

CENTRE
LABS

KNOWLEDGE COMPENDIUM

PERSONAL CLINICAL REFERENCE

PHYSICIAN GRADE PEPTIDES

99%+ PURITY

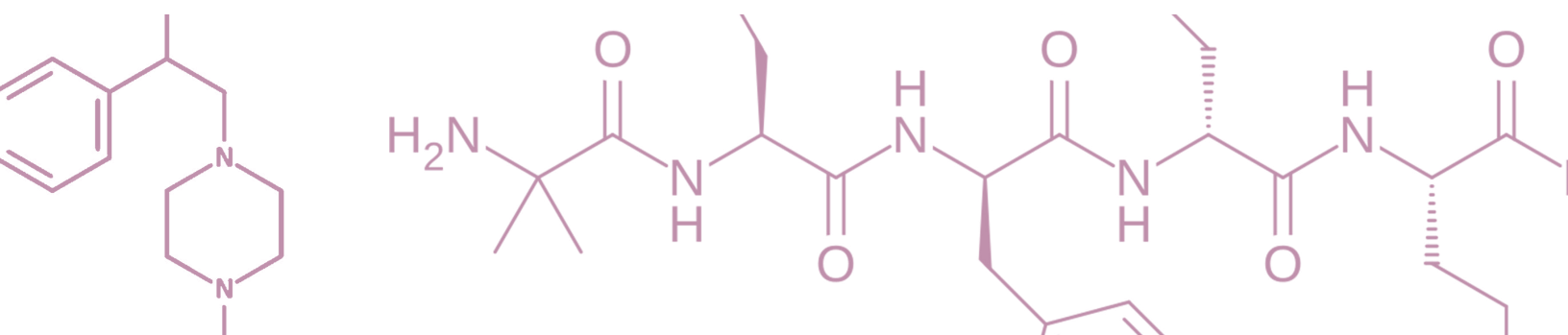
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Product	Category	Research Area
AOD-9604	Longevity & Metabolic	Fragment of human growth hormone (amino acids 177-191) targeting fat metabolism specifically. Stimulates lipolysis and inhibits li...
BPC-157	Healing & Recovery	Body Protection Compound-157. Synthetic 15-amino-acid peptide from a protein in human gastric juice. Promotes angiogenesis at inju...
BPC-157 / TB-500 Blend	Healing & Recovery	Pre-blended BPC-157 and TB-500. Most widely studied healing peptide combination in functional medicine. Synergistic: BPC-157 promo...
Cerebrolysin	Neuro & Cognitive	Complex biological preparation from porcine brain tissue. PORCINE DERIVED – not appropriate for Muslim, Jewish, or vegan patients....
CJC / Ipamorelin Blend	Growth Hormone	Pre-blended CJC-1295 no DAC and Ipamorelin. The two-key GH system in a single preparation: CJC signals GH production, Ipamorelin s...
CJC-1295 (no DAC)	Growth Hormone	Synthetic GHRH analog. CJC is a research lab designation (ConjuChem), not a meaningful acronym. 30-minute half-life producing puls...
CJC-1295 (with DAC)	Growth Hormone	Same GHRH analog with Drug Affinity Complex that binds albumin, extending half-life to 6-8 days. Once or twice weekly dosing. Prod...
Epitalon	Longevity & Metabolic	Synthetic tetrapeptide (Ala-Glu-Asp-Gly) developed by Professor Khavinson over 40+ years. Activates telomerase – the enzyme that r...
GHK-Cu	Healing & Recovery	Glycyl-L-Histidyl-L-Lysine Copper. Naturally occurring copper tripeptide in human plasma. Stimulates collagen and elastin synthesi...
GLOW Blend	Healing & Recovery	Centre Labs blend of GHK-Cu, BPC-157, and TB-500. Three complementary mechanisms: GHK-Cu for collagen and skin regeneration, BPC-1...
GLP-1 R (Retatrutide)	GLP-1 / Weight Management	Triple receptor agonist – GLP-1, GIP, and glucagon receptors simultaneously. Most advanced compound in the GLP-1 class. Glucagon r...
GLP-1 S (Semaglutide)	GLP-1 / Weight Management	Single GLP-1 receptor agonist. Same active compound as Ozempic and Wegovy. Well-established mechanism and extensive clinical data....
GLP-1 T (Tirzepatide)	GLP-1 / Weight Management	Dual GIP and GLP-1 receptor agonist. Same active compound as Mounjaro and Zepbound. GIP receptor activation enhances fat metabolis...
Glutathione	Longevity & Metabolic	Tripeptide (glutamine, cysteine, glycine). Primary antioxidant and master detoxification compound. Neutralizes free radicals, supp...
Ipamorelin	Growth Hormone	Ghrelin mimetic GHRP. Most selective GHRP available – triggers GH release without raising cortisol, prolactin, or appetite. Always...
Kisspeptin-10	Reproductive Health	Encoded by the KISS1 gene (named after Hershey, PA, home of Hershey's Kisses). Master upstream regulator of the HPG axis – sits ab...
KLOW Blend	Healing & Recovery	Adds KPV anti-inflammatory peptide to the GLOW formula. Four mechanisms: KPV reduces inflammation, GHK-Cu rebuilds collagen, BPC-1...

Product	Category	Research Area
KPV	Healing & Recovery	Tripeptide (Lysine-Proline-Valine) derived from alpha-MSH. Inhibits NF-kB – the master switch for inflammatory gene expression. Pa...
LL-37	Immune	Cationic antimicrobial peptide from the cathelicidin family. Naturally produced by neutrophils and epithelial cells. Unique abilit...
Melanotan-1	Sexual Health & Pigmentation	Highly selective MC1R agonist. Stimulates melanogenesis and photoprotection. European approved equivalent (Afamelanotide/Scenesse)...
Melanotan-2	Sexual Health & Pigmentation	Less selective melanocortin agonist hitting MC1R, MC3R, and MC4R. Produces tanning plus appetite suppression and sexual arousal. P...
MOTS-c	Longevity & Metabolic	Encoded directly in mitochondrial DNA – one of the only peptides in biology with this origin. Activates AMPK, the cellular energy ...
NAD+	Longevity & Metabolic	Nicotinamide Adenine Dinucleotide. Not technically a peptide but essential to the longevity catalog. "Nicotin" is B3 etymology – n...
Pinealon	Neuro & Cognitive	Synthetic tripeptide (Glu-Asp-Arg) developed by Professor Khavinson. Targets the pineal gland specifically. Supports melatonin reg...
PT-141 (Bremelanotide)	Sexual Health & Pigmentation	Synthetic melanocortin peptide acting centrally in the brain at MC3R and MC4R. Generates sexual desire and arousal neurologically ...
Selank	Neuro & Cognitive	Synthetic heptapeptide from Tuftsin. Approved anxiolytic in Russia and Ukraine. Modulates the GABAergic system like benzodiazepine...
Semax	Neuro & Cognitive	Synthetic heptapeptide from ACTH fragment 4-7. Approved medication in Russia and Ukraine. Primary mechanism: stimulates BDNF – pro...
Sermorelin	Growth Hormone	Synthetic GHRH analog comprising the first 29 amino acids of natural GHRH. Stimulates the pituitary to produce natural GH rather t...
SS-31 (Elamipretide)	Longevity & Metabolic	Synthetic tetrapeptide (Szeto-Schiller). Targets cardiolipin in the inner mitochondrial membrane – stabilizes structure, prevents ...
TB-500	Healing & Recovery	Synthetic analog of Thymosin Beta 4. Regulates actin to accelerate cell migration to injury sites. Supports muscle repair, reduces...
Tesamorelin / Ipamorelin	Growth Hormone	Blend of Tesamorelin (GHRH analog, FDA-approved as Egrifta for HIV lipodystrophy) and Ipamorelin. Tesamorelin has specific documen...
Thymosin Alpha-1 (TA-1)	Immune	Naturally occurring thymus-derived peptide. Approved as Zadaxin in 35+ countries for hepatitis B, C, and as a vaccine adjuvant. En...



