BIOHACK AGENT

THE BIOHACK AGENT

PROTOCOL GUIDE

The Complete Biohacking & Peptide Reference • 2026 Edition

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SECTION 1: BIOHACKING FUNDAMENTALS

Biohacking is the practice of using science, technology, and self-experimentation to optimize your biology. It ranges from simple lifestyle interventions like cold exposure and sleep optimization to advanced protocols involving peptides, nootropics, and biomarker tracking.

The goal is not to chase trends. The goal is to systematically identify your biological weak points through data, then apply targeted interventions to improve them. Everything in this guide follows that principle.

The Hierarchy of Optimization

Before touching any advanced protocol, you need your foundation locked in. Peptides and nootropics amplify what your baseline provides. If your baseline is broken, amplification just makes things worse.

The hierarchy, in order of priority: Sleep (7-9 hours, consistent schedule, optimized environment). Nutrition (whole foods, adequate protein at 0.8-1g per pound bodyweight, micronutrient density). Movement (resistance training 3-4x per week, daily walking, mobility work). Stress management (HRV training, breathwork, nature exposure). Sun and light exposure (morning sunlight, limiting blue light after sunset). Then and only then, advanced interventions like peptides, nootropics, and targeted supplementation.

> **WARNING:** If you are sleeping 5 hours a night and eating processed food, no peptide will fix you. Fix the foundation first.

The Data-Driven Approach

Biohacking without data is just guessing. Before starting any protocol, establish your baseline through comprehensive blood work. Key panels include: Complete Metabolic Panel (CMP), Complete Blood Count (CBC), lipid panel, thyroid panel (TSH, Free T3, Free T4, Reverse T3), hormone panel (Total and Free Testosterone, Estradiol, DHEA-S, SHBG, IGF-1, Prolactin), inflammatory markers (hs-CRP, ESR, Homocysteine), metabolic markers (Fasting Insulin, HbA1c, Fasting Glucose), vitamin and mineral panel (Vitamin D, B12, Folate, Ferritin, Magnesium RBC, Zinc), and liver and kidney function (ALT, AST, GGT, BUN, Creatinine, eGFR).

Run this panel before starting any protocol, then retest at 60-90 day intervals to measure the impact of your interventions. Without before-and-after data, you are flying blind.

> **PRO TIP:** Services like Marek Health, InsideTracker, and SiPhox Health make comprehensive testing accessible without a doctor visit.

Essential Biohacking Tools

Continuous Glucose Monitor (CGM): Tracks real-time glucose response to food, sleep, and stress. Oura Ring or WHOOP band: HRV, sleep staging, and recovery tracking. Blood pressure monitor: Cardiovascular baseline. Body composition scale (DEXA scan annually for gold

standard). Blue light blocking glasses for evening use. Red light therapy panel for photobiomodulation. Cold exposure setup (cold plunge, cold shower, or ice bath). Journaling system for subjective tracking (energy, mood, cognition, libido, sleep quality).

SECTION 2: COMPLETE PEPTIDE GUIDE

Peptides are short chains of amino acids (2-50 amino acids) that act as signaling molecules in the body. They are smaller than proteins and serve as chemical messengers, telling your cells what to do. Your body naturally produces hundreds of peptides. The injectable peptides covered in this guide are either synthetic versions of naturally occurring peptides or engineered molecules designed to trigger specific biological responses.

Why Injectable?

Most peptides are destroyed by the digestive system before they can reach their target. Subcutaneous injection using a small insulin needle just under the skin bypasses the gut and delivers the peptide directly into the bloodstream. This dramatically increases bioavailability. Some peptides are available in oral, nasal, or topical forms. Where effective alternatives exist, they are noted.

Reconstitution Guide

Most peptides arrive as lyophilized (freeze-dried) powder in a sterile vial. Before injection, you must reconstitute the powder with bacteriostatic water (BAC water).

What You Need

Bacteriostatic water (BAC water) with 0.9% benzyl alcohol preservative. Insulin syringes (29-31 gauge, 0.5mL or 1mL). Alcohol swabs. Your lyophilized peptide vial.

Step-by-Step Reconstitution

Step 1: Clean the tops of both vials with alcohol swabs. Let air dry 10 seconds. Step 2: Draw desired BAC water (commonly 1mL / 100 units per vial). Step 3: Insert needle at angle, let water drip slowly down the side. NEVER spray directly onto the powder. Step 4: Gently swirl (never shake) until dissolved. Solution should be clear. Step 5: Store reconstituted peptide refrigerated at 36-46F / 2-8C. Stable for 3-4 weeks.

> **WARNING:** Never freeze reconstituted peptides. Never leave at room temperature. Never shake the vial. These actions can denature the peptide and render it useless.

Dosage Calculation

If you add 1mL (100 units) of BAC water to a 5mg vial: concentration = 50mcg per unit. To inject 250mcg, draw 5 units. If you add 2mL (200 units) to a 5mg vial: concentration = 25mcg per unit. To inject 250mcg, draw 10 units.

> **PRO TIP:** Use a peptide reconstitution calculator online to verify your math. Getting the dosage wrong is the most common beginner mistake.

Injection Technique

Subcutaneous injection sites: lower abdomen (2 inches from navel), outer thigh, upper arm fat pad. Pinch the skin, insert needle at 45 degrees, inject slowly, hold 5 seconds, withdraw. Rotate injection sites to prevent lipodystrophy.

Healing & Recovery Peptides

BPC-157 (Body Protection Compound-157)

BPC-157 is a synthetic peptide derived from a protein found in human gastric juice. It is the most widely used peptide in biohacking for its remarkable tissue healing properties. Research demonstrates accelerated healing of tendons, ligaments, muscles, gut lining, and bone. It also exhibits neuroprotective effects and counteracts damage from NSAIDs, alcohol, and various toxins.

Parameter	Details
Primary Use	Tissue repair, gut healing, injury recovery
Dosage Range	250-500mcg per day
Frequency	1-2x daily (can split AM/PM)
Injection Site	Subcutaneous, ideally near injury site for localized effect
Cycle Length	4-8 weeks typical, up to 12 weeks
Half-Life	Approximately 4 hours
Key Benefits	Tendon/ligament repair, gut healing, neuroprotection, anti-inflammatory
Side Effects	Minimal. Occasional nausea, dizziness at higher doses
Oral Option	Oral BPC-157 (Arginine salt form) is available and effective for gut-specific healing
Stacks Well With	TB-500, GHK-Cu

TB-500 (Thymosin Beta-4)

TB-500 is a synthetic fraction of Thymosin Beta-4. Unlike BPC-157 which tends to work locally, TB-500 has systemic effects. It promotes angiogenesis (new blood vessel formation), cell migration, and tissue repair. It is particularly effective for muscle injuries, cardiac tissue repair, and reducing inflammation.

