdosage in humans. Anticipated symptoms of an  
390 overdose may be severe nausea, vomiting, and headache.

391 In the event of an overdose, appropriate supportive treatment should be initiated as dictated by  
392 the patient's clinical signs and symptoms. A prolonged period of observation and treatment for  
393 these symptoms may be necessary, taking into account the half-life of TANZEUM (5 days).

## 394 **11 DESCRIPTION**

395 TANZEUM is a GLP-1 receptor agonist, a recombinant fusion protein comprised of 2 tandem  
396 copies of modified human GLP-1 genetically fused in tandem to human albumin. The human  
397 GLP-1 fragment sequence 7 – 36 has been modified with a glycine substituted for the naturally-  
398 occurring alanine at position 8 in order to confer resistance to dipeptidylpeptidase IV (DPP-IV)  
399 mediated proteolysis. The human albumin moiety of the recombinant fusion protein, together  
400 with the DPP-IV resistance, extends the half-life allowing once-weekly dosing. TANZEUM has  
401 a molecular weight of 72,970 Daltons.

402 TANZEUM is produced by a strain of *Saccharomyces cerevisiae* modified to express the  
403 therapeutic protein.

404 TANZEUM 30-mg Pen for injection (for subcutaneous use) contains 40.3 mg lyophilized  
405 albiglutide and 0.65 mL Water for Injection diluent designed to deliver a dose of 30 mg in a  
406 volume of 0.5 mL after reconstitution.

407 TANZEUM 50-mg Pen for injection (for subcutaneous use) contains 67 mg lyophilized  
408 albiglutide and 0.65 mL Water for Injection diluent designed to deliver a dose of 50 mg in a  
409 volume of 0.5 mL after reconstitution.

410 The lyophilized powder of both dose strengths is white to yellow in color and the solvent is a  
411 clear and colorless solution. The reconstituted solution is yellow in color.

412 Inactive ingredients include 153 mM mannitol, 0.01% (w/w) polysorbate 80, 10 mM sodium  
413 phosphate, and 117 mM trehalose dihydrate. TANZEUM does not contain a preservative.

## 414 **12 CLINICAL PHARMACOLOGY**

### 415 **12.1 Mechanism of Action**

416 TANZEUM is an agonist of the GLP-1 receptor and augments glucose-dependent insulin  
417 secretion. TANZEUM also slows gastric emptying.

### 418 **12.2 Pharmacodynamics**

419 TANZEUM lowers fasting glucose and reduces postprandial glucose excursions in patients with  
420 type 2 diabetes mellitus. The majority of the observed reduction in fasting plasma glucose occurs  
421 after a single dose, consistent with the pharmacokinetic profile of albiglutide. In a Phase II trial  
422 in Japanese patients with type 2 diabetes mellitus who received TANZEUM 30 mg, a reduction  
423 (22%) in postprandial glucose AUC<sub>(0-3 h)</sub> was observed at steady state (Week 16) compared with  
424 placebo following a mixed meal.

425 A single dose of TANZEUM 50 mg subcutaneous (SC) did not impair glucagon response to low  
426 glucose concentrations.

#### 427 Gastric Motility

428 TANZEUM slowed gastric emptying compared with placebo for both solids and liquids when  
429 albiglutide 100 mg (2 times the maximum approved dosage) was administered as a single dose in  
430 healthy subjects.

#### 431 Cardiac Electrophysiology

432 At doses up to the maximum recommended dose (50 mg), TANZEUM does not prolong QTc to  
433 any clinically relevant extent.

### 434 **12.3 Pharmacokinetics**

#### 435 Absorption

436 Following SC administration of a single 30-mg dose to subjects with type 2 diabetes mellitus,  
437 maximum concentrations of albiglutide were reached at 3 to 5 days post-dosing. The mean peak  
438 concentration (C<sub>max</sub>) and mean area under the time-concentration curve (AUC) of albiglutide  
439 were 1.74 mcg/mL and 465 mcg.h/mL, respectively, following a single dose of 30 mg albiglutide  
440 in type 2 diabetes mellitus subjects. Steady-state exposures are achieved following 4 to 5 weeks  
441 of once-weekly administration. Exposures at the 30-mg and 50-mg dose levels were consistent  
442 with a dose-proportional increase. Similar exposure is achieved with SC administration of

443 albiglutide in the abdomen, thigh, or upper arm. The absolute bioavailability of albiglutide  
444 following SC administration has not been evaluated.

#### 445 Distribution

446 The mean estimate of apparent volume of distribution of albiglutide following SC administration  
447 is 11 L. As albiglutide is an albumin fusion molecule, plasma protein binding has not been  
448 assessed.

#### 449 Metabolism

450 Albiglutide is a protein for which the expected metabolic pathway is degradation to small  
451 peptides and individual amino acids by ubiquitous proteolytic enzymes. Classical  
452 biotransformation studies have not been performed. Because albiglutide is an albumin fusion  
453 protein, it likely follows a metabolic pathway similar to native human serum albumin which is  
454 catabolized primarily in the vascular endothelium.

#### 455 Elimination

456 The mean apparent clearance of albiglutide is 67 mL/h with an elimination half-life of  
457 approximately 5 days, making albiglutide suitable for once-weekly administration.

#### 458 Specific Patient Populations

459 *Age, Gender, Race, and Body Weight:* Based on the population pharmacokinetic analysis  
460 with data collected from 1,113 subjects, age, gender, race, and body weight had no clinically  
461 relevant effect on the pharmacokinetics of albiglutide.

462 *Pediatric:* No pharmacokinetic data are available in pediatric patients.

463 *Renal:* In a population pharmacokinetic analysis including a Phase III trial in patients with mild,  
464 moderate, and severe renal impairment, exposures were increased by approximately 30% to 40%  
465 in severe renal impairment compared with those observed in type 2 diabetic patients with normal  
466 renal function.

467 *Hepatic:* No clinical trials were conducted to examine the effects of mild, moderate, or severe  
468 hepatic impairment on the pharmacokinetics of albiglutide. Therapeutic proteins such as  
469 albiglutide are catabolized by widely distributed proteolytic enzymes, which are not restricted to  
470 hepatic tissue; therefore, changes in hepatic function are unlikely to have any effect on the  
471 elimination of albiglutide.

#### 472 Drug Interactions

473 In multiple-dose, drug-drug interaction trials no significant change in systemic exposures of the  
474 co-administered drugs were observed, except simvastatin (see Table 3). When albiglutide was  
475 co-administered with simvastatin,  $C_{max}$  of simvastatin and its active metabolite simvastatin acid  
476 was increased by approximately 18% and 98%, respectively. In the same trial, AUC of  
477 simvastatin decreased by 40% and AUC of simvastatin acid increased by 36%. Clinical  
478 relevance of these changes has not been established (see Table 3).

479 Additionally, no clinically relevant pharmacodynamic effects on luteinizing hormone, follicle-  
480 stimulating hormone, or progesterone were observed when albiglutide and a combination oral

481 contraceptive were co-administered. Albiglutide did not significantly alter the pharmacodynamic  
 482 effects of warfarin as measured by the international normalized ratio (INR).

483 **Table 3. Effect of Albiglutide on Systemic Exposure of Co-administered Drugs**

Co-administered Drug	Dose of Co-administered Drug <sup>a</sup>	Dose of TANZEUM	Geometric Mean Ratio (Ratio +/- Co-administered Drug) No Effect = 1		
			Analyte	AUC (90% CI) <sup>b</sup>	C <sub>max</sub> (90% CI)
<b>No dose adjustments of co-administered drug required for the following:</b>					
Simvastatin	80 mg	50 mg QW for 5 weeks	Simvastatin	0.60 (0.52 – 0.69)	1.18 (1.02 – 1.38)
			Simvastatin acid	1.36 (1.19 – 1.55)	1.98 (1.75 – 2.25)
Digoxin	0.5 mg	50 mg QW for 5 weeks	Digoxin	1.09 (1.01 – 1.18)	1.11 (0.98 – 1.26)
Oral contraceptive <sup>c</sup>	0.035 mg ethinyl estradiol and 0.5 mg norethindrone	50 mg QW for 4 weeks	Norethindrone	1.00 (0.96 – 1.04)	1.04 (0.98 – 1.10)
			Levonorgestrel	1.09 (1.06 – 1.14)	1.20 (1.11 – 1.29)
Warfarin	25 mg	50 mg QW for 5 weeks	R-Warfarin	1.02 (0.98 – 1.07)	0.94 (0.89 – 0.99)
			S-Warfarin	0.99 (0.95 – 1.03)	0.93 (0.87 – 0.98)

484 QW = Once weekly.

485 <sup>a</sup> Single dose unless otherwise noted.

486 <sup>b</sup> AUC<sub>inf</sub> for drugs given as a single dose and AUC<sub>24h</sub> for drugs given as multiple doses.

487 <sup>c</sup> Subjects received low-dose oral contraceptive for two 28-day treatment cycles (21 days  
 488 active/7 days placebo).

## 489 13 NONCLINICAL TOXICOLOGY

### 490 13.1 Carcinogenesis, Mutagenesis, Impairment of Fertility

491 As albiglutide is a recombinant protein, no genotoxicity studies have been conducted.

492 Carcinogenicity of albiglutide could not be assessed in rodents due to the rapid development of  
 493 drug-clearing, anti-drug antibodies. Other GLP-1 receptor agonists have caused thyroid C-cell  
 494 tumors in rodent carcinogenicity studies. Human relevance of GLP-1 receptor agonist induced  
 495 rodent thyroid C-cell tumors has not been determined.

496 In a mouse fertility study, males were treated with SC doses of 5, 15, or 50 mg/kg/day for 7 days  
 497 prior to cohabitation with females, and continuing through mating. In a separate fertility study,  
 498 females were treated with SC doses of 1, 5, or 50 mg/kg/day for 7 days prior to cohabitation with  
 499 males, and continuing through mating. Reductions in estrous cycles were observed at  
 500 50 mg/kg/day, a dose associated with maternal toxicity (body weight loss and reduced food  
 501 consumption). There were no effects on mating or fertility in either sex at doses up to  
 502 50 mg/kg/day (up to 39 times clinical exposure based on AUC).

### 503 **13.3 Reproductive and Developmental Toxicity**

504 In order to minimize the impact of the drug-clearing, anti-drug antibody response, reproductive  
505 and developmental toxicity assessments in the mouse were partitioned to limit the dosing period  
506 to no more than approximately 15 days in each study.

507 In pregnant mice given SC doses of 1, 5, or 50 mg/kg/day from gestation Day 1 to 6, there were  
508 no adverse effects on early embryonic development through implantation at 50 mg/kg/day (39  
509 times clinical exposure based on AUC).

510 In pregnant mice given SC doses of 1, 5, or 50 mg/kg/day from gestation Day 6 through 15  
511 (organogenesis), embryo-fetal lethality (post-implantation loss) and bent (wavy) ribs were  
512 observed at 50 mg/kg/day (39 times clinical exposure based on AUC), a dose associated with  
513 maternal toxicity (body weight loss and reduced food consumption).

514 Pregnant mice were given SC doses of 1, 5, or 50 mg/kg/day from gestation Day 6 to 17.  
515 Offspring of pregnant mice given 50 mg/kg/day (39 times clinical exposure based on AUC), a  
516 dose associated with maternal toxicity, had reduced body weight pre-weaning, dehydration and  
517 coldness, and a delay in balanopreputial separation.

518 Pregnant mice were given SC doses of 1, 5, or 50 mg/kg/day from gestation Day 15 to lactation  
519 Day 10. Increased mortality and morbidity were seen at all doses ( $\geq 1$  mg/kg/day) in lactating  
520 females in mouse pre- and postnatal development studies. Mortalities have not been observed in  
521 previous toxicology studies in non-lactating or non-pregnant mice, nor in pregnant mice. These  
522 findings are consistent with lactational ileus syndrome which has been previously reported in  
523 mice. Since the relative stress of lactation energy demands is lower in humans than mice and  
524 humans have large energy reserves, the mortalities observed in lactating mice are of questionable  
525 relevance to humans. The offspring had decreased pre-weaning body weight which reversed  
526 post-weaning in males but not females at  $\geq 5$  mg/kg/day (2.2 times clinical exposure based on  
527 AUC) with no other effects on development. Low levels of albiglutide were detected in plasma  
528 of offspring.

529 Lactating mice were given SC doses of 1, 5, or 50 mg/kg/day from lactation Day 7 to 21  
530 (weaning) under conditions that limit the impact of lactational ileus (increased caloric intake and  
531 culling of litters). Doses  $\geq 1$  mg/kg/day (exposures below clinical AUC) caused reduced weight  
532 gain in the pups during the treatment period.

