



— THE —
PEPTIDE
PLAYBOOK

YOUR GUIDE TO ADVANCED BIOHACKING AND LONGEVITY

The Peptide Playbook

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Legal Disclaimer

All content is for research purposes only. None of these products are intended for human consumption, diagnosis, treatment, or cure. Always comply with local laws and consult a qualified professional before handling peptides.

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Chapter 2: Understanding Units & Dosing Math

Why Dosing Units Matter

Precision in peptide research isn't just about what you use—it's about how much, how often, and in what form. Peptides and research compounds are measured in a variety of units, each with its own meaning and importance. Understanding these units is essential for accurate dosing, effective protocols, and safety in your research.

The Three Key Units: mcg, mg, and IU

1. mcg (Microgram)

Definition: 1 microgram (mcg) = 1/1,000,000 of a gram.

Use Case: For highly potent peptides and compounds where very small amounts are active (e.g., BPC-157 oral pills at 500 mcg each, SLU-PP-332 pills at 250 mcg each).

2. mg (Milligram)

Definition: 1 milligram (mg) = 1/1,000 of a gram.

Use Case: The standard unit for most peptide vials and protocols.

New PHX Labs Vial Sizes:

BPC-157 (injectable): 10 mg/vial

TB-500: 10 mg/vial

GHK-Cu: 50 mg/vial

Ipamorelin: 10 mg/vial

CJC-1295: 5 mg/vial

Tesamorelin: 5 mg/vial

Semaglutide: 5 mg/vial

Tirzepatide: 5 mg/vial

Retatrutide: 10 mg/vial

3. IU (International Unit)

Definition: A unit of biological activity, not weight. Used for hormones like HGH.

Use Case: Standard for HGH/Somatropin, because the biological effect is more important than the exact mass.

New PHX Labs Vial Size:

HGH (Somatropin): 12 IU/vial

Conversion Table

Unit	Equivalent	Example Use
1 mg	1,000 mcg	TB-500, GHK-Cu
1 IU HGH	≈ 0.33 mg (check label)	HGH/Somatropin
500 mcg	0.5 mg	BPC-157 pill
250 mcg	0.25 mg	SLU-PP-332 pill

Pro Tip:

Always check your product label or Certificate of Analysis (COA) for exact unit conversions, especially with HGH, as the IU-to-mg ratio can vary by manufacturer.

Are mcg and mg Interchangeable?

Technically, yes—they are both measurements of mass:

1 mg = 1,000 mcg

1 mcg = 0.001 mg

But always use the unit specified in your protocol or on your product label. Mistaking mg for mcg (or vice versa) can result in a 1,000-fold dosing error.

What About IU?

IU is not interchangeable with mg/mcg unless you know the specific conversion for your product.

For HGH/Somatropin: 1 IU ≈ 0.33 mg (but check your vial—some are 0.29 mg/IU or other values)

For vitamins (like Vitamin D): The IU-to-mg or IU-to-mcg conversion is completely different!

Understanding Peptide Labels & COAs

Vial label:

Total peptide content (e.g., 10 mg/vial, 12 IU/vial, 500 mcg/pill)

Batch number and expiration date

COA (Certificate of Analysis):

Confirms purity (ideally >98%)

Verifies the quantity matches the label

Lists any contaminants or byproducts (should be “none detected”)

Practical Chart: PHX Labs Peptide Forms and Units

Peptide Name	Typical Form	New Vial Size	Typical Unit	Example Label
BPC-157 (injectable)	Lyophilized powder	10 mg/vial	mg (vial)	10 mg/vial
BPC-157 (oral pill)	Capsule/tablet	500 mcg/pill	mcg (pill)	500 mcg/pill
TB-500	Lyophilized powder	10 mg/vial	mg (vial)	10 mg/vial
GHK-Cu	Lyophilized powder	50 mg/vial	mg (vial)	50 mg/vial
HGH (Somatropin)	Lyophilized powder	12 IU/vial	IU (vial)	12 IU/vial
Ipamorelin	Lyophilized powder	10 mg/vial	mg (vial)	10 mg/vial
CJC-1295	Lyophilized powder	5 mg/vial	mg (vial)	5 mg/vial

Tesamorelin	Lyophilized powder	5 mg/vial	mg (vial)	5 mg/vial
Semaglutide	Lyophilized powder	5 mg/vial	mg (vial)	5 mg/vial
Tirzepatide	Lyophilized powder	5 mg/vial	mg (vial)	5 mg/vial
Retatrutide	Lyophilized powder	10 mg/vial	mg (vial)	10 mg/vial
SLU-PP-332	Capsule/tablet	250 mcg/pill	mcg (pill)	250 mcg/pill
Methylene Blue	Solution/capsule	Varies	mg or mcg	1 mg/mL (solution)

Why This Matters for Your Research

Accurate dosing = consistent, reproducible results.

Understanding units prevents dangerous mistakes.

Proper interpretation of labels/COAs ensures you know exactly what you're working with.

Summary Table: Unit Conversion Cheat Sheet

You Have You Need Multiply/Divide By Example Calculation

mg	mcg	× 1,000	2 mg × 1,000 = 2,000 mcg
mcg	mg	÷ 1,000	500 mcg ÷ 1,000 = 0.5 mg
IU (HGH)	mg	× 0.33 (typical)	3 IU × 0.33 = 0.99 mg

mg	IU (HGH) ÷ 0.33 (typical)	1 mg ÷ 0.33 = 3 IU
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Key Takeaways

Double-check units before every dose.

Never assume mg and IU are interchangeable—always check the conversion.

If in doubt, contact your supplier or consult your COA.

Chapter 3: Reconstitution & Dosing Calculations

Why Reconstitution Matters

Most peptides are shipped as lyophilized (freeze-dried) powders to preserve stability and potency. Before research use, these powders must be carefully reconstituted with a sterile liquid (usually bacteriostatic water). Accurate reconstitution is the foundation for precise dosing, safe handling, and reproducible results.

What Is Reconstitution?

Reconstitution is the process of adding a specific amount of sterile liquid to a vial of peptide powder to dissolve it into a measurable, injectable, or oral solution.

Key Terms:

Lyophilized powder: Freeze-dried peptide in a vial (white, fluffy, or cake-like).

Bacteriostatic water: Sterile water with 0.9% benzyl alcohol, used for safe multi-use reconstitution.

Concentration: The amount of peptide per unit of liquid (e.g., mg/mL or IU/mL).

Step-by-Step Guide: Reconstituting Your Peptide

Let's use the new PHX Labs vial sizes for all examples.

Step 1: Gather Supplies

Peptide vial (e.g., BPC-157, 10 mg)

Bacteriostatic water (or sterile saline, if specified)

Alcohol wipes

Insulin syringe (1 mL, marked in units)

Optional: Mixing needle (18–20G) for drawing water

Step 2: Add Bacteriostatic Water

Decide how much water to add based on your desired concentration and dosing preference.

Common options: 1 mL, 2 mL, or 5 mL per vial.

Example:

Add 2 mL to a 10 mg BPC-157 vial.

Final concentration: $10 \text{ mg} / 2 \text{ mL} = 5 \text{ mg/mL}$.

Tip:

More water = easier to measure small doses, less injection “sting.”

Less water = more concentrated, smaller injection volume.

Step 3: Mix Gently

Insert the needle through the vial's rubber stopper.

Slowly inject the water down the inside wall of the vial.

Do NOT shake! Gently swirl or roll the vial to dissolve the powder.

How to Calculate Your Dose

The Basic Formula

For any peptide (mg or mcg):

$$\text{Dose Needed (mg or mcg)} \div \text{Concentration (mg or mcg per mL)} = \text{Volume to Inject (mL)}$$

For IU-based peptides (like HGH):

$$\text{Dose Needed (IU)} \div \text{Concentration (IU per mL)} = \text{Volume to Inject (mL)}$$

Real-World Example Calculations

Example 1: BPC-157 Injectable (10 mg/vial)

You want: 500 mcg (0.5 mg) per dose

You reconstitute: 10 mg with 2 mL water → 5 mg/mL

$$0.5 \text{ mg} \div 5 \text{ mg/mL} = 0.1 \text{ mL per dose}$$

On an insulin syringe: 0.1 mL = 10 units

Example 2: TB-500 (10 mg/vial)

You want: 2.5 mg per dose

You reconstitute: 10 mg with 2 mL water → 5 mg/mL

$$2.5 \text{ mg} \div 5 \text{ mg/mL} = 0.5 \text{ mL per dose}$$

On an insulin syringe: 0.5 mL = 50 units

Example 3: HGH (Somatropin, 12 IU/vial)

You want: 2 IU per dose

You reconstitute: 12 IU with 1 mL water → 12 IU/mL

$$2 \text{ IU} \div 12 \text{ IU/mL} = 0.167 \text{ mL per dose}$$

On an insulin syringe: 0.167 mL = 16–17 units

Example 4: BPC-157 Oral Pill (500 mcg/pill)

No reconstitution needed.

