Tirzepatide — Research Summary

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1. What It Is

Tirzepatide is a synthetic peptide that acts as a dual agonist at two incretin receptors: GLP-1 (glucagon-like peptide-1) and GIP (glucose-dependent insulinotropic polypeptide). It is administered by once-weekly subcutaneous injection.

Regulatory status: Tirzepatide is FDA-approved — as Mounjaro for type 2 diabetes and Zepbound for chronic weight management. It is one of the few compounds on this order sheet with full regulatory approval and an extensive Phase 3 clinical program (SURPASS series for diabetes, SURMOUNT series for obesity).

Mounjaro/Zepbound are the FDA-approved pharmaceutical forms. This RUO product is not that drug, has not been reviewed by the FDA, and no equivalence is claimed or implied.

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2. Reported Effects in Research Literature

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- **Glycemic control (SURPASS 1–5, type 2 diabetes):** Phase 3 trials assessed once-weekly doses (5mg, 10mg, 15mg) as monotherapy or combination therapy. Reported outcomes include superior HbA1c reduction and improved fasting/postprandial glucose versus comparator diabetes medications, plus meaningful body weight reduction (-6.2 to -12.9 kg across trials) and favorable effects on lipid profile, blood pressure, and visceral adiposity.
- **Weight management (SURMOUNT series):** The SURMOUNT-3 Phase 3 trial (n=579) tested tirzepatide after a successful 12-week intensive lifestyle intervention; participants achieved an additional mean weight change of -18.4% versus +2.5% with placebo over 72 weeks (estimated treatment difference -20.8 percentage points, P<0.001). 87.5% of tirzepatide-treated participants achieved ≥5% additional weight reduction versus 16.5% on placebo.
- **Adverse events:** Most commonly reported adverse events across trials were gastrointestinal (nausea, diarrhea), generally mild to moderate in severity.

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3. Clinical & Preclinical Study References

- Jastreboff AM, Aronne LJ, Ahmad NN, et al. “Tirzepatide once weekly for the treatment of obesity.” *N Engl J Med*. 2022;387:205-216.
- SURMOUNT-3 Phase 3 trial: “Tirzepatide after intensive lifestyle intervention in adults with overweight or obesity.” Full text (PMC) — ClinicalTrials.gov: NCT04657016
- Review: “Tirzepatide: A Promising Drug for Type 2 Diabetes and Beyond.” Full text (PMC)

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4. Reconstitution Process

For research/laboratory handling purposes only.

Keep out of reach of children. Not for use by pregnant or nursing individuals. For laboratory research use by qualified personnel only.

1. **Materials needed:** lyophilized (freeze-dried) tirzepatide powder, bacteriostatic water, alcohol swabs, syringe with needle.
2. **Bring the vial to room temperature** before reconstitution.
3. **Sanitize** the rubber stopper of both vials with an alcohol swab.
4. **Draw the bacteriostatic water** into the syringe.
5. **Add the water slowly** down the *inside wall* of the vial, to reduce shear/foaming.
6. **Do not shake.** Gently swirl or roll between palms until fully dissolved.
7. **Inspect the solution** — should be clear and free of particulates.
8. **Label the vial** with reconstitution date and concentration.
9. **Storage:** refrigerate (2–8°C); avoid freeze-thaw cycles.

Reference: Bacteriostatic Water Volume by Vial Size

Vial Size	BAC Water Added	Resulting Concentration
5 mg	1 mL	5 mg/mL
5 mg	2 mL	2.5 mg/mL
5 mg	5 mL	1 mg/mL
10 mg	1 mL	10 mg/mL
10 mg	2 mL	5 mg/mL
10 mg	4 mL	2.5 mg/mL
10 mg	5 mL	2 mg/mL
10 mg	10 mL	1 mg/mL

Notes: Higher water volume = more dilute solution; lower volume = more concentrated. Always use bacteriostatic water (0.9% benzyl alcohol) for multi-draw vials; sterile water without preservative should be discarded within 24 hours.

Document created: July 16, 2026. **Revision 1:** July 29, 2026. Regulatory status (FDA compounding lists, WADA lists) is actively shifting; re-verify against current sources before any customer-facing use.