SECTION 2

[Brief Reference:](#) By Category

GLP-1 / Weight Management

GLP-1 R (Retatrutide)

Triple receptor agonist – GLP-1, GIP, and glucagon receptors simultaneously. Most advanced compound in the GLP-1 class. Glucagon receptor activation accelerates visceral fat metabolism significantly. Early clinical data showing approximately 24-26% body weight reduction. No FDA-approved branded equivalent currently exists.

GLP-1 S (Semaglutide)

Single GLP-1 receptor agonist. Same active compound as Ozempic and Wegovy. Well-established mechanism and extensive clinical data. Approximately 15% body weight reduction in trials. Widely recognized by providers and patients.

GLP-1 T (Tirzepatide)

Dual GIP and GLP-1 receptor agonist. Same active compound as Mounjaro and Zepbound. GIP receptor activation enhances fat metabolism beyond GLP-1 alone. Approximately 20-22% body weight reduction in clinical trials. Most widely recognized GLP-1 compound by providers.

Healing & Recovery

BPC-157

Body Protection Compound-157. Synthetic 15-amino-acid peptide from a protein in human gastric juice. Promotes angiogenesis at injury sites, modulates nitric oxide pathways, and supports gut mucosal repair. Oral for gut-specific effects; injectable for systemic tissue repair. One of the peptides returning to legal compounding following 2026 regulatory changes.

BPC-157 / TB-500 Blend

Pre-blended BPC-157 and TB-500. Most widely studied healing peptide combination in functional medicine. Synergistic: BPC-157 promotes angiogenesis at injury sites, TB-500 regulates actin to mobilize cells to those same sites. Together more complementary than either alone.

GHK-Cu

Glycyl-L-Histidyl-L-Lysine Copper. Naturally occurring copper tripeptide in human plasma. Stimulates collagen and elastin synthesis, promotes wound healing, activates 300+ genes involved in tissue repair. Same active compound in topical copper peptide aesthetics products. Distinctive blue color from copper content is normal.

GLOW Blend

Centre Labs blend of GHK-Cu, BPC-157, and TB-500. Three complementary mechanisms: GHK-Cu for collagen and skin regeneration, BPC-157 for angiogenesis and tissue repair, TB-500 for cell migration and connective tissue healing. Blue color from GHK-Cu copper content is normal.

KLOW Blend

Adds KPV anti-inflammatory peptide to the GLOW formula. Four mechanisms: KPV reduces inflammation, GHK-Cu rebuilds collagen, BPC-157 promotes angiogenesis, TB-500 mobilizes repair cells. Most comprehensive healing blend for protocols requiring both tissue repair and anti-inflammatory support.

KPV

Tripeptide (Lysine-Proline-Valine) derived from alpha-MSH. Inhibits NF-kB – the master switch for inflammatory gene expression. Particular affinity for gut tissue. Studied for IBD, Crohn's, leaky gut, and systemic inflammatory conditions. Anti-inflammatory anchor of the KLOW blend.

TB-500

Synthetic analog of Thymosin Beta 4. Regulates actin to accelerate cell migration to injury sites. Supports muscle repair, reduces inflammation, and supports connective tissue flexibility. Synergistic with BPC-157: BPC-157 grows blood vessels at injury sites, TB-500 mobilizes cells to those sites.

Growth Hormone

CJC-1295 (no DAC)

Synthetic GHRH analog. CJC is a research lab designation (ConjuChem), not a meaningful acronym. 30-minute half-life producing pulsatile physiologic GH release. Daily injection. Always paired with Ipamorelin – CJC signals GH production, Ipamorelin signals GH release.

CJC-1295 (with DAC)

Same GHRH analog with Drug Affinity Complex that binds albumin, extending half-life to 6-8 days. Once or twice weekly dosing. Produces sustained rather than pulsatile GH levels. Provider and patient preference determines which version is appropriate – neither is categorically superior.

CJC / Ipamorelin Blend

Pre-blended CJC-1295 no DAC and Ipamorelin. The two-key GH system in a single preparation: CJC signals GH production, Ipamorelin signals GH release. Most widely used GH peptide combination in functional medicine nationally.

Ipamorelin

Ghrelin mimetic GHRP. Most selective GHRP available — triggers GH release without raising cortisol, prolactin, or appetite. Always used with CJC-1295. Replaced GHRP-6 in most protocols because GHRP-6 causes intense hunger stimulation. The release key in the two-key GH system.

Sermorelin

Synthetic GHRH analog comprising the first 29 amino acids of natural GHRH. Stimulates the pituitary to produce natural GH rather than replacing it. Self-regulating mechanism. Studied for GH optimization, body composition, sleep quality, and recovery. Natural extension of any hormone health practice.

Tesamorelin / Ipamorelin

Blend of Tesamorelin (GHRH analog, FDA-approved as Egrifta for HIV lipodystrophy) and Ipamorelin. Tesamorelin has specific documented research on visceral fat reduction. Two-key GH mechanism. FDA approval history provides a strong clinical anchor for provider conversations.

Sexual Health & Pigmentation

Melanotan-1

Highly selective MC1R agonist. Stimulates melanogenesis and photoprotection. European approved equivalent (Afamelanotide/Scenesse). High receptor selectivity produces a cleaner side effect profile than Melanotan-2. Monitor existing moles for darkening.