## 533 **14 CLINICAL STUDIES**

534 TANZEUM has been studied as monotherapy and in combination with metformin, metformin  
535 and a sulfonylurea, a thiazolidinedione (with and without metformin), and insulin glargine (with  
536 or without oral anti-diabetic drugs). The efficacy of TANZEUM was compared with placebo,  
537 glimepiride, pioglitazone, liraglutide, sitagliptin, insulin lispro, and insulin glargine.

538 Trials evaluated the use of TANZEUM 30 mg and 50 mg. Five of the 8 trials allowed optional  
539 uptitration of TANZEUM from 30 mg to 50 mg if glycemic response with 30 mg was  
540 inadequate.

541 In patients with type 2 diabetes mellitus, TANZEUM produced clinically relevant reduction from  
 542 baseline in HbA1c compared with placebo. No overall differences in glycemic effectiveness or  
 543 body weight were observed across demographic subgroups (age, gender, race/ethnicity, duration  
 544 of diabetes).

#### 545 **14.1 Monotherapy**

546 The efficacy of TANZEUM as monotherapy was evaluated in a 52-week, randomized, double-  
 547 blind, placebo-controlled, multicenter trial. In this trial, 296 patients with type 2 diabetes  
 548 inadequately controlled on diet and exercise were randomized (1:1:1) to TANZEUM 30 mg SC  
 549 once weekly, TANZEUM 30 mg SC once weekly uptitrated to 50 mg once weekly at Week 12,  
 550 or placebo. The mean age of participants was 53 years, 55% of patients were men, the mean  
 551 duration of diabetes was 4 years, and the mean baseline eGFR was 84 mL/min/1.73 m<sup>2</sup>. Primary  
 552 and secondary efficacy results are presented in Table 4. Figure 1 shows the mean adjusted  
 553 changes in HbA1c from baseline across study visits.

554 Compared with placebo, treatment with TANZEUM 30 mg or 50 mg resulted in statistically  
 555 significant reductions in HbA1c from baseline at Week 52 (see Table 4). The adjusted mean  
 556 change in weight from baseline did not differ significantly between TANZEUM (-0.4 to -0.9 kg)  
 557 and placebo (-0.7 kg) at Week 52.

558 **Table 4. Results at Week 52 (LOCF<sup>a</sup>) in a Trial of TANZEUM as Monotherapy**

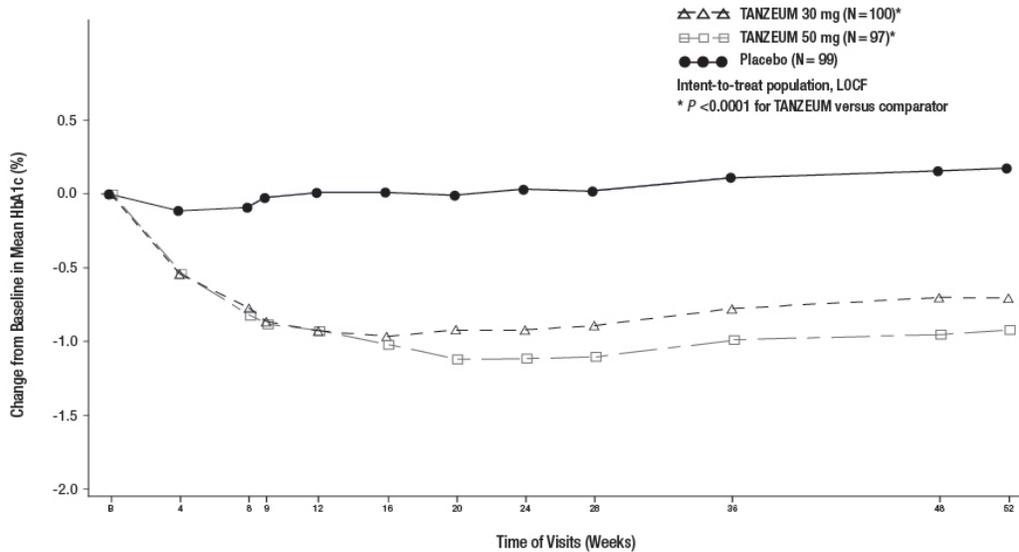
	<b>Placebo</b>	<b>TANZEUM 30 mg Weekly</b>	<b>TANZEUM 50 mg Weekly</b>
<b>ITT<sup>a</sup> (N)</b>	99	100	97
<b>HbA1c (%)</b>			
Baseline (mean)	8.0	8.1	8.2
Change at Week 52 <sup>b</sup>	+0.2	-0.7	-0.9
Difference from placebo <sup>b</sup> (95% CI)		-0.8 (-1.1, -0.6) <sup>c</sup>	-1.0 (-1.3, -0.8) <sup>c</sup>
Patients (%) achieving HbA1c <7%	21	49	40
<b>FPG (mg/dL)</b>			
Baseline (mean)	163	164	171
Change at Week 52 <sup>b</sup>	+18	-16	-25
Difference from placebo <sup>b</sup> (95% CI)		-34 (-46, -22) <sup>c</sup>	-43 (-55, -31) <sup>c</sup>

559 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 560 missing data. Data post-onset of rescue therapy are treated as missing. At Week 52, primary  
 561 efficacy data was imputed for 63%, 34%, and 41% of individuals randomized to placebo,  
 562 TANZEUM 30 mg, and TANZEUM 50 mg.

563 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

564 <sup>c</sup> *P* <0.0001 for treatment difference.

565 **Figure 1. Mean HbA1c Change from Baseline (ITT Population-LOCF) in a Trial of**  
 566 **TANZEUM as Monotherapy**



567

568 **14.2 Combination Therapy**

569 Add-On to Metformin

570 The efficacy of TANZEUM was evaluated in a 104-week randomized, double-blind, multicenter  
 571 trial in 999 patients with type 2 diabetes mellitus inadequately controlled on background  
 572 metformin therapy ( $\geq 1,500$  mg daily). In this trial, TANZEUM 30 mg SC weekly (with optional  
 573 uptitration to 50 mg weekly after a minimum of 4 weeks) was compared with placebo, sitagliptin  
 574 100 mg daily, or glimepiride 2 mg daily (with optional titration to 4 mg daily). The mean age of  
 575 participants was 55 years, 48% of patients were men, the mean duration of type 2 diabetes was  
 576 6 years, and the mean baseline eGFR was 86 mL/min/1.73 m<sup>2</sup>. Results of the primary and  
 577 secondary analyses are presented in Table 5. Figure 2 shows the mean adjusted changes in  
 578 HbA1c across study visits.

579 Reduction in HbA1c from baseline achieved with TANZEUM was significantly greater than  
 580 HbA1c reduction achieved with placebo, sitagliptin, and glimepiride at Week 104 (see Table 5).  
 581 The difference in body weight change from baseline between TANZEUM and glimepiride was  
 582 significant at Week 104.

583 **Table 5. Results at Week 104 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Placebo as**  
584 **Add-On Therapy in Patients Inadequately Controlled on Metformin**

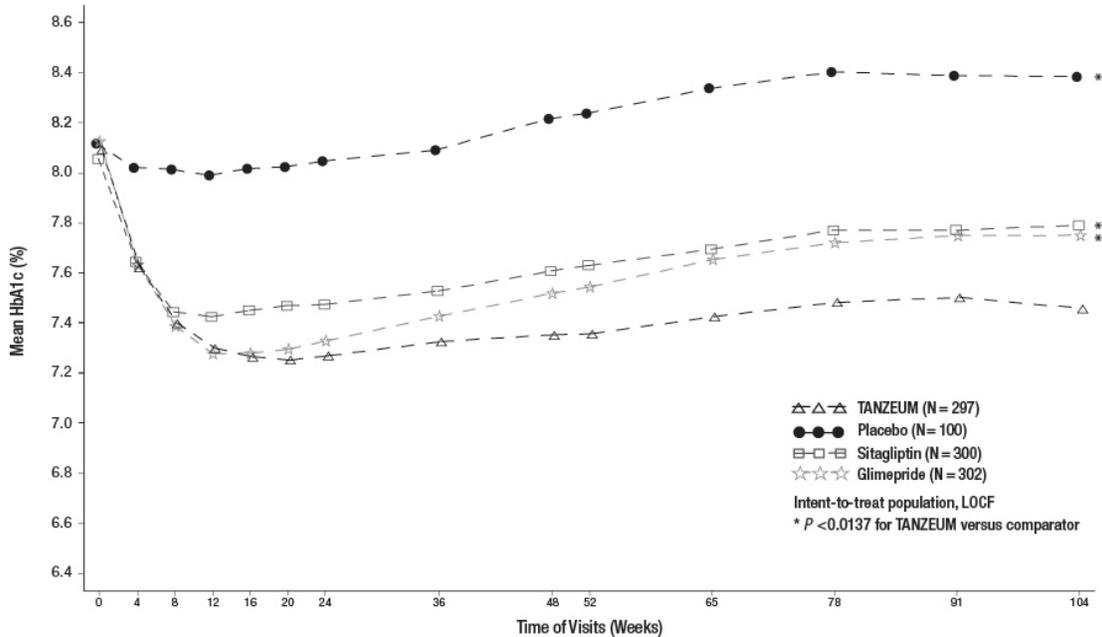
	<b>TANZEUM + Metformin</b>	<b>Placebo + Metformin</b>	<b>Sitagliptin + Metformin</b>	<b>Glimepiride + Metformin</b>
<b>ITT<sup>a</sup> (N)</b>	297	100	300	302
<b>HbA1c (%)</b>				
Baseline (mean)	8.1	8.1	8.1	8.1
Change at Week 104 <sup>b</sup>	-0.6	+0.3	-0.3	-0.4
Difference from placebo + metformin <sup>b</sup> (95% CI)	-0.9 (-1.16, -0.65) <sup>c</sup>			
Difference from sitagliptin + metformin <sup>b</sup> (95% CI)	-0.4 (-0.53, -0.17) <sup>c</sup>			
Difference from glimepiride + metformin <sup>b</sup> (95% CI)	-0.3 (-0.45, -0.09) <sup>c</sup>			
Proportion achieving HbA1c <7%	39	16	32	31
<b>FPG (mg/dL)</b>				
Baseline (mean)	165	162	165	168
Change at Week 104 <sup>b</sup>	-18	+10	-2	-8
Difference from placebo + metformin <sup>b</sup> (95% CI)	-28 (-39, -16) <sup>c</sup>			
Difference from sitagliptin + metformin <sup>b</sup> (95% CI)	-16 (-24, -8) <sup>c</sup>			
Difference from glimepiride + metformin <sup>b</sup> (95% CI)	-10 (-18, -2) <sup>c</sup>			
<b>Body Weight (kg)</b>				
Baseline (mean)	90	92	90	92
Change at Week 104 <sup>b</sup>	-1.2	-1.0	-0.9	+1.2
Difference from placebo + metformin <sup>b</sup> (95% CI)	-0.2 (-1.1, 0.7)			
Difference from sitagliptin + metformin <sup>b</sup> (95% CI)	-0.4 (-1.0, 0.3)			
Difference from glimepiride + metformin <sup>b</sup> (95% CI)	-2.4 (-3.0, -1.7) <sup>c</sup>			

585 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
586 missing data. Data post-onset of rescue therapy are treated as missing. At Week 104, primary  
587 efficacy data was imputed for 76%, 46%, 55%, and 51% of individuals randomized to  
588 placebo, TANZEUM, sitagliptin, and glimepiride, respectively.

589 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

590 <sup>c</sup> *P* <0.0137 for treatment difference.

591 **Figure 2. Mean HbA1c over Time (ITT Population-LOCF) in a Trial Comparing**  
 592 **TANZEUM with Placebo as Add-On Therapy in Patients Inadequately Controlled on**  
 593 **Metformin**



594

595 Add-On to Pioglitazone

596 The efficacy of TANZEUM was evaluated in a 52-week randomized, double-blind, multicenter  
 597 trial in 299 patients with type 2 diabetes mellitus inadequately controlled on pioglitazone  $\geq 30$  mg  
 598 daily (with or without metformin  $\geq 1,500$  mg daily). Patients were randomized to receive  
 599 TANZEUM 30 mg SC weekly or placebo. The mean age of participants was 55 years, 60% of  
 600 patients were men, the mean duration of type 2 diabetes was 8 years, and the mean baseline  
 601 eGFR was 83 mL/min/1.73 m<sup>2</sup>. Results of the primary and secondary analyses are presented in  
 602 Table 6.

