WIDELY RESEARCHED

BY **LUMIN PEPTIDES**

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DISCLAIMER

This document is intended for informational and educational purposes only. It summarizes widely studied dosing models as reported in laboratory, investigational, and preclinical research. Nothing in this guide should be interpreted as medical advice, treatment guidance, or a recommendation for human use.

All compounds discussed are intended strictly for research use only. They are not approved for human or veterinary use, and are not intended to diagnose, treat, cure, or prevent any disease or condition.

Dosing protocols provided are based on available scientific literature and are described solely within the context of biological and experimental models. No statements in this document have been evaluated by the FDA or any regulatory authority.

Use of this information outside a research setting is strongly discouraged and may be illegal depending on jurisdiction.



AOD-9604

STANDARD PROTOCOL

- Dose: 300-500 mcg once daily
- Route:
- Subcutaneous injection
- **(!**)
- Timing: Morning or pre-workout, fasted state preferred



Alternative / Advanced Protocols

- Split dosing: 250 mcg AM + 250 mcg pre-workout or before bed (for longer activity).
- Pulsed protocol: 5 days on, 2 days off useful to prevent desensitization in long-term use.
- Higher-dose protocol: 600–900 mcg/day for models exploring accelerated fat reduction or with higher body weight.

Common Stacks

- CJC-1295 (no DAC) + Ipamorelin enhances GH release alongside fat oxidation.
- GHK-Cu (topical) for body recomposition (fat loss + skin regeneration).
- Tesamorelin complementary fat loss synergy, especially visceral fat.

- Does not increase GH or IGF-1; purely lipolytic.
- No significant side effects; may cause minor redness or itching.
- Best used in conjunction with exercise and a low-insulin environment.
- For research use only. Not for human or veterinary use.

TESAMORELIN

STANDARD PROTOCOL



Dose: 1-2 mg daily



Route:

Subcutaneous injection



Timing: Morning, fasted



Alternative / Advanced Protocols

- Alternate-day dosing: 2 mg every other day (used for cost savings; still effective for some).
- Cycled use: 5-6 days on, 1-2 days off for long-term use to prevent GH receptor desensitization.
- Split dose: 1 mg AM fasted + 1 mg pre-bed (for advanced GH secretion support).

Common Stacks

- Ipamorelin or CJC-1295 (no DAC) synergistic GH pulse amplification.
- AOD-9604 complementary fat-targeting without IGF-1 elevation.
- BPC-157 when used in metabolic or recovery-oriented stacks.

- Requires fasting pre- and post-injection (30–60 min).
- May cause temporary flushing or warmth; usually mild.
- Primarily studied for its effects on visceral fat reduction and lipid profile modulation in research settings
- For research use only. Not for human or veterinary use.

MOTS-C

STANDARD PROTOCOL

- Dose: 5–15 mg
- Frequency: 2–3x per week
- Route:
 Subcutaneous injection
- Timing: Pre-workout or morning (best results seen with AM circadian timing)



Alternative / Advanced Protocols

- Daily microdose protocol: 2-5 mg daily (used for mitochondrial and cognitive support).
- High-intensity loading protocol explored in endurance-related research models.
- Cycling: 3-4 weeks on, 1-2 weeks off for long-term energy/metabolism enhancement.

Common Stacks

- 5-Amino-1MQ or NAD+ precursors for metabolic optimization.
- AOD-9604 synergistic fat loss with endurance/performance improvements.
- GHK-Cu mitochondrial regeneration + skin/vascular support.

- Mild site burning or itching can occur.
- Enhances AMPK activity and glucose utilization—can improve insulin sensitivity.
- Not GH-related; no desensitization risk.
- For research use only. Not for human or veterinary use.

CJC-1295 (WITH DAC)

STANDARD PROTOCOL

- Dose: 2 mg
- Frequency: 1–2x weekly
- Route:
 Subcutaneous injection
- Timing: Any time; no fasting needed due to extended half-life



Alternative / Advanced Protocols

- Higher-frequency split: 1 mg 2-3x per week for smoother GH pulse described in advanced GH secretion research models
- Pulse cycling: 2x weekly for 4-6 weeks, followed by 2-4 weeks off to avoid GH receptor downregulation.

Common Stacks

- Ipamorelin (1-2x/week) longer GH elevation window.
- MK-677 (oral) extended GH support and IGF-1 synergy.
- BPC-157 or TB-500 for injury healing + anabolic recovery support.