Melanotan-2

Less selective melanocortin agonist hitting MC1R, MC3R, and MC4R. Produces tanning plus appetite suppression and sexual arousal. PT-141 was developed from MT-2 by isolating the MC4R sexual health mechanism. Yawning during use reflects oxytocin-MC4R activation — confirms activity, not a side effect to worry about.

PT-141 (Bremelanotide)

Synthetic melanocortin peptide acting centrally in the brain at MC3R and MC4R. Generates sexual desire and arousal neurologically rather than peripherally. FDA-approved equivalent exists (Vyleesi). Developed from MT-2 by isolating the MC4R sexual health mechanism. Works for both men and women. Distinct from PDE5 inhibitors.

Immune

LL-37

Cationic antimicrobial peptide from the cathelicidin family. Naturally produced by neutrophils and epithelial cells. Unique ability to disrupt biofilms that resist standard antibiotics. CAUTION: overexpressed in rosacea – not appropriate for rosacea patients without careful provider evaluation.

Thymosin Alpha-1 (TA-1)

Naturally occurring thymus-derived peptide. Approved as Zadaxin in 35+ countries for hepatitis B, C, and as a vaccine adjuvant. Enhances T-cell maturation, stimulates natural killer cells, and modulates cytokines bidirectionally – enhancing where underactive, calming where overactive. Studied for long COVID and aging immune function.

Neuro & Cognitive

Cerebrolysin

Complex biological preparation from porcine brain tissue. PORCINE DERIVED – not appropriate for Muslim, Jewish, or vegan patients. Approved pharmaceutical in 50+ countries for stroke, TBI, and Alzheimer's. Activates the full spectrum of brain growth factors: BDNF, NGF, GDNF, VEGF simultaneously. Supported by human randomized controlled trial data.

Pinealon

Synthetic tripeptide (Glu-Asp-Arg) developed by Professor Khavinson. Targets the pineal gland specifically. Supports melatonin regulation, reduces age-related pineal calcification (nearly universal by age 60), and supports circadian rhythm. Studied for sleep dysfunction, cognitive aging, and glymphatic clearance during deep sleep.

Selank

Synthetic heptapeptide from Tuftsin. Approved anxiolytic in Russia and Ukraine. Modulates the GABAergic system like benzodiazepines — without sedation, tolerance, or dependence. Nasal spray delivery. CRITICAL: never suggest substituting for benzodiazepines without supervised tapering — benzo withdrawal can be life-threatening.

Semax

Synthetic heptapeptide from ACTH fragment 4-7. Approved medication in Russia and Ukraine. Primary mechanism: stimulates BDNF — promoting neurogenesis and synaptic strengthening. Enhances cerebral blood flow and reduces neuroinflammation. Nasal spray for direct brain access. Studied for cognitive optimization, post-COVID brain fog, and perimenopausal cognitive symptoms.

Longevity & Metabolic

AOD-9604

Fragment of human growth hormone (amino acids 177-191) targeting fat metabolism specifically. Stimulates lipolysis and inhibits lipogenesis without affecting blood sugar or IGF-1. FDA GRAS designation after clinical trials. Studied for stubborn fat reduction, particularly visceral and abdominal fat. Best positioned as a body composition finisher after primary weight loss on GLP-1 protocols.

Epitalon

Synthetic tetrapeptide (Ala-Glu-Asp-Gly) developed by Professor Khavinson over 40+ years. Activates telomerase — the enzyme that rebuilds telomere length. Telomeres are the protective chromosome caps that shorten with each cell division. Also supports pineal gland function. Animal studies showed 20-40% lifespan extension and reduced tumor incidence.

Glutathione

Tripeptide (glutamine, cysteine, glycine). Primary antioxidant and master detoxification compound. Neutralizes free radicals, supports liver detoxification, inhibits melanin production for skin brightening, protects mitochondria. Oral bioavailability poor — injectable or IV required. Sulfuric/garlic odor on reconstitution is completely normal — brief clinic staff proactively.

MOTS-c

Encoded directly in mitochondrial DNA — one of the only peptides in biology with this origin. Activates AMPK, the cellular energy sensing master switch. Enhances insulin sensitivity, promotes visceral fat metabolism, promotes mitochondrial biogenesis. Exercise mimetic. Associated with centenarian research. Levels decline significantly with age.

NAD+

Nicotinamide Adenine Dinucleotide. Not technically a peptide but essential to the longevity catalog. “Nicotin” is B3 etymology — no relation to nicotine. Powers mitochondrial energy production, fuels the citric acid cycle, activates DNA-repair sirtuins. Oral bioavailability poor — injectable or IV markedly superior. IV infusion discomfort is rate-dependent and expected.

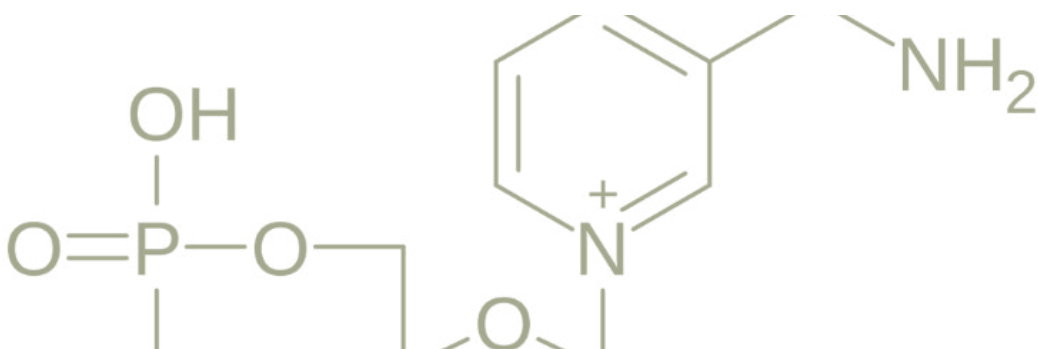
SS-31 (Elamipretide)

Synthetic tetrapeptide (Szeto-Schiller). Targets cardiolipin in the inner mitochondrial membrane — stabilizes structure, prevents oxidation, restores ATP production. Active in Phase 2 and Phase 3 clinical trials for heart failure and mitochondrial disease. One of the most clinically validated compounds in the catalog.

Reproductive Health

Kisspeptin-10

Encoded by the KISS1 gene (named after Hershey, PA, home of Hershey’s Kisses). Master upstream regulator of the HPG axis — sits above GnRH, LH, FSH, and the sex hormones. Studied for fertility preservation in men on TRT, hypothalamic amenorrhea, and libido not responding to hormone optimization.



