

SS-31 Comprehensive Dosing Guide (10 mg & 50 mg Specifications)

I. Overview

SS-31 (elamipretide) is a mitochondria-targeted tetrapeptide that selectively binds cardiolipin on the inner mitochondrial membrane[1]. It stabilizes electron-transport-chain complexes, reduces reactive-oxygen-species production and enhances ATP synthesis[2]. Pre-clinical models demonstrate protective effects in heart failure, neurodegenerative disorders and age-related sarcopenia. It received FDA accelerated approval in 2025 as the first therapeutic agent for Barth syndrome[3]. This educational protocol describes a once-daily subcutaneous injection regimen. This guideline covers dosing protocols for both 10 mg and 50 mg vial specifications.

Research Background: Refer to relevant SS-31 peptide reviews for evidence regarding mechanism of action, human and pre-clinical studies, limitations and safety.

II. Dosing & Reconstitution Guidelines

2.1. 10 mg Specification

Reconstitution: Add 1.0 mL bacteriostatic water → concentration 10 mg/mL

U-100 insulin syringe conversion: 1 unit = 0.01 mL = 100 mcg

Post-reconstitution shelf-life: Use within 4 weeks under refrigeration (2-8°C)

2.2. 50 mg Specification

Reconstitution: Add 3.0 mL bacteriostatic water → concentration approx. 16.67 mg/mL

U-100 insulin syringe conversion: 1 unit = 0.01 mL ≈ 167 mcg

Post-reconstitution shelf-life: Use within 4 weeks under refrigeration (2-8°C)

Standard / Progressive Protocol (Once-Daily, Subcutaneous Injection)

All specifications follow the identical daily-dose regimen; injection volume (syringe units) varies due to differing concentrations.

Weeks	Daily Dose	10 mg Specification (10 mg/mL)	50 mg Specification (16.67 mg/mL)
Weeks 1-2	5 mg	50 units (0.50 mL)	30 units (0.30 mL)
Weeks 3-8	10 mg	100 units (1.0 mL)	60 units (0.60 mL)

Frequency: Once-daily subcutaneous injection administered at the same fixed time each day.

Protocol Note: The 10 mg specification uses 1.0 mL reconstitution so standard doses fit within a single insulin syringe for accurate delivery. The 50 mg specification uses 3.0 mL reconstitution for higher concentration with moderate injection volumes for standard doses.

Advanced / Aggressive Protocol (Once-Daily, Subcutaneous Injection)

Weeks	Daily Dose	10 mg Specification (10 mg/mL)	50 mg Specification (16.67 mg/mL)
Weeks 1-2	5 mg	50 units (0.50 mL)	30 units (0.30 mL)
Weeks 3-4	10 mg	100 units (1.0 mL)	60 units (0.60 mL)
Weeks 5-8	15 mg	Split injection: 2 × 75 units (0.75 mL)	90 units (0.90 mL)
Optional Weeks 9-12	20 mg	Split injection: 2 × 100 units (1.0 mL)	Split injection: 2 × 60 units (0.60 mL)

Important Note:

Advanced daily doses (15-20 mg per day) are based on short-term clinical-trial protocols for severe mitochondrial disease[4][5] and must be performed under medical supervision.

10 mg specification: Doses above 10 mg require two separate subcutaneous injections at different sites.

50 mg specification: At this concentration, doses up to 15 mg fit within one single syringe (90 units); the 20 mg dose shall be given as two separate injections at different sites.

Clinical trials have not extensively evaluated SS-31 use beyond 12 weeks; extended administration requires careful monitoring.

III. Reconstitution Procedure

This dosage reference is for informational and research purposes only.
It does not replace professional medical advice and is not for human consumption.

1. Withdraw the specified volume of bacteriostatic water using a sterile syringe (1.0 mL for 10 mg vials; 3.0 mL for 50 mg vials).
2. Inject slowly along the inner vial wall; avoid vigorous shaking to prevent foam formation.
3. Gently swirl or roll the vial until fully dissolved (clear solution).
4. Label with reconstitution date; store refrigerated at 2-8°C (35.6-46.4°F), protected from light. Use within 4 weeks.

IV. Required Supplies

5.1. 10 mg Specification (8-12-Week Planning)

Peptide vials (SS-31, 10 mg per vial):

8 weeks (standard: 5-10 mg daily) $\approx$ 50 vials

12 weeks (standard maintenance 10 mg daily) $\approx$ 77 vials

12 weeks (advanced titration up to 15 mg daily) $\approx$ 105 vials

Insulin syringes (U-100, 1 mL):

Weekly (standard dose): 7 syringes (1 per day)

8 weeks: 56 syringes

12 weeks: 84 syringes

Advanced protocol with split injections may require 2 syringes per day.

Bacteriostatic water (30 mL vials): 1.0 mL required per vial for reconstitution.

8 weeks (50 vials): 50 mL $\rightarrow$ 2 $\times$ 30 mL vials

12 weeks (77 vials): 77 mL $\rightarrow$ 3 $\times$ 30 mL vials

12 weeks (105 vials, advanced): 105 mL $\rightarrow$ 4 $\times$ 30 mL vials

Alcohol swabs: 2 swabs per day (one for vial stopper, one for injection site).