603 Compared with placebo, treatment with TANZEUM resulted in a statistically significant  
 604 reduction in HbA1c from baseline at Week 52 (see Table 6). The adjusted mean change from  
 605 baseline in weight did not differ significantly between TANZEUM (+0.3 kg) and placebo  
 606 (+0.5 kg) at Week 52.

607 **Table 6. Results at Week 52 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Placebo as**  
 608 **Add-On Therapy in Patients Inadequately Controlled on Pioglitazone (with or without**  
 609 **Metformin)**

	<b>TANZEUM + Pioglitazone (with or without Metformin)</b>	<b>Placebo + Pioglitazone (with or without Metformin)</b>
<b>ITT<sup>a</sup> (N)</b>	150	149
<b>HbA1c (%)</b>		
Baseline (mean)	8.1	8.1
Change at Week 52 <sup>b</sup>	-0.8	-0.1
Difference from placebo + pioglitazone <sup>b</sup> (95% CI)	-0.8 (-0.95, -0.56) <sup>c</sup>	
Proportion Achieving HbA1c <7%	44	15
<b>FPG (mg/dL)</b>		
Baseline (mean)	165	167
Change at Week 52 <sup>b</sup>	-23	+6
Difference from placebo + pioglitazone <sup>b</sup> (95% CI)	-30 (-39, -20) <sup>c</sup>	

610 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 611 missing data. Data post-onset of rescue therapy are treated as missing. At Week 52, primary  
 612 efficacy data was imputed for 58% and 32% of individuals randomized to placebo and  
 613 TANZEUM, respectively.

614 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

615 <sup>c</sup> *P* <0.0001 for treatment difference.

#### 616 Add-On to Metformin plus Sulfonylurea

617 The efficacy of TANZEUM was evaluated in a 52-week randomized, double-blind, multicenter  
 618 trial in 657 patients with type 2 diabetes mellitus inadequately controlled on metformin  
 619 (≥1,500 mg daily) and glimepiride (4 mg daily). Patients were randomized to receive  
 620 TANZEUM 30 mg SC weekly (with optional uptitration to 50 mg weekly after a minimum of  
 621 4 weeks), placebo, or pioglitazone 30 mg daily (with optional titration to 45 mg/day). The mean  
 622 age of participants was 55 years, 53% of patients were men, the mean duration of type 2 diabetes  
 623 was 9 years, and the mean baseline eGFR was 84 mL/min/1.73 m<sup>2</sup>. Results of the primary and  
 624 main secondary analyses are presented in Table 7.

625 Treatment with TANZEUM resulted in statistically significant reductions in HbA1c from  
 626 baseline compared with placebo (see Table 7). Treatment with TANZEUM did not meet the pre-  
 627 specified, non-inferiority margin (0.3%) against pioglitazone. In this trial, TANZEUM provided  
 628 less HbA1c reduction than pioglitazone and the treatment difference was statistically significant  
 629 (see Table 7). The change from baseline in body weight for TANZEUM did not differ  
 630 significantly from placebo but was significantly different compared with pioglitazone (see Table  
 631 7).

632 **Table 7. Results at Week 52 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Placebo as**  
 633 **Add-On Therapy in Patients Inadequately Controlled on Metformin plus Sulfonylurea**

	<b>TANZEUM + Metformin + Glimepiride</b>	<b>Placebo + Metformin + Glimepiride</b>	<b>Pioglitazone + Metformin + Glimepiride</b>
<b>ITT<sup>a</sup> (N)</b>	269	115	273
<b>HbA1c (%)</b>			
Baseline (mean)	8.2	8.3	8.3
Change at Week 52 <sup>b</sup>	-0.6	+0.3	-0.8
Difference from placebo + met + glim <sup>b</sup> (95% CI)	-0.9 (-1.07, -0.68) <sup>c</sup>		
Difference from pioglitazone + met + glim <sup>b</sup> (95% CI)	0.25 (0.10, 0.40) <sup>d</sup>		
Proportion achieving HbA1c <7%	30	9	35
<b>FPG (mg/dL)</b>			
Baseline (mean)	171	174	177
Change at Week 52 <sup>b</sup>	-12	+12	-31
Difference from placebo + met + glim <sup>b</sup> (95% CI)	-24 (-34, -14) <sup>c</sup>		
Difference from pioglitazone + met + glim <sup>b</sup> (95% CI)	19 (11, 27) <sup>c</sup>		
<b>Body Weight (kg)</b>			
Baseline (mean)	91	90	91
Change at Week 52 <sup>b</sup>	-0.4	-0.4	+4.4
Difference from placebo + met + glim <sup>b</sup> (95% CI)	-0.0 (-0.9, 0.8)		
Difference from pioglitazone + met + glim <sup>b</sup> (95% CI)	-4.9 (-5.5, -4.2) <sup>c</sup>		

634 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 635 missing data. Data post-onset of rescue therapy are treated as missing. At Week 52, primary  
 636 efficacy data was imputed for 70%, 35%, and 34% of individuals randomized to placebo,  
 637 TANZEUM, and pioglitazone.

638 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

639 <sup>c</sup> *P* <0.0001 for treatment difference.

640 <sup>d</sup> Did not meet non-inferiority margin of 0.3%.

#### 641 Combination Therapy: Active-Controlled Trial versus Liraglutide

642 The efficacy of TANZEUM was evaluated in a 32-week, randomized, open-label, liraglutide-  
 643 controlled, non-inferiority trial in 805 patients with type 2 diabetes mellitus inadequately  
 644 controlled on monotherapy or combination oral antidiabetic therapy (metformin,  
 645 thiazolidinedione, sulfonylurea, or a combination of these). Patients were randomized to  
 646 TANZEUM 30 mg SC weekly (with uptitration to 50 mg weekly at Week 6) or liraglutide  
 647 1.8 mg daily (titrated up from 0.6 mg at Week 1, and 1.2 mg at Week 1 to Week 2). The mean  
 648 age of participants was 56 years, 50% of patients were men, the mean duration of type 2 diabetes  
 649 was 8 years, and the mean baseline eGFR was 95 mL/min/1.73 m<sup>2</sup>. Results of the primary and  
 650 main secondary analyses are presented in Table 8.

651 The between-treatment difference of 0.2% with 95% confidence interval (0.08, 0.34) between  
 652 TANZEUM and liraglutide did not meet the pre-specified, non-inferiority margin (0.3%). In this

653 trial, TANZEUM provided less HbA1c reduction than liraglutide and the treatment difference  
 654 was statistically significant (see Table 8).

655 **Table 8. Results of Controlled Trial of TANZEUM versus Liraglutide at Week 32 (LOCF<sup>a</sup>)**

	TANZEUM	Liraglutide
<b>ITT<sup>a</sup> (N)</b>	402	403
<b>HbA1c (%)</b>		
Baseline (mean)	8.2%	8.2%
Change at Week 32 <sup>b</sup>	-0.8	-1.0
Difference from liraglutide <sup>b</sup> (95% CI)	0.2 (0.08, 0.34) <sup>c</sup>	
Proportion achieving HbA1c <7%	42%	52%
<b>FPG (mg/dL)</b>		
Baseline (mean)	169	167
Change at Week 32 <sup>b</sup>	-22	-30
Difference from liraglutide <sup>b</sup> (95% CI)	8 (3, 14) <sup>d</sup>	
<b>Body Weight (kg)</b>		
Baseline (mean)	92	93
Change at Week 32 <sup>b</sup>	-0.6	-2.2
Difference from liraglutide <sup>b</sup> (95% CI)	1.6 (1.1, 2.1) <sup>d</sup>	

656 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 657 missing data. Data post-onset of rescue therapy are treated as missing. At Week 32, primary  
 658 efficacy data was imputed for 31% and 24% of individuals randomized to TANZEUM and  
 659 liraglutide.

660 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

661 <sup>c</sup> Did not meet non-inferiority margin of 0.3%.

662 <sup>d</sup> *P* <0.005 for treatment difference in favor of liraglutide.

### 663 Combination Therapy: Active-Controlled Trial versus Basal Insulin

664 The efficacy of TANZEUM was evaluated in a 52-week, randomized (2:1), open-label, insulin  
 665 glargine-controlled, non-inferiority trial in 735 patients with type 2 diabetes mellitus  
 666 inadequately controlled on metformin  $\geq$ 1,500 mg daily (with or without sulfonylurea). Patients  
 667 were randomized to receive TANZEUM 30 mg SC weekly (with optional uptitration to 50 mg  
 668 weekly) or insulin glargine (median starting dose of 10 units and titrated weekly per prescribing  
 669 information). The primary endpoint was change in HbA1c from baseline compared with insulin  
 670 glargine. The starting total daily dose of insulin glargine ranged between 2 and 40 units (median  
 671 daily dose of 10 units) and ranged between 3 and 230 units (median daily dose of 30 units) at  
 672 Week 52. Sixty-nine percent of patients treated with TANZEUM were uptitrated to 50 mg SC  
 673 weekly. The mean age of participants was 56 years, 56% of patients were men, the mean  
 674 duration of type 2 diabetes was 9 years, and the mean baseline eGFR was 85 mL/min/1.73 m<sup>2</sup>.  
 675 Results of the primary and main secondary analyses are presented in Table 9.

676 The between-treatment difference of 0.1% with 95% confidence interval (-0.04%, 0.27%) for  
 677 TANZEUM and insulin glargine met the pre-specified, non-inferiority margin (0.3%). A mean  
 678 decrease in body weight was observed for TANZEUM compared with a mean increase in body

679 weight for insulin glargine, and the difference in weight change was statistically significant (see  
680 Table 9).

681 **Table 9. Results at Week 52 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Insulin**  
682 **Glargine as Add-On Therapy in Patients Inadequately Controlled on Metformin ±**  
683 **Sulfonylurea**

	<b>TANZEUM + Metformin (with or without Sulfonylurea)</b>	<b>Insulin Glargine + Metformin (with or without Sulfonylurea)</b>
<b>ITT<sup>a</sup> (N)</b>	496	239
<b>HbA1c (%)</b>		
Baseline (mean)	8.3	8.4
Change at Week 52 <sup>b</sup>	-0.7	-0.8
Difference from insulin glargine <sup>b</sup> (95% CI)	0.1 (-0.04, 0.27) <sup>c</sup>	
Proportion achieving HbA1c <7%	32	33
<b>FPG (mg/dL)</b>		
Baseline (mean)	169	175
Change at Week 52 <sup>b</sup>	-16	-37
Difference from insulin glargine <sup>b</sup> (95% CI)	21 (14, 29) <sup>d</sup>	
<b>Body Weight (kg)</b>		
Baseline (mean)	95	95
Change at Week 52 <sup>b</sup>	-1.1	1.6
Difference from insulin glargine <sup>b</sup> (95% CI)	-2.6 (-3.2, -2.0) <sup>e</sup>	

684 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
685 missing data. Data post-onset of rescue therapy are treated as missing. At Week 52, primary  
686 efficacy data was imputed for 41% and 36% of individuals randomized to TANZEUM and  
687 insulin glargine.

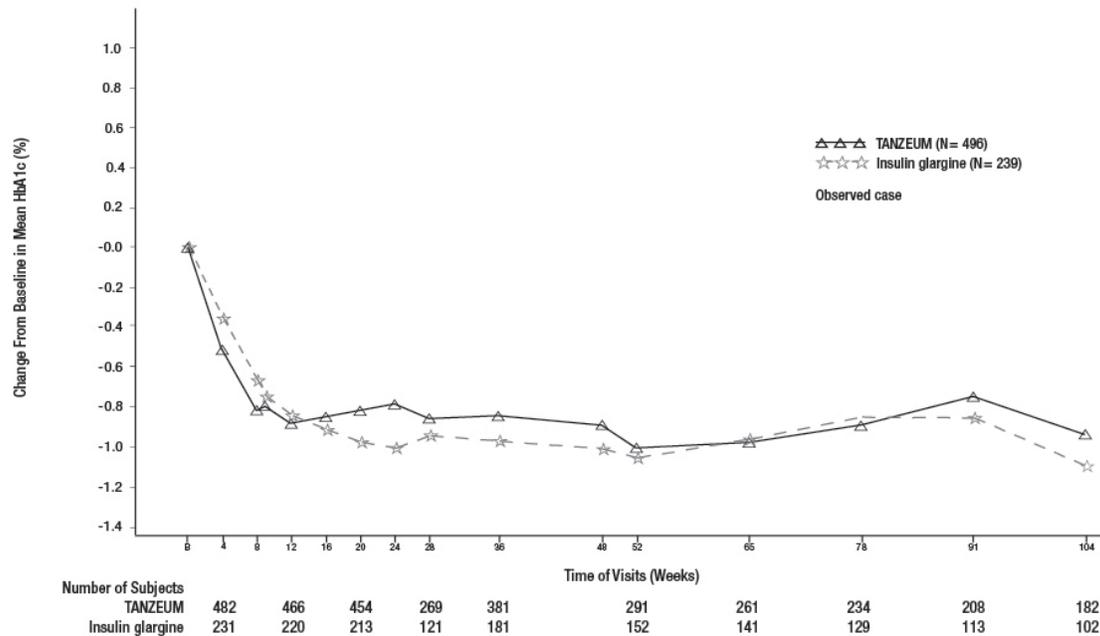
688 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

689 <sup>c</sup> Met non-inferiority margin of 0.3%.