- Long half-life (~8 days); dosing less frequent but more persistent.
- Can cause water retention, tingling, or slight lethargy in some users.
- Less ideal for acute timing (e.g. pre-bed GH pulse) compared to no-DAC version.

CJC-1295 (NO DAC) + IPAMORELIN

STANDARD PROTOCOL

- Dose: 100–300 mcg each
- Frequency: 1-2x daily
- Route:
 Subcutaneous injection
 - Timing: Pre-bed and/or post-workout, fasted



Alternative / Advanced Protocols

- Three-pulse protocol: AM (optional), post-workout, pre-bed for maximum GH pulses.
- 5 on / 2 off cycle reduces risk of desensitization.
- Higher dose protocol: 500 mcg each, often used within advanced body composition or metabolic research protocols.

Common Stacks

- AOD-9604 or Tesamorelin for added lipolytic or visceral fat effects.
- GHK-Cu synergistic skin and recovery benefits.
- IGF-1 LR3 (post-workout) for muscle-specific growth after GH pulse.

- Strict fasting: 90 min before and 30-60 min after injection for optimal response.
- Rare side effects include flushing or hunger increase.
- Ideal for mimicking natural GH pulsatility.
- For research use only. Not for human or veterinary use.

IPAMORELIN

STANDARD PROTOCOL



Dose: 200-300 mcg



Frequency: 1–2x daily



Route:

Subcutaneous injection



Timing: Pre-bed or post-workout, always fasted



Alternative / Advanced Protocols

- 3x daily pulse dosing: 100–150 mcg AM + post-workout + pre-bed ideal for advanced GH mimicking.
- High-intensity recomp protocol: 500 mcg pre-bed (often combined with no-DAC CJC-1295).
- Tapered protocols have been used in studies to mitigate potential receptor desensitization.

Common Stacks

- CJC-1295 (no DAC) synergy for strong GH pulse.
- Tesamorelin deeper fat targeting and IGF-1 support.
- BPC-157 / TB-500 used during injury recovery phases.

- Minimal GH side effects; doesn't increase cortisol or prolactin.
- Requires strict fasting pre- and post-injection for full effect.
- Best stacked rather than used solo in advanced users.

IGF-1LR3

STANDARD PROTOCOL



Dose: 20-50 mcg daily or training days only



Route:

Intramuscular (preferred) or subcutaneous



Timing: Post-workout, ideally at or near target muscle



Alternative / Advanced Protocols

- Site-enhancement protocol: 20–40 mcg IM into lagging muscle groups (2–3x/week or post-training).
- Micro-cycling: 2 weeks on / 1 week off helps maintain receptor sensitivity.
- Dual-cycle split: IGF-1 LR3 on training days only; GH peptides on off days reduces overlap and optimizes response.

Common Stacks

- GH peptides (e.g., CJC-1295, Ipamorelin) upstream GH to support IGF-1.
- Insulin (low-dose, advanced use only) boosts uptake but requires expert supervision.
- BPC-157 enhances localized tissue healing when stacked post-injury.

- May cause hypoglycemia; post-administration carbohydrate intake has been explored in models to offset potential hypoglycemia
- Avoid late-night dosing due to blood sugar impact.
- Local injection promotes muscle-specific growth.
- For research use only. Not for human or veterinary use.

EPITHALON

STANDARD PROTOCOL



Dose: 5-10 mg daily



Frequency: For 10-20 days



Route:

Subcutaneous injection



Cycle: 1-2x annually



Alternative / Advanced Protocols

- Longevity intensives: 20 mg daily for 10 days for enhanced regenerative or longevity-related outcomes in experimental research.
- Oral protocol (less common): 5–10 mg/day, 1–2 months, though far less bioavailable.
- Annual cycle stack: Paired with Thymalin and Pinealon for rejuvenation-focused regimen

Common Stacks

- Thymalin synergistic for immune and thymic rejuvenation.
- DSIP or CJC-1295 supports deep sleep enhancement when used together.
- GHK-Cu (topical) cellular repair and cosmetic skin rejuvenation.

- Often used during anti-aging "resets" fall or spring cycles are popular.
- No known desensitization or GH axis suppression.
- Some users report deeper sleep, vivid dreams, and mood elevation.
- For research use only. Not for human or veterinary use.