Weekly: 14 swabs

8 weeks: 112 swabs $\rightarrow$ recommended: 2 boxes $\times$ 100-count

12 weeks: 168 swabs $\rightarrow$ recommended: 2 boxes $\times$ 100-count

5.2. 50 mg Specification (8-12-Week Planning)

Peptide vials (SS-31, 50 mg per vial):

8 weeks (standard: 5-10 mg daily) $\approx$ 10 vials

12 weeks (standard maintenance 10 mg daily) $\approx$ 16 vials

12 weeks (advanced titration up to 15 mg daily) $\approx$ 21 vials

Insulin syringes (U-100, 1 mL):

Weekly (standard dose): 7 syringes (1 per day)

8 weeks: 56 syringes

12 weeks: 84 syringes

Advanced protocol for 20 mg split injections may require 2 syringes per day.

Bacteriostatic water (30 mL vials): 3.0 mL required per vial for reconstitution.

8 weeks (10 vials): 30 mL $\rightarrow$ 1 $\times$ 30 mL vial

12 weeks (16 vials): 48 mL $\rightarrow$ 2 $\times$ 30 mL vials

12 weeks (21 vials, advanced): 63 mL $\rightarrow$ 3 $\times$ 30 mL vials

Alcohol swabs: 2 swabs per day (one for vial stopper, one for injection site).

Weekly: 14 swabs

8 weeks: 112 swabs $\rightarrow$ recommended: 2 boxes $\times$ 100-count

12 weeks: 168 swabs $\rightarrow$ recommended: 2 boxes $\times$ 100-count

V. Protocol Summary

Brief Summary:

Objective: Support mitochondrial function, enhance ATP production and reduce oxidative stress within high-metabolic-demand tissues[1][2].

Timing: Daily subcutaneous injection for 8-12 weeks (clinical trials commonly range from 4-12 weeks).

Dose Range: Standard protocol 5-10 mg per day; advanced protocol (under supervision) 15-20 mg per day.

Reconstitution: Reconstitute vials of different specifications separately with specified-volume diluent to achieve accurately measurable concentrations.

Storage: Lyophilized powder stored frozen at -20°C (-4°F); reconstituted solution refrigerated at 2-8°C (35.6-46.4°F); use within 4 weeks.

VI. Dosing Protocol

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Starting Dose: 5 mg once-daily for Weeks 1-2 to assess individual tolerability.

Standard Target Dose: Escalate to 10mg once-daily starting Week 3 (most-frequently used dose in clinical trials).

Advanced Target Dose: 15-20mg once-daily starting Week 5 (only for severe disease under medical supervision).

Frequency: Once-daily subcutaneous injection; maintain consistent administration time.

Cycle Duration: 8-12 weeks; limited data exists for durations beyond 12 weeks.

Injection Time: Fixed time each day; rotate injection sites to prevent local tissue irritation.

VII. Storage Instructions

Proper storage preserves peptide stability and potency.

Lyophilized Powder: Store original sealed vials at -20°C (-4°F). Keep dry and protected from light. Stable for months under frozen conditions.

Post-Reconstitution: Immediately refrigerate at $2-8^{\circ}\text{C}$ ($35.6-46.4^{\circ}\text{F}$) after mixing. For optimal stability use within 4 weeks.

Avoid Freeze-Thaw Cycles: Do not re-freeze reconstituted solution. Aliquot if needed to minimise temperature fluctuations.

Before Use: Allow refrigerated vials to reach room-temperature before opening to reduce internal condensation.

VIII. Important Considerations

Practical points for consistency, safety and tolerability.

Use a new sterile insulin syringe for every injection; dispose immediately into an approved sharps container.

Systematically rotate injection sites (abdomen, thighs, upper arms) to reduce local irritation and prevent lipohypertrophy[14].

Inject slowly over several seconds; pause briefly before withdrawing the needle to prevent leakage.

Mild local injection-site reactions (redness, pruritus, transient discomfort) represent the most-common adverse events observed in clinical trials[4][6]; symptoms usually resolve within several hours.

Document daily dose, injection site and any adverse reactions to maintain consistency and identify response patterns.

For doses requiring split injection (≥ 15 mg), administer separate injections at body locations separated by at least 2 inches.

IX. Injection Technique

General subcutaneous-injection guidance derived from clinical best-practice resources[11][12].

Site Preparation: Wipe vial rubber stopper and selected skin site with alcohol swabs. Allow both to air-dry fully for 30-60 seconds before proceeding[13].

Dose Withdrawal: Use a new sterile insulin syringe for each injection. Withdraw required volume from refrigerated vial. Tap syringe gently to expel visible air bubbles.

Injection Angle: Pinch up a skin fold (approximately 1-2 inches). Insert needle at $45-90^{\circ}$ angle based on subcutaneous-tissue thickness; 90° for most adults, 45° for very lean subjects[11][12].

Dosing: Aspiration is not required for subcutaneous injection[11]. Inject slowly and steadily over 3-5 seconds. Wait 5-10 seconds before needle withdrawal to minimise leakage.

Site Rotation: Systematically rotate injection sites (abdomen at least 2 inches from navel, outer thighs, upper arms, upper-outer buttocks) to prevent lipohypertrophy and local irritation[14].

Post-Injection: Apply gentle pressure with clean cotton swab for several seconds. Do not rub vigorously. A small adhesive bandage may be applied if needed.

Disposal: Immediately place used syringes into designated sharps container. Never recap needles or discard into general-waste bins.

Important Disclaimer: This document serves educational- research purposes only and does not constitute medical advice, diagnosis or treatment. SS- 31 receives FDA approval under the trade name Forzinity exclusively for Barth syndrome; use for other disease indications remains investigational. Always consult a qualified healthcare- provider before commencing any peptide- based protocol. Individual responses may vary; appropriate medical supervision is essential for safety- and- efficacy monitoring.