690 <sup>d</sup>  $P < 0.0001$  in favor of insulin glargine.

691 <sup>e</sup>  $P < 0.0001$ .

692 **Figure 3. Mean HbA1c Change from Baseline (Completers) in a Trial Comparing**  
 693 **TANZEUM with Insulin Glargine as Add-On Therapy in Patients Inadequately Controlled**  
 694 **on Metformin (with or without a Sulfonylurea)**



695

696 Combination Therapy: Active-Controlled Trial versus Prandial Insulin

697 The efficacy of TANZEUM was evaluated in a 26-week, randomized, open-label, multicenter,  
 698 non-inferiority trial in 563 patients with type 2 diabetes mellitus inadequately controlled on  
 699 insulin glargine ( $\geq 20$  units per day). Patients were randomized to receive TANZEUM 30 mg SC  
 700 once weekly (with up-titration to 50 mg if inadequately controlled after Week 8) or insulin lispro  
 701 (administered daily at meal times, started according to standard of care and titrated to effect). At  
 702 Week 26, the mean daily dose of insulin glargine was 53 IU for TANZEUM and 51 IU for  
 703 insulin lispro. The mean daily dose of insulin lispro at Week 26 was 31 IU, and 51% of patients  
 704 treated with TANZEUM were on 50 mg weekly. The mean age of participants was 56 years,  
 705 47% of patients were men, the mean duration of type 2 diabetes was 11 years, and the mean  
 706 baseline eGFR was 91 mL/min/1.73 m<sup>2</sup>. Results of the primary and main secondary analyses are  
 707 presented in Table 10. Figure 4 shows the mean adjusted changes in HbA1c from baseline across  
 708 study visits.

709 The between-treatment difference of -0.2% with 95% confidence interval (-0.32%, 0.00%)  
 710 between albiglutide and insulin lispro met the pre-specified non-inferiority margin (0.4%).  
 711 Treatment with TANZEUM resulted in a mean weight loss for TANZEUM compared with a  
 712 mean weight gain for insulin lispro, and the difference between treatment groups was statistically  
 713 significant (see Table 10).

714 **Table 10. Results at Week 26 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Insulin**  
 715 **Lispro as Add-On Therapy in Patients Inadequately Controlled on Insulin Glargine**

	<b>TANZEUM + Insulin Glargine</b>	<b>Insulin Lispro + Insulin Glargine</b>
<b>ITT<sup>a</sup> (N)</b>	282	281
<b>HbA<sub>1c</sub> (%)</b>		
Baseline (mean)	8.5	8.4
Change at Week 26 <sup>b</sup>	-0.8	-0.7
Difference from insulin lispro <sup>b</sup> (95% CI)	-0.2 (-0.32, 0.00) <sup>c</sup>	
Proportion achieving HbA <sub>1c</sub> <7%	30%	25%
<b>FPG (mg/dL)</b>		
Baseline (mean)	153	153
Change at Week 26 <sup>b</sup>	-18	-13
Difference from insulin lispro <sup>b</sup> (95% CI)	-5 (-13, 3)	
<b>Body Weight (kg)</b>		
Baseline (mean)	93	92
Change at Week 26 <sup>b</sup>	-0.7	+0.8
Difference from insulin lispro <sup>b</sup> (95% CI)	-1.5 (-2.1, -1.0) <sup>d</sup>	

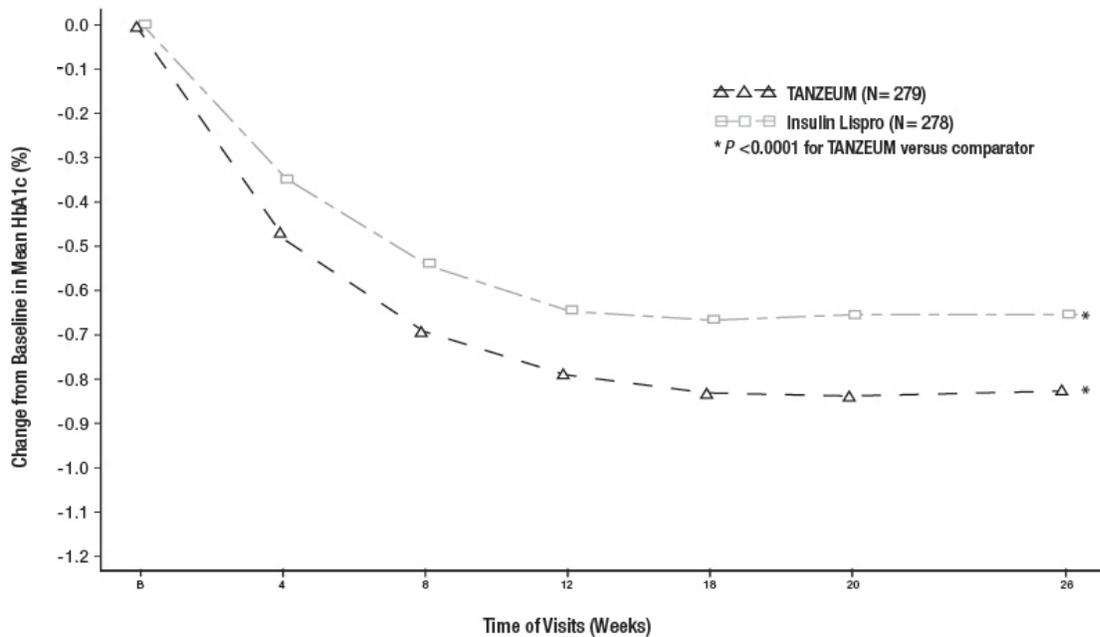
716 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 717 missing data. Data post-onset of rescue therapy are treated as missing. At Week 26, primary  
 718 efficacy data was imputed for 29% and 29% of individuals randomized to TANZEUM and  
 719 insulin lispro.

720 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

721 <sup>c</sup> Rules out a non-inferiority margin of 0.4%.

722 <sup>d</sup> *P* <0.0001 for treatment difference.

723 **Figure 4. Mean HbA1c Change from Baseline (ITT-LOCF population) in a Trial**  
 724 **Comparing TANZEUM with Insulin Lispro as Add-On Therapy in Patients Inadequately**  
 725 **Controlled on Insulin Glargine**



726

727 **14.3 Type 2 Diabetes Mellitus Patients with Renal Impairment**

728 The efficacy of TANZEUM was evaluated in a 26-week, randomized, double-blind, active-  
 729 controlled trial in 486 patients with mild (n = 250), moderate (n = 200), and severe renal  
 730 impairment (n = 36) inadequately controlled on a current regimen of diet and exercise or other  
 731 antidiabetic therapy. Patients were randomized to receive TANZEUM 30 mg SC weekly (with  
 732 up titration to 50 mg weekly if needed as early as Week 4) or sitagliptin. Sitagliptin was dosed  
 733 according to renal function (100 mg, 50 mg, and 25 mg daily in mild, moderate, and severe renal  
 734 impairment, respectively). The mean age of participants was 63 years, 54% of patients were men,  
 735 the mean duration of type 2 diabetes was 11 years, and the mean baseline eGFR was  
 736 60 mL/min/1.73 m<sup>2</sup>.

737 Results of the primary and main secondary analyses are presented in Table 11. Treatment with  
 738 TANZEUM resulted in statistically significant reductions in HbA1c from baseline at Week 26  
 739 compared with sitagliptin (see Table 11).

740 **Table 11. Results at Week 26 (LOCF<sup>a</sup>) in a Trial Comparing TANZEUM with Sitagliptin**  
 741 **in Patients with Renal Impairment**

	<b>TANZEUM</b>	<b>Sitagliptin</b>
<b>ITT<sup>a</sup> (N)</b>	246	240
<b>HbA1c (%)</b>		
Baseline (mean)	8.1	8.2
Change at Week 26 <sup>b</sup>	-0.8	-0.5
Difference from sitagliptin <sup>b</sup> (95% CI)	-0.3 (-0.49, -0.15) <sup>c</sup>	
Proportion achieving HbA1c <7%	43%	31%
<b>FPG (mg/dL)</b>		
Baseline (mean)	166	165
Change at Week 26 <sup>b</sup>	-26	-4
Difference from sitagliptin <sup>b</sup> (95% CI)	-22 (-31, -13) <sup>c</sup>	
<b>Body Weight (kg)</b>		
Baseline (mean)	84	83
Change at Week 26 <sup>b</sup>	-0.8	-0.2
Difference from sitagliptin <sup>b</sup> (95% CI)	-0.6 (-1.1, -0.1) <sup>d</sup>	

742 <sup>a</sup> Intent-to-treat population. Last observation carried forward (LOCF) was used to impute  
 743 missing data. Data post-onset of rescue therapy are treated as missing. At Week 26 primary  
 744 efficacy data was imputed for 17% and 25% of individuals randomized to TANZEUM and  
 745 sitagliptin.

746 <sup>b</sup> Least squares mean adjusted for baseline value and stratification factors.

747 <sup>c</sup> *P* <0.0003 for treatment difference.

748 <sup>d</sup> *P* = 0.0281 for treatment difference.

## 749 **16 HOW SUPPLIED/STORAGE AND HANDLING**

### 750 **16.1 How Supplied**

751 TANZEUM is available in the following strengths and package size:

752 30-mg single-dose Pen (NDC 0173-0866-01):

- 753 • carton of 4 (containing four 29-gauge, 5-mm, thinwall needles): NDC 0173-0866-35

754 50-mg single-dose Pen (NDC 0173-0867-01):

- 755 • carton of 4 (containing four 29-gauge, 5-mm, thinwall needles): NDC 0173-0867-35

### 756 **16.2 Storage and Handling**

- 757 • Prior to dispensing: Store Pens in the refrigerator at 36°F to 46°F (2°C to 8°C). Pens may be  
 758 stored refrigerated until the expiration date.

- 759 • Following dispensing: Store Pens in the refrigerator at 36°F to 46°F (2°C to 8°C). Patients  
 760 may store Pens at room temperature not to exceed 86°F (30°C) for up to 4 weeks prior to use.  
 761 Store Pens in the original carton until use.

- 762 • Do not freeze.

- 763 • Do not use past the expiration date.
- 764 • Use within 8 hours after reconstitution.

## 765 **17 PATIENT COUNSELING INFORMATION**

766 Advise the patient to read the FDA-approved patient labeling (Medication Guide and Instructions  
767 for Use). The Medication Guide is contained in a separate leaflet that accompanies the product.

- 768 • Instruct patients to read the Instructions for Use including the Frequently Asked Questions  
769 before starting therapy and to read again each time before injecting the dose. Instruct patients  
770 on proper use, storage, and disposal of the pen [*see How Supplied/Storage and Handling*  
771 (*16.2*), *Patient Instructions for Use*].

- 772 • Inform patients about self-management practices, including the importance of proper storage  
773 of TANZEUM, injection technique, timing of dosage of TANZEUM and concomitant oral  
774 drugs, and recognition and management of hypoglycemia.

- 775 • Inform patients that thyroid C-cell tumors have been observed in rodents treated with some  
776 GLP-1 receptor agonists, and the human relevance of this finding has not been determined.  
777 Counsel patients to report symptoms of thyroid tumors (e.g., a lump in the neck, dysphagia,  
778 dyspnea, or persistent hoarseness) to their physician [*see Boxed Warning, Warnings and*  
779 *Precautions (5.1)*].

- 780 • Advise patients that persistent, severe abdominal pain that may radiate to the back and which  
781 may (or may not) be accompanied by vomiting is the hallmark symptom of acute  
782 pancreatitis. Instruct patients to discontinue TANZEUM promptly and to contact their  
783 physician if persistent, severe abdominal pain occurs [*see Warnings and Precautions (5.2)*].

- 784 • The risk of hypoglycemia is increased when TANZEUM is used in combination with an  
785 agent that induces hypoglycemia, such as sulfonylurea or insulin. Instructions for  
786 hypoglycemia should be reviewed with patients and reinforced when initiating therapy with  
787 TANZEUM, particularly when concomitantly administered with a sulfonylurea or insulin  
788 [*see Warnings and Precautions (5.3)*].