SECTION 3

[Deep Dive:](#) Full Product Profiles

Category: GLP-1 / Weight Management

GLP-1 T

GLP-1 / Weight Management

What It Is

Dual GIP and GLP-1 receptor agonist. Same active compound as Mounjaro and Zepbound.

Mechanism

GLP-1: reduces appetite, slows gastric emptying, stimulates insulin. GIP: enhances fat metabolism and energy regulation. Dual action produces approximately 20-22% body weight reduction vs approximately 15% with semaglutide.

Research Context – Studied For

- » Weight management programs
- » Metabolic syndrome
- » Body composition optimization
- » Patients who have plateaued on semaglutide

Cautions

- » Active pancreatitis
- » Personal or family history of medullary thyroid cancer or MEN2
- » Pregnancy
- » Severe GI motility disorders

Administration

Subcutaneous injection. Titration from 2.5mg weekly in 2.5mg increments. Lyophilized powder reconstituted with bacteriostatic water.

Side Effects

- » Nausea – most common, improves with titration
- » GI effects
- » Fatigue – less than semaglutide
- » Injection site reactions

GLP-1 R

GLP-1 / Weight Management

What It Is

Triple receptor agonist — GLP-1, GIP, and glucagon simultaneously. Most advanced compound in the GLP-1 class. No FDA-approved branded equivalent currently exists.

Mechanism

GLP-1: appetite suppression. GIP: fat metabolism. Glucagon: dramatically accelerates visceral fat burning. Early data showing approximately 24-26% body weight reduction — strongest numbers in the class.

Research Context — Studied For

- » Advanced weight management
- » Patients who have plateaued on tirzepatide or semaglutide
- » Visceral fat reduction

Cautions

- » Active pancreatitis
- » Personal or family history of medullary thyroid cancer or MEN2
- » Pregnancy

Administration

Subcutaneous injection. Titration per provider protocol.

Side Effects

- » Nausea
- » GI effects similar to other GLP-1 class compounds
- » Data continues to develop

GLP-1 S

GLP-1 / Weight Management

What It Is

Single GLP-1 receptor agonist. Same active compound as Ozempic and Wegovy.

Mechanism

GLP-1 receptor: reduces appetite, slows gastric emptying, stimulates insulin. Approximately 15% body weight reduction in clinical trials.

Research Context — Studied For

- » Weight management
- » Patients with existing semaglutide familiarity

Cautions

- » Active pancreatitis
- » Medullary thyroid cancer or MEN2 history
- » Pregnancy

Administration

Subcutaneous injection. Titration from 0.25mg weekly.

Side Effects

- » Nausea
- » Fatigue
- » GI effects
- » Injection site reactions

Category: Healing & Recovery

BPC-157

Healing & Recovery

What It Is

Body Protection Compound-157. Synthetic 15-amino-acid peptide from human gastric juice protein.

Mechanism

Promotes angiogenesis at injury sites. Activates growth factors for collagen remodeling. Modulates nitric oxide. Anti-inflammatory. Oral: direct gut protection. Injectable: systemic tissue repair.

Research Context – Studied For

- » Tendon and ligament repair
- » Muscle injury
- » Gut healing – IBD, NSAID damage, leaky gut
- » Post-surgical recovery
- » GI protection for GLP-1 patients

Cautions

- » Route determines indication: oral for gut, injectable for systemic

Administration

Oral capsule for gut. Subcutaneous injection for systemic.

Side Effects

- » Very well tolerated
- » Mild nausea – rare
- » Mild injection site reactions

TB-500

Healing & Recovery

What It Is

Synthetic analog of Thymosin Beta 4. Found naturally in blood platelets and wound fluid.

Mechanism

Regulates actin to accelerate cell migration to injury sites. Promotes muscle repair, reduces inflammation at injury sites, supports connective tissue flexibility.

Research Context – Studied For

- » Muscle repair
- » Tendon and ligament healing
- » Post-surgical recovery
- » Range of motion restoration

Cautions

- » Generally well tolerated – provider oversight recommended

Administration

Subcutaneous injection. Often used in cycles.

Side Effects

- » Well tolerated
- » Mild injection site reactions
- » Rare transient headache

GHK-Cu

Healing & Recovery

What It Is

Glycyl-L-Histidyl-L-Lysine Copper. Naturally occurring copper tripeptide in human plasma. Same active compound as topical copper peptide aesthetics products – injectable provides systemic effects beyond topical.

Mechanism

Stimulates collagen and elastin. Promotes wound healing and tissue remodeling. Anti-inflammatory. Activates 300+ tissue repair genes.

Research Context – Studied For

- » Skin regeneration
- » Collagen stimulation
- » Wound healing
- » Post-procedure recovery
- » Hair follicle health

Cautions

- » Blue color from copper is normal – brief clinical staff

Administration

Injectable or topical. Lyophilized powder.

Side Effects

- » Excellent tolerability
- » Distinctive blue color — normal
- » Mild injection site reactions

KPV

Healing & Recovery

What It Is

Tripeptide (Lysine-Proline-Valine) from alpha-MSH. Melanocortin family.

Mechanism

Inhibits NF- κ B — the master inflammatory gene switch. Suppresses pro-inflammatory cytokines. Particular gut affinity. Regulates rather than suppresses immune response.

Research Context — Studied For

- » Gut inflammation — IBD, Crohn's, leaky gut
- » Systemic anti-inflammatory protocols
- » Autoimmune inflammatory components
- » Inflammaging

Cautions

- » Provider oversight for patients on conventional immunosuppressants

Administration

Oral or injectable. Oral effective for gut-specific indications.

Side Effects

- » Very well tolerated
- » Mild GI symptoms — rare

Category: Growth Hormone

Sermorelin

Growth Hormone

What It Is

Synthetic GHRH analog – first 29 amino acids of natural GHRH. Stimulates natural GH production rather than replacing it.

Mechanism

Mimics GHRH at hypothalamic-pituitary interface. Self-regulating – cannot produce supraphysiologic GH levels.

Research Context – Studied For

- » Growth hormone optimization
- » Body composition
- » Sleep quality
- » Energy and recovery

Cautions

- » Active malignancy requires provider assessment
- » Pituitary tumors
- » Pregnancy

Administration

Subcutaneous injection. Daily, typically at bedtime.

Side Effects

- » Well tolerated
- » Transient water retention
- » Mild joint discomfort
- » Headache

CJC-1295 (no DAC)

Growth Hormone

What It Is

Synthetic GHRH analog. CJC = ConjuChem research lab name. 30-minute half-life, pulsatile GH release.

Mechanism

Stimulates GHRH receptors at hypothalamic-pituitary interface. Daily injection produces pulsatile GH release.