Parameter	Details
Primary Use	Systemic healing, muscle repair, cardiovascular support
Dosage Range	2-5mg per week (loading), 2mg per week (maintenance)
Frequency	2x per week
Injection Site	Subcutaneous, any site (systemic effect)
Cycle Length	4-8 weeks loading, ongoing maintenance optional
Half-Life	Approximately 8 hours

Key Benefits	Systemic repair, angiogenesis, reduced inflammation, cardiac support
Side Effects	Headache, temporary lethargy, injection site irritation
Stacks Well With	BPC-157 (gold standard healing stack)

> **PRO TIP:** The BPC-157 + TB-500 stack is the gold standard healing combination. BPC-157 targets the injury locally while TB-500 provides systemic repair and blood vessel formation.

GHK-Cu (Copper Peptide)

GHK-Cu is a naturally occurring copper complex that declines significantly with age. It stimulates collagen and glycosaminoglycan synthesis, promotes wound healing, attracts immune cells, and has potent anti-inflammatory and antioxidant properties. Used both topically for skin rejuvenation and via injection for systemic anti-aging.

Parameter	Details
Primary Use	Skin rejuvenation, collagen synthesis, wound healing
Dosage Range	1-3mg per day (injectable), topical formulations vary
Frequency	Daily
Cycle Length	4-8 weeks
Key Benefits	Collagen production, skin remodeling, wound healing, anti-inflammatory
Side Effects	Injection site redness, rare nausea
Stacks Well With	BPC-157, TB-500

LL-37

LL-37 is a naturally occurring antimicrobial peptide and the only cathelicidin found in humans. It disrupts biofilms, modulates the immune response, and accelerates wound healing. Used primarily for chronic infections and biofilm-related conditions.

Parameter	Details
Primary Use	Antimicrobial defense, biofilm disruption, immune modulation
Dosage Range	100-200mcg per day
Frequency	Daily
Cycle Length	2-4 weeks
Key Benefits	Broad-spectrum antimicrobial, biofilm disruption, wound healing
Side Effects	Injection site pain, possible Herxheimer reaction
Stacks Well With	BPC-157, Thymosin Alpha-1

Pentadecarginine (BPC-157 Arginine Salt / Oral BPC)

This is the arginine salt form of BPC-157 designed for oral bioavailability. It survives the digestive tract and is specifically effective for GI healing, including gastric ulcers, leaky gut, and inflammatory bowel conditions. For those who want the gut-healing benefits of BPC-157 without injections.

Parameter	Details
Primary Use	Gut healing, GI repair, gastric protection
Dosage Range	500-1000mcg per day orally
Frequency	1-2x daily on empty stomach
Cycle Length	4-8 weeks
Key Benefits	Gut healing without injection, gastric ulcer repair, anti-inflammatory
Side Effects	Minimal. Rare mild GI discomfort.
Note	For systemic / musculoskeletal healing, injectable BPC-157 is still preferred

Growth Hormone Secretagogues

Growth hormone secretagogues (GHS) stimulate the pituitary gland to release more growth hormone naturally. Unlike exogenous growth hormone (HGH), these peptides work with your body's existing feedback mechanisms, producing more physiological GH pulsing patterns with significantly lower risk of side effects.

CJC-1295 (with and without DAC)

CJC-1295 is a synthetic analog of Growth Hormone Releasing Hormone (GHRH). It amplifies the natural GH pulse by extending the signaling window. The no-DAC version (Modified GRF 1-29) has a shorter half-life producing more natural pulsatile release. The DAC version creates sustained elevation over days. Most biohackers prefer no-DAC.

Parameter	Details
No-DAC Dosage	100-300mcg per injection, 1-3x daily
With-DAC Dosage	2mg per week, 1-2x per week
No-DAC Half-Life	~30 minutes (pulsatile, natural)
With-DAC Half-Life	~8 days (sustained elevation)
Cycle Length	8-12 weeks on, 4 weeks off
Key Benefits	Amplified GH release, fat loss, recovery, anti-aging
Side Effects	Water retention, tingling, headache
Stacks With	Ipamorelin (most popular peptide stack in existence)

Ipamorelin

Ipamorelin is a selective Growth Hormone Releasing Peptide (GHRP) that stimulates GH release without significantly affecting cortisol, prolactin, or appetite. This selectivity makes it the

cleanest and most side-effect-friendly GH secretagogue. The most recommended starting point for GH optimization.

Parameter	Details
Primary Use	Clean GH release, anti-aging, body composition
Dosage Range	100-300mcg per injection
Frequency	1-3x daily (before bed most popular)
Cycle Length	8-12 weeks on, 4 weeks off
Key Benefits	Increased GH, improved sleep, fat loss, recovery
Side Effects	Minimal. Occasional headache, water retention, tingling
Stacks Well With	CJC-1295 no DAC (synergistic GH release)

> **PRO TIP:** CJC-1295 (no DAC) + Ipamorelin is the most popular peptide stack in existence. Dose both at 100-300mcg before bed for maximum GH release during sleep.

Sermorelin

One of the oldest and most well-studied GH secretagogues. A truncated GHRH analog containing the first 29 amino acids. Produces mild, physiological GH increase. Often prescribed by anti-aging clinics as a starting point.

Parameter	Details
Dosage Range	200-500mcg per day, before bed
Cycle Length	3-6 months
Key Benefits	Well-studied safety, mild GH increase, improved sleep
Side Effects	Injection site reactions, headache, flushing

Tesamorelin

FDA-approved GHRH analog specifically for reducing visceral fat (lipodystrophy). Produces stronger GH response than Sermorelin. Popular in biohacking for visceral fat reduction and body composition.

Parameter	Details
Dosage Range	1-2mg per day
Key Benefits	Visceral fat reduction, strong GH release, FDA-approved safety data
Side Effects	Injection site reactions, joint pain, edema
Note	FDA-approved as Egrifta

GHRP-2 and GHRP-6

Potent growth hormone releasing peptides that work through the ghrelin receptor. Strong GH release but also significantly increase appetite (especially GHRP-6) and can elevate cortisol and prolactin.

Parameter	Details
Dosage	100-300mcg, 1-3x daily
GHRP-2 Hunger	Moderate increase
GHRP-6 Hunger	Significant (ravenous)
Cortisol Impact	Mild increase (both)
Best For	GH boost when appetite stimulation is desired

Hexarelin

The strongest GHRP, producing the most potent acute GH release. However, significantly elevates prolactin and cortisol with rapid desensitization (4-8 weeks).

Parameter	Details
Dosage Range	100-200mcg, 1-2x daily
Cycle Length	4-8 weeks maximum (desensitization)
Key Benefits	Strongest acute GH release of any GHRP
Side Effects	Elevated prolactin, cortisol, water retention
Note	Short cycles only. Monitor prolactin on blood work.

MK-677 (Ibutamoren)

MK-677 is technically not a peptide but a non-peptide ghrelin mimetic taken orally. It stimulates GH release through the ghrelin receptor and significantly increases IGF-1. Extremely convenient (oral dosing) but comes with notable hunger increase and potential insulin resistance with long-term use.