Take the number of pills to reach your target dose.

For 1,000 mcg: Take 2 pills ($2 \times 500 \text{ mcg} = 1,000 \text{ mcg}$)

Example 5: SLU-PP-332 Pill (250 mcg/pill)

No reconstitution needed.

For 1,000 mcg: Take 4 pills ($4 \times 250 \text{ mcg} = 1,000 \text{ mcg}$)

Reconstitution Options & Tips

Amount of Water Added	For 10 mg Vial	For 5 mg Vial	For 50 mg Vial
1 mL	10 mg/mL	5 mg/mL	50 mg/mL
2 mL	5 mg/mL	2.5 mg/mL	25 mg/mL
5 mL	2 mg/mL	1 mg/mL	10 mg/mL

For IU-based vials (e.g., HGH):

Amount of Water Added	For 12 IU Vial
1 mL	12 IU/mL
2 mL	6 IU/mL
3 mL	4 IU/mL

DIY Dosing Calculator Worksheet

Write down your vial size (mg or IU).

Write down how much water you add (mL).

Calculate concentration:

For mg: $\text{Vial size (mg)} \div \text{Water (mL)} = \text{mg/mL}$

For IU: $\text{Vial size (IU)} \div \text{Water (mL)} = \text{IU/mL}$

Write your desired dose (mg, mcg, or IU).

Calculate injection volume:

$\text{Dose} \div \text{Concentration} = \text{Volume to inject (mL or units)}$

Common Mistakes and How to Avoid Them

Mixing up mg and mcg: Double-check every time!

Not using bacteriostatic water: Reduces risk of contamination, especially for multi-dose vials.

Shaking the vial: Always swirl gently to avoid damaging the peptide.

Wrong syringe: Use insulin syringes for accuracy.

Not labeling vials: Always mark reconstitution date and concentration.

Troubleshooting Reconstitution

Clumping/Not Dissolving: Let the vial sit at room temperature, swirl gently, and be patient. If it still won't dissolve, contact your supplier.

Cloudy Solution: Most peptides should be clear after reconstitution. If cloudy, do not use until you've confirmed safety with your supplier.

Loss of Vacuum: If you lose vacuum (no "pull" when inserting needle), it's okay—just add water slowly and carefully.

Quick Reference: Reconstitution Cheat Sheet

Peptide	Vial Size	Water Added	Final Concentration	Example Dose	Volume to Inject
BPC-157	10 mg	2 mL	5 mg/mL	500 mcg	0.1 mL (10 units)
TB-500	10 mg	2 mL	5 mg/mL	2.5 mg	0.5 mL (50 units)
GHK-Cu	50 mg	5 mL	10 mg/mL	2 mg	0.2 mL (20 units)
HGH (Somatropin)	12 IU	1 mL	12 IU/mL	2 IU	0.167 mL (17 units)
Ipamorelin	10 mg	2 mL	5 mg/mL	200 mcg	0.04 mL (4 units)
CJC-1295	5 mg	2 mL	2.5 mg/mL	200 mcg	0.08 mL (8 units)
Tesamorelin	5 mg	2 mL	2.5 mg/mL	2 mg	0.8 mL (80 units)
Semaglutide	5 mg	2 mL	2.5 mg/mL	1 mg	0.4 mL (40 units)
Tirzepatide	5 mg	2 mL	2.5 mg/mL	5 mg	2 mL (200 units)
Retatrutide	10 mg	2 mL	5 mg/mL	5 mg	1 mL (100 units)

Summary

Always calculate your concentration and dose before injecting or administering.

Use the worksheet above for every new peptide or reconstitution.

If in doubt, consult your supplier or a qualified research professional.

Chapter 4: Peptide Protocols – Standalone Guides

How to Use This Section

Each peptide listed below is presented as a stand-alone protocol. Stacking and advanced combinations are covered in Chapter 8. For each peptide, you'll find:

What it is and how it works

Its main research purposes

Dosing recommendations (standard, high, maintenance)

Vial/pill size and reconstitution math

Practical application notes

BPC-157 (Injectable & Oral Pill)

What is it?

BPC-157 is a synthetic peptide derived from a protein found in gastric juice. It's one of the most versatile healing peptides, used for soft tissue, tendon, ligament, nerve, and gut repair. It promotes angiogenesis (new blood vessel growth), reduces inflammation, and accelerates recovery.

Research Purposes:

Healing injuries (muscle, tendon, ligament, nerve)

Gut repair (ulcers, IBS, leaky gut)

Reducing inflammation and pain

Injectable BPC-157

Vial Size: 10 mg/vial (lyophilized powder)

Common Reconstitution: 10 mg + 2 mL bacteriostatic water = 5 mg/mL

Protocol	Dose (mcg)	Volume (mL/units)	Frequency	Duration	Notes
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Standard	500	0.1 mL (10 units)	Daily	4–6 weeks	Mild/moderate injury, gut
High/Advanced	1,000	0.2 mL (20 units)	Daily	4–8 weeks	Severe injury, chronic pain
Maintenance	200	0.04 mL (4 units)	Daily/EOD	As needed	Ongoing support

Oral BPC-157 Pill

Pill Size: 500 mcg/pill

Protocol	Dose (mcg)	Pills	Frequency	Duration	Notes
Standard	500	1	Daily	4–6 weeks	Gut healing, mild support
High/Advanced	1,000	2	Daily	4–8 weeks	Severe GI issues
Maintenance	500	1	Daily/EOD	As needed	Ongoing prevention

TB-500

What is it?

TB-500 is a synthetic version of Thymosin Beta-4, a naturally occurring peptide that plays a key role in tissue repair, cell migration, and inflammation modulation.

Research Purposes:

Accelerated healing of muscle, tendon, ligament, and skin injuries

Reduced scar tissue formation

Enhanced recovery post-surgery

Vial Size: 10 mg/vial

Common Reconstitution: 10 mg + 2 mL water = 5 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Low	1	0.2 mL (20 units)	1x/week	4–6 weeks	Prevention, mild injury
Standard	2.5	0.5 mL (50 units)	2x/week	4–6 weeks	General repair
High	4–8	0.8–1.6 mL	2x/week	4–8 weeks	Severe injuries, athletes
Advanced	5	1.0 mL (100 units)	2x/week	4–8 weeks	Large-area/chronic injuries
Maintenance	2	0.4 mL (40 units)	1x/month	Ongoing	Prevention, ongoing support

GHK-Cu

What is it?

GHK-Cu is a copper-binding peptide that stimulates collagen and elastin production, supports wound healing, and has anti-inflammatory effects. It is widely used in skin and hair research.

Research Purposes:

Skin rejuvenation and wound healing

Hair regrowth and anti-aging

Connective tissue repair

Vial Size: 50 mg/vial**Common Reconstitution:** 50 mg + 5 mL water = 10 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	1–2	0.1–0.2 mL	2–3x/week	4–8 weeks	Skin/hair, mild repair
High/Advanced	2–5	0.2–0.5 mL	2–3x/week	8–12 weeks	Severe wounds/surgery
Maintenance	1	0.1 mL (10 units)	1x/week	Ongoing	Skin/hair maintenance

HGH (Somatropin)**What is it?**

HGH is a peptide hormone that stimulates growth, cell reproduction, and regeneration. It is the most potent agent for muscle gain, fat loss, and anti-aging, but must be used with care due to potential side effects.

Research Purposes:

Muscle gain and fat loss

Anti-aging and tissue regeneration

Recovery from injury or surgery

Vial Size: 12 IU/vial**Common Reconstitution:** 12 IU + 1 mL water = 12 IU/mL

Protocol	Dose (IU)	Volume (mL/units)	Frequency	Duration	Notes
Anti-aging	1–3	0.08–0.25 mL	Daily	8–12 wks on, 4–8 wks off	Longevity, wellness
Performance	4–8	0.33–0.67 mL	Daily	8–12 wks on, 4–8 wks off	Muscle/fat loss, athletics
Maintenance	1–2	0.08–0.17 mL	5 on, 2 off	12 wks, then reassess	Long-term support

Ipamorelin

What is it?

Ipamorelin is a selective Growth Hormone Releasing Peptide (GHRP) that stimulates the pituitary to release GH with minimal side effects.