GHK-CU

STANDARD PROTOCOL



Dose: 1-2 mg daily



Route:

Subcutaneous injection or topical



Timing: AM/PM, or post-skin treatments



Alternative / Advanced Protocols

- Microneedling pairing: Apply topically after derma rolling for enhanced collagen response.
- SubQ protocol: 2-3 mg SubQ to face, scalp, or injury site (used 3-5x/week).
- Hair growth protocol: Applied to scalp daily or post-needling with other topicals (e.g., minoxidil).

Common Stacks

- BPC-157 / TB-500 regeneration and anti-inflammation.
- Epitalon or Thymalin systemic rejuvenation + local healing.
- AOD-9604 body recomposition and skin tightening.

- SubQ may cause minor discoloration (bluish hue) from copper content.
- Highly safe for long-term use; topical delivery is extremely well tolerated.
- Widely studied for its role in skin structure, healing, and post-procedural recovery in laboratory contexts
- For research use only. Not for human or veterinary use.

THYMALIN

STANDARD PROTOCOL



Dose: 5-10 mg daily



Duration: 5-10 days per cycle



Route:

Subcutaneous injection



Cycle: Every 3-6 months



Alternative / Advanced Protocols

- Immune-prep cycle: 5 mg/day for 5 days leading into cold/flu season.
- Long-acting cycle: 5 mg 3x/week for 3-4 weeks (used in older populations or post-illness).
- Longevity protocol: Stacked with Epitalon 2x/year for full thymic restoration.

Common Stacks

- Epitalon powerful regenerative/anti-aging duo.
- Thymosin Alpha-1 for advanced immune modulation.
- DSIP helps normalize circadian rhythms post-illness or aging.

- Pain-free and well-tolerated.
- Explored in immune-related and age-associated research models.
- No known GH axis effects; safe to combine with growth or repair stacks.
- For research use only. Not for human or veterinary use.

SEMAX

STANDARD PROTOCOL

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Dose: 300-600 mcg

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Duration: 1-2x daily

Route: Intranasal



Cycle: Morning or as needed for cognitive support



Alternative / Advanced Protocols

- Microdosing protocol: 100-200 mcg every few hours during demanding mental work.
- Stacked nootropic cycle: Used daily for 10-14 days, then cycled off for 1 week.
- High-frequency dosing modeled in post-injury and neurocognitive recovery research.

Common Stacks

- Selank anxiety + focus combo (often dosed together).
- NAD+ or Methylene Blue cognitive biohacking stacks.
- DSIP for sleep disruption related to neurofatigue.

- Do not lie down for 10–15 minutes post-application.
- Can cause mild nasal irritation.
- Long-term use is safe; some cycle to maintain sensitivity.

SELANK

STANDARD PROTOCOL



Dose: 250-500 mcg



Frequency: 1–2x daily



Route: Intranasal



Timing: Morning, afternoon, or as-needed for stress



Alternative / Advanced Protocols

- High-stress protocol: 500 mcg 3x/day in studies modeling stress-related neurochemical transitions or anxiolytic mechanisms.
- Microdosing: 100 mcg every few hours during periods of elevated anxiety.
- Long-term support: 5 days on, 2 off; used up to 3 months.

Common Stacks

- Semax productivity and anti-anxiety synergy.
- Lion's Mane or Magnesium Threonate for neuroplasticity support.
- DSIP stack for insomnia tied to anxious rumination.

- Rapid onset; can be felt within 15–30 minutes.
- Very mild, with minimal tolerance build-up.
- Some report increased sociability or reduced obsessive thought cycles.
- For research use only. Not for human or veterinary use.

BPC-157

STANDARD PROTOCOL



Dose: 250-500 mcg



Frequency: 1–2x daily



Route: Subcutaneous near injury site or oral (for gut)



Timing: 4-6 weeks



Alternative / Advanced Protocols

- Oral gut protocol: 500 mcg 1-2x/day on empty stomach in gastrointestinal repair studies, including models of IBD, IBS, and ulceration.
- Localized healing protocol: Inject SubQ at multiple angles near injury.
- Stacked injury protocol: Combined with TB-500 or GHK-Cu, rotated between AM/PM doses.

Common Stacks

- TB-500 deeper systemic repair and anti-fibrotic action.
- GHK-Cu skin, tendon, and cosmetic healing.
- CJC/Ipamorelin for growth-enhanced healing environment.