- 789 • Advise patients on the symptoms of hypersensitivity reactions and instruct them to stop  
790 taking TANZEUM and seek medical advice promptly if such symptoms occur [*see Warnings*  
791 *and Precautions (5.4)*].

- 792 • Instruct patients to read the Medication Guide before starting TANZEUM and to read again  
793 each time the prescription is renewed. Instruct patients to inform their doctor or pharmacist if  
794 they develop any unusual symptom, or if any known symptom persists or worsens.

- 795 • Inform patients not to take an extra dose of TANZEUM to make up for a missed dose. If a  
796 dose is missed, instruct patients to take a dose as soon as possible within 3 days after the  
797 missed dose. Instruct patients to then take their next dose at their usual weekly time. If it has  
798 been longer than 3 days after the missed dose, instruct patients to wait and take TANZEUM  
799 at the next usual weekly time.

800

801 TANZEUM is a registered trademark of the GSK group of companies.



802

803 Manufactured by **GlaxoSmithKline LLC**

804 Wilmington, DE 19808

805 U.S. Lic. No. 1727

806 Marketed by **GlaxoSmithKline**

807 Research Triangle Park, NC 27709

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809 TNZ:XPI

**MEDICATION GUIDE**  
**TANZEUM® (TAN-zee-um)**  
**(albiglutide)**  
**for injection, for subcutaneous use**

Read this Medication Guide before you start using TANZEUM and each time you get a refill. There may be new information. This information does not take the place of talking to your healthcare provider about your medical condition or your treatment.

**What is the most important information I should know about TANZEUM?**

**TANZEUM may cause serious side effects, including:**

- **Possible thyroid tumors, including cancer.** Tell your healthcare provider if you get a lump or swelling in your neck, hoarseness, trouble swallowing, or shortness of breath. These may be symptoms of thyroid cancer. In studies with rats and mice, medicines that work like TANZEUM caused thyroid tumors, including thyroid cancer. It is not known if TANZEUM will cause thyroid tumors or a type of thyroid cancer called medullary thyroid carcinoma (MTC) in people.
- **Do not use TANZEUM if you** or any of your family have ever had a type of thyroid cancer called medullary thyroid carcinoma (MTC) or if you have an endocrine system condition called Multiple Endocrine Neoplasia syndrome type 2 (MEN 2).

**What is TANZEUM?**

TANZEUM is an injectable prescription medicine that may improve blood sugar (glucose) in adults with type 2 diabetes mellitus, and should be used along with diet and exercise.

- TANZEUM is not recommended as the first choice of medicine for treating diabetes.
- It is not known if TANZEUM can be used in people who have had pancreatitis.
- TANZEUM is not a substitute for insulin and is not for use in people with type 1 diabetes or people with diabetic ketoacidosis.
- TANZEUM is not recommended for use in people with severe stomach or intestinal problems.
- It is not known if TANZEUM can be used with mealtime insulin.
- It is not known if TANZEUM is safe and effective for use in children under 18 years of age.

**Who should not use TANZEUM?**

**Do not use TANZEUM if:**

- you or any of your family have ever had a type of thyroid cancer called medullary thyroid carcinoma (MTC) or if you have an endocrine system condition called Multiple Endocrine Neoplasia syndrome type 2 (MEN 2).
- you are allergic to albiglutide or any of the ingredients in TANZEUM. See the end of this Medication Guide for a complete list of ingredients in TANZEUM.

**What should I tell my healthcare provider before using TANZEUM?**

**Before using TANZEUM, tell your healthcare provider if you:**

- have or have had problems with your pancreas, kidneys, or liver
- have severe problems with your stomach, such as slowed emptying of your stomach (gastroparesis) or problems with digesting food
- have any other medical conditions
- are pregnant or plan to become pregnant. It is not known if TANZEUM will harm your unborn baby. Tell your healthcare provider if you become pregnant while using TANZEUM.
- are breastfeeding or plan to breastfeed. It is not known if TANZEUM passes into your breast milk. You should not use TANZEUM while breastfeeding without first talking with your healthcare provider.

**Tell your healthcare provider about all the medicines you take**, including prescription and over-the-counter medicines, vitamins, and herbal supplements. TANZEUM may affect the way some medicines work and some medicines may affect the way TANZEUM works.

**Before using TANZEUM, talk to your healthcare provider about low blood sugar and how to manage it.** Tell your healthcare provider if you are taking other medicines to treat diabetes including insulin or sulfonylureas.

Know the medicines you take. Keep a list of them to show your healthcare provider and pharmacist when you get a new medicine.

### How should I use TANZEUM?

- Read the **Instructions for Use** including the Frequently Asked Questions that comes with TANZEUM the first time you give yourself an injection and again each time you give yourself an injection.
- Use TANZEUM exactly as your healthcare provider tells you to.
- **Your healthcare provider should show you how to use TANZEUM before you use it for the first time.**
- TANZEUM is injected under the skin (subcutaneously) of your stomach (abdomen), thigh, or upper arm. **Do not** inject TANZEUM into a muscle (intramuscularly) or vein (intravenously).
- **Use TANZEUM 1 time each week on the same day each week at any time of the day.**
- You may change the day of the week as long as your last dose was given **4** or more days before.
- If you miss a dose of TANZEUM, take the missed dose of TANZEUM within **3** days after your usual scheduled day. If more than **3** days have gone by since your missed dose, wait until your next regularly scheduled weekly dose. **Do not** take 2 doses of TANZEUM within 3 days of each other.
- TANZEUM may be taken with or without food.
- TANZEUM should be injected within 8 hours after mixing your medicine.
- TANZEUM should be injected right after you attach the needle.
- **Do not mix insulin and TANZEUM together in the same injection.**
- Change (rotate) your injection site with each weekly injection. **Do not** use the same site for each injection.

**Do not share your TANZEUM pen or needles with another person.** You may give another person an infection or get an infection from them.

**Your dose of TANZEUM and other diabetes medicines may need to change because of:** change in level of physical activity or exercise, weight gain or loss, increased stress, illness, change in diet, or because of other medicines you take.

### What are the possible side effects of TANZEUM?

**TANZEUM may cause serious side effects, including:**

- See **“What is the most important information I should know about TANZEUM?”**
- **inflammation of your pancreas (pancreatitis).** Stop using TANZEUM and call your healthcare provider right away if you have severe pain in your stomach area (abdomen) that will not go away, with or without vomiting. You may feel pain from your abdomen to your back.
- **low blood sugar (hypoglycemia).** Your risk for getting low blood sugar may be higher if you use TANZEUM with another medicine that can cause low blood sugar, such as a sulfonylurea or insulin. Signs and symptoms of low blood sugar may include:
  - dizziness or light-headedness
  - blurred vision
  - anxiety, irritability, or mood changes
  - sweating
  - slurred speech
  - hunger
  - confusion or drowsiness
  - shakiness
  - feeling jittery
  - headache
  - fast heart beat
  - weakness
- **serious allergic reactions.** Stop using TANZEUM and get medical help right away if you have any symptoms of a serious allergic reaction including itching, rash, or difficulty breathing.
- **kidney problems (kidney failure).** In people who have kidney problems, diarrhea, nausea, and vomiting may cause a loss of fluids (dehydration) which may cause kidney problems to get worse.

**The most common side effects of TANZEUM may include** diarrhea, nausea, reactions at your injection site, cough, back pain, cold or flu symptoms.

Talk to your healthcare provider about any side effect that bothers you or does not go away. These are not all the possible side effects of TANZEUM.

Call your doctor for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

### General information about the safe and effective use of TANZEUM.

Medicines are sometimes prescribed for purposes other than those listed in a Medication Guide. Do not

use TANZEUM for a condition for which it was not prescribed. Do not give TANZEUM to other people, even if they have the same symptoms that you have. It may harm them.

This Medication Guide summarizes the most important information about TANZEUM. If you would like more information, talk with your healthcare provider. You can ask your pharmacist or healthcare provider for information about TANZEUM that is written for health professionals.

For more information, go to [www.TANZEUM.com](http://www.TANZEUM.com) or call 1-888-825-5249.

**What are the ingredients in TANZEUM?**

**Active Ingredient:** albiglutide

**Inactive Ingredients:** mannitol, polysorbate 80, sodium phosphate, and trehalose dihydrate. TANZEUM does not contain a preservative.

This Medication Guide has been approved by the U.S. Food and Drug Administration. Revised: September 2016



Manufactured by **GlaxoSmithKline LLC**  
Wilmington, DE 19808  
U.S. Lic No. 1727  
Marketed by GlaxoSmithKline  
Research Triangle Park, NC 27709

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TNZ: XMG

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**INSTRUCTIONS FOR USE**

**TANZEUM® (TAN-zee-um)**  
**(albiglutide)**  
**for injection, for subcutaneous use**

**TANZEUM (albiglutide) Pen 30 mg**

**Use 1 Time Each Week**

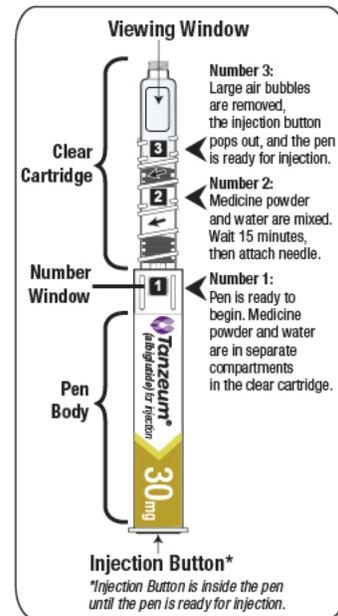
Read all the instructions including the Frequently Asked Questions and follow the steps below to mix the medicine and prepare the pen for injection.

Keep these instructions and use them each time you prepare your medicine.

**Failure to follow Steps A to C in the correct order may result in damage to your pen.**

**Information About This Pen**

- This medicine is injected **1** time each week.
- The pen has medicine powder in 1 compartment and water in another compartment. At the end of Step A, you will need to mix them together by twisting the pen, then wait for **15** minutes for the medicine and water to fully mix.



<p><b>⚠ CAUTION:</b></p> <p><b>Do not allow the pen to freeze. Throw away the pen if frozen.</b></p>	<p><b>If stored in refrigerator, allow to sit at room temperature for 15 minutes before starting Step A.</b></p>	<p><b>Do not attach the needle until Step B. Dispose of the pen right away after injecting. Do not recap, remove, or reuse the needle.</b></p>
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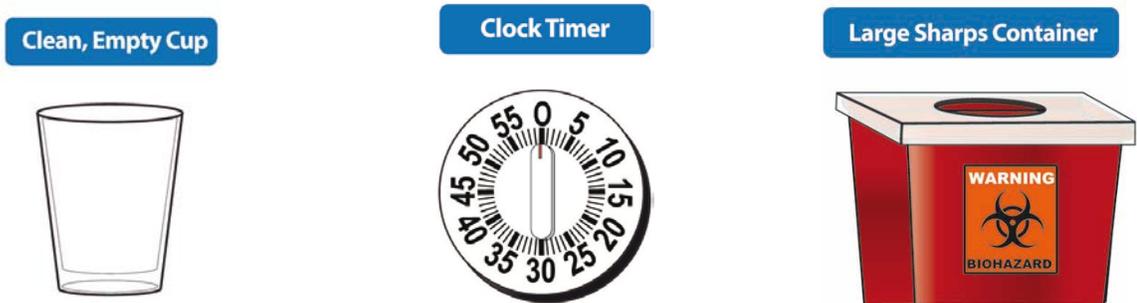
**Before you Begin: Wash Your Hands, Gather and Inspect Your Supplies**

- Wash your hands.
- Take a pen and new needle out of the box and check the label on your pen to make sure it is your prescribed dose of medicine.
- Gather a **clean, empty cup** to hold the pen while the medicine mixes, a **clock timer** to measure the time while the medicine mixes, and a large **sharps container** for pen

823 disposal. See “Disposing of Your Used Pens and Needles” at the end of these  
824 instructions.



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826 **STEP A**

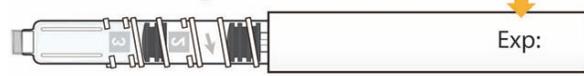
827 **Inspect Your Pen and Mix Your Medicine**

828 **Inspect Your Pen**

829 ➤ Make sure that you have all of the supplies listed above (pen, needle, cup, timer, sharps  
830 container).

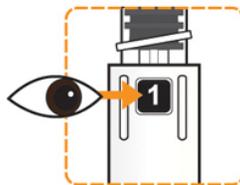
831 ➤ Check the expiration date on the pen. **Do not** use if expired.