Parameter	Details
Dosage Range	10-25mg per day, orally
Frequency	Daily, typically before bed
Cycle Length	8-12 weeks (monitor fasting glucose)
Key Benefits	Oral GH secretagogue, increases IGF-1 25-50%, improved sleep
Side Effects	Significant hunger increase, water retention, potential insulin resistance
Warning	Monitor fasting glucose and insulin. Can worsen insulin resistance.

Fat Loss Peptides

Fragment 176-191 (HGH Frag)

The fat-burning portion of the growth hormone molecule (amino acids 176-191), isolated. Stimulates lipolysis and inhibits lipogenesis without affecting blood sugar or promoting cell growth.

Parameter	Details
Dosage Range	250-500mcg per day
Frequency	1-2x daily (fasted, AM preferred)
Cycle Length	8-12 weeks
Key Benefits	Targeted fat loss, no blood sugar impact, no cell proliferation
Side Effects	Injection site irritation, occasional headache
Note	Best used fasted. Carbs blunt its effect.

AOD-9604

A modified version of Fragment 176-191, originally developed as an anti-obesity drug. Mimics GH fat-reducing effects without affecting IGF-1 or insulin. Excellent safety profile from human clinical trials.

Parameter	Details
Dosage Range	300-600mcg per day
Frequency	Daily, fasted
Cycle Length	8-12 weeks
Key Benefits	Fat loss, no growth or insulin impact, clinical data
Side Effects	Minimal

5-Amino-1MQ

A small molecule that inhibits the enzyme NNMT (nicotinamide N-methyltransferase), which is overexpressed in fat tissue of obese individuals. By blocking NNMT, it increases NAD+ levels in fat cells, activates the SIRT1 longevity pathway, and promotes fat cell metabolism. Oral dosing makes it convenient.

Parameter	Details
Dosage Range	100-150mg, 1-3x daily orally
Frequency	Daily, typically with meals
Cycle Length	4-12 weeks
Key Benefits	Fat cell metabolism, NAD+ boost in adipose, SIRT1 activation, oral dosing

Side Effects	GI discomfort possible, limited long-term human data
Note	Emerging fat loss compound. Often stacked with other fat loss peptides.

Tesofensine

Originally developed as a treatment for Parkinson's and Alzheimer's, Tesofensine is a triple monoamine reuptake inhibitor (serotonin, dopamine, norepinephrine). In clinical trials, it produced twice the weight loss of any existing drug at the time, primarily through appetite suppression and increased metabolic rate.

Parameter	Details
Dosage Range	0.25-0.5mg daily, orally
Frequency	Daily, morning
Cycle Length	8-24 weeks (under medical supervision)
Key Benefits	Potent appetite suppression, increased metabolic rate, 2x weight loss vs comparators in trials
Side Effects	Increased heart rate, dry mouth, insomnia, constipation, mood changes
Warning	Affects CNS neurotransmitters. Requires medical supervision. Not FDA-approved.

GLP-1 & Next-Generation Weight Loss Peptides

GLP-1 receptor agonists have revolutionized fat loss. These peptides suppress appetite at the brain level, slow gastric emptying, and improve insulin sensitivity. The newest generation compounds combine multiple mechanisms for even greater efficacy.

Semaglutide (Ozempic / Wegovy)

The GLP-1 agonist that launched the modern weight loss revolution. Semaglutide suppresses appetite centrally, slows gastric emptying, and improves insulin sensitivity. FDA-approved for both Type 2 diabetes (Ozempic) and weight management (Wegovy).

Parameter	Details
Dosage Range	0.25mg weekly (start), titrate to 1.0-2.4mg weekly
Frequency	Once weekly injection
Average Weight Loss	15-17% body weight in trials
Key Benefits	Powerful appetite suppression, improved insulin sensitivity, cardiovascular benefits
Side Effects	Nausea (most common, especially during titration), GI issues, reduced appetite

Note	Prescription required. Titrate slowly to minimize nausea. Maintain protein intake.

Tirzepatide (Mounjaro / Zepbound)

A dual GIP/GLP-1 receptor agonist that outperforms semaglutide in head-to-head trials. The dual mechanism provides greater weight loss and metabolic improvement. FDA-approved for diabetes (Mounjaro) and weight management (Zepbound).

Parameter	Details
Dosage Range	2.5mg weekly (start), titrate to 5-15mg weekly
Frequency	Once weekly injection
Average Weight Loss	20-25% body weight in trials
Key Benefits	Best-in-class weight loss, dual mechanism, improved insulin sensitivity
Side Effects	Nausea, GI issues, similar to semaglutide but may be better tolerated
Note	Currently the most effective FDA-approved weight loss medication.

Retatrutide

The next frontier in weight loss peptides. Retatrutide is a triple agonist targeting GLP-1, GIP, and glucagon receptors simultaneously. In Phase 2 trials, it produced up to 24% body weight loss at 48 weeks, the highest ever recorded for an anti-obesity medication. The addition of glucagon receptor activation increases energy expenditure and fat oxidation beyond what dual agonists achieve.

Parameter	Details
Dosage Range	Phase 2 trial doses: 1-12mg weekly (titrated)
Frequency	Once weekly injection
Average Weight Loss	Up to 24% body weight at 48 weeks (Phase 2)
Mechanism	Triple agonist: GLP-1 + GIP + Glucagon receptor
Key Benefits	Highest weight loss ever recorded, increased energy expenditure, fat oxidation
Side Effects	Nausea, diarrhea, vomiting (similar to GLP-1 class, dose-dependent)
Status	Phase 3 clinical trials ongoing. Not yet FDA-approved.
Note	Available through research peptide suppliers. Medical supervision strongly recommended.

CagriSema (Cagrilintide + Semaglutide)

A combination of the amylin analog cagrilintide with semaglutide. Amylin is a hormone co-secreted with insulin that promotes satiety. The combination attacks appetite through two independent pathways for enhanced weight loss beyond semaglutide alone.

Parameter	Details
Mechanism	Amylin analog + GLP-1 agonist combination
Trial Results	Up to 22% body weight loss in Phase 2
Status	Phase 3 trials ongoing (Novo Nordisk)
Key Benefits	Dual pathway appetite suppression, potentially better tolerability
Note	Not yet available. Watch for approval timeline.

> **WARNING:** All GLP-1 class medications cause significant appetite suppression. Maintain minimum 0.8g protein per pound bodyweight to minimize muscle loss. Resistance train 3-4x/week. Monitor blood work including thyroid function.

Anti-Aging & Longevity Peptides

Epithalon (Epitalon)

A synthetic tetrapeptide (Ala-Glu-Asp-Gly) that activates telomerase, the enzyme responsible for maintaining telomere length. Telomeres are protective caps on chromosome ends that shorten with each cell division. By activating telomerase, Epithalon may slow this aspect of biological aging. Based on over 40 years of research by Professor Vladimir Khavinson.