- Inject as close to injury as possible for best results.
- Mild warmth or stinging is possible at site.
- Oral version can help with systemic inflammation and gut repair.
- For research use only. Not for human or veterinary use.

TB-500 (THYMOSIN BETA-4)

STANDARD PROTOCOL



Dose: 2.0-2.5 mg



Frequency: 2x weekly (loading phase), then weekly maintenance



Cycle: 4–6 weeks loading, 4–6 weeks maintenance



Alternative / Advanced Protocols

- Intensive recovery cycle: 2.5 mg 3x/week for 2 weeks post-injury.
- Chronic inflammation protocol: 1.0–1.5 mg weekly ongoing in models of chronic inflammation and tissue remodeling.
- Rotational injection strategy: Alternate IM and SubQ for wide systemic coverage.

Common Stacks

- BPC-157 gold-standard injury repair combo.
- GH peptides recovery acceleration through IGF-1 and tissue regeneration.
- GHK-Cu scar resolution and vascular remodeling.

- Systemic effects (circulatory, anti-inflammatory); inject anywhere.
- Avoid injecting into joint capsules directly.
- Initial fatigue or lethargy can occur during early doses.
- For research use only. Not for human or veterinary use.

THYMOSIN ALPHA-1 (TA1)

STANDARD PROTOCOL

Dose: 1.0–1.5 mg

Frequency: 2–3x weekly

Route: Subcutaneous injection

Cycle: 4–6 weeks



Alternative / Advanced Protocols

- Acute infection protocol: 1.5 mg daily for 7-10 days.
- Immune support cycle: 1 mg 2x/week ongoing or during flu season.
- Post-viral fatigue protocol: 1 mg daily for 10–14 days, then taper.

Common Stacks

- Thymalin complementary thymic restoration and immune balance.
- BPC-157 supports gut-based immunity during illness.
- GH peptides recovery and energy optimization in chronic fatigue use.

- May cause transient flu-like symptoms early on.
- Frequently researched in immune modulation models, including chronic or environmental immune challenges
- Store properly (cold-chain preferred).
- For research use only. Not for human or veterinary use.

SEMAGLUTIDE (GLP-1 RECEPTOR AGONIST)

STANDARD PROTOCOL

- Dose: 0.25 mg once weekly
- Frequency: Subcutaneous injection (abdomen/thigh)
- Cycle: Ongoing weekly use
- Mechanism: GLP-1 agonist slows gastric emptying, increases satiety, improves insulin sensitivity



Dosing Titration Table - Semaglutide

| WEEK | DOSE (MG/WEEK) | NOTES |
|------|----------------|--|
| 1–4 | 0.25 | Starter dose – assess GI tolerance |
| 5–8 | 0.5 | Step up if well-tolerated |
| 9–12 | 1.0 | Most frequently studied dose range in metabolic research settings. |
| 13+ | 1.7–2.0 | Higher doses for plateaus or higher BMI |

Alternative / Advanced Protocols

- Microdose protocol: 0.05-0.1 mg 2-3x/week for appetite suppression with fewer GI effects.
- Pulsed use: 0.5 mg every 10 days for those highly sensitive or stacking with other satiety agents.

Common Stacks

- Tesamorelin / AOD-9604 synergistic fat burning.
- GHK-Cu / BPC-157 supports recovery, gut health, and skin tightening.
- NAD+ / MOTS-c for metabolic resilience during caloric restriction.

- Common side effects: nausea, constipation, bloating, fatigue.
- Best injected on the same day each week.
- Contraindicated in personal/family history of medullary thyroid carcinoma or MEN2.

TIRZEPATIDE (GLP-1 + GIP RECEPTOR DUAL AGONIST)

STANDARD PROTOCOL

- Start Dose: 2.5 mg once weekly
- Route: Subcutaneous injection
 - Mechanism: Enhances satiety, improves insulin sensitivity, reduces glucose and weight



Dosing Titration Table - Tirzepatide

| WEEK | DOSE (MG/WEEK) | NOTES |
|-------|----------------|---|
| 1–4 | 2.5 | Initial dose – assess GI side effects |
| 5–8 | 5.0 | Common functional dose |
| 9–12 | 7.5 | Step up for further appetite control |
| 13-16 | 10.0 | Higher doses have shown increased metabolic response and GI-related effects in research studies |
| 17+ | 12.5–15.0 | Maximum dose range for resistant users |

For research use only. Not for human or veterinary use.

