# Tesamorelin — Research Summary

*Research Use Only. Not for human consumption. For laboratory/research reference purposes only.*

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## 1. What It Is

Tesamorelin is a synthetic analog of growth hormone-releasing hormone (GHRH), consisting of the 44-amino-acid native GHRH sequence with an added trans-3-hexenoic acid group for enhanced stability. It binds GHRH receptors in the anterior pituitary to stimulate pulsatile, physiologic growth hormone (GH) release — distinct from directly injecting exogenous GH.

**Regulatory status — the key distinguishing fact for this peptide:** Tesamorelin (brand name Egrifta, reformulated as Egrifta SV in 2019) is FDA-approved. It is the only GHRH-class peptide with current FDA approval for any indication, giving it a far stronger clinical evidence base than most peptides on this order sheet. It was approved in November 2010 for reduction of excess abdominal fat (visceral adipose tissue) in HIV-infected adults with lipodystrophy.

**Egrifta/Egrifta SV is the FDA-approved pharmaceutical form. 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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- **Visceral fat reduction (approved indication):** The pivotal Phase 3 trial (412 HIV-infected adults with abdominal lipodystrophy, 26 weeks) reported a mean 15–18% reduction in visceral adipose tissue (VAT) versus placebo, with improved lipid profiles and no clinically significant worsening of glucose control.
- **Liver fat:** A 2014 JAMA randomized trial reported a net VAT treatment effect of roughly -42 $cm^2$ and a net -2.9% reduction in liver fat (lipid-to-water ratio) versus placebo. A 2019 trial in HIV-positive patients with fatty liver disease reported significant reductions in hepatic fat fraction at 12 months.
- **Reversibility:** The VAT-reduction effect is reported to reverse once the drug is discontinued; subcutaneous fat is largely unaffected (the effect is visceral-selective).
- **Mechanism-linked outcome:** Visceral fat reduction is closely tied to the degree of IGF-1 elevation produced; patients without meaningful IGF-1 elevation typically do not show meaningful VAT reduction.
- **Off-label research context:** A smaller placebo-controlled trial (n=60) in non-HIV adults with abdominal obesity found tesamorelin significantly reduced VAT versus placebo over 26 weeks, though this trial was not large enough to support broader regulatory approval.

**Research limitations to note:** The FDA-approved indication is narrow (HIV-associated lipodystrophy). Off-label use in other populations (general visceral obesity, non-HIV fatty liver) is supported by smaller trials, not the same evidentiary tier as the approved indication.

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## 3. Clinical & Preclinical Study References


- Falutz J, Allas S, Blot K, et al. “Metabolic effects of a growth hormone-releasing factor in patients with HIV.” *N Engl J Med.* 2007;357:2359-70. PMID: 18057338
- Falutz J, Potvin D, Mamputu JC, et al. “Effects of tesamorelin… with a safety extension.” *J Acquir Immune Defic Syndr.* 2010. PMID: 20101189

- Stanley TL, Feldpausch MN, Oh J, et al. “Effect of tesamorelin on visceral fat and liver fat in HIV-infected patients with abdominal fat accumulation: a randomized clinical trial.” *JAMA*. 2014;312(4):380-9. PMID: 25038357
- Stanley TL, et al. Hepatic fat fraction trial. *Lancet HIV*. 2019;6(12):e821-e830.
- FDA Clinical Review Report: Egrifta (Tesamorelin) — NCBI Bookshelf


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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) tesamorelin 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. Tesamorelin is reported to have a very short plasma half-life (approximately 8–11 minutes) — this affects research timing considerations, though it does not change reconstituted-solution storage practices.

### 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.

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