Parameter	Details
Dosage Range	5-10mg per day
Frequency	Daily for 10-20 day cycles
Cycle Pattern	10-20 days on, 4-6 months off. 2-3 cycles per year.
Key Benefits	Telomerase activation, anti-aging, improved sleep, antioxidant
Side Effects	Minimal. Vivid dreams common.

FOXO4-DRI

A senolytic peptide that selectively induces apoptosis in senescent cells (zombie cells). These cells accumulate with age and secrete inflammatory factors (SASP) damaging surrounding tissue. By clearing them, FOXO4-DRI may reduce systemic inflammation and improve tissue function.

Parameter	Details
Dosage Range	Variable, protocols not well-established
Cycle Pattern	Short courses (3-5 days) with extended breaks
Key Benefits	Senescent cell clearance, reduced inflammation
Note	Experimental. Limited human safety data.

MOTS-C

A mitochondrial-derived peptide that activates AMPK and improves cellular energy production. Enhances insulin sensitivity, promotes fat oxidation, and improves exercise capacity. Described as an exercise mimetic because it activates many of the same metabolic pathways as physical exercise.

Parameter	Details
Dosage Range	5-10mg per week
Frequency	3-5x per week
Key Benefits	Metabolic enhancement, exercise mimetic, insulin sensitivity, fat oxidation
Stacks Well With	Epithalon, SS-31

Humanin

A mitochondrial-derived peptide with potent cytoprotective effects. It is neuroprotective, cardioprotective, and linked to longevity in population studies. Higher circulating humanin levels correlate with longer lifespan and better metabolic health.

Parameter	Details
Primary Use	Neuroprotection, cytoprotection, longevity
Key Benefits	Neuroprotective, cardioprotective, metabolic improvement
Note	Emerging peptide. Protocols still being established.

SS-31 (Elamipretide / Bendavia)

SS-31 is a mitochondrial-targeted peptide that concentrates in the inner mitochondrial membrane and stabilizes cardiolipin, a critical lipid for mitochondrial function. It reduces oxidative stress at the source, improves ATP production, and has shown benefit in heart failure, kidney disease, and age-related mitochondrial decline.

Parameter	Details
Dosage Range	0.5-1mg per day subcutaneous
Frequency	Daily
Cycle Length	4-8 weeks
Key Benefits	Mitochondrial repair, cardioprotection, kidney protection, anti-aging
Side Effects	Injection site reactions, rare taste changes
Clinical Status	Phase 2/3 trials for heart failure and mitochondrial disease
Stacks Well With	MOTS-C, Epithalon, NAD+ precursors

Khavinson Bioregulators

A family of short peptides (2-4 amino acids) from over 40 years of Russian research. Each targets a specific organ system and is theorized to regulate gene expression. Typically taken orally in capsule form.

Bioregulator	Target	Primary Use
Vilon	Immune (thymus)	Immune modulation
Vesugen	Vascular	Blood vessel health
Cardiogen	Heart	Cardiac function
Pinealon	Brain (CNS)	Cognitive function
Cortagen	Cerebral cortex	Higher cognition
Livagen	Liver	Liver regeneration
Crystagen	Immune cells	Immune regulation
Chonluten	Respiratory/GI mucosa	Mucosal repair
Testagen	Testes	Testosterone support
Prostamax	Prostate	Prostate health

Cognitive & Neuropeptides

Selank

A synthetic analog of immunomodulatory peptide Tuftsin. Modulates GABA, serotonin, and dopamine producing anti-anxiety effects without sedation or cognitive impairment. Enhances BDNF and has immunomodulatory properties.

Parameter	Details
Dosage Range	250-500mcg per day (injectable or nasal)
Frequency	1-2x daily
Cycle Length	2-4 weeks on, 2 weeks off
Key Benefits	Anti-anxiety without sedation, focus, BDNF increase, immune support
Side Effects	Minimal. Rare fatigue or nasal irritation.
Available Forms	Subcutaneous injection, nasal spray

Semax

Derived from a fragment of ACTH. Significantly increases BDNF promoting neuroplasticity, memory formation, and neuronal survival. Enhances focus and cognitive performance without stimulant effects.

Parameter	Details
Dosage Range	200-600mcg per day (injectable or nasal)
Frequency	1-2x daily
Cycle Length	2-4 weeks on, 2 weeks off
Key Benefits	BDNF increase, memory, focus, neuroplasticity
Side Effects	Rare hair thinning at high doses, irritability

> **PRO TIP:** Both Selank and Semax come in N-Acetyl versions (NA-Selank, NA-Semax) which are more potent and longer-lasting. Start with standard versions first.

PE-22-28 (Spadin Analog)

Promotes neurogenesis by blocking the TREK-1 potassium channel. Has shown antidepressant-like effects while promoting new brain cell formation.

Parameter	Details
Dosage Range	100-500mcg per day
Key Benefits	Neurogenesis, antidepressant-like effects, cognitive enhancement

Dihexa

Extremely potent nootropic peptide estimated at 10 million times more potent than BDNF at promoting neuronal connections. Developed for Alzheimer's research. Works through HGF receptor activation.

Parameter	Details
Dosage Range	5-20mg oral or 0.5-2mg subcutaneous
Key Benefits	Extreme cognitive enhancement, memory, neuronal connectivity
Side Effects	Limited data. Concerns about excessive cell growth.
Warning	Extremely potent with limited safety data. Use extreme caution.

P21 (Cerebrolysin fragment)

A synthetic peptide that mimics the activity of CNTF (Ciliary Neurotrophic Factor) to promote neurogenesis. Increases BDNF and reduces neuroinflammation. Originally derived from research on Cerebrolysin.

Parameter	Details
Dosage Range	500mcg-1mg daily, subcutaneous or intranasal
Cycle Length	2-4 weeks on, 2-4 weeks off
Key Benefits	Neurogenesis, BDNF increase, anti-neuroinflammation, memory
Side Effects	Limited human data. Injection site reactions.
Note	Emerging nootropic. Best combined with foundational cognitive support.

Immune Support Peptides

Thymosin Alpha-1 (Ta1)

Naturally occurring peptide from the thymus gland. Over 4,400 published studies. Modulates immune system by enhancing T-cell function, NK cell activity, and dendritic cell maturation. Approved as Zadaxin in 35+ countries.

Parameter	Details
Dosage Range	1.6mg per injection (standard clinical dose)
Frequency	2-3x per week
Cycle Length	4-12 weeks or as directed
Key Benefits	T-cell enhancement, NK cell activation, broad immune modulation
Side Effects	Injection site reactions, rare flu-like symptoms
Clinical Status	Approved in 35+ countries

Thymalin

A thymic peptide extract that restores thymus function and T-cell production. While Thymosin Alpha-1 modulates existing immune cells, Thymalin works to regenerate the thymus gland itself, which atrophies with age. Often used in anti-aging protocols alongside Epithalon.