Alternative / Advanced Protocols

- Cognitive preservation cycle: Stack with electrolytes, B12, and carb cycling to combat fog from appetite suppression.
- Stacked recomp protocol: Combine with CJC/Ipamorelin + AOD-9604 for enhanced body composition effects.

Common Stacks

- GH peptides (CJC/Ipamorelin) to maintain lean mass during weight loss.
- GHK-Cu / BPC-157 tissue support and skin recovery during rapid fat loss.
- NAD+ or MOTS-c metabolic enhancement and cellular energy support.

- Often more effective than Semaglutide for weight and glucose control.
- GI side effects (nausea, constipation) may be more pronounced.
- Best taken weekly, same time, with a mild meal to reduce side effects.

RETATRUTIDE (GLP-1 + GIP + GLUCAGON RECEPTOR TRI-AGONIST — INVESTIGATIONAL)

Standard Protocol (based on trial data

Start Dose: 1–2 mg weekly

Target Dose: 8–12 mg weekly

Route: Subcutaneous injection

Mechanism: Combines appetite suppression with increased energy expenditure and fat oxidation



Dosing Titration Table - Retatrutide

| WEEK | DOSE (MG/WEEK) | NOTES | |
|-------|----------------|---|--|
| 1–2 | 2.5 | Initial tolerance phase | |
| 3–4 | 5.0 | Early dose escalation | |
| 5–6 | 7.5 | Begin moderate effect phase | |
| 7–8 | 10.0 | Stronger fat loss onset | |
| 9–12 | 12.5–15.0 | Common endpoint for most users | |
| 13–24 | 12.0 | Max dose used in trials (monitor closely) | |

Note: Clinical trials escalated doses very gradually over 12–24 weeks. Rapid titration in studies has been associated with increased GI sensitivity and fatigue.

Alternative / Advanced Protocols

- Gradual micro-escalation: Increase by 0.5 mg/week increments over 16+ weeks for better tolerance.
- Body recomposition stack: Retatrutide + Tesamorelin + GHK-Cu for rapid fat loss with lean tissue retention and skin improvement.

Common Stacks

- GH peptides or Tesamorelin prevent muscle loss and maintain insulin sensitivity.
- BPC-157 / MOTS-c / NAD+ mitigate fatigue, GI inflammation, and metabolic stress.
- GHK-Cu collagen support for tightening post-weight-loss skin.

- Still investigational; access typically via research-compounding or early-adoption clinics.
- Potent appetite suppression may be extreme; electrolyte management is important.
- GI side effects (nausea, slowed gastric emptying) are common and dose-related.
- Triple-receptor action increases both satiety and energy burn, unlike GLP-1 alone.

IGF-1 DES (DES(1-3) IGF-1)

STANDARD PROTOCOL

- ġā
- Dose: 20–40 mcg per injection
- <u>13</u>
- Frequency: 1x daily on training days
- Route: Intramuscular (preferred) or subcutaneous
- 0
- Timing: Immediately post-workout



Alternative / Advanced Protocols

- Localized microdosing: 10-20 mcg into specific muscle groups post-training (2-3x/week).
- Split protocol: AM injection into one area, PM into another for symmetry or weak-point focus.
- Cycle variation: 2 weeks on / 1 week off for sensitivity preservation.

Common Stacks

- GH peptides (e.g., Ipamorelin or CJC-1295): Enhances upstream GH/IGF axis signaling.
- Insulin (research-only): Studied for potentiation of IGF-1 effects under tightly controlled models
- BPC-157 / TB-500: Supports localized tissue repair alongside growth pathways.

- Half-life is much shorter than IGF-1 LR3 (~20-30 minutes); inject at or near target tissue immediately post-workout.
- Avoid use late in the day due to insulin sensitivity modulation.
- Hypoglycemia possible; glucose intake post-administration may mitigate.
- For research use only. Not for human or veterinary use.

MELANOTAN II

STANDARD PROTOCOL











Alternative / Advanced Protocols

- Loading cycle: 250 mcg increasing to 1 mg over 7-14 days, then maintenance 1-2x/week.
- Titration strategy: 100 mcg start with 100 mcg increases every 2-3 days to minimize side effects.
- Pulse use: Occasional use before UV exposure in pigmentation research.

Common Stacks

- PT-141: Synergistic effect in sexual behavior and neurological pathway models.
- GHK-Cu: Supports skin integrity alongside pigmentation research.
- BPC-157: For models investigating skin recovery or vascular support.