**Check expiration date.**



832 ➤ Check that the pen has a **[1]** in the number window.

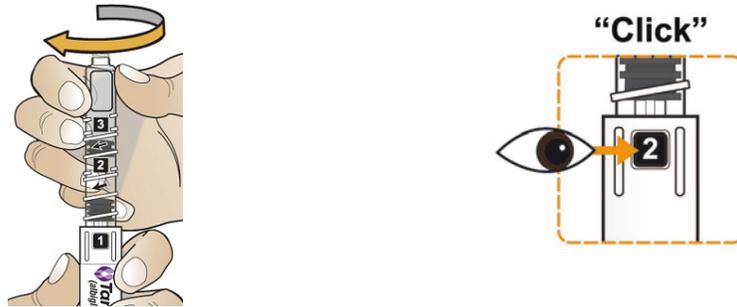
833 **Do not** use if the **[1]** is not showing.



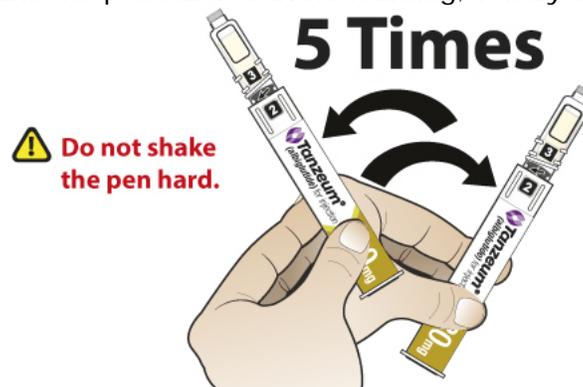
834 **Twist Pen to Mix Your Medicine**

835 ➤ Hold the pen body with the clear cartridge pointing up so that you **see the [1] in the**  
836 **number window.**

837 ➤ With your other hand, **twist the clear cartridge** several times in the direction of the  
838 arrow (clockwise) until you feel and hear the pen “click” into place and you **see the [2]**  
839 **in the number window.** This will mix the medicine powder and liquid in the clear  
840 cartridge.



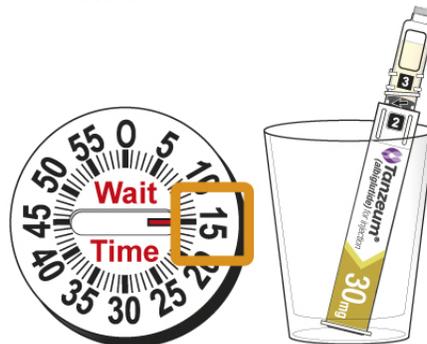
841 ➤ Slowly and gently rock the pen side to side (like a windshield wiper) **5 times** to mix the  
842 medicine. **Do not** shake the pen hard to avoid foaming; it may affect your dose.



843 **Wait for Medicine to Dissolve**

844 ➤ Place the pen into the clean, empty cup to keep the clear cartridge pointing up.

845 ➤ **Set the clock timer for 15 minutes.**



You must wait 15 minutes for the medicine to dissolve before continuing to Step B.

846 **STEP B**

847 **Attach the Needle and Prepare the Pen for Injection**

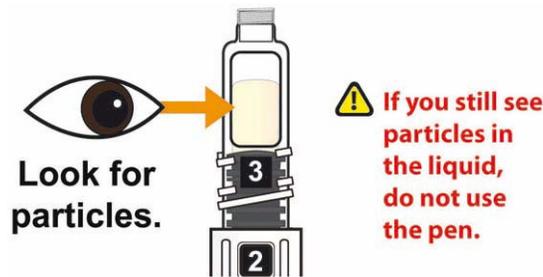
848 After the 15 minute wait, wash your hands and finish the rest of the steps right away.

849 **Inspect Your Dissolved Medicine**

850 ➤ Again, slowly and gently rock the pen side to side (like a windshield wiper) **5** times to mix  
851 the medicine again. **Do not** shake the pen hard to avoid foaming; it may affect your  
852 dose.



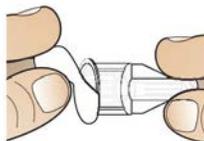
853 ➤ Look through the viewing window to check that the liquid in the cartridge is clear and free  
854 of solid particles.



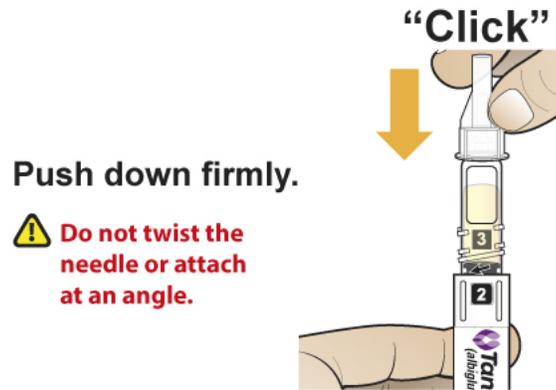
855 ➤ The liquid will have a yellow color and there will be **large air bubbles** on top of the  
856 liquid.

857 **Attach the Needle**

858 ➤ Peel the tab from the outer needle cap.



- 859 ➤ Hold the pen with the clear cartridge pointing up and push the needle straight down onto  
 860 the clear cartridge until you hear a “click” and feel the needle “snap” down into place.  
 861 This means the needle is attached.



862 **Tap for Air Bubbles**

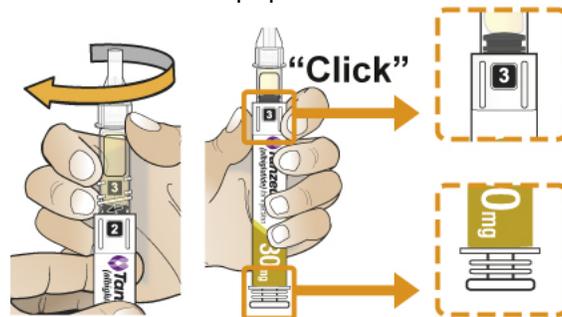
- 863 ➤ With the needle point up, gently tap the clear cartridge **2 to 3** times to bring large air  
 864 bubbles to the top.



**Small bubbles are okay and do not need to rise to the top.**

865 **Twist Pen to Prime the Needle**

- 866 ➤ After the needle is attached, slowly **twist the clear cartridge** several times in the  
 867 direction of the arrow (clockwise) until you feel and hear the pen “click” and you **see the**  
 868 **[3] in the number window**. This removes the large air bubbles from the clear  
 869 cartridge. The injection button will also pop out from the bottom of the pen.

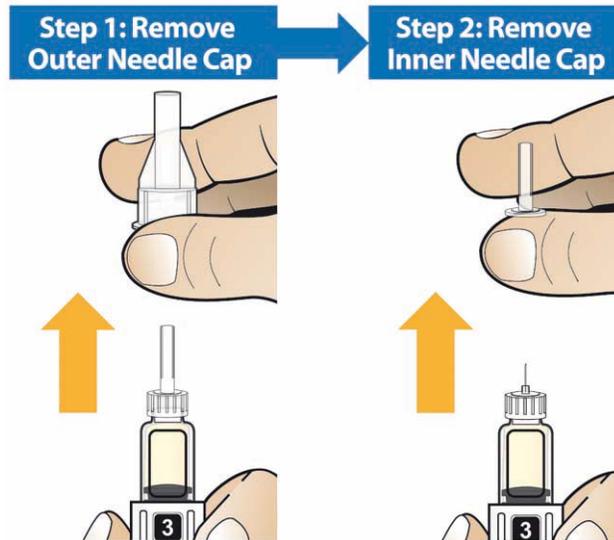


870 **STEP C**

871 **Remove Both Needle Caps and Inject Your Medicine**

872 **Remove Needle Caps**

- 873 ➤ Carefully remove the outer needle cap, then the inner needle cap. **A few drops of liquid**  
874 **may come out of the needle. This is normal.**

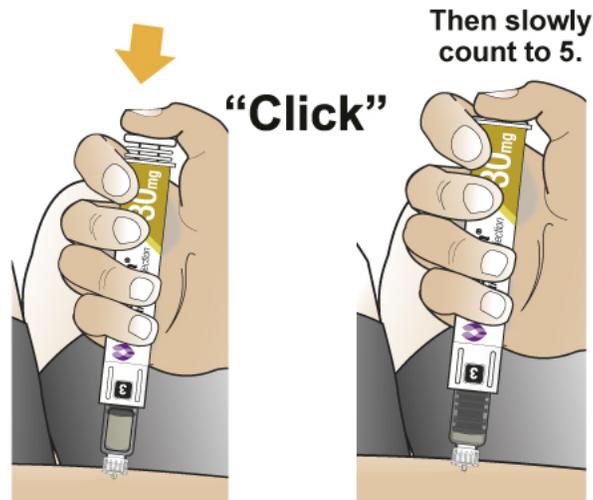


875 **Inject the Medicine**

- 876 ➤ Insert the needle into the skin on your abdomen, thigh, or upper arm and inject as shown  
877 to you by your healthcare provider.



- 878 ➤ With your thumb, press the injection button slowly and steadily to inject your medicine.  
879 The slower you press the button, the less pressure you will feel.
- 880 ➤ Keep the injection button pressed down until you hear a “click”. **After hearing the click,**  
881 **continue holding your thumb down on the button and then slowly count to 5 to**  
882 **deliver the full dose of the medicine.**



**⚠ Inject slowly and steadily. After hearing the “click”, count to 5 to deliver the full dose.**

- 883 ➤ After hearing the “click” and then slowly counting to **5**, pull the needle out of your skin.

#### 884 **Disposing of Your Used Pens and Needles**

- 885 ➤ **Do not** recap the needle or remove needle from the pen.
- 886 ➤ Put your used needles and pens in an FDA-cleared sharps disposal container right away  
887 after use. **Do not throw away (dispose of) loose needles and pens in your**  
888 **household trash.**



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## 890 **General Information About the Safe and Effective Use of TANZEUM**

- 891 ➤ Take **1** time each week. You can take your medicine at any time of day, with or without
- 892 meals.
- 893 ➤ **Your healthcare provider will teach you how to mix and inject TANZEUM before**
- 894 **you use it for the first time.** If you have questions or do not understand the
- 895 **Instructions for Use**, talk to your healthcare provider.
- 896 ➤ **Use TANZEUM exactly as your healthcare provider tells you. Do not** change your
- 897 dose or stop TANZEUM without talking to your healthcare provider.
- 898 ➤ **Change (rotate) your injection site with each injection (weekly).**
- 899 ➤ TANZEUM is injected under the skin (subcutaneously) in your stomach area (abdomen),
- 900 upper leg (thigh), or upper arm.
- 901 ➤ **Do not** inject TANZEUM into a vein or muscle.
- 902 ➤ If you use TANZEUM with insulin, you should inject your TANZEUM and insulin
- 903 separately. **Do not mix insulin and TANZEUM together.** You can inject TANZEUM and
- 904 insulin in the same body area (for example, your stomach area), but you should not give
- 905 the injections right next to each other.
- 906 ➤ Keep pens and needles out of the reach of children.
- 907 ➤ Always use a new needle for each injection.
- 908 ➤ Do not share pens or needles.

## 909 **Frequently Asked Questions**

### 910 **Medicine Dosing**

#### 911 **What if I need to take my medicine on a different day of the week?**

- 912 ➤ You may take your next dose of medicine on a different day as long as it has been at
- 913 least **4** days since your last dose.

#### 914 **What if I forget to take the medicine on the day I am supposed to?**

- 915 ➤ Take your missed dose of medicine within **3** days after your scheduled day, then return
- 916 to your scheduled day for your next dose. If more than **3** days have passed since your
- 917 usual scheduled day, wait until your next regularly scheduled day to take the injection of
- 918 TANZEUM.

### 919 **Storage**

#### 920 **How should I store my medicine?**

- 921 ➤ Store your pens in the refrigerator between 36°F to 46°F (2°C to 8°C).
- 922 ➤ You may store your pen in the box at room temperature below 86°F (30°C) for up to
- 923 **4** weeks before you are ready to use the pen.
- 924 ➤ Store pens in the carton they came in.

925 ➤ **Do not** freeze pens. If the liquid in the pen is frozen, throw away the pen and use  
926 another pen.

## 927 **Number Window**

### 928 **Are the Numbers 1, 2, and 3 used to select my dose of medicine?**

929 ➤ No, you do not have to select your dose. The numbers are to help you prepare and give  
930 your medicine.

931 **Number 1:** Pen is ready to begin. Medicine powder and water are in separate  
932 compartments in the clear cartridge. If you don't see a number **1** in the window, throw  
933 away the pen.