Parameter	Details
Dosage Range	10mg per day
Frequency	Daily for 10-day cycle
Cycle Pattern	10 days on, 6 months off (similar to Epithalon cycling)
Key Benefits	Thymus regeneration, T-cell production restoration, immune rejuvenation
Side Effects	Minimal reported

Stacks Well With	Epithalon (anti-aging immune stack)

KPV

A tripeptide fragment from alpha-MSH with potent anti-inflammatory properties, particularly in the GI tract. Inhibits NF-kB signaling and has shown benefit in inflammatory bowel conditions.

Parameter	Details
Dosage Range	200-500mcg per day (injectable) or oral capsules
Key Benefits	Gut anti-inflammatory, NF-kB inhibition, mucosal healing
Available Forms	Subcutaneous injection, oral capsules, topical

VIP (Vasoactive Intestinal Peptide)

A 28-amino acid peptide that regulates smooth muscle activity, immune function, and circadian rhythm. Used primarily for CIRS (chronic inflammatory response syndrome), mold illness, and gut/lung inflammation.

Parameter	Details
Dosage Range	50mcg per spray, 1-4 sprays daily
Administration	Nasal spray (most common)
Key Benefits	CIRS/mold illness recovery, gut/lung inflammation, circadian regulation
Side Effects	Nasal irritation, low blood pressure, diarrhea at high doses

Larazotide Acetate (AT-1001)

A peptide that tightens intestinal tight junctions, reducing intestinal permeability (leaky gut). Originally developed for celiac disease. Useful for anyone dealing with gut barrier dysfunction, food sensitivities, or autoimmune conditions linked to gut permeability.

Parameter	Details
Dosage Range	0.5-1mg, 3x daily before meals (oral)
Key Benefits	Reduces intestinal permeability, tightens tight junctions, celiac/autoimmune support
Side Effects	Well-tolerated in clinical trials. Mild GI symptoms possible.
Note	Oral peptide. One of the few gut peptides that works orally by design.

Sexual Health & Tanning Peptides

PT-141 (Bremelanotide / Vyleesi)

A melanocortin receptor agonist working on the CNS to increase sexual arousal and desire. Unlike Viagra/Cialis which work on blood flow, PT-141 works on the brain. FDA-approved as Vyleesi for hypoactive sexual desire disorder.

Parameter	Details
Dosage Range	0.5-2mg per dose
Timing	1-2 hours before desired effect
Frequency	As needed, max once per 24 hours
Key Benefits	Increased desire and arousal (both sexes), CNS-mediated
Side Effects	Nausea (dose-dependent), flushing, headache
Note	FDA-approved. Start at 0.5mg to assess tolerance.

PRO TIP: Start PT-141 at 0.5mg. Nausea is significantly worse at higher doses. Most users find their sweet spot at 0.75-1.5mg.

Melanotan II

Synthetic alpha-MSH analog that stimulates melanin production for tanning without UV. Also increases libido and suppresses appetite. Requires careful dosing and mole monitoring.

Parameter	Details
Dosage Range	0.25-0.5mg/day (loading 7-10 days), then 0.5mg 1-2x/week
Key Benefits	Tanning, libido increase, appetite suppression
Side Effects	Nausea, flushing, mole darkening, spontaneous erections, fatigue
Serious Concern	Can darken moles and make melanoma harder to detect

WARNING: Melanotan II can darken existing moles. Have a dermatological screening before starting and regular mole checks during use.

Kisspeptin-10

Stimulates GnRH release from the hypothalamus, driving LH and FSH production. This cascade stimulates natural testosterone production and supports reproductive hormone function. Being researched as a fertility treatment.

Parameter	Details
Dosage Range	100-500mcg per injection
Frequency	1-2x daily
Key Benefits	Natural testosterone stimulation, LH/FSH increase, fertility support

Gonadorelin

A synthetic version of naturally occurring GnRH (Gonadotropin-Releasing Hormone). Stimulates LH and FSH release for testosterone production. Commonly used alongside TRT to maintain fertility and testicular function, or as a standalone for mild testosterone optimization.

Parameter	Details
Dosage Range	100-200mcg, 2-3x per week
Key Benefits	Maintains fertility on TRT, natural LH/FSH stimulation, testicular function
Side Effects	Minimal. Injection site reactions.
Common Use	Co-administered with TRT to prevent testicular atrophy and preserve fertility

Sleep Peptide

DSIP (Delta Sleep Inducing Peptide)

A naturally occurring neuropeptide that promotes delta wave sleep (deep, restorative sleep) without the dependency, tolerance, or grogginess of pharmaceutical sleep aids. Modulates multiple neurotransmitter systems with stress-reducing and pain-modulating properties.

Parameter	Details
Dosage Range	100-300mcg before bed
Frequency	Daily or as needed
Cycle Length	2-4 weeks, then reassess
Key Benefits	Deeper delta wave sleep, no grogginess, stress reduction, pain modulation
Side Effects	Rare headache, occasional vivid dreams
Note	Works best combined with proper sleep hygiene

> **PRO TIP:** Stack DSIP with: dark room below 1 lux, temperature 65-68F, no screens 1 hour before bed, Magnesium Glycinate 400-600mg, L-Theanine 200-400mg.

Mitochondrial & Emerging Peptides

This section covers newer peptides and compounds that are gaining traction in the biohacking community. Research is more limited but the mechanisms are compelling.

NAD+ Peptides (NAHD / NMN-related)

NAD+ (Nicotinamide Adenine Dinucleotide) declines significantly with age. While NMN and NR are popular oral precursors, injectable NAD+ and related peptides deliver a more direct boost. IV NAD+ infusions have become popular at anti-aging clinics, and subcutaneous NAD+ injections are emerging as a more accessible alternative.

Parameter	Details
NAD+ IV Infusion	250-750mg over 2-4 hours (clinic setting)
NAD+ SubQ Injection	50-200mg daily (self-administered)
NMN Oral	500-1000mg daily
Key Benefits	Cellular energy, DNA repair, SIRT1 activation, anti-aging, cognitive clarity
Side Effects	IV: Nausea, chest tightness during infusion. SubQ: Injection site pain/burning
Note	SubQ NAD+ burns. Many users prefer oral NMN for convenience + periodic IV sessions.

GHK (without Copper)

The tripeptide GHK without the copper complex. Has its own signaling properties separate from GHK-Cu. Modulates gene expression affecting tissue repair, immune function, and antioxidant activity. Can be taken alongside GHK-Cu for complementary benefits.

Parameter	Details
Dosage Range	1-3mg daily
Key Benefits	Gene expression modulation, tissue repair signaling, antioxidant
Note	Complementary to GHK-Cu but works through different pathways

Thymulin (FTS-Zn / Thymulin-Zinc)

A thymic peptide that requires zinc to be biologically active. It modulates T-cell differentiation and maturation. Research suggests it can partially restore immune function that declines with thymic involution (aging).