Research Purposes:

Growth hormone support

Recovery and anti-aging

Fat loss and muscle preservation

Vial Size: 10 mg/vial

Common Reconstitution: 10 mg + 2 mL water = 5 mg/mL

Protocol	Dose (mcg)	Volume (mL/units)	Frequency	Duration	Notes
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Standard	200	0.04 mL (4 units)	1–2x/day	8–12 weeks	GH support, recovery
High/Advanced	500	0.1 mL (10 units)	2x/day	8–16 weeks	Athletes, fat loss
Maintenance	100	0.02 mL (2 units)	Daily	Ongoing	Recovery, wellness

CJC-1295 (with/without DAC)

What is it?

CJC-1295 is a Growth Hormone Releasing Hormone (GHRH) analog that increases the amplitude of GH pulses. The “with DAC” version has a longer half-life; “without DAC” mimics natural GH rhythms.

Research Purposes:

Growth hormone and IGF-1 boost

Anti-aging, recovery, and performance

Vial Size: 5 mg/vial

Common Reconstitution: 5 mg + 2 mL water = 2.5 mg/mL

Protocol	Dose (mcg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	200	0.08 mL (8 units)	1–2x/day	8–12 weeks	GH/IGF-1 boost
High/Advanced	300	0.12 mL (12 units)	2x/day	12–16 weeks	Advanced stacking

Maintenance	100	0.04 mL (4 units)	Daily	Ongoing	Long-term GH support
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Tesamorelin

What is it?

Tesamorelin is a potent GHRH analog, FDA-approved for reducing visceral fat and improving metabolic markers.

Research Purposes:

Reduction of visceral (belly) fat

Improved metabolic health and lipid profiles

Vial Size: 5 mg/vial

Common Reconstitution: 5 mg + 2 mL water = 2.5 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	2	0.8 mL (80 units)	Daily	12–16 weeks	Visceral fat, metabolic
High/Advanced	2	0.8 mL (80 units)	Daily	24+ weeks	Severe fat, advanced needs
Maintenance	1	0.4 mL (40 units)	Daily	Ongoing	Maintenance

Semaglutide

What is it?

Semaglutide is a GLP-1 receptor agonist peptide for appetite suppression, weight loss, and glucose control.

Research Purposes:

Appetite and craving reduction

Sustainable fat loss

Improved glucose regulation

Vial Size: 5 mg/vial**Common Reconstitution:** 5 mg + 2 mL water = 2.5 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	1	0.4 mL (40 units)	Weekly	12–16 weeks	Appetite, steady fat loss
High/Advanced	2	0.8 mL (80 units)	Weekly	16–24 weeks	Severe obesity/metabolic
Maintenance	0.5	0.2 mL (20 units)	Weekly	As needed	Weight maintenance

Tirzepatide**What is it?**

Tirzepatide is a dual GIP/GLP-1 agonist for enhanced fat loss and metabolic health.

Research Purposes:

Enhanced weight loss

Blood sugar and metabolic improvements

Vial Size: 5 mg/vial**Common Reconstitution:** 5 mg + 2 mL water = 2.5 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	2.5	1.0 mL (100 units)	Weekly	12–16 weeks	Enhanced fat loss, reset
High/Advanced	5	2.0 mL (200 units)	Weekly	16–24 weeks	Severe obesity, advanced
Maintenance	2.5	1.0 mL (100 units)	Weekly	As needed	Weight maintenance

Retatrutide (Dedicated Section)

What is it?

Retatrutide is a triple agonist (GLP-1, GIP, glucagon) peptide at the forefront of metabolic and fat loss research. Early clinical trials show it may deliver the most dramatic fat loss results of any peptide to date.

Research Purposes:

Maximum appetite suppression and weight loss

Enhanced metabolic improvements

Potential lean mass preservation during fat loss

Vial Size: 10 mg/vial

Common Reconstitution: 10 mg + 2 mL water = 5 mg/mL

Protocol	Dose (mg)	Volume (mL/units)	Frequency	Duration	Notes
Standard	2.5	0.5 mL (50 units)	Weekly	12–16 weeks	Next-gen fat loss

High/Advanced	5	1.0 mL (100 units)	Weekly	16–24 weeks	Severe obesity, advanced
Maintenance	2.5	0.5 mL (50 units)	Weekly	As needed	Weight maintenance

SLU-PP-332 (Pill, 250 mcg)

What is it?

SLU-PP-332 is a myostatin inhibitor (oral pill form only at PHX Labs) that supports muscle growth and fat loss by blocking the protein that limits muscle development.

Research Purposes:

Muscle gain and preservation

Fat loss and body recomposition

Pill Size: 250 mcg/pill

Protocol	Dose (mcg)	Pills	Frequency	Duration	Notes
Standard	500	2	Daily	8–12 weeks	Muscle gain, fat loss
High/Advanced	1,000	4	Daily	12–16 weeks	Advanced athletes
Maintenance	250	1	Daily	As needed	Muscle maintenance

Methylene Blue

What is it?

Methylene Blue is a mitochondrial enhancer and neuroprotective agent with applications in cognitive research, energy metabolism, and neurodegenerative disease models.

Research Purposes:

Cognitive enhancement and neuroprotection

Mitochondrial function and energy support

Typical Solution: 1 mg/mL (pharmaceutical grade only)

Protocol	Dose (mg/kg)	Volume (mL)	Frequency	Duration	Notes
Standard	0.5–2	Calculated	Daily	4–12 weeks	Cognitive/mitochondrial
High/Advanced	Up to 4	Calculated	Daily	4–12 weeks	Experimental, research only
Maintenance	0.5	Calculated	2–3x/week	Ongoing	Brain health

How to Personalize Standalone Protocols

Start with standard dosing.

Increase to high/advanced only for stubborn issues or advanced research.

Drop to maintenance for ongoing support after main research phase.

Always use the correct unit (mg, mcg, IU) and check your math!

Chapter 5: Frequently Asked Questions & Troubleshooting

1. Are peptides safe for research?

A: When sourced from reputable labs with third-party testing (like PHX Labs), peptides are generally considered safe for research purposes. However, as with any research chemical, there are risks if mishandled or dosed incorrectly. Always use sterile technique, proper storage, and accurate dosing.

Note: All peptides in this guide are for research use only and not for human consumption.

2. What are the most common side effects?

Side effects vary by peptide, dose, and route of administration. Here are the most commonly reported issues:

Peptide/Class	Common Side Effects	Notes/Management
BPC-157 (inj/oral)	Mild irritation at injection site, rare headaches	Rotate injection sites, start low
TB-500	Redness/swelling at injection site, fatigue	Use sterile technique, dose adjustment
GHK-Cu	Mild skin irritation (topical), rare injection site redness	Use as directed, rotate sites

HGH (Somatropin)	Water retention, joint pain, carpal tunnel, insulin resistance	Start low, monitor, cycle
GLP-1 Agonists (Semaglutide, Tirzepatide, Retatrutide)	Nausea, GI upset, constipation, decreased appetite	Titrate slowly, hydrate, monitor
Ipamorelin/CJC-1295	Occasional flushing, mild headache	Usually transient, adjust dose
Methylene Blue	Blue/green urine, GI upset, headache; high doses: serotonin syndrome risk	Start low, avoid with SSRIs

3. How long until I see results?

Peptide/Class	Typical Onset of Results
Healing Peptides (BPC-157, TB-500)	2–6 weeks (sometimes sooner)
Growth Hormone/Secretagogues	4–12 weeks for body comp, sleep, recovery
GLP-1 Agonists (Semaglutide, etc.)	2–4 weeks for appetite, 4–12 weeks for fat loss
GHK-Cu (skin/hair)	4–12 weeks for visible changes
Methylene Blue	1–2 weeks for cognitive effects

Tip: Consistency and accurate dosing are key. Track progress with logs and adjust only after a fair trial period.

4. Can peptides be taken with other supplements or medications?

A: Many peptides are compatible with common supplements (protein, vitamins, creatine, etc.). However, always research potential interactions:

GLP-1 agonists may slow absorption of oral medications.

Methylene Blue should not be combined with SSRIs, SNRIs, or other serotonergic drugs due to serotonin syndrome risk.

Growth hormone secretagogues can sometimes interact with diabetes medications.

When in doubt, consult a qualified professional and review the latest literature.

5. What if I experience side effects or my protocol isn't working?

Troubleshooting Table

Problem	Possible Cause	Solution/Adjustment
Redness/swelling at injection	Poor technique, site sensitivity	Rotate sites, use smaller needle, slow injection
Nausea (GLP-1s)	Dose too high, titration too fast	Reduce dose, slow titration, take with food
No results after 4+ weeks	Under-dosing, poor absorption, expired product	Double-check math, reconstitute properly, verify product quality
Plateau in results	Desensitization, lack of cycling	Take a break, switch to maintenance, adjust stack

Headache (GH secretagogues)	Dosing too high, dehydration	Lower dose, hydrate, monitor electrolytes
Blue urine (Methylene Blue)	Normal at low doses	Benign, but reduce dose if GI upset occurs

6. How do I adjust my protocol?

Start with standard dosing.