934 **Number 2:** Medicine powder and water are mixed and then gently rocked. Wait  
935 **15** minutes, then attach needle.

936 **Number 3:** Large air bubbles are removed, the injection button pops out, and the pen  
937 is ready for injection.

## 938 **Step A: Inspect Your Pen and Mix Your Medicine**

### 939 **What if I do not wait 15 minutes after turning the pen to the Number 2?**

940 ➤ If you do not wait the full **15** minutes the medicine may not be mixed with the water the  
941 right way. This can result in particles floating in the clear cartridge, not getting your full  
942 dose, or a blocked needle. Waiting the full **15** minutes ensures that the medicine powder  
943 and water are mixed the right way, even though it may look like it is mixed sooner.

### 944 **What if I leave my pen for more than 15 minutes after turning the pen to the** 945 **Number 2 in Step A?**

946 ➤ As long as the needle has not been attached, the pen can be used for up to **8** hours from  
947 the time **Step A** was started. If it has been more than **8** hours since the medicine was  
948 mixed in **Step A**, throw away the pen and use another pen.

949 ➤ If you have attached the needle, TANZEUM should be used right away.

## 950 **Step B: Attach the Needle and Prepare Pen for Injection**

### 951 **What if I leave my pen with the needle attached at Step B, and come back later to** 952 **finish Step C?**

953 ➤ This can cause your needle to block, you should continue from **Step B** to **Step C** right  
954 away.

### 955 **What if I do not attach the needle at Step B as instructed?**

956 ➤ If the needle is attached at **Step A**, some of the medicine may be lost during mixing. **Do**  
957 **not attach the needle at Step A.**

- 958 ➤ Attaching the needle while the number 2 is in the window allows the air inside the  
959 cartridge to escape through the needle. If you do not click the needle on or if you start  
960 turning the cartridge before attaching the needle, the pen may not deliver the full dose.  
961 ➤ If the pen is jammed or leaking, throw it away and use another pen.

962 **What if I do not hear the “click” when the 2 or when the 3 is moved into the**  
963 **Number Window?**

- 964 ➤ If you do not hear a “click” when the 2 or when the 3 is moved into the number window,  
965 you may not have the number fully centered in the window. **Twist the clear cartridge**  
966 slightly in the direction of the arrows (clockwise) to complete the “click” and center the  
967 number in the window.  
968 ➤ If you are unable to turn to position 3, throw it away and use another pen.

969 **Step C: Remove Both Needle Caps and Inject Your Medicine**

970 **After I turn the pen to Number 3 (Step B), there are still some small air bubbles**  
971 **remaining. Can I still use the pen?**

- 972 ➤ Seeing small air bubbles remaining is normal and you can still use the pen.

973 **After I give my medicine, there is some liquid still seen in the clear cartridge.**

- 974 ➤ This is normal. If you have heard and felt the injection button “click” and slowly counted  
975 to **5** before pulling the needle out of your skin, you should have received the full dose of  
976 your medicine.

977 **How should I dispose of the pen?**

- 978 ➤ **Do not** recap the needle or remove needle from the pen.  
979 ➤ Put your used needles and pens in an FDA-cleared sharps disposal container right away  
980 after use. **Do not throw away (dispose of) loose needles and pens in your**  
981 **household trash.**  
982 ➤ If you do not have an FDA-cleared sharps disposal container, you may use a household  
983 container that is:  
984     ○ made of a heavy-duty plastic,  
985     ○ can be closed with a tight-fitting, puncture-resistant lid, without sharps being  
986     able to come out,  
987     ○ upright and stable during use,  
988     ○ leak-resistant, and  
989     ○ properly labeled to warn of hazardous waste inside the container.  
990 ➤ When your sharps disposal container is almost full, you will need to follow your  
991 community guidelines for the right way to dispose of your sharps disposal container.  
992 There may be state or local laws about how you should throw away used needles and  
993 pens. For more information about safe sharps disposal, and for specific information

994 about sharps disposal in the state that you live in, go to the FDA's website at:  
 995 <http://www.fda.gov/safesharpsdisposal>.  
 996 ➤ **Do not** dispose of your used sharps disposal container in your household trash unless  
 997 your community guidelines permit this. **Do not** recycle your used sharps disposal  
 998 container.



**Please make sure you are using the right dose.  
 These instructions are for the 30 mg dose.**

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

1000 Revised: September 2016

1001

	Manufactured by <b>GlaxoSmithKline LLC</b> Wilmington, DE 19808 U.S. Lic No. 1727 Marketed by GlaxoSmithKline Research Triangle Park, NC 27709	TANZEUM is a registered trademark of the GSK group of companies. ©YEAR the GSK group of companies. All rights reserved. TNZ: XIFU-30
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**INSTRUCTIONS FOR USE**

**TANZEUM® (TAN-zee-um)**  
**(albiglutide)**  
**for injection, for subcutaneous use**

**TANZEUM (albiglutide) Pen 50 mg**

**Use 1 Time Each Week**

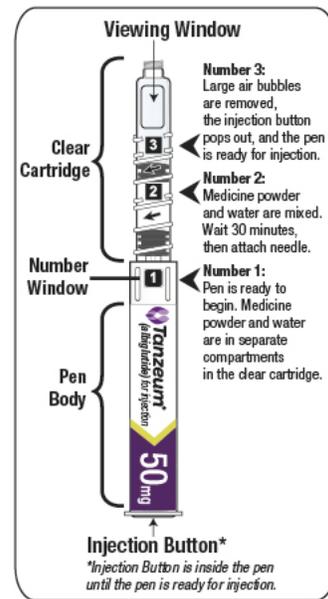
Read all the instructions including the Frequently Asked Questions and follow the steps below to mix the medicine and prepare the pen for injection.

Keep these instructions and use them each time you prepare your medicine.

**Failure to follow Steps A to C in the correct order may result in damage to your pen.**

**Information About This Pen**

- This medicine is injected **1** time each week.
- The pen has medicine powder in 1 compartment and water in another compartment. At the end of Step A, you will need to mix them together by twisting the pen, then wait for **30** minutes for the medicine and water to fully mix.



**⚠ CAUTION:**

**Do not allow the pen to freeze. Throw away the pen if frozen.**

**If stored in refrigerator, allow to sit at room temperature for 15 minutes before starting Step A.**

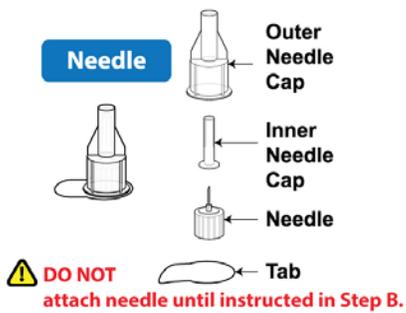
**Do not attach the needle until Step B. Dispose of the pen right away after injecting. Do not recap, remove, or reuse the needle.**

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**Before you Begin: Wash Your Hands, Gather and Inspect Your Supplies**

- Wash your hands.
- Take a pen and new needle out of the box and check the label on your pen to make sure it is your prescribed dose of medicine.
- Gather a **clean, empty cup** to hold the pen while the medicine mixes, a **clock timer** to measure the time while the medicine mixes, and a large **sharps container** for pen

1016 disposal. See “Disposing of Your Used Pens and Needles” at the end of these  
1017 instructions.

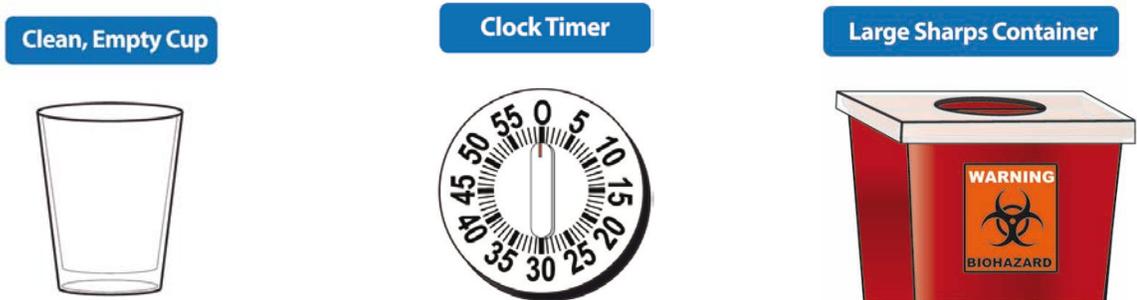


### Tanzeum® 50mg Disposable Pen



This TANZEUM 50 mg pen needs **30 minutes** to let the medicine powder and water mix in Step A. This is different from the TANZEUM 30 mg pen you may have used before.

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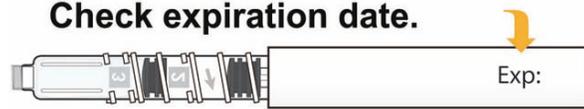
## 1019 STEP A

### 1020 Inspect Your Pen and Mix Your Medicine

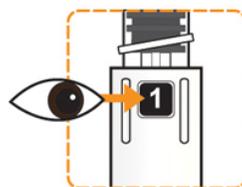
#### 1021 Inspect Your Pen

- 1022 ➤ Make sure that you have all of the supplies listed above (pen, needle, cup, timer, sharps container).
- 1023
- 1024 ➤ Check the expiration date on the pen. **Do not** use if expired.

#### Check expiration date.



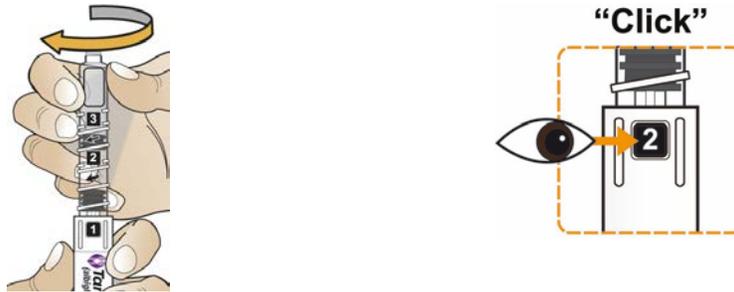
- 1025 ➤ Check that the pen has a **[1]** in the number window.
- 1026 **Do not** use if the **[1]** is not showing.



1027 **Twist Pen to Mix Your Medicine**

1028 ➤ Hold the pen body with the clear cartridge pointing up so that you **see the [1] in the**  
1029 **number window.**

1030 ➤ With your other hand, **twist the clear cartridge** several times in the direction of the  
1031 arrow (clockwise) until you feel and hear the pen “click” into place and you **see the [2]**  
1032 **in the number window.** This will mix the medicine powder and liquid in the clear  
1033 cartridge.



1034 ➤ Slowly and gently rock the pen side to side (like a windshield wiper) **5 times** to mix the  
1035 medicine. **Do not** shake the pen hard to avoid foaming; it may affect your dose.



1036 **Wait for Medicine to Dissolve**

1037 ➤ Place the pen into the clean, empty cup to keep the clear cartridge pointing up.

1038 ➤ **Set the clock timer for 30 minutes.**



You must wait 30 minutes for the medicine to dissolve before continuing to Step B.

1039 **STEP B**

1040 **Attach the Needle and Prepare the Pen for Injection**

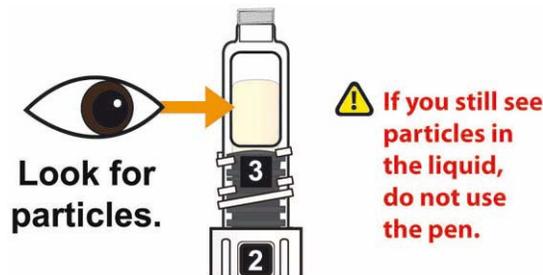
1041 After the 30 minute wait, wash your hands and finish the rest of the steps right away.

1042 **Inspect Your Dissolved Medicine**

1043 ➤ Again, slowly and gently rock the pen side to side (like a windshield wiper) **5 times** to mix  
1044 the medicine again. **Do not** shake the pen hard to avoid foaming; it may affect your  
1045 dose.



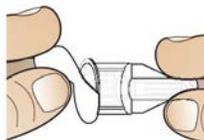
1046 ➤ Look through the viewing window to check that the liquid in the cartridge is clear and free  
1047 of solid particles.