Parameter	Details
Dosage Range	Protocols vary; typically low-dose daily or every other day
Key Benefits	T-cell maturation, immune restoration, thymic function support
Stacks With	Thymosin Alpha-1, Thymalin, zinc supplementation

BPC-157 + KPV Gut Stack

While not a single peptide, the combination of injectable or oral BPC-157 with oral KPV has emerged as the most popular gut healing stack in biohacking. BPC-157 provides gastric protection and mucosal healing while KPV reduces NF-kB driven inflammation.

Parameter	Details
BPC-157 Dose	250-500mcg daily (oral arginine salt or injectable)

KPV Dose	200-500mcg daily orally
Duration	4-8 weeks
Key Benefits	Comprehensive gut healing, inflammation reduction, tight junction repair
Best For	Leaky gut, IBD, IBS, food sensitivities, post-antibiotic gut repair

SECTION 3: RED LIGHT & PHOTOBIOMODULATION

Photobiomodulation (PBM) uses specific wavelengths of red (630-670nm) and near-infrared (810-850nm) light to stimulate cellular energy production. When these wavelengths hit cytochrome c oxidase in the mitochondria, they enhance ATP production, reduce oxidative stress, and trigger beneficial cellular signaling.

Key Wavelengths

Wavelength	Type	Penetration	Primary Benefits
630nm	Red	Superficial (skin)	Skin health, collagen, wounds
660nm	Red	Moderate (subcutaneous)	Inflammation, skin, hair growth
810nm	Near-IR	Deep (muscle, bone, brain)	Muscle recovery, joints, neuroprotection
850nm	Near-IR	Deepest (organs, deep tissue)	Deep tissue, testosterone, thyroid

Treatment Protocols

Goal	Wavelength	Duration	Distance	Frequency
Skin / anti-aging	630-660nm	5-10 min/area	6-12 inches	Daily or 5x/week
Muscle recovery	810-850nm	5-10 min/area	6-12 inches	Post-workout
Joint pain	810-850nm	5-15 min/area	Contact to 6 inches	Daily during flare
Testosterone	610-850nm combo	10-20 min	6-12in from testes	Daily AM
Thyroid support	810-850nm	5-10 min	Direct to throat	Daily
Hair growth	630-660nm	10-20 min	Scalp contact	Every other day
Brain / cognitive	810nm	10-20 min	Transcranial	3-5x/week
Wound healing	630-660nm	2-5 min/area	Direct contact	2-3x daily

Panel Recommendations

For full-body coverage, a panel with both red (660nm) and near-infrared (850nm) LEDs is ideal. Recommended brands: Joovv, Mito Red Light, PlatinumLED, Bon Charge. Budget minimum: half-body panel ($400-600). Ideal: full-body panel ($800-1500). Ensure 100+ mW/cm2 at 6 inches.

Dosing

Target 10-40 J/cm2 per treatment. For a panel delivering 100mW/cm2 at treatment distance, a 3-5 minute session delivers approximately 18-30 J/cm2. Too little does nothing, too much can be inhibitory (biphasic dose response).

> **WARNING:** Protect your eyes. Never stare directly at red light panels. Use appropriate eye protection, especially with near-infrared wavelengths which are invisible.

SECTION 4: COLD & HEAT EXPOSURE

Cold Exposure

Cold exposure activates cold shock proteins, increases norepinephrine up to 300%, stimulates brown fat thermogenesis, reduces inflammation, and improves mood and resilience. Key variable: temperature multiplied by duration.

Level	Method	Temperature	Duration	Frequency
Beginner	Cold shower finish	As cold as tap	30-60 sec	Daily
Intermediate	Full cold shower	50-60F / 10-15C	2-5 min	Daily
Advanced	Ice bath / plunge	38-45F / 3-7C	2-5 min	3-5x/week
Elite	Cold plunge	33-38F / 1-3C	2-5 min	3-5x/week

PRO TIP: Minimum effective dose for norepinephrine: 57F (14C) for 1 minute. Consistency matters more than intensity.

WARNING: Never do cold exposure alone in deep water. Hypothermia and cold shock drowning are real risks. Build up gradually.

Heat Exposure (Sauna)

Regular sauna use (4-7x/week at 174F+ for 20+ minutes) is associated with 40% reduction in all-cause mortality, reduced cardiovascular disease, heat shock protein activation, GH release up to 16x, and improved mood through endorphin/dynorphin release.

Protocol	Type	Temperature	Duration	Frequency	Focus
Standard	Finnish/IR	170-190F	15-20 min	3-4x/week	General health
GH Release	Finnish	176F	20min on/30off x2	1-2x/week	Growth hormone
Detox	Infrared	130-150F	30-45 min	4-7x/week	Toxin clearance
Performance	Finnish	185-210F	15-20 min	3-5x/week	Heat shock proteins

PRO TIP: For maximum GH: 20 min at 176F, cool 30 min (room temp, not cold plunge), repeat. Two rounds = 2-5x GH. Four rounds = up to 16x GH.

Recommended brands: Clearlight (infrared), Sunlighten (infrared), Almost Heaven (traditional), or local gym/spa.

SECTION 5: SLEEP OPTIMIZATION

Sleep is the single most impactful variable in human performance. No peptide, supplement, or biohack compensates for poor sleep. Every biological system degrades with insufficient or poor-quality sleep.

The Sleep Environment

Temperature: 65-68F (18-20C). Use a cooling pad (Eight Sleep, ChiliPad). Darkness: Total darkness below 1 lux with blackout curtains. Cover all LED indicators. Sound: White noise or silence. Eliminate intermittent noise. Air quality: CO2 below 800ppm. HEPA air purifier. Consider cracking a window.

The Sleep Protocol Stack

Timing	Intervention	Mechanism
Morning (within 30 min)	10-15 min bright sunlight	Sets circadian clock
Afternoon (cutoff 2pm)	Last caffeine	Half-life 5-7 hours, blocks adenosine
Evening (2-3 hrs before)	Dim lights, blue blockers	Prevents melatonin suppression
Evening (2-3 hrs before)	Last meal	Digestion interferes with sleep quality
Before bed (30-60 min)	Magnesium Glycinate 400-600mg	GABA modulation, muscle relaxation
Before bed (30-60 min)	L-Theanine 200-400mg	Alpha waves, relaxation without sedation
Before bed (30-60 min)	Apigenin 50mg	Mild sedative, anxiety reduction
Before bed (optional)	DSIP 100-300mcg	Delta wave sleep promotion
Before bed (optional)	Glycine 3g	Core temperature reduction

Sleep Tracking

Use Oura Ring (gold standard), WHOOP, or Apple Watch to monitor sleep stages, HRV, respiratory rate, and efficiency. Target: 7-9 hours total, 1.5-2 hours deep sleep, 1.5-2 hours REM. Sleep efficiency above 85%.

SECTION 6: BLOOD WORK & BIOMARKER TRACKING

You cannot optimize what you do not measure. Blood work is the objective feedback loop. Run comprehensive panels before any protocol and retest at 60-90 day intervals.