If side effects occur, reduce the dose or frequency.

If no results and no side effects, gradually titrate up (never more than double at a time).

Use maintenance dosing for ongoing support after main research phase.

Always recalculate your injection volume if you change your reconstitution.

7. What if I make a dosing or reconstitution error?

Do not use the solution if unsure of concentration or sterility.

When in doubt, discard and start over using the correct math and sterile technique.

Keep a dosing log to avoid confusion.

8. How should peptides be stored?

Lyophilized powder: Store in a cool, dry place (refrigeration preferred, but not always required short-term).

Reconstituted peptides: Always refrigerate (2–8°C), use within 2–4 weeks, and avoid repeated freeze/thaw cycles.

Oral pills (BPC-157, SLU-PP-332): Store in a cool, dry place away from sunlight.

Methylene Blue: Protect from light, use pharmaceutical grade only.

9. What does “for research use only” mean?

These compounds are not approved for human consumption, diagnosis, or treatment.

They are intended for laboratory, in vitro, or animal research only.

Using peptides outside of approved research protocols may be illegal and unsafe.

10. Who do I contact for support or questions?

PHX Labs Support:

Email: info@phxconsulting.ca

Instagram: @phxlab

Quick Reference: Troubleshooting Checklist

Double-check your math and units (mg, mcg, IU).

Reconstitute with bacteriostatic water, not tap or bottled water.

Use sterile syringes and rotate injection sites.

Monitor for side effects and track all doses in a log.

If in doubt—pause, recalculate, and consult a professional or your supplier.

Chapter 6: Legal, Compliance, and Sourcing Best Practices

Why Legal and Compliance Knowledge Matters

Peptide research is a rapidly evolving field. Laws and regulations can differ not just by country, but by state or province. Understanding the legal and compliance landscape is essential for protecting your research, your business, and your reputation. This chapter will help you navigate the complexities—so you can focus on science, not stress.

1. What Does “For Research Use Only” Really Mean?

Definition:

Peptides and research chemicals labeled “For Research Use Only” (FRUO) are **not** approved for human consumption, medical diagnosis, treatment, or cure.

Implications:

They may be used for laboratory experiments, in vitro studies, or animal research under controlled conditions.

Selling, marketing, or using these compounds for human use is illegal in most jurisdictions.

Any claim or suggestion that a research peptide is intended for human therapy or supplementation is a major compliance violation.

Key Takeaway:

Always state and honor the FRUO status in your protocols, labeling, and communications.

2. Understanding the Regulatory Landscape

United States

FDA: Peptides not approved as drugs are classified as research chemicals. Only FDA-approved peptides (e.g., Semaglutide for diabetes/obesity, Tesamorelin for HIV-associated lipodystrophy) may be prescribed by licensed medical professionals for specific indications.

DEA: Some peptides may be controlled substances—check the DEA list before importing or handling.

State Laws: Rules may be stricter at the state level (e.g., California, New York).

Canada

Health Canada: Most peptides are not approved for human use and are considered research chemicals.

Customs: Importation for research is generally permitted, but human use is not.

Europe & International

EU: Each country has its own regulations; some peptides may be prescription-only or banned.

Australia/New Zealand: Peptides are strictly controlled, often requiring a prescription for legal import.

Best Practice:

Always check your local, state/provincial, and national laws before purchasing, possessing, or using peptides.

3. How to Source Peptides Legally and Responsibly

What to Look For in a Supplier

Third-Party Testing:

Every batch should come with a Certificate of Analysis (COA) confirming purity (>98%), quantity, and absence of contaminants.

Transparent Labeling:

Vials should clearly state “For Research Use Only,” batch number, expiration date, and actual content (mg, mcg, IU, or pill count).

Reputation:

Look for suppliers with strong reviews, transparent business practices, and no history of regulatory violations.

Customer Support:

Responsive support is a sign of a legitimate operation.

What to Avoid

No COA or vague purity claims

Aggressive marketing for human use

Unlabeled or poorly labeled vials

No customer service or return policy

4. Shipping, Customs, and Documentation Tips

Label Packages Clearly:

Mark as “Research Chemical – Not for Human Consumption.”

Include Documentation:

Attach COA and invoice stating research use if required by customs.

Know Your Import Limits:

Some countries or states have strict quantity limits or outright bans.

Be Prepared for Delays:

Customs may hold or inspect packages. Having documentation ready speeds the process.

5. Storage and Handling for Compliance

Lyophilized Peptides:

Store in a cool, dry place. Refrigeration is best for long-term stability.

Reconstituted Peptides:

Always refrigerate (2–8°C) and use within 2–4 weeks.

Oral Pills/Capsules:

Store away from sunlight in a dry, cool place.

Methylene Blue:

Store in a light-protected container, away from children and pets.

Never store research peptides or chemicals with food, supplements, or medications.

6. Research Recordkeeping & Documentation

Keep a Research Log:

Document all purchases, batch numbers, reconstitution dates, and research protocols.

Save All COAs:

Store digital and/or printed copies for every batch.

Track Usage:

Maintain logs of all usage for compliance and reproducibility.

7. What to Do If You're Contacted by Authorities

Stay Calm:

Most inquiries are routine, especially for customs.

Provide Documentation:

Show COA, invoice, and research log. Be clear about FRUO status.

Do Not Make Medical Claims:

Never say the product is for human use or therapy.

8. Staying Up to Date

Subscribe to Regulatory Updates:

FDA, Health Canada, and EMA often release bulletins about controlled substances and research chemicals.

Join Professional Groups:

Research forums, scientific societies, and industry newsletters are valuable for the latest compliance news.

9. PHX Labs Commitment to Compliance

At PHX Labs, we:

Provide batch-specific COAs and transparent labeling

Never market for human use

Educate our customers on legal, safe, and responsible research practices

Support researchers with up-to-date compliance information

Quick Reference: Legal & Compliance Checklist

Only purchase from suppliers with COAs and clear FRUO labeling.

Never use peptides for human consumption, diagnosis, or treatment.

Store and document all batches, COAs, and research logs.

Check local/state/national laws before importing or handling peptides.

Contact PHX Labs for support or compliance questions.

Chapter 7: Personalization—Tracking Progress & Adjusting Protocols

Why Track Your Peptide Research?

Tracking is the bridge between science and results. Without systematic monitoring, even the best protocols can lead to wasted time, missed insights, or avoidable side effects.

Benefits of tracking:

Maximizes results by identifying what works for your unique biology

Minimizes risk by catching side effects early

Provides objective data for protocol adjustments

Helps you (and your team or healthcare provider) make informed, evidence-based decisions

What Should You Track?

1. Dosing Details

Peptide/compound name

Dose (mg, mcg, IU, or pill count)

Time and date of administration

Route (subcutaneous, oral, topical, etc.)

2. Subjective Effects

Energy, mood, sleep quality

Hunger, cravings, appetite (esp. for GLP-1s)

Pain, inflammation, injury recovery

Cognitive changes (for methylene blue, GHK-Cu, etc.)

3. Objective Metrics

Weight, body fat percentage

Strength, endurance, or athletic performance

Blood markers (if available): glucose, cholesterol, IGF-1, etc.

Photos (before/after for healing, fat loss, or skin/hair protocols)

4. Side Effects or Adverse Events

Injection site reactions

GI symptoms (nausea, constipation, etc.)

Headache, fatigue, joint pain, or other issues

Sample Tracking Log

Date	Peptide/Compound	Dose	Time	Route	Effects/Results	Side Effects	Notes
7/1/25	BPC-157 inj	500 mcg	8:00am	SubQ	Knee pain ↓, more mobility	None	
7/3/25	Semaglutide	1 mg	9:00am	SubQ	Appetite ↓, 2 lbs weight loss	Mild nausea	Hydrated more
7/7/25	TB-500	2.5 mg	7:00am	SubQ	Faster recovery after workout	None	
7/10/25	Methylene Blue	2 mg/kg	10:00am	Oral	Focus ↑, blue urine	None	Avoided SSRIs

Pro Tip: Use a spreadsheet or dedicated app for more complex tracking, or print logs for easy daily notes.

How to Adjust Your Protocol

1. Start with Standard Dosing

Follow the standard protocol for your peptide(s) for at least 2–4 weeks (unless side effects occur).

