

GLP-1 RECEPTOR AGONIST

Dulaglutide

Trulicity

CAS Number	923950-87-8
Molecular Formula	C141H216N40O53
Molecular Weight	3180.3 Da
Category	GLP-1 Receptor Agonist
Available Specifications	0.75mg/0.5mL pre-filled pen, 1.5mg/0.5mL pre-filled pen, 4.5mg/1.5mL pre-filled pen

1. OVERVIEW

Dulaglutide is a long-acting GLP-1 receptor agonist administered once weekly via SC injection. It is a human GLP-1 analog fused to the Fc portion of human immunoglobulin G4, creating a dual-chain protein that enables albumin binding and an extended half-life of approximately 4-5 days. Approved for type 2 diabetes management.

2. MECHANISM OF ACTION

Activates GLP-1 receptors to stimulate glucose-dependent insulin secretion and suppress glucagon secretion. Slows gastric emptying to prolong glucose absorption. Reduces appetite through CNS GLP-1 receptor signaling. The IgG4 Fc fusion extends circulating half-life and enables once-weekly dosing.

3. CLINICAL EVIDENCE & RESEARCH

REWIND trial (9,901 patients with T2DM and established cardiovascular disease) demonstrated 12% reduction in MACE (HR 0.88, 95% CI 0.79-0.99). HbA1c reduction averages 1.3-1.6% over 26 weeks. Weight loss averages 2-3 kg. Superior gastrointestinal tolerability vs. weekly GLP-1 agonists.

4. THERAPEUTIC BENEFITS

- Once-weekly dosing for improved compliance
- Significant HbA1c reduction (1.3-1.6%)
- Cardiovascular event reduction (REWIND trial)
- Modest weight loss
- Improved beta-cell function
- Lower GI side effect burden than shorter-acting agents
- Stable dosing with minimal titration

5. INDICATIONS

- Type 2 diabetes mellitus requiring glycemic control
- Cardiovascular risk reduction in CAD/stroke history
- Improved HbA1c in treatment-naive or pretreated patients
- Monotherapy or add-on therapy in T2DM

6. DOSING & ADMINISTRATION PROTOCOL

Indication	Dose	Route	Frequency	Duration
Initial dose	0.75mg	SC	Once weekly	1-2 weeks
Standard dose	1.5mg	SC	Once weekly	26+ weeks
High-dose option	4.5mg	SC	Once weekly	26+ weeks

Reconstitution

Supplied as single-dose pre-filled pens; no reconstitution required. Solution should be clear and colorless to slightly cloudy.

Administration

SC injection into abdomen, thigh, or upper arm. Rotate injection sites weekly. May inject any day of the week; maintain consistent timing for best compliance.

Protocol Notes

Initiate at 0.75mg weekly for 1-2 weeks, then increase to 1.5mg weekly. Further increase to 4.5mg weekly if additional glycemic control needed. GI effects usually mild and transient.

7. SIDE EFFECTS & SAFETY PROFILE

- Mild nausea (15-20% incidence, usually transient)
- Diarrhea or constipation
- Vomiting (rare)
- Headache and fatigue
- Pancreatitis (very rare)
- Hypoglycemia when combined with other agents

8. CONTRAINDICATIONS & PRECAUTIONS

- Personal or family history of medullary thyroid carcinoma
- MEN 2 syndrome
- Severe diabetic retinopathy with macular edema
- Hypersensitivity to dulaglutide
- Pregnancy and lactation

Drug Interactions

Slows gastric emptying; may delay oral medication absorption. Increases hypoglycemia risk with insulin or sulfonylureas. Minimal CYP450 interactions.

9. STORAGE & HANDLING

Unopened pens: 2-8°C in original carton. After first use: store at room temperature (up to 25°C) for up to 14 days, or refrigerate. Do not freeze.

10. KEY REFERENCES

1. Gerstein HC, et al. Dulaglutide and cardiovascular outcomes. REWIND Trial. *Lancet*. 2019;394(10193):121-130.
2. Dungan KM, et al. Dulaglutide versus insulin glargine. AWARD-4. *Diabetes Care*. 2014;37(8):2149-2158.
3. Nauck M, et al. Dulaglutide in T2DM patients. *Diabetes Care*. 2016;39(1):70-78.
4. Wysham C, et al. Efficacy and safety of dulaglutide. *Diabetes Obes Metab*. 2014;16(12):1248-1256.
5. Brunton SA, et al. Dulaglutide: a review. *Adv Ther*. 2014;31(5):459-484.

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