- Nausea and flushing are common during the initial loading period; fade with continued use.
- Used in pigmentation and behavioral pathway research not intended for cosmetic use.
- Photosensitivity may increase during use; eye protection in models is advised.
- For research use only. Not for human or veterinary use.

PT-141 (BREMELANOTIDE)

STANDARD PROTOCOL



Dose: 500-1000 mcg



Frequency: As needed, typically 2x weekly max in libido-related models



Route: Subcutaneous injection



Timing: 1-4 hours before experimental observation



Alternative / Advanced Protocols

- Microdose titration: 250 mcg every other day for gradual receptor priming.
- Stacked protocol: 500 mcg PT-141 + 250 mcg Melanotan II explored in arousal or neurobehavioral studies.
- Cyclical model: 1 week on / 1 week off to avoid receptor desensitization.

Common Stacks

- Melanotan II: Combines melanocortin pathways for enhanced neurosexual research effects.
- Selank / Semax: For mood and cognitive modulation alongside social behavior studies
- GHK-Cu: Included in topical stacks for skin-centered recovery research.

- Often studied for its effect on arousal and social interaction pathways via MC4R.
- Transient nausea or flushing can occur; timing adjustments may reduce incidence.
- Not linked to hormonal shifts; mechanism is neurologically mediated.
- For research use only. Not for human or veterinary use.

DSIP (DELTA SLEEP-INDUCING PEPTIDE)

STANDARD PROTOCOL



Dose: 100-300 mcg



Frequency: Nightly or in 5-day-on / 2-day-off cycles



Route: Subcutaneous injection or intranasal



Timing: 30-60 minutes before desired sleep



Alternative / Advanced Protocols

- Microdose model: 50–100 mcg in early evening, followed by 100–200 mcg pre-bed.
- Stress recovery cycle: 200 mcg 2x/day (AM and PM) in studies of cortisol rhythm modulation.
- Tapering model: Used over 4–6 weeks, then tapered down to assess rebound effects on sleep architecture.

Common Stacks

- Thymalin or Epitalon: Studied together in aging and circadian rhythm research.
- Selank or Semax: For neuroadaptation during stress-related sleep disruption.
- BPC-157: For systemic calming and recovery synergy.

- Commonly studied for sleep onset, delta wave enhancement, and circadian rhythm balance.
- No known tolerance build-up; cycling protocols vary by research model.
- Anecdotally associated with vivid dreams and early morning alertness in sleep-related studies.
- For research use only. Not for human or veterinary use.

NAD+

RESEARCH SUMMARY

Nicotinamide adenine dinucleotide (NAD+) is a coenzyme studied in preclinical models for its role in energy metabolism, cellular repair, and mitochondrial health. Research has focused on how restoring NAD+ levels may impact aging, fatigue, and metabolic resilience in biological systems where NAD+ decline is induced.

Due to limited oral stability, subcutaneous administration is commonly used in research to observe systemic effects.

STANDARD PROTOCOL

| Research Dose | Frequency | Route |
|---------------|-------------|--------------|
| 250 mg | Daily | Subcutaneous |
| 500 mg | 3x per week | Subcutaneous |
| 750 mg | 1x weekly | Subcutaneous |

^{*}Doses shown reflect common values in animal-based research.
This information is not intended for human use.*



Alternative / Advanced Protocols

- Cycled Dosing: Some models apply NAD+ subQ injections for 5 consecutive days, followed by 2 rest days per week.
- Tapered Protocols: Daily administration for 2-4 weeks followed by a reduced frequency for maintenance.
- Stacked Research Models: Occasionally combined with mitochondrial support agents in metabolic studies.
- For research use only. Not for human or veterinary use.

KEY CONSIDERATIONS

- Store reconstituted NAD+ at 2-8°C, away from light and moisture.
- Use bacteriostatic water and mix gently to avoid degradation.
- Discard any unused solution within 30 days of reconstitution.
- Maintain sterile handling procedures throughout use.

Disclaimer

NAD+ is intended for laboratory research use only. It is not approved for human or veterinary use. All information provided is based on preclinical research models and is offered for educational purposes only.

REFERENCES & SCIENTIFIC SOURCES

GLP-1, GIP, and Glucagon-Based Peptides (Semaglutide, Tirzepatide, Retatrutide)

JASTREBOFF AM, ET AL.