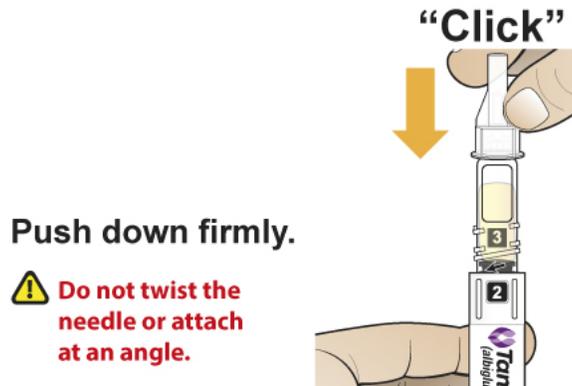
1048 ➤ The liquid will have a yellow color and there will be **large air bubbles** on top of the  
1049 liquid.

1050 **Attach the Needle**

1051 ➤ Peel the tab from the outer needle cap.



- 1052 ➤ Hold the pen with the clear cartridge pointing up and push the needle straight down onto  
 1053 the clear cartridge until you hear a “click” and feel the needle “snap” down into place.  
 1054 This means the needle is attached.



1055 **Tap for Air Bubbles**

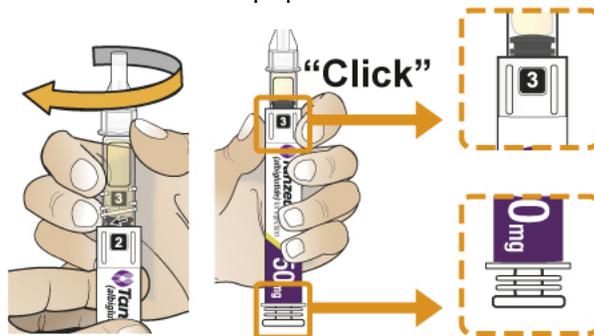
- 1056 ➤ With the needle point up, gently tap the clear cartridge **2 to 3** times to bring large air  
 1057 bubbles to the top.



**Small bubbles are okay and do not need to rise to the top.**

1058 **Twist Pen to Prime the Needle**

- 1059 ➤ After the needle is attached, slowly **twist the clear cartridge** several times in the  
 1060 direction of the arrow (clockwise) until you feel and hear the pen “click” and you **see the**  
 1061 **[3] in the number window**. This removes the large air bubbles from the clear  
 1062 cartridge. The injection button will also pop out from the bottom of the pen.

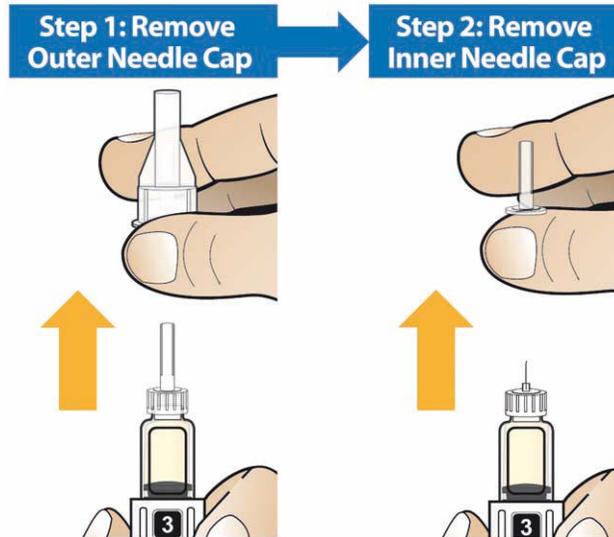


1063 **STEP C**

1064 **Remove Both Needle Caps and Inject Your Medicine**

1065 **Remove Needle Caps**

- 1066 ➤ Carefully remove the outer needle cap, then the inner needle cap. **A few drops of liquid**  
1067 **may come out of the needle. This is normal.**



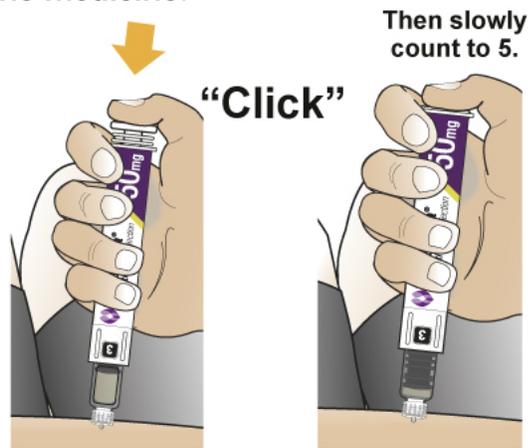
1068 **Inject the Medicine**

- 1069 ➤ Insert the needle into the skin on your abdomen, thigh, or upper arm and inject as shown  
1070 to you by your healthcare provider.



- 1071 ➤ With your thumb, press the injection button slowly and steadily to inject your medicine.  
1072 The slower you press the button, the less pressure you will feel.

- 1073 ➤ Keep the injection button pressed down until you hear a “click”. **After hearing the click,**  
1074 **continue holding your thumb down on the button and then slowly count to 5 to**  
1075 **deliver the full dose of the medicine.**



⚠ **Inject slowly and steadily. After hearing the “click,” count to 5 to deliver the full dose.**

- 1076 ➤ After hearing the “click” and then slowly counting to **5**, pull the needle out of your skin.

#### 1077 **Disposing of Your Used Pens and Needles**

- 1078 ➤ **Do not** recap the needle or remove needle from the pen.
- 1079 ➤ Put your used needles and pens in an FDA-cleared sharps disposal container right away  
1080 after use. **Do not throw away (dispose of) loose needles and pens in your**  
1081 **household trash.**



1082

## 1083 **General Information About the Safe and Effective Use of TANZEUM**

- 1084 ➤ Take **1** time each week. You can take your medicine at any time of day, with or without
- 1085 meals.
- 1086 ➤ **Your healthcare provider will teach you how to mix and inject TANZEUM before**
- 1087 **you use it for the first time.** If you have questions or do not understand the
- 1088 **Instructions for Use**, talk to your healthcare provider.
- 1089 ➤ **Use TANZEUM exactly as your healthcare provider tells you. Do not** change your
- 1090 dose or stop TANZEUM without talking to your healthcare provider.
- 1091 ➤ **Change (rotate) your injection site with each injection (weekly).**
- 1092 ➤ TANZEUM is injected under the skin (subcutaneously) in your stomach area (abdomen),
- 1093 upper leg (thigh), or upper arm.
- 1094 ➤ **Do not** inject TANZEUM into a vein or muscle.
- 1095 ➤ If you use TANZEUM with insulin, you should inject your TANZEUM and insulin
- 1096 separately. **Do not mix insulin and TANZEUM together.** You can inject TANZEUM and
- 1097 insulin in the same body area (for example, your stomach area), but you should not give
- 1098 the injections right next to each other.
- 1099 ➤ Keep pens and needles out of the reach of children.
- 1100 ➤ Always use a new needle for each injection.
- 1101 ➤ Do not share pens or needles.

## 1102 **Frequently Asked Questions**

### 1103 **Medicine Dosing**

#### 1104 **What if I need to take my medicine on a different day of the week?**

- 1105 ➤ You may take your next dose of medicine on a different day as long as it has been at
- 1106 least **4** days since your last dose.

#### 1107 **What if I forget to take the medicine on the day I am supposed to?**

- 1108 ➤ Take your missed dose of medicine within **3** days after your scheduled day, then return
- 1109 to your scheduled day for your next dose. If more than **3** days have passed since your
- 1110 usual scheduled day, wait until your next regularly scheduled day to take the injection of
- 1111 TANZEUM.

### 1112 **Storage**

#### 1113 **How should I store my medicine?**

- 1114 ➤ Store your pens in the refrigerator between 36°F to 46°F (2°C to 8°C).
- 1115 ➤ You may store your pen in the box at room temperature below 86°F (30°C) for up to
- 1116 **4** weeks before you are ready to use the pen.
- 1117 ➤ Store pens in the carton they came in.

1118 ➤ **Do not** freeze pens. If the liquid in the pen is frozen, throw away the pen and use  
1119 another pen.

## 1120 **Number Window**

### 1121 **Are the Numbers 1, 2, and 3 used to select my dose of medicine?**

1122 ➤ No, you do not have to select your dose. The numbers are to help you prepare and give  
1123 your medicine.

1124 **Number 1:** Pen is ready to begin. Medicine powder and water are in separate  
1125 compartments in the clear cartridge. If you don't see a number **1** in the window,  
1126 throw away the pen.

1127 **Number 2:** Medicine powder and water are mixed and then gently rocked. Wait  
1128 **30** minutes, then attach needle.

1129 **Number 3:** Large air bubbles are removed, the injection button pops out, and the  
1130 pen is ready for injection.

## 1131 **Step A: Inspect Your Pen and Mix Your Medicine**

### 1132 **What if I do not wait 30 minutes after turning the pen to the Number 2?**

1133 ➤ If you do not wait the full **30** minutes the medicine may not be mixed with the water the  
1134 right way. This can result in particles floating in the clear cartridge, not getting your full  
1135 dose, or a blocked needle. Waiting the full **30** minutes ensures that the medicine powder  
1136 and water are mixed the right way, even though it may look like it is mixed sooner.

### 1137 **What if I leave my pen for more than 30 minutes after turning the pen to the** 1138 **Number 2 in Step A?**

1139 ➤ As long as the needle has not been attached, the pen can be used for up to **8** hours from  
1140 the time **Step A** was started. If it has been more than **8** hours since the medicine was  
1141 mixed in **Step A**, throw away the pen and use another pen.

1142 ➤ If you have attached the needle, TANZEUM should be used right away.

## 1143 **Step B: Attach the Needle and Prepare Pen for Injection**

### 1144 **What if I leave my pen with the needle attached at Step B, and come back later to** 1145 **finish Step C?**

1146 ➤ This can cause your needle to block, you should continue from **Step B** to **Step C** right  
1147 away.

### 1148 **What if I do not attach the needle at Step B as instructed?**

1149 ➤ If the needle is attached at **Step A**, some of the medicine may be lost during mixing. **Do**  
1150 **not attach the needle at Step A.**

- 1151 ➤ Attaching the needle while the number 2 is in the window allows the air inside the  
1152 cartridge to escape through the needle. If you do not click the needle on or if you start  
1153 turning the cartridge before attaching the needle, the pen may not deliver the full dose.  
1154 ➤ If the pen is jammed or leaking, throw it away and use another pen.

1155 **What if I do not hear the “click” when the 2 or when the 3 is moved into the**  
1156 **Number Window?**

- 1157 ➤ If you do not hear a “click” when the 2 or when the 3 is moved into the number window,  
1158 you may not have the number fully centered in the window. **Twist the clear cartridge**  
1159 slightly in the direction of the arrows (clockwise) to complete the “click” and center the  
1160 number in the window.  
1161 ➤ If you are unable to turn to position 3, throw it away and use another pen.

1162 **Step C: Remove Both Needle Caps and Inject Your Medicine**

1163 **After I turn the pen to Number 3 (Step B), there are still some small air bubbles**  
1164 **remaining. Can I still use the pen?**

- 1165 ➤ Seeing small air bubbles remaining is normal and you can still use the pen.

1166 **After I give my medicine, there is some liquid still seen in the clear cartridge.**

- 1167 ➤ This is normal. If you have heard and felt the injection button “click” and slowly counted  
1168 to 5 before pulling the needle out of your skin, you should have received the full dose of  
1169 your medicine.

1170 **How should I dispose of the pen?**

- 1171 ➤ **Do not** recap the needle or remove needle from the pen.  
1172 ➤ Put your used needles and pens in an FDA-cleared sharps disposal container right away  
1173 after use. **Do not throw away (dispose of) loose needles and pens in your**  
1174 **household trash.**  
1175 ➤ If you do not have an FDA-cleared sharps disposal container, you may use a household  
1176 container that is:  
1177     ○ made of a heavy-duty plastic,  
1178     ○ can be closed with a tight-fitting, puncture-resistant lid, without sharps being  
1179     able to come out,  
1180     ○ upright and stable during use,  
1181     ○ leak-resistant, and  
1182     ○ properly labeled to warn of hazardous waste inside the container.  
1183 ➤ When your sharps disposal container is almost full, you will need to follow your  
1184 community guidelines for the right way to dispose of your sharps disposal container.  
1185 There may be state or local laws about how you should throw away used needles and  
1186 pens. For more information about safe sharps disposal, and for specific information

1187 about sharps disposal in the state that you live in, go to the FDA's website at:  
1188 <http://www.fda.gov/safesharpsdisposal>.  
1189 ➤ **Do not** dispose of your used sharps disposal container in your household trash unless  
1190 your community guidelines permit this. **Do not** recycle your used sharps disposal  
1191 container.



**Please make sure you are using the right dose.  
These instructions are for the 50 mg dose.**

1192 This Instructions for Use has been approved by the U.S. Food and Drug Administration.

1193 Revised: September 2016

1194

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