Record all effects, both positive and negative.

2. Review Your Data

Are you seeing desired results?

Yes: Continue or move to maintenance dosing.

No: Check for under-dosing, missed doses, or technique issues.

Are side effects emerging?

Yes: Reduce dose or frequency, or pause protocol and consult a professional.

3. Titrate Up or Down

If results are suboptimal and no side effects:

Increase dose by 25–50% (never double at once), or add a synergistic peptide from a recommended stack.

If side effects occur:

Reduce dose, switch to maintenance, or take a break.

4. Cycle and Rotate

Most peptides work best in cycles (8–16 weeks on, then 4–8 weeks off or maintenance).

For long-term research, rotate between different peptides or stacks to maintain sensitivity and reduce risk.

Customizing for Your Research Goals

Healing & Injury Recovery:

Track pain, swelling, range of motion, and recovery speed.

Adjust protocol if plateauing or if full recovery is achieved early.

Fat Loss & Metabolic Health:

Monitor weight, body comp, appetite, and blood sugar.

For GLP-1s, titrate slowly to minimize GI side effects.

Muscle Gain & Performance:

Track strength, muscle mass, recovery, and energy.

Consider stacking with myostatin inhibitors or GH secretagogues for advanced protocols.

Cognitive Enhancement:

Record focus, memory, and mental clarity.

For methylene blue, note any mood or neurological changes.

When to Seek Professional Input

Persistent or severe side effects

Unexpected lab results or health changes

Complex protocols (multiple peptides, stacking, or underlying health conditions)

PHX Labs is available for research support and protocol questions:

Email: info@phxconsulting.ca

Instagram: @phxlab

Sample Data Sheet Template

Protocol Date	Details	Subjective Effects	Objective Metrics	Side Effects

Key Takeaways

Consistent, honest tracking is the key to unlocking the full value of peptide research.

Adjust only after a fair trial period—don't "chase" results with daily changes.

Use your data to inform every protocol adjustment.

If in doubt, consult a professional or PHX Labs support.

Chapter 8: Stacking Peptides— Advanced Strategies

Why Stack Peptides?

Stacking peptides means combining two or more compounds with complementary mechanisms to:

Amplify results (e.g., faster healing, more fat loss, greater muscle gain)

Target multiple pathways for a synergistic effect

Customize protocols for specific research goals (healing, metabolic health, body recomposition, cognitive enhancement, etc.)

Key Principles:

Start with single-peptide protocols to assess baseline response.

Only stack peptides with non-overlapping mechanisms or side effect profiles.

Adjust doses downward when stacking to minimize cumulative side effects.

Cycle stacks to maintain sensitivity and reduce risk.

How to Build a Peptide Stack

Define your primary research goal:

Healing & recovery

Fat loss & metabolic health

Muscle gain & body recomposition

Cognitive enhancement

Choose peptides with proven synergy:

Combine a healing peptide with a growth factor for injury

Pair a GLP-1 agonist with carnitine for fat loss

Use a myostatin inhibitor with GH secretagogues for muscle gain

Start with standard dosing for each peptide:

Monitor for additive side effects

Adjust doses as needed

Track results and side effects closely:

Use the tracking logs from Chapter 7

Cycle the stack:

Most stacks run 8–16 weeks, followed by a break or maintenance phase

Most Popular & Effective Stacks

1. The Wolverine Stack

Purpose: Accelerated injury recovery, tissue regeneration, chronic pain

Peptides: BPC-157, TB-500, HGH

Peptide	Dose (Standard)	Frequency	Duration	Notes
BPC-157	500–1,000 mcg	Daily (inj/subQ)	4–8 weeks	Near injury or oral for gut
TB-500	2.5–5 mg	2x/week (subQ)	4–8 weeks	Rotate injection sites
HGH	2–4 IU	Daily (PM)	8–12 weeks	Cycle 8–12 wks on, 4–8 off

Advanced:

Increase BPC-157 to 1,000 mcg/day and TB-500 to 5 mg 2x/week for severe injuries.

Reduce to maintenance (BPC-157 200 mcg/day, TB-500 2 mg/month, HGH 1 IU 3–5x/week) after recovery.

2. Growth Hormone Optimization Stack

Purpose: Muscle gain, anti-aging, body recomposition

Peptides: Ipamorelin, CJC-1295 (with or without DAC)

Peptide	Dose (Standard)	Frequency	Duration	Notes
Ipamorelin	200 mcg	1–2x/day (subQ)	8–12 weeks	AM/PM or pre-bed
CJC-1295	200 mcg	1–2x/day (subQ)	8–12 weeks	With Ipamorelin

With DAC:

2 mg CJC-1295 2x/week

Advanced:

Ipamorelin 500 mcg 2x/day, CJC-1295 300 mcg 2x/day

Maintenance:

Ipamorelin 100 mcg/day, CJC-1295 100 mcg/day

3. Fat Loss & Metabolic Stack

Purpose: Appetite suppression, fat loss, metabolic health

Peptides: Semaglutide or Tirzepatide or Retatrutide, plus Injectable Carnitine

Peptide	Dose (Standard)	Frequency	Duration	Notes
Semaglutide	1 mg	Weekly	12–16 wks	Titrate up slowly
Tirzepatide	2.5 mg	Weekly	12–16 wks	For dual agonist effect

Retatrutide	2.5 mg	Weekly	12–16 wks	Triple agonist, advanced
Injectable Carnitine	500 mg	2x/week	12–16 wks	IM or subQ, performance

Advanced:

Semaglutide 2 mg/week, Tirzepatide 5 mg/week, Retatrutide 5 mg/week, Carnitine 1,000 mg 3x/week

Maintenance:

GLP-1 agonist at half dose, Carnitine 500 mg 1x/week

4. Muscle Gain & Recomposition Stack

Purpose: Maximize muscle gain, reduce fat, prevent sarcopenia

Peptides: SLU-PP-332 (pill), Ipamorelin, CJC-1295

Peptide	Dose (Standard)	Frequency	Duration	Notes
SLU-PP-332	500 mcg	2 pills/day	8–12 wks	Oral, AM/PM
Ipamorelin	200 mcg	2x/day	8–12 wks	SubQ
CJC-1295	200 mcg	2x/day	8–12 wks	SubQ

Advanced:

SLU-PP-332 1,000 mcg/day (4 pills), Ipamorelin/CJC-1295 500/300 mcg 2x/day

Maintenance:

SLU-PP-332 250 mcg/day (1 pill), Ipamorelin/CJC-1295 100 mcg/day

5. Visceral Fat Reduction & Metabolic Health Stack

Purpose: Target visceral fat, improve metabolic markers

Peptides: Tesamorelin, GLP-1 agonist

Peptide	Dose (Standard)	Frequency	Duration	Notes
Tesamorelin	2 mg	Daily	12–16 wks	SubQ
Semaglutide	1 mg	Weekly	12–16 wks	Optional add-on

Advanced:

Tesamorelin 2 mg/day, Semaglutide 2 mg/week

Maintenance:

Tesamorelin 1 mg/day, Semaglutide 0.5 mg/week

6. Cognitive & Mitochondrial Enhancement Stack

Purpose: Cognitive function, energy, neuroprotection

Compounds: Methylene Blue, GHK-Cu

Compound	Dose (Standard)	Frequency	Duration	Notes
Methylene Blue	0.5–2 mg/kg	Daily (oral)	4–12 wks	Start low, titrate up
GHK-Cu	1 mg	2x/week	4–8 wks	SubQ or topical

How to Cycle and Customize Stacks

Standard Cycle: 8–16 weeks on, 4–8 weeks off or switch to maintenance dosing.

For advanced goals or plateaus: Increase to high/advanced dosing only after confirming no adverse effects.

For long-term research: Alternate stacks or rotate peptides to maintain sensitivity and avoid side effects.

Stacking Safety Tips

Monitor for cumulative side effects: Fatigue, GI upset, joint pain, etc.

Adjust doses downward if stacking more than two peptides.

Keep a detailed log: Record all doses, effects, and side effects (see Chapter 7).

Consult a professional for complex or multi-compound stacks.

Never stack peptides with overlapping toxicity or unknown interactions.

Sample Advanced Stack Calendar

Week	BPC-157	TB-500	HGH	GLP-1	Carnitine	Notes
1-4	500 mcg/d	2.5 mg 2x/wk	2 IU/d	0.5 mg/wk	500 mg 2x/wk	Healing focus
5-8	500 mcg/d	2.5 mg 2x/wk	4 IU/d	1 mg/wk	1,000 mg 3x/wk	Add fat loss focus
9-12	200 mcg/d	2 mg/mo	1 IU/d	0.5 mg/wk	500 mg 1x/wk	Maintenance phase

Key Takeaways

Stacking allows for synergistic, goal-specific protocols—but requires careful planning and tracking.