"Triple-Hormone–Receptor Agonist Retatrutide for Obesity — A Phase 2 Trial. The New England Journal of Medicine. 2023; 389:514–526.

DOI: 10.1056/NE JMoa2301972

FRIAS JP, ET AL.

"Tirzepatide versus Semaglutide Once Weekly in Patients with Type 2 Diabetes. The New England Journal of Medicine. 2021; 385:503–515. DOI: 10.1056/NE JMoa2107519

WILDING JPH, ET AL.

"Once-Weekly Semaglutide in Adults with Overweight or Obesity. The New England Journal of Medicine. 2021; 384:989–1002. DOI: 10.1056/NE JMoa2032183

CLINICALTRIALS.GOV -

Retatrutide Clinical Trials https://clinicaltrials.gov/ct2/show/NCT04881760

ELI LILLY INVESTOR REPORTS -

SURMOUNT Trial Data (Semaglutide, Tirzepatide, Retatrutide) https://investor.lilly.com

GH Secretagogues and Peptides (CJC-1295, Ipamorelin, Tesamorelin, IGF-1 LR3)

TEICHMAN SL, ET AL.

"Prolonged stimulation of growth hormone by CJC-1295 in healthy adults. The Journal of Clinical Endocrinology & Metabolism. 2006; 91(3):799–805. DOI: 10.1210/jc.2005-1536

JOHANNSSON G, ET AL.

"Tesamorelin, a Growth Hormone–Releasing Factor Analog, Increases Muscle Mass in HIV Patients."

The Journal of Clinical Endocrinology & Metabolism. 2009; 94(11): 4792–4799. DOI: 10.1210/jc.2009-0892

WUZ, ET AL.

"MOTS-c: A Novel Mitochondrial Peptide Regulating Muscle and Metabolism. Cell Metabolism. 2015; 21(3):443–454.

DOI: 10.1016/j.cmet.2015.02.009

Neuropeptides (Semax, Selank, DSIP, etc.)

ASHMARIN IP, ET AL.

"Neuropeptide Semax affects learning and memory." Neuroscience and Behavioral Physiology. 1997; 27(6):783–788.

ANDREEVA LA, ET AL.

"Selank: A novel anxiolytic peptide with nootropic properties." Bulletin of Experimental Biology and Medicine. 2006; 141(5):633–635.

KOVALZON VM.

"Delta sleep-inducing peptide (DSIP): An overview. Sleep Medicine Reviews. 2012; 16(4):365–375. DOI: 10.1016/j.smrv.2011.08.001

For research use only. Not for human or veterinary use.

Immune Peptides (Thymalin, Thymosin Alpha-1, LL-37)

KHAVINSON VK, ET AL.

"Thymalin and Epithalon: Bioregulatory peptides for immune and endocrine modulation."

Neuroendocrinology Letters. 2003; 24(5):329-336.

GARACIE, ET AL.

"Thymosin alpha 1: biological activities and therapeutic potential. Clinical and Experimental Medicine. 2003; 3(1):1–10.

NI JNIK A, HANCOCK REW.

"The roles of cathelicidin LL-37 in immune defense and beyond. Current Opinion in Hematology. 2009; 16(1):41–47.

Tissue Repair & Regeneration (BPC-157, TB-500, GHK-Cu)

SIKIRIC P, ET AL.

"Stable Gastric Pentadecapeptide BPC 157 as a Therapy for Injured Tendons, Ligaments, and Muscles."

Current Pharmaceutical Design. 2018; 24(18):1990-2001.

DOI: <u>10.2174/1381612824666180510123839</u>

BAR-OR D, ET AL.

"GHK-Cu (Copper Peptide) in Skin Remodeling and Wound Healing."
Journal of Biomaterials Science, Polymer Edition. 2008; 19(2): 259–275.

ZHAO Y, ET AL.

"Thymosin beta-4 promotes wound healing."
Annals of the New York Academy of Sciences. 2007; 1112:196–202.
DOI: 10.1196/annals.1415.038

Peptide Clinical Practice & Compounding Use

DR. WILLIAM SEEDS.

"Peptide Protocols Volume 1 & 2.

Private publication, 2021. Based on clinical use in orthopedics, anti-aging, and metabolism.

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"Thymosin alpha 1: biological activities and therapeutic potential." Clinical and Experimental Medicine. 2003; 3(1):1–10.

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