Essential Blood Work Panels

Category	Marker	Optimal Range	Why It Matters
Metabolic	Fasting Glucose	75-85 mg/dL	Insulin resistance screening
Metabolic	Fasting Insulin	2-6 uIU/mL	Early metabolic dysfunction
Metabolic	HbA1c	4.8-5.2%	3-month glucose average
Metabolic	HOMA-IR	< 1.0	Insulin resistance index
Hormonal	Total Testosterone (M)	600-900 ng/dL	Primary male hormone
Hormonal	Free Testosterone (M)	15-25 pg/mL	Bioavailable testosterone
Hormonal	Estradiol (M)	20-35 pg/mL	Estrogen balance
Hormonal	SHBG	20-50 nmol/L	Hormone availability
Hormonal	IGF-1	150-250 ng/mL	GH downstream marker
Hormonal	DHEA-S	Age-dependent	Adrenal function
Thyroid	TSH	1.0-2.0 mIU/L	Optimal, not just normal
Thyroid	Free T3	3.2-4.2 pg/mL	Active thyroid hormone
Thyroid	Free T4	1.2-1.8 ng/dL	Thyroid reserve
Thyroid	Reverse T3	< 15 ng/dL	Conversion efficiency
Inflammation	hs-CRP	< 0.5 mg/L	Systemic inflammation
Inflammation	Homocysteine	< 7 umol/L	CVD risk, methylation
Vitamins	Vitamin D	50-80 ng/mL	Immune, bone, hormones
Vitamins	B12	> 600 pg/mL	Energy, neuro, methylation
Vitamins	Ferritin	40-150 ng/mL (M)	Iron status
Vitamins	Magnesium RBC	5.5-6.5 mg/dL	Intracellular Mg (not serum)
Liver	ALT	< 25 U/L	Liver stress
Liver	AST	< 25 U/L	Liver/muscle stress
Liver	GGT	< 25 U/L	Liver detox capacity
Kidney	eGFR	> 90 mL/min	Kidney function
Lipids	ApoB	< 80 mg/dL	Actual CVD risk (better than LDL-C)
Lipids	Triglycerides	< 80 mg/dL	Metabolic health

PRO TIP: Standard lab reference ranges show what is common, not what is optimal. A TSH of 4.0 is within normal but far from optimal. Use the optimal ranges in this guide.

Testing Services

Marek Health: Comprehensive optimization panels with physician consult. InsideTracker: AI-driven biomarker analysis. SiPhox Health: At-home testing. Life Extension and Quest Diagnostics: A la carte testing. Budget $300-500 for initial comprehensive panel.

SECTION 7: NOOTROPICS & COGNITIVE OPTIMIZATION

Nootropics enhance cognitive function including memory, creativity, focus, motivation, and executive function. Establish a foundation with well-researched compounds before adding exotic options.

Foundational Nootropic Stack

Compound	Dosage	Mechanism	Best For
Creatine Monohydrate	5g daily	Brain ATP regeneration	Working memory, processing speed
Omega-3 (EPA/DHA)	2-4g daily	Neuronal membrane fluidity	Brain structure, anti-inflammatory
Mag L-Threonate	2g daily (144mg Mg)	Crosses BBB, synaptic density	Memory, learning, sleep
Lion's Mane	500-1000mg daily	NGF stimulation	Neurogenesis, neuroprotection
Alpha-GPC	300-600mg	Acetylcholine precursor	Memory, focus
L-Tyrosine	500-1000mg	Dopamine precursor	Focus under stress
Caffeine + L-Theanine	100mg + 200mg	Synergistic alertness + calm	Sustained attention

Advanced Nootropic Compounds

Compound	Dosage	Category	Notes
Piracetam	1.6-4.8g daily	Racetam	Original nootropic. Acetylcholine signaling.
Aniracetam	750-1500mg daily	Racetam	Anxiolytic + cognitive. Take with fat.
Phenylpiracetam	100-200mg	Racetam	Stimulating. Tolerance builds fast.
Noopept	10-30mg daily	Peptide-like	1000x piracetam potency. BDNF increase.
Modafinil	100-200mg	Prescription	Wakefulness promoter. Use sparingly.
Methylene Blue (USP)	0.5-1mg/kg	Mitochondrial	Electron carrier. Cognitive + neuroprotective.

Peptide Nootropics

For injectable cognitive peptides (Selank, Semax, PE-22-28, Dihexa, P21), see Section 2: Cognitive & Neuropeptides for complete profiles and dosing.

SECTION 8: PROTOCOL TEMPLATES

Goal-specific protocols combining peptides, tools, and strategies from this guide. Each assumes your foundation is dialed in and baseline blood work is complete.

Protocol 1: Healing & Injury Recovery

Component	Protocol	Duration
BPC-157	250-500mcg SubQ near injury, 2x daily	4-8 weeks
TB-500	2.5mg SubQ 2x/week (load), 2mg/week (maintain)	4-6 weeks + maintain
Red Light	660+850nm, 10 min on injury, daily	Throughout
Cold Exposure	2-3 min cold plunge post-training	3-5x/week
Collagen + Vit C	15-20g collagen + 500mg C, 30 min pre-training	Daily
Sleep	8+ hours. DSIP 100-200mcg if needed.	Daily

Protocol 2: GH Optimization & Anti-Aging

Component	Protocol	Duration
CJC-1295 no DAC	100-200mcg SubQ before bed	8-12 weeks on, 4 off
Ipamorelin	100-200mcg SubQ before bed (with CJC)	8-12 weeks on, 4 off
Epithalon	5-10mg daily, 10-20 day cycle	2-3 cycles/year
Sauna GH Protocol	20 min 176F, 30 min cool, repeat 2x	2x/week
Fasting	No food 2 hours before bed (insulin blunts GH)	Daily
Blood Work	IGF-1, glucose, insulin at baseline and 60 days	Before + during

Protocol 3: Fat Loss Optimization

Component	Protocol	Duration
Frag 176-191 or AOD-9604	300-500mcg fasted AM, SubQ	8-12 weeks
CJC-1295 + Ipamorelin	100-200mcg each before bed	8-12 weeks
Cold Exposure	3-5 min cold plunge AM (brown fat activation)	Daily
Red Light	660+850nm, 10-15 min full body	Daily
Resistance Training	3-4x/week, compound movements	Ongoing
Protein	1g per pound bodyweight minimum	Daily
Deficit	250-500 cal below maintenance	Duration

Protocol 4: Cognitive Enhancement

Component	Protocol	Duration
Semax or NA-Semax	200-600mcg nasal or SubQ, AM	2-4 weeks on, 2 off
Selank or NA-Selank	250-500mcg nasal or SubQ	2-4 weeks on, 2 off
Foundation Stack	Creatine 5g, Omega-3 3g, Mag-Threonate, Lion's Mane	Daily ongoing
Transcranial Red Light	810nm on forehead, 10-15 min	3-5x/week
Cold Exposure	1-2 min cold shower AM (norepinephrine)	Daily
Sleep Protocol	Full protocol from Section 5	Daily