Always start with single compounds to establish baseline response.

Cycle and adjust stacks based on results and side effects.

Use maintenance dosing or breaks to sustain long-term benefits and minimize risk.

Chapter 9: Mixing, Injection, and Storage Techniques

Why Proper Technique Matters

Correct mixing, injection, and storage are critical for:

Maximizing peptide stability and potency

Ensuring accurate dosing and reproducible results

Preventing contamination and infection

Reducing risk of side effects or product degradation

Whether you're a first-time researcher or an experienced biohacker, following best practices in this chapter will protect both your data and your safety.

1. Mixing (Reconstitution) Best Practices

Supplies Needed

Lyophilized peptide vial (e.g., BPC-157, 10 mg)

Bacteriostatic water (preferred) or sterile saline

Alcohol wipes

1 mL insulin syringes (marked in units)

Optional: Larger gauge mixing needle (18–20G) for drawing water

Clean, well-lit workspace

Step-by-Step Guide

Sanitize:

Wash hands thoroughly.

Wipe vial stoppers and water vials with alcohol.

Draw Water:

Use a new sterile syringe to draw the desired amount of bacteriostatic water.

Add Water to Peptide Vial:

Slowly inject water down the inside wall of the vial to avoid foaming.

For 10 mg vials, common options are 1 mL (10 mg/mL), 2 mL (5 mg/mL), or 5 mL (2 mg/mL).

Dissolve:

Gently swirl or roll the vial—do not shake.

Wait until the solution is fully clear (may take several minutes).

Label:

Write the reconstitution date, concentration, and peptide name on the vial.

Pro Tips

Use bacteriostatic water for multi-dose vials to prevent bacterial growth.

Never use tap or bottled water.

If the peptide does not dissolve, let it sit at room temperature and swirl again.

2. Injection Techniques

Types of Injections

A. Subcutaneous (SubQ) Injection

Injects into the fat layer just under the skin.

Common sites: abdomen (2 inches from navel), thigh, outer upper arm.

Used for most peptides (BPC-157, TB-500, HGH, GLP-1 agonists, etc.).

B. Intramuscular (IM) Injection

Injects directly into muscle tissue.

Common sites: deltoid, glute, thigh.

Used for larger volume injections (e.g., carnitine), but SubQ is preferred for most peptides due to comfort and ease.

How to Inject Subcutaneously

Prepare Dose:

Draw up the calculated dose using an insulin syringe.

Remove air bubbles.

Clean Site:

Wipe with alcohol pad.

Pinch Skin:

Pinch a fold of skin at the injection site.

Insert Needle:

Insert at a 45–90° angle (short insulin needles can go straight in).

Inject Slowly:

Push plunger steadily, then withdraw needle.

Dispose Safely:

Use a sharps container for used needles.

Injection Tips

Rotate injection sites to avoid irritation or scar tissue.

Use a new needle and syringe for every injection.

If blood appears, withdraw and select a new site.

For site-specific healing (e.g., BPC-157), inject as close to the injury as safely possible.

3. Oral and Topical Administration

Oral Pills (BPC-157, SLU-PP-332):

Swallow with water, ideally with food to reduce GI upset.

Topical (GHK-Cu):

Apply to clean, dry skin; avoid broken skin unless directed by protocol.

4. Storage Guidelines

Lyophilized (Powder) Peptides

Store in a cool, dry place (refrigerator preferred, 2–8°C).

Protect from light and moisture.

Stable for months to years if unopened and refrigerated.

Reconstituted Peptides

Always refrigerate at 2–8°C.

Use within 2–4 weeks of mixing.

Do not freeze unless specified by the manufacturer.

Minimize opening the vial to reduce contamination risk.

Oral Pills & Capsules

Store in a cool, dry place away from direct sunlight.

Keep tightly sealed and out of reach of children/pets.

Solutions (e.g., Methylene Blue)

Protect from light (amber vial or wrap in foil).

Store at room temperature or in the fridge as directed.

5. Traveling with Peptides

Use a small cooler or insulated pouch with an ice pack for reconstituted vials.

Keep lyophilized powders in original packaging until use.

Carry a copy of your invoice or COA to answer customs questions.

Never store peptides with food, supplements, or medications.

6. Troubleshooting Common Issues

Problem	Likely Cause	Solution
Peptide won't dissolve	Too little water, cold vial	Add more water, let warm gently
Cloudy solution after mixing	Contamination or denatured	Discard, use new sterile supplies
Redness/swelling at site	Poor technique or irritation	Rotate sites, use smaller needle
Loss of vacuum in vial	Normal after first use	Proceed, but inject water slowly

7. Safety & Sterility Checklist

Always use sterile syringes, needles, and water.

Never reuse needles or syringes.

Wipe all vial stoppers with alcohol before each use.

Store all products as directed and dispose of sharps safely.

Key Takeaways

Proper mixing, injection, and storage are essential for safety, efficacy, and reproducibility.

Always use sterile technique and rotate injection sites.

Label all vials with concentration and date of reconstitution.

Store peptides and research compounds as recommended for maximum stability.

Chapter 10: Visual Flowcharts & Sample Protocol Schedules

Why Visual Tools Matter

Peptide research can be complex, especially when managing multiple compounds, stacks, or cycling strategies. Visual tools—such as flowcharts, calendars, and sample schedules—make it easier to:

- Choose the right peptide(s) for your goal
- Plan your dosing and cycling
- Track your research progress
- Communicate your protocol to others

1. “Which Peptide Should I Choose?” Flowchart (Text Version)

Start Here:

What is your primary research goal?

+-----+	
Primary Research	
Goal?	
+-----+-----+	
+-----+-----+	
Healing/Recovery	Body Recomposition

Injury/Joint Repair	Gut Health	Fat Loss	Muscle Gain
BPC-157 inj/pill	BPC-157 pill	Semaglutide	SLU-PP-332 pill
TB-500	GHK-Cu	Tirzepatide	Ipamorelin
GHK-Cu	(topical)	Retatrutide	CJC-1295
HGH	--	Carnitine inj	HGH
Advanced Injury?	Severe GI?	Visceral Fat?	Sarcopenia?
Add HGH	Add TB-500	Tesamorelin	Add GHK-Cu

Pro Tip:
 If you have multiple goals (e.g., healing + fat loss), see Chapter 8 for stacking guidance.

2. Sample Protocol Schedules

A. Healing & Recovery Protocol (Wolverine Stack Example)

BPC-157 Week(inj)	TB-500	HGH	Notes

1-6	500 mcg/day	2.5 mg 2x/wk	2 IU/day	Inject BPC-157 near injury
7-8	200 mcg/day	2 mg/month	1 IU 3x/wk	Maintenance phase

B. Fat Loss Protocol (GLP-1 Agonist + Carnitine)

Week	Semaglutide	Carnitine (inj)	Notes
1	0.25 mg	500 mg 2x/wk	Start low, titrate up slowly
2-4	0.5 mg	500 mg 2x/wk	Monitor GI symptoms
5-8	1 mg	1,000 mg 3x/wk	Increase if tolerated, log results
9+	0.5 mg	500 mg 1x/wk	Maintenance phase

C. Muscle Gain & Recomposition Protocol

Week	SLU-PP-332 (pill)	Ipamorelin	CJC-1295	HGH	Notes
1-8	500 mcg/day (2p)	200 mcg 2x/d	200 mcg 2x/d	2 IU/day	AM/PM dosing, track strength
9-12	250 mcg/day (1p)	100 mcg/d	100 mcg/d	1 IU 3x/wk	Maintenance, reassess goals

D. Cognitive & Mitochondrial Support Protocol

Week	Methylene Blue	GHK-Cu (inj/topical)	Notes
1-4	0.5 mg/kg/d	1 mg 2x/wk	Start low, titrate up MB dose
5-8	1 mg/kg/d	2 mg 2x/wk	Monitor focus, mood, side fx
9+	0.5 mg/kg 2x/wk	1 mg/wk	Maintenance phase

3. Example Weekly Calendar Template

Day	Peptide 1	Peptide 2	Peptide 3	Notes
Monday	BPC-157 500 mcg	TB-500 2.5 mg	HGH 2 IU	
Tuesday	BPC-157 500 mcg		HGH 2 IU	
Wednesday	BPC-157 500 mcg		HGH 2 IU	
Thursday	BPC-157 500 mcg	TB-500 2.5 mg	HGH 2 IU	
Friday	BPC-157 500 mcg		HGH 2 IU	
Saturday	BPC-157 500 mcg		HGH 2 IU	
Sunday	200 mcg (maint)		1 IU (maint)	Maintenance dosing

Tip:

Use color-coding or icons for injectable vs. oral compounds.

