

RESEARCH MONOGRAPH . COMPOUND PROFILE

Sermorelin

A 29-amino-acid synthetic fragment of GHRH (residues 1-29) used for growth hormone deficiency diagnosis and treatment.

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COMPOUND CLASS	GHRH 1-29 analog

ABSTRACT

Sermorelin (GRF 1-29; CAS 86168-78-7; molecular weight 3357.93) is a synthetic peptide consisting of the first 29 amino acids of human growth hormone releasing hormone (GHRH). The 1-29 fragment retains essentially all the GH-stimulating activity of full-length GHRH (44 residues) and was the basis for the FDA approval (under the trade name Geref) for GH deficiency in children. The brand-name product was discontinued in 2008 for commercial reasons; sermorelin is now compounded for clinical use in some jurisdictions and sold as a research chemical. The compound is administered subcutaneously and stimulates pituitary GH release through GHRH receptor activation, distinct from the ghrelin receptor agonism of GHRPs. Combination of sermorelin with a GHRP (ipamorelin, GHRP-2) produces synergistic GH release. Pharmacokinetics: plasma half-life 11 to 12 minutes; subcutaneous bioavailability good. Doses for GH deficiency are 0.3 mcg/kg subcutaneously once daily at bedtime.

1. Compound Identification

Sermorelin is described as ghrh 1-29 analog. A 29-amino-acid synthetic fragment of GHRH (residues 1-29) used for growth hormone deficiency diagnosis and treatment.

1.1 Class summary

GHRH 1-29 analog

1.2 Subtitle

A 29-amino-acid synthetic fragment of GHRH (residues 1-29) used for growth hormone deficiency diagnosis and treatment.

2. Abstract

Sermorelin (GRF 1-29; CAS 86168-78-7; molecular weight 3357.93) is a synthetic peptide consisting of the first 29 amino acids of human growth hormone releasing hormone (GHRH). The 1-29 fragment retains essentially all the GH-stimulating activity of full-length GHRH (44 residues) and was the basis for the FDA approval (under the trade name Geref) for GH deficiency in children. The brand-name product was discontinued in 2008 for commercial reasons; sermorelin is now compounded for clinical use in some jurisdictions and sold as a research chemical. The compound is administered subcutaneously and stimulates pituitary GH release through GHRH receptor activation, distinct from the ghrelin receptor agonism of GHRPs. Combination of sermorelin with a GHRP (ipamorelin, GHRP-2) produces synergistic GH release. Pharmacokinetics: plasma half-life 11 to 12 minutes; subcutaneous bioavailability good. Doses for GH deficiency are 0.3 mcg/kg subcutaneously once daily at bedtime.

3. Mechanism of Action

GHRH receptor agonist (1-29 fragment retains GH-releasing activity). Synergistic with ghrelin receptor agonists.

The mechanistic profile described above represents the consensus position from peer-reviewed literature where available; for compounds with sparse formal characterization, this section reflects vendor-grade reports and structurally-related class pharmacology and should be interpreted with appropriate caution.

4. Pharmacokinetics and Routes of Administration

Pharmacokinetic data are summarized within the abstract for compounds with formal Phase 1 records. Compounds without published human pharmacokinetic studies are noted as such; investigators should treat the absence of data as a research limitation.

5. Reported Research Dose Ranges

0.3 mcg/kg SC once daily at bedtime; or 200-500 mcg fixed dose in adult research-grade use.

Doses are scaled from clinical use where the compound is approved as a medicine, from Phase 2/3 trials where development advanced, or from rodent dose-response data scaled by allometric assumptions where the compound has no human clinical record. Investigators should treat dose ranges from research-chemical-grade vendors as starting points for their own pharmacokinetic and tolerability characterization rather than validated dosing recommendations.

6. Sourcing and Quality Verification

Investigators should obtain analytical confirmation of identity (mass spectrometry; for peptides, additionally amino acid analysis or N-terminal sequencing) and purity (HPLC area-percent, ideally greater than 95 percent) on every lot. Vendor certificates of analysis vary in quality; third-party analytical confirmation through independent laboratories (e.g., Janoshik Analytical, Anabolic Lab) is the gold standard for research-grade peptides and small molecules.

For compounds with established pharmaceutical-grade marketing in any jurisdiction, sourcing from the marketed product (where legal and accessible) provides the highest quality assurance.

7. Reconstitution and Handling

Peptides should be reconstituted in bacteriostatic water or sterile water for injection in the volume appropriate to the desired concentration; lyophilized peptides should be allowed to come to room temperature before reconstitution to minimize precipitation. Reconstituted peptides should be stored refrigerated and used within the timeframe specified by the manufacturer (typically 14 to 30 days for bacteriostatic water reconstitutions, shorter for sterile water).

Small molecules: storage conditions vary by compound; consult the certificate of analysis for the specific product. Most are stable at room temperature in dry, dark conditions; oxidation-sensitive compounds (e.g., catecholamine precursors) require cool storage and protection from light.

8. Stack Interaction Considerations

Investigators combining this compound with other research substances should consider receptor-level interactions (additive effects at shared targets), enzyme-level interactions (CYP-mediated drug-drug interactions where applicable), and pharmacodynamic interactions (additive sedation, additive serotonergic activity, additive hemodynamic effects).

The stack interaction section in published monographs of well-characterized compounds is necessarily incomplete for any specific combination; investigators should treat novel combinations with elevated caution and titrate gradually.

9. References

1. Walker RF. Sermorelin: a better approach to management of adult-onset growth hormone insufficiency? Clin Interv Aging 2006.

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