Protocol 5: Immune Fortification

Component	Protocol	Duration
Thymosin Alpha-1	1.6mg SubQ, 2-3x/week	4-12 weeks
KPV (if gut issues)	200-500mcg daily	4-8 weeks
Vitamin D	Maintain 50-80 ng/mL	Ongoing
Zinc + Copper	30mg zinc + 2mg copper daily	Ongoing
Sauna	15-20 min, 3-5x/week	Ongoing
Cold Exposure	2-3 min plunge, 3x/week	Ongoing
Sleep	8+ hours (immune is sleep-dependent)	Daily

Protocol 6: Sleep Restoration

Component	Protocol	Duration
DSIP	100-300mcg SubQ, 30 min before bed	2-4 weeks
Magnesium Glycinate	400-600mg before bed	Ongoing
L-Theanine	200-400mg before bed	Ongoing
Apigenin	50mg before bed	Ongoing
Glycine	3g before bed	Ongoing
Blue Light Blocking	Glasses after sunset	Daily
Room: 65-68F, <1 lux	Blackout curtains, cover LEDs	Every night

Protocol 7: GLP-1 Weight Loss (Medical Supervision Required)

Component	Protocol	Duration

Semaglutide or Tirzepatide	Start low, titrate per physician	12-52+ weeks
Protein Target	Minimum 0.8g/lb bodyweight (non-negotiable)	Daily
Resistance Training	3-4x/week compound movements	Ongoing
Creatine	5g daily (muscle preservation)	Ongoing
Blood Work	Thyroid, metabolic panel, vitamins every 90 days	Throughout
Fiber + Electrolytes	30g+ fiber, adequate sodium/potassium/magnesium	Daily
Note	GI side effects worst during titration. Go slow.	First 4-8 weeks

SECTION 9: SOURCING, SAFETY & QUICK REFERENCE

Sourcing Peptides Safely

The peptide market is largely unregulated. Quality varies dramatically. Third-party testing is the only way to verify what is in the vial.

Third-Party Testing: Demand Certificate of Analysis (COA) from an independent lab showing purity 98%+ by HPLC, identity via mass spectrometry, and endotoxin testing. No COA = do not buy.

Reputation: Research suppliers on Reddit (r/peptides), community forums, and review sites. Established suppliers with consistent positive feedback are lower risk.

Packaging: Lyophilized peptides should arrive as a clean, intact puck. Powder stuck to vial sides or crystallized = possible shipping damage. Proper suppliers ship with cold packs.

Pricing: If dramatically underpriced, it is likely underdosed, impure, or counterfeit.

> **WARNING:** Never purchase pre-mixed (already reconstituted) peptides. No way to verify sterility, concentration, or stability. Always buy lyophilized powder and reconstitute yourself.

Safety Guidelines

Start low, go slow. Begin every new peptide at the lowest recommended dose. Titrate up over 1-2 weeks.

One variable at a time. Never start multiple new peptides simultaneously. Start one, run 1-2 weeks at full dose, then add the next.

Blood work is mandatory. Baseline before any protocol. Retest at 60-90 days. Monitor IGF-1, glucose, insulin, liver enzymes, prolactin, CBC.

Know when to stop. Discontinue immediately for: severe headache, chest pain, difficulty breathing, significant swelling, skin rashes, or anything that feels wrong.

Sterility matters. Alcohol swab vial tops. New syringe every injection. Never reuse needles. Refrigerate reconstituted peptides. Discard after 4 weeks.

Complete Peptide Quick Reference Card

Peptide	Category	Dose	Frequency	Route
BPC-157	Healing	250-500mcg/day	1-2x daily	SubQ/Oral
TB-500	Healing	2-5mg/week	2x/week	SubQ
GHK-Cu	Healing/Skin	1-3mg/day	Daily	SubQ/Topical
LL-37	Antimicrobial	100-200mcg/day	Daily	SubQ
CJC-1295 (no DAC)	GH	100-300mcg	1-3x daily	SubQ
Ipamorelin	GH	100-300mcg	1-3x daily	SubQ
Sermorelin	GH	200-500mcg/day	Daily	SubQ
Tesamorelin	GH/Fat Loss	1-2mg/day	Daily	SubQ
GHRP-2	GH	100-300mcg	1-3x daily	SubQ
GHRP-6	GH	100-300mcg	1-3x daily	SubQ
Hexarelin	GH	100-200mcg	1-2x daily	SubQ
MK-677	GH (oral)	10-25mg/day	Daily	Oral
Fragment 176-191	Fat Loss	250-500mcg/day	1-2x fasted	SubQ
AOD-9604	Fat Loss	300-600mcg/day	Daily fasted	SubQ
5-Amino-1MQ	Fat Loss	100-150mg 1-3x	Daily	Oral
Tesofensine	Fat Loss	0.25-0.5mg/day	Daily	Oral
Semaglutide	GLP-1	0.25-2.4mg/week	Weekly	SubQ
Tirzepatide	GLP-1/GIP	2.5-15mg/week	Weekly	SubQ
Retatrutide	Triple Agonist	1-12mg/week	Weekly	SubQ
Epithalon	Anti-Aging	5-10mg/day	Daily (10-20 day)	SubQ
FOXO4-DRI	Senolytic	Variable	Short courses	SubQ
MOTS-C	Longevity	5-10mg/week	3-5x/week	SubQ
SS-31	Mitochondrial	0.5-1mg/day	Daily	SubQ
Selank	Cognitive	250-500mcg/day	1-2x daily	SubQ/Nasal
Semax	Cognitive	200-600mcg/day	1-2x daily	SubQ/Nasal
PE-22-28	Cognitive	100-500mcg/day	Daily	SubQ
Dihexa	Cognitive	5-20mg oral	Daily	Oral/SubQ
P21	Cognitive	500mcg-1mg/day	Daily	SubQ/Nasal
Thymosin Alpha-1	Immune	1.6mg	2-3x/week	SubQ
Thymalin	Immune	10mg/day	Daily (10-day cycle)	SubQ
KPV	Immune/Gut	200-500mcg/day	Daily	SubQ/Oral

VIP	Immune/CIRS	50mcg/spray	2-4x daily	Nasal
Larazotide	Gut/Leaky	0.5-1mg 3x/day	3x daily	Oral
PT-141	Sexual	0.5-2mg/dose	As needed	SubQ
Melanotan II	Tanning	0.25-0.5mg/day	Daily to weekly	SubQ
Kisspeptin-10	Hormonal	100-500mcg	1-2x daily	SubQ
Gonadorelin	Hormonal	100-200mcg	2-3x/week	SubQ
DSIP	Sleep	100-300mcg	Before bed	SubQ

STAY CONNECTED

This guide is a living document. Updated editions will be released as new research emerges and protocols evolve.

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TAKE CONTROL OF YOUR BIOLOGY.

Educational purposes only. Not medical advice. Consult a healthcare professional before starting any protocol.