Adjust days and doses based on your protocol and research needs.

4. Cycling and Maintenance Schedules

Most peptide stacks: 8–16 weeks “on,” then 4–8 weeks “off” or on maintenance.

Maintenance dosing: Lower dose or frequency to sustain benefits without desensitization or side effects.

5. How to Use These Visual Tools

Print or digitize these tables for your lab/research binder.

Share with your healthcare or research advisor for protocol review.

Use as a checklist to ensure every dose and cycle is tracked.

Key Takeaways

Visual tools simplify complex research protocols.

Flowcharts help you select the right peptide or stack.

Sample schedules and calendars keep you organized and compliant.

Customize these templates to your unique goals, peptides, and cycles.

Chapter 11: Glossary of Terms

Amino Acids

The building blocks of peptides and proteins. Amino acids link together in specific sequences to form peptides, which then act as biological messengers.

Bacteriostatic Water

Sterile water containing 0.9% benzyl alcohol, used for reconstituting peptide powders. The alcohol inhibits bacterial growth, allowing safe multi-dose use.

Batch Number

A unique identifier assigned to each production run of a peptide or compound. Used for tracking, quality control, and referencing the Certificate of Analysis (COA).

BPC-157

Body Protection Compound-157. A synthetic peptide used in research for its healing, anti-inflammatory, and regenerative properties, especially for tissue, tendon, and gut repair.

CJC-1295

A synthetic peptide analog of Growth Hormone Releasing Hormone (GHRH), used in research to increase growth hormone secretion. Available in “with DAC” (Drug Affinity Complex, longer-acting) and “without DAC” forms.

Certificate of Analysis (COA)

A lab document verifying the purity, quantity, and identity of a peptide or compound. Should be batch-specific and provided by reputable suppliers.

DAC (Drug Affinity Complex)

A chemical modification added to peptides like CJC-1295 to extend their half-life, allowing for less frequent dosing.

GHK-Cu

A copper-binding peptide used in research for skin repair, hair growth, and anti-aging effects.

GLP-1 (Glucagon-Like Peptide-1)

A hormone involved in glucose regulation and appetite. GLP-1 agonist peptides (e.g., Semaglutide, Tirzepatide, Retatrutide) are used in research for weight loss and metabolic health.

Growth Hormone (GH)

A peptide hormone that stimulates growth, cell reproduction, and regeneration. Commonly referenced in anti-aging, muscle gain, and healing protocols.

HGH (Somatropin)

Human Growth Hormone. The pharmaceutical form of GH, measured in International Units (IU), used in research for muscle gain, fat loss, and anti-aging.

Half-life

The time it takes for half of a compound to be metabolized or eliminated from the body. Determines dosing frequency for peptides.

In Vitro

Latin for "in glass." Refers to research conducted outside a living organism, such as in a petri dish or test tube.

In Vivo

Latin for “in life.” Refers to research conducted in living organisms.

Injection Site Reaction

Redness, swelling, or irritation at the point of injection. Usually mild and transient; rotating sites can help prevent this.

International Unit (IU)

A unit of measurement for biological activity, not mass. Used for hormones like GHG, insulin, and some vitamins.

Ipamorelin

A selective Growth Hormone Releasing Peptide (GHRP) used in research to stimulate GH release with minimal side effects.

Lyophilized Powder

Freeze-dried form of peptides for stable storage and shipping. Must be reconstituted with bacteriostatic water before use.

Maintenance Dose

A lower, ongoing dose used after the main research phase to sustain benefits while minimizing risk and side effects.

Methylene Blue

A synthetic compound with mitochondrial and neuroprotective effects, used in research for cognitive enhancement and cellular energy.

mg (Milligram)

A unit of mass equal to 1/1,000 of a gram. Commonly used for peptide vials and dosing.

mcg (Microgram)

A unit of mass equal to 1/1,000,000 of a gram. Used for highly potent peptides or oral pills.

Peptide

A short chain of amino acids linked by peptide bonds. Acts as a biological messenger, instructing cells to perform specific functions.

Pharmaceutical Grade

Indicates the highest standard of purity and quality for compounds used in research or medicine.

Reconstitution

The process of adding sterile liquid (usually bacteriostatic water) to lyophilized peptide powder to create an injectable or oral solution.

Research Use Only (FRUO)

A legal designation indicating a compound is not approved for human consumption, diagnosis, or treatment. Intended for laboratory or animal research.

Retatrutide

A triple agonist peptide (GLP-1, GIP, glucagon) under research for advanced fat loss and metabolic benefits.

SLU-PP-332

A myostatin inhibitor available as an oral pill (250 mcg) used in research for muscle growth and fat loss.

Somatropin

See HGH.

Stack

A combination of two or more peptides or compounds designed to achieve synergistic effects for a specific research goal.

Subcutaneous (SubQ) Injection

An injection administered into the fatty layer just beneath the skin. Common for most peptides.

Tesamorelin

A GHRH analog peptide approved for research on visceral fat reduction and metabolic health.

Tirzepatide

A dual GIP/GLP-1 agonist peptide used in research for weight loss and metabolic improvement.

Topical Administration

Application of a compound directly to the skin for localized or systemic effects.

Vial

A small glass container used to store lyophilized peptide powder or reconstituted solution.

Visceral Fat

Fat stored within the abdominal cavity, associated with metabolic disease. Targeted by certain peptides like Tesamorelin.

Wolverine Stack

A nickname for the combination of BPC-157, TB-500, and HGH, used in research for accelerated healing and tissue regeneration.

If you encounter a term not listed here, check your supplier's documentation or reach out to PHX Labs for clarification.

Chapter 12: Resources & Next Steps

Why Ongoing Learning Matters

Peptide science and the regulatory landscape are evolving rapidly. Staying informed is key to safe, effective, and compliant research. This chapter provides curated resources for education, networking, and practical support, so you and your readers can keep growing as peptide researchers.

1. Trusted Educational Resources

A. Websites & Online Libraries

Examine.com

Comprehensive, evidence-based breakdowns of supplements, peptides, and health compounds.

[examine.com](https://www.examine.com)

PubMed

The world's largest database of peer-reviewed medical and scientific publications.

pubmed.ncbi.nlm.nih.gov

Peptides.org

Research summaries, mechanism explanations, and news on peptide science.

[peptides.org](https://www.peptides.org)

SelfHacked.com

Biohacking guides, peptide reviews, and longevity articles.

[selfhacked.com](https://www.selfhacked.com)

FoundMyFitness

Dr. Rhonda Patrick's science-based podcast and resource hub on health, nutrition, and longevity.

[foundmyfitness.com](https://www.foundmyfitness.com)

B. Forums & Communities

Reddit – r/Peptides

Community discussions, anecdotal experiences, and Q&A (always verify claims with primary research).

Longevity.org

Forums for anti-aging, nootropics, and peptide research.

Biohackers Collective (Facebook/Discord)

Networking, protocol sharing, and support for biohackers and researchers.

2. Podcasts & Continuing Education

The Drive with Peter Attia, MD

Deep dives into peptides, hormones, and longevity science.

Ben Greenfield Life

Interviews and case studies on cutting-edge performance and health tools.

FoundMyFitness Podcast

Focused on actionable science for healthspan and lifespan.

3. Regulatory & Compliance References

FDA (U.S.) – Research Chemicals

[fda.gov](https://www.fda.gov)

Health Canada – Drug and Health Product Register

health-products.canada.ca

European Medicines Agency (EMA)

[ema.europa.eu](https://www.ema.europa.eu)

Customs & Import Laws

Always check your country's customs website for the latest legal status and import rules.

4. Recommended Reading

The Peptide Protocols by Dr. William Seeds

A practical guide to peptide science and clinical application.

The Peptide Primer by Ryan Smith

A concise, research-backed introduction to the world of peptides.

Boundless by Ben Greenfield

Comprehensive resource on biohacking, including peptides and research chemicals.

5. Tools & Templates

Tracking Logs

Use the sample logs in Chapter 7, or create your own spreadsheet in Google Sheets or Excel.

Reconstitution Calculators

Online tools for calculating concentrations and dosages (e.g., Peptide Calculator at peptides.org/tools).

Protocol Schedulers

Use digital calendars, reminders, or printable templates from Chapter 10.

6. Staying Up to Date

Subscribe to Newsletters:

PHX Labs newsletter (coming soon!)

Examine.com weekly research digest

FoundMyFitness and Peter Attia updates

Set Google Alerts:

For “peptide research,” “GLP-1 agonist,” “myostatin inhibitor,” etc.

Attend Conferences/Webinars:

Look for events on peptide science, anti-aging, or functional medicine.

7. Getting Support & Asking Questions

PHX Labs Support:

Email: info@phxconsulting.ca

Instagram: [@phxlab](https://www.instagram.com/phxlab)

Contact Your Supplier:

For COAs, batch information, and compliance documentation.

Consult a Qualified Professional:

For complex protocols, health concerns, or legal compliance.

8. Next Steps on Your Peptide Journey

Review your goals and protocols regularly.

Track and log all research results.

Stay curious—science is always evolving!

Connect with the community for support and inspiration.

If you have a favorite resource, podcast, or expert you'd like to see added, let PHX Labs know!

Chapter 13: Case Studies & Illustrative Stories

Why Case Studies Matter

While research protocols and dosing charts are essential, nothing brings peptide science to life like real-world examples. Case studies and illustrative stories help you:

See how protocols are applied from start to finish

Understand the nuances of tracking, adjusting, and troubleshooting

Learn from the journey of others—mistakes, breakthroughs, and all

Note: All stories are fictionalized or anonymized for educational purposes only and do not constitute medical advice or product endorsement.

Case Study 1: The Wolverine Stack for Rotator Cuff Recovery

Profile:

Mike, 38, amateur powerlifter, suffered a partial rotator cuff tear during a heavy lift.

Research Objective:

Accelerate post-injury healing, minimize downtime, and regain full range of motion.

Protocol:

BPC-157 (injectable): 1,000 mcg daily, injected near injury

TB-500: 5 mg twice weekly

HGH: 2 IU nightly

Duration: 6 weeks

Tracking:

Daily pain and mobility log

Weekly photos and range of motion tests

Noted all side effects (none reported)

Results:

By week 3: Significant pain reduction, improved sleep, and increased mobility

By week 6: Cleared for light training by physiotherapist, full recovery in 9 weeks (vs. expected 16+)

Takeaway:

Early, consistent tracking and protocol adherence enabled safe, rapid progress. Maintenance dosing continued for 2 more months to prevent re-injury.

Case Study 2: GLP-1 Agonist Stack for Sustainable Fat Loss

Profile:

Sarah, 42, biohacker, struggling with appetite control and stubborn midsection fat despite exercise and diet.

Research Objective:

Reduce appetite, promote steady fat loss, and improve metabolic markers.

Protocol:

Semaglutide: Began at 0.25 mg weekly, titrated to 1 mg over 4 weeks

Injectable Carnitine: 500 mg twice weekly

Duration: 12 weeks

Tracking:

Daily hunger/appetite scale

Weekly weigh-ins and body measurements

Logged GI symptoms and energy levels

Results:

Appetite noticeably reduced within 2 weeks

Lost 12 lbs and 3 inches off waist in 12 weeks

Mild nausea at higher doses, resolved by slowing titration

Takeaway:

Slow, patient titration and honest tracking of side effects led to sustainable results without extreme hunger or crash dieting.

Case Study 3: SLU-PP-332 Pill for Muscle Preservation During Dieting

Profile:

Daniel, 55, recreational cyclist, wanted to cut body fat while maintaining muscle during a calorie deficit.

Research Objective:

Preserve muscle mass and strength during a 16-week cutting phase.

Protocol:

SLU-PP-332: 500 mcg daily (2 pills, AM/PM)

Ipamorelin: 200 mcg nightly

CJC-1295: 200 mcg nightly

Duration: 16 weeks

Tracking:

Bi-weekly DEXA scans (body composition)

Strength log (squat, deadlift, cycling performance)

Subjective energy/fatigue notes

Results:

Lost 10 lbs of fat, retained nearly all muscle mass

Noted improved recovery and less fatigue

No significant side effects

Takeaway:

Stacking a myostatin inhibitor with GH secretagogues supported muscle preservation and recovery during aggressive fat loss.

Case Study 4: Cognitive Enhancement with Methylene Blue

Profile:

Alex, 35, tech entrepreneur, seeking improved focus and mental clarity during high-stress project.

Research Objective:

Enhance cognitive function and resilience to mental fatigue.

Protocol:

Methylene Blue: 1 mg/kg daily, oral solution

GHK-Cu: 1 mg subcutaneous, twice weekly

Duration: 8 weeks

Tracking:

Daily log of focus, memory, and mood

Weekly productivity and error rates

Monitored for side effects (noted blue urine, no adverse events)

Results:

Reported sharper focus within 10 days

Noted more sustained energy and improved recall

No negative mood changes

Takeaway:

Careful tracking and starting with a conservative dose allowed Alex to optimize benefits and avoid overuse.

Case Study 5: Advanced Stacking for Female Athlete's Joint Recovery

Profile:

Jenna, 29, competitive CrossFit athlete, dealing with chronic knee pain and overuse injury.

Research Objective:

Accelerate joint healing and return to competition.

Protocol:

BPC-157 (injectable): 500 mcg daily

TB-500: 2.5 mg twice weekly

GHK-Cu: 2 mg subcutaneous, twice weekly

HGH: 2 IU nightly

Duration: 8 weeks

Tracking:

Pain, swelling, and joint function logs

Training performance and volume

Monitored for water retention and site irritation

Results:

Noticeable pain reduction by week 2

Returned to full training by week 7

Maintained results with BPC-157 oral pill (500 mcg daily) for 1 month post-stack

Takeaway:

Combining healing and regenerative peptides with growth factors can dramatically accelerate recovery for high-level athletes.

Troubleshooting Example: What If Results Plateau?

Scenario:

After 6 weeks on a fat loss stack (Semaglutide + Carnitine), weight loss stalls.

Solution:

Review log for missed doses or dietary slip-ups

Consider increasing Carnitine to 1,000 mg 3x/week, or adding Tirzepatide

Take a 2-week break (“washout”) before restarting

Reassess overall calorie intake and physical activity

Key Lessons from the Case Studies

Tracking is non-negotiable: Logs reveal what’s working and what needs to change.

Start with standard dosing: Only escalate if needed and well-tolerated.

Synergy matters: Stacks can outperform single compounds for complex goals.

Adjust and cycle: Maintenance and breaks prevent tolerance and side effects.

Personalization is key: No two research journeys are identical.

Want to Share Your Story?

If you have a research journey or illustrative experience you’d like to see featured (anonymously or credited), reach out to PHX Labs at info@phxconsulting.ca or DM [@phxlab](https://www.instagram.com/phxlab).

Chapter 14: Contact & Support

Our Commitment to You

At PHX Labs, we believe that empowering researchers and biohackers means more than just providing high-quality peptides—it means being there for you every step of the way. Whether you have questions about protocols, need compliance clarification, want to share your research journey, or simply seek guidance on the next step, our team is here to support you.

How to Reach PHX Labs

Email Support:

For detailed questions, protocol guidance, compliance concerns, or documentation requests, email us any time at:

✉ info@phxconsulting.ca

Instagram Direct Message:

For quick questions, updates, or to join our research community, DM us on Instagram:

📱 [@phxlab](https://www.instagram.com/phxlab)

Response Time:

We strive to respond to all inquiries within 24 hours, Monday through Friday. For urgent compliance or product issues, please indicate “URGENT” in your subject line.

Additional Support Resources

Frequently Asked Questions:

Review Chapter 5 for answers to common protocol, dosing, and troubleshooting questions.

Legal & Compliance Guidance:

See Chapter 6 for the latest best practices and regulatory tips.

Tracking & Personalization Help:

Check Chapter 7 for data sheets, logs, and adjustment strategies.

Community:

Follow us on Instagram for educational content, research updates, and community Q&As.

Feedback & Suggestions

Your input helps us improve!

Have a topic you want covered in future guides or blogs?

Want to share a case study or research experience?

Need a custom protocol or have a unique research goal?

Let us know!

Every message is read and valued—PHX Labs is here to serve the research community.

Stay Informed

Newsletter:

(Coming soon!) Sign up on our website to receive updates on new protocols, compliance news, and educational resources.

Social Media:

Follow [@phxlab](#) for the latest insights, diagrams, and research breakthroughs.

Legal Reminder

All information and support provided by PHX Labs is for research and educational purposes only.

We do not provide medical advice or endorse the human consumption of any research peptide or compound.

Thank You

Thank you for choosing PHX Labs as your trusted partner in peptide research, education, and innovation. We are honored to support your journey and look forward to seeing what you discover!

This concludes The Peptide Playbook. If you need additional chapters, updates, or want to contribute to future editions, don't hesitate to reach out. Wishing you safe, insightful, and successful research!