Research Context — Studied For

- » GH optimization paired with Ipamorelin
- » Body composition
- » Sleep quality
- » Recovery

Cautions

- » Active malignancy requires provider judgment
- » Pregnancy

Administration

Subcutaneous injection. Daily. Always paired with Ipamorelin.

Side Effects

- » Water retention
- » Joint discomfort — transient
- » Headache
- » Injection site reactions

CJC-1295 (with DAC)

Growth Hormone

What It Is

Same GHRH analog with Drug Affinity Complex that binds albumin, extending half-life to 6-8 days.

Mechanism

Same GHRH receptor stimulation. Sustained elevated GH rather than pulsatile. Once or twice weekly.

Research Context – Studied For

- » GH optimization
- » Patients preferring less frequent dosing

Cautions

- » Same as Sermorelin

Administration

Subcutaneous injection. Once or twice weekly. Paired with Ipamorelin.

Side Effects

- » Similar to CJC no DAC
- » Sustained rather than pulsatile GH effects

Ipamorelin

Growth Hormone

What It Is

Ghrelin mimetic GHRP. Most selective GHRP available. Replaced GHRP-6 in most protocols because GHRP-6 causes intense hunger stimulation.

Mechanism

Acts at ghrelin receptor on pituitary. Triggers GH release without raising cortisol, prolactin, or appetite. Selective GH release only.

Research Context – Studied For

- » GH optimization paired with CJC-1295
- » Body composition
- » Sleep quality
- » Recovery

Cautions

- » Active malignancy requires provider judgment

Administration

Subcutaneous injection. Daily, typically evening. Always paired with CJC-1295.

Side Effects

- » Best tolerability of all GHRPs
- » Mild water retention
- » Occasional headache
- » No hunger stimulation

Tesamorelin / Ipamorelin

Growth Hormone

What It Is

Blend of Tesamorelin (FDA-approved as Egrifta for HIV lipodystrophy) and Ipamorelin.

Mechanism

Two-key: Tesamorelin triggers GH production with specific visceral fat reduction data, Ipamorelin triggers GH release.

Research Context – Studied For

- » Visceral fat reduction
- » GH optimization with body composition focus
- » Truncal fat accumulation

Cautions

- » Same as other GH peptides

Administration

Subcutaneous injection.

Side Effects

- » See individual product profiles

Category: Sexual Health & Pigmentation

PT-141 (Bremelanotide)

Sexual Health & Pigmentation

What It Is

Synthetic melanocortin peptide. Central brain action at MC3R and MC4R. FDA-approved equivalent: Vyleesi. Developed from Melanotan-2.

Mechanism

Acts centrally in the hypothalamus – generates sexual desire and arousal neurologically. Distinct from PDE5 inhibitors which work peripherally on blood flow. Addresses central desire, not mechanics.

Research Context – Studied For

- » Hypoactive sexual desire disorder in women
- » Low libido in both sexes not responding to hormone optimization
- » Psychogenic erectile dysfunction
- » SSRI-induced libido impairment
- » Patients who cannot use PDE5 inhibitors

Cautions

- » Recent cardiovascular events
- » Uncontrolled hypertension – transient BP increase
- » High cardiovascular risk – provider screening required

Administration

Subcutaneous injection. On-demand, 45 min to 1.5 hrs before activity.

Side Effects

- » Nausea – most common, improves with lower doses

- » Flushing
- » Transient blood pressure increase
- » Headache

Melanotan-1

Sexual Health & Pigmentation

What It Is

Highly selective MC1R agonist. Stimulates melanogenesis and photoprotection. European approved equivalent: Afamelanotide (Scenesse).

Mechanism

Selective MC1R stimulation of melanin production. Produces photoprotection – melanin absorbs UV radiation protecting skin cells.

Research Context – Studied For

- » Photoprotection
- » Natural pigmentation enhancement
- » Sun sensitivity conditions

Cautions

- » Monitor existing moles for darkening

Administration

Subcutaneous injection.

Side Effects

- » Excellent tolerability from receptor selectivity
- » Mild nausea – rare
- » Mole darkening – monitor

Melanotan-2

Sexual Health & Pigmentation

What It Is

Less selective melanocortin agonist: MC1R, MC3R, and MC4R. PT-141 was developed from MT-2 to isolate the MC4R sexual health mechanism.

Mechanism

MC1R: tanning. MC3R/MC4R: sexual arousal, appetite suppression, erections in men. Less selectivity = more effects, more side effects to manage.

Research Context – Studied For

- » Combined tanning with appetite suppression and sexual arousal

Cautions

- » Spontaneous erections in men – inform patients
- » More nausea than MT-1
- » For tanning only – MT-1 is cleaner

Administration

Subcutaneous injection.

Side Effects

- » Nausea – more than MT-1
- » Flushing
- » Spontaneous erections in men
- » Appetite suppression
- » Mole darkening
- » Yawning – oxytocin/MC4R activation – confirms activity

Category: Immune

Thymosin Alpha-1 (TA-1)

Immune

What It Is

Naturally occurring thymus-derived peptide. Approved as Zadaxin in 35+ countries for hepatitis B, C, and as a vaccine adjuvant.

Mechanism

Enhances T-cell maturation. Stimulates natural killer cells. Modulates cytokines bidirectionally — enhancing where underactive, calming where overactive.

Research Context — Studied For

- » Long COVID immune dysregulation
- » Chronic viral infections
- » Immune deficiency states
- » Integrative oncology support
- » Aging immune function / thymic involution

Cautions

- » Active autoimmune on conventional immunosuppressants — provider to assess
- » Pregnancy — insufficient data

Administration

Subcutaneous injection.

Side Effects

- » Very well tolerated
- » Mild injection site reactions
- » Rare allergic reactions

LL-37

Immune

What It Is

Cationic antimicrobial peptide — cathelicidin family. 37 amino acids, begins with two leucines. Produced by neutrophils and epithelial cells.

Mechanism

Broad antimicrobial action against bacteria, viruses, and fungi. Unique biofilm disruption — targets bacterial communities standard antibiotics cannot penetrate.

Research Context — Studied For

- » Chronic biofilm-associated infections — Lyme, sinusitis, SIBO
- » Wound healing
- » Age-related immune decline

Cautions

- » ROSACEA CAUTION: LL-37 is overexpressed in rosacea — not appropriate for rosacea patients without careful provider evaluation
- » Pregnancy — insufficient data

Administration

Subcutaneous injection.

Side Effects

- » Well tolerated
- » Mild injection site reactions
- » Rare allergic reactions

Category: Neuro & Cognitive

Semax

Neuro & Cognitive

What It Is

Synthetic heptapeptide from ACTH fragment 4-7. Approved in Russia and Ukraine for stroke, TBI, and cognitive disorders. Nasal spray delivery.

Mechanism

Stimulates BDNF — promoting neurogenesis and synaptic strengthening. Enhances dopamine and serotonin. Improves cerebral blood flow. Reduces neuroinflammation.

Research Context — Studied For

- » Cognitive optimization
- » Post-COVID brain fog
- » TBI recovery
- » Stroke rehabilitation
- » Perimenopausal cognitive symptoms
- » Treatment-resistant depression context

Cautions

- » Anxiety at higher doses in some individuals
- » Caution with severe anxiety disorders

Administration

Nasal spray. Direct olfactory pathway delivery. Faster central onset than injectable.

Side Effects

- » Mild nasal irritation
- » Occasional headache
- » Mild anxiety at higher doses
- » Vivid dreams

Selank

Neuro & Cognitive

What It Is

Synthetic heptapeptide from Tuftsin. Approved anxiolytic in Russia and Ukraine. Nasal spray delivery.

Mechanism

Modulates GABAergic system like benzodiazepines – without sedation, tolerance, or dependence. Stabilizes enkephalins. Enhances serotonin metabolism. Reduces cortisol response to stress.

Research Context – Studied For

- » Generalized anxiety disorder
- » Perimenopausal anxiety
- » Performance anxiety
- » Stress resilience optimization
- » SSRI tapering support context

Cautions

- » CRITICAL: Never suggest substituting for benzodiazepines without supervised tapering – benzo withdrawal can be life-threatening
- » Provider oversight required for any patient currently on benzodiazepines

Administration

Nasal spray. Direct olfactory delivery.

Side Effects

- » Better tolerability than Semax
- » Mild nasal irritation
- » Occasional mild sedation at higher doses
- » No dependence, no withdrawal, no cognitive blunting

Cerebrolysin

Neuro & Cognitive

What It Is

Complex biological preparation from porcine brain tissue. PORCINE DERIVED — not for Muslim, Jewish, or vegan patients. Approved in 50+ countries for Alzheimer's, stroke, and TBI. Human RCT data.

Mechanism

Activates full brain growth factor spectrum: BDNF, NGF, GDNF, VEGF. Reduces excitotoxicity. Inhibits neuronal apoptosis. Enhances neuroplasticity.

Research Context — Studied For

- » Stroke recovery
- » TBI rehabilitation
- » Alzheimer's disease
- » Vascular dementia
- » Chemotherapy-induced cognitive impairment (chemo brain)
- » Age-associated cognitive impairment

Cautions

- » PORCINE DERIVED — not for Muslim, Jewish, or vegan patients. Address proactively. Alternatives: Semax, Selank, NAD+, SS-31
- » Epilepsy — may lower seizure threshold
- » Renal impairment — dosing considerations

Administration

IM or IV. Practices with nursing support or IV therapy capability.

Side Effects

- » Well tolerated given clinical trial history
- » Mild nausea
- » Headache
- » Dizziness at higher doses

Pinealon

Neuro & Cognitive

What It Is

Synthetic tripeptide (Glu-Asp-Arg) developed by Professor Khavinson. Specifically targets the pineal gland.

Mechanism

Stimulates pineal gland function. Enhances melatonin regulation. Reduces age-related pineal calcification. Supports circadian rhythm. Neuroprotective.

Research Context – Studied For

- » Sleep dysfunction and insomnia
- » Circadian disruption
- » Pineal calcification on imaging
- » Cognitive aging
- » Perimenopausal sleep disruption
- » Glymphatic clearance during deep sleep

Cautions

- » Generally very well tolerated

Administration

Injectable or intranasal.

Side Effects

- » Mild drowsiness – often desired
- » Vivid dreams
- » Rare headache

Category: Longevity & Metabolic

NAD+

Longevity & Metabolic

What It Is

Nicotinamide Adenine Dinucleotide. “Nicotin” = B3 etymology — no relation to nicotine. Brief clinic staff proactively. Levels decline with age, stress, and illness.

Mechanism

Powers mitochondrial energy production. Fuels citric acid cycle. Activates sirtuins — DNA repair proteins. Essential to cellular energy and longevity pathways.

Research Context — Studied For

- » Cellular energy optimization
- » Anti-aging and longevity
- » Cognitive function and brain fog
- » Long COVID fatigue — mitochondrial dysfunction documented
- » Addiction recovery support context in IV clinics

Cautions

- » IV infusion causes chest tightness, nausea, burning — rate-dependent and expected. Run slowly.
- » Oral bioavailability poor — injectable or IV required for clinical effect

Administration

IV infusion or subcutaneous injection. IV produces strongest results. Slower infusion rate = better tolerated.

Side Effects

- » IV: chest tightness, nausea, burning — normal, rate-dependent
- » Headache
- » Initial fatigue response in some

Glutathione

Longevity & Metabolic

What It Is

Tripeptide: glutamine, cysteine, glycine. Primary antioxidant and master detoxification compound. Sulfuric/garlic odor on reconstitution is completely normal — brief clinic staff proactively.

Mechanism

Neutralizes free radicals. Phase 2 liver detoxification. Immune cell production. Inhibits melanin — skin brightening. Protects mitochondria from oxidative damage.

Research Context — Studied For

- » Antioxidant and detox support
- » Liver health
- » Skin brightening
- » Mitochondrial protection
- » Immune enhancement

Cautions

- » Oral bioavailability poor — injectable or IV required
- » Asthma patients — injectable may trigger bronchospasm in some

Administration

IV push (classically after NAD+) or standalone IV or IM.

Side Effects

- » Very well tolerated
- » Garlic/sulfur smell on reconstitution — NORMAL — brief staff
- » Asthma patients — monitor

MOTS-c

Longevity & Metabolic

What It Is

Encoded directly in mitochondrial DNA – one of the only peptides in biology with this origin. Levels decline significantly with age.

Mechanism

Activates AMPK – cellular energy master switch. Enhances insulin sensitivity. Promotes visceral fat metabolism. Promotes mitochondrial biogenesis. Exercise mimetic – activates same pathways as physical exercise.

Research Context – Studied For

- » Insulin resistance and metabolic syndrome
- » Visceral fat reduction
- » Body composition optimization
- » Longevity – centenarian research
- » Exercise-mimetic effects for physically limited patients

Cautions

- » Provider oversight for diabetic patients – insulin sensitization may affect glucose management

Administration

Subcutaneous injection.

Side Effects

- » Well tolerated
- » Mild injection site reactions
- » Monitor glucose in diabetic patients

SS-31 (Elamipretide)

Longevity & Metabolic

What It Is

Synthetic tetrapeptide (Szeto-Schiller). Targets cardiolipin in the inner mitochondrial membrane. Active in Phase 2 and Phase 3 clinical trials.

Mechanism

Binds cardiolipin in inner mitochondrial membrane. Stabilizes structure, prevents oxidation, maintains electron transport chain efficiency, restores ATP production.

Research Context – Studied For

- » Cellular aging and mitochondrial dysfunction
- » Chronic fatigue – mitochondrial component
- » Long COVID fatigue
- » Post-cardiac recovery support context

Cautions

- » Active cardiac conditions – close provider coordination
- » Serious applications require appropriate medical oversight

Administration

Subcutaneous injection.

Side Effects

- » Well tolerated given clinical trial history
- » Mild injection site reactions
- » Occasional headache

Epitalon

Longevity & Metabolic

What It Is

Synthetic tetrapeptide (Ala-Glu-Asp-Gly) developed by Professor Khavinson over 40+ years. Activates telomerase. Also supports pineal gland function.

Mechanism

Activates telomerase — rebuilding telomere length in aging cells. Telomeres are the protective chromosome caps that shorten with each cell division. Animal studies: 20-40% lifespan extension and reduced tumor incidence.

Research Context — Studied For

- » Biological age optimization — telomere lengthening
- » Patients with known short telomeres
- » Pineal support and melatonin restoration
- » Longevity and anti-aging protocols

Cautions

- » Cancer question — must know: Epitalon normalizes cell division regulation; cancer dysregulates it. These are fundamentally different processes. Khavinson studies showed REDUCED tumor incidence. Provider must assess individually.
- » Pregnancy — insufficient data

Administration

Subcutaneous injection or intranasal.

Side Effects

- » Remarkably well tolerated
- » Mild injection site reactions
- » Occasional headache
- » Vivid dreams

AOD-9604

Longevity & Metabolic

What It Is

Anti-Obesity Drug 9604. HGH fragment (amino acids 177-191). FDA GRAS designation after clinical trials.

Mechanism

Stimulates lipolysis — fat breakdown. Inhibits lipogenesis — new fat formation. Does NOT affect blood sugar or raise IGF-1, unlike full HGH.

Research Context — Studied For

- » Stubborn fat after primary weight loss
- » Visceral and abdominal fat reduction
- » Menopausal fat redistribution
- » Body composition post-GLP-1 protocol

Cautions

- » Well tolerated — no blood sugar or IGF-1 effects confirmed in clinical trials

Administration

Subcutaneous injection.

Side Effects

- » Excellent safety profile
- » Mild injection site reactions
- » No blood sugar effects
- » No IGF-1 elevation

Category: Reproductive Health

Kisspeptin-10

Reproductive Health

What It Is

Encoded by KISS1 gene (named after Hershey, PA, home of Hershey's Kisses). Master upstream regulator of the HPG axis. Produced in the hypothalamus.

Mechanism

Stimulates GnRH from hypothalamus — driving LH and FSH from pituitary — driving sex hormones from gonads. Sits above the entire reproductive hormone cascade. Exogenous testosterone suppresses this pathway; Kisspeptin maintains upstream signaling.

Research Context — Studied For

- » Fertility preservation in men on TRT
- » Hypothalamic amenorrhea from stress, low weight, or over-exercise
- » Low libido not responding to hormone optimization
- » Natural testosterone stimulation support

Cautions

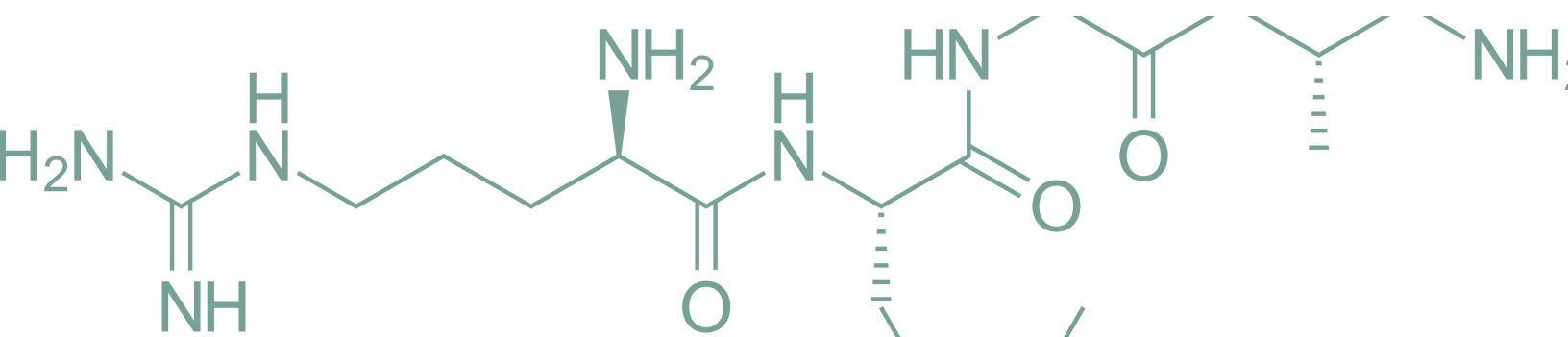
- » Active hormone-sensitive cancers — provider judgment required
- » Provider oversight for all reproductive health applications

Administration

Subcutaneous injection.

Side Effects

- » Mild flushing
- » Nausea — transient
- » Headache
- » LH surge symptoms in women — mild cramping possible



SECTION 4

Protocol Stacks

Mitochondrial Optimization

Four distinct mitochondrial angles in a single protocol.

- » NAD⁺ — cellular energy currency, fuels all mitochondrial processes
- » Glutathione — antioxidant protection from oxidative damage
- » MOTS-c — mitochondrial encoded metabolic signaling
- » SS-31 — inner mitochondrial membrane protection and ATP restoration
- » Pinealon — overnight antioxidant support via melatonin pathway

Best for: Anti-aging, functional medicine, longevity, chronic fatigue, long COVID

Complete Cognitive — 24-Hour Protocol

Daytime cognitive performance and overnight restoration.

- » Morning — Semax: BDNF stimulation, cognitive activation, neuroplasticity
- » As needed — Selank: anxiety reduction, calm focus, stress resilience
- » Evening — Pinealon: sleep architecture, circadian rhythm, glymphatic clearance
- » Periodic — Cerebrolysin: deep neuroprotection, neurodegeneration prevention
- » Long-term — Epitalon: telomere protection, biological clock maintenance

Best for: Functional medicine, concierge medicine, long COVID, anti-aging

Weight Management and Metabolic

Addresses appetite, metabolism, insulin sensitivity, and stubborn fat through complementary mechanisms.

- » GLP-1 T or GLP-1 R: primary weight loss driver
- » MOTS-c: metabolic optimization, insulin sensitivity, visceral fat
- » AOD-9604: stubborn fat finisher after primary weight loss
- » NAD⁺: cellular energy support and metabolic function

Best for: Weight loss clinics, functional medicine, primary care, metabolic health practices

Healing and Recovery

Complete tissue repair and anti-inflammatory protocol.

- » BPC-157: angiogenesis, gut protection, tissue repair
- » TB-500: cell migration, connective tissue, range of motion
- » GHK-Cu: collagen remodeling, skin regeneration
- » KPV: systemic and gut anti-inflammation
- » Or simply: KLOW blend — all four mechanisms in one preparation

Best for: Sports medicine, functional medicine, post-surgical, orthopedic adjacent

Hormone Health and Sexual Wellness

Upstream signaling, optimization, and sexual health for both men and women.

- » Kisspeptin: upstream HPG axis stimulation, natural hormone production, fertility
- » CJC-1295 / Ipamorelin: growth hormone optimization, body composition, sleep
- » PT-141: central sexual desire and arousal — both men and women
- » NAD+ / Glutathione: cellular support for hormonal metabolism and liver clearance

Best for: Biote practices, OB-GYN, men's health, functional medicine, concierge

Anti-Aging and Longevity

Comprehensive biological aging intervention across multiple hallmarks simultaneously.

- » Epitalon: telomere length — the biological clock
- » NAD+: mitochondrial energy and DNA repair
- » SS-31 and MOTS-c: mitochondrial protection and metabolic signaling
- » GHK-Cu: structural aging — collagen and tissue remodeling
- » Semax and Pinealon: cognitive aging — day activation and overnight restoration
- » TA-1: immune aging — thymic involution

Best for: Anti-aging practices, longevity clinics, concierge medicine

Gut Health

Mucosal repair, inflammation, detoxification, and cellular energy.

- » BPC-157 oral: mucosal protection and gut tissue healing
- » KPV oral: gut-specific anti-inflammation
- » Glutathione: liver detoxification and antioxidant protection
- » NAD+: cellular energy for gut epithelial cells

Best for: Functional medicine, integrative gastroenterology, IBD-focused practices

Immune Optimization

Four dimensions of immune health – enhancement, modulation, inflammation, and direct defense.

- » TA-1: T-cell enhancement and bidirectional immune modulation
- » KPV: anti-inflammatory and gut immune support
- » LL-37: direct antimicrobial and biofilm disruption
- » Glutathione: antioxidant immune support

Best for: Functional medicine, integrative medicine, long COVID, chronic infection

Post-COVID Protocol

Addresses documented long COVID pathophysiology: neuroinflammation, mitochondrial dysfunction, immune dysregulation, and fatigue.

- » Semax: neuroinflammation, BDNF, brain fog
- » Selank: anxiety component of long COVID
- » NAD+: mitochondrial dysfunction and fatigue
- » SS-31: mitochondrial membrane restoration
- » TA-1: immune dysregulation and T-cell restoration
- » Glutathione: oxidative stress reduction

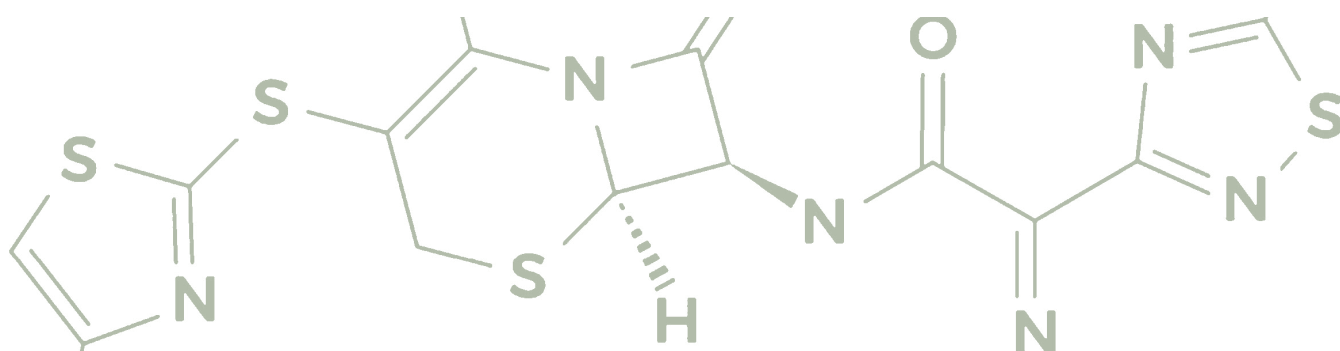
Best for: Functional medicine, integrative medicine, any practice seeing long COVID patients

Aesthetics and Skin Health

Inside-out skin and aesthetics protocol – collagen, photoprotection, and brightening.

- » GHK-Cu: collagen stimulation, skin regeneration, tissue remodeling
- » Melanotan-1: photoprotection and natural pigmentation
- » Glutathione: skin brightening and antioxidant protection
- » BPC-157: wound healing and post-procedure recovery
- » GLOW blend: GHK-Cu + BPC-157 + TB-500 – comprehensive aesthetics and healing

Best for: Med spa, aesthetics, dermatology adjacent, anti-aging



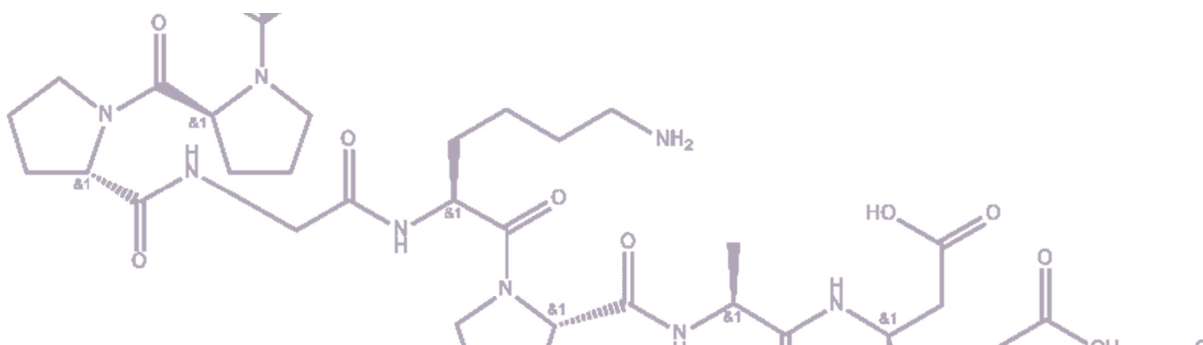
SECTION 5

[Definition Index](#)

Word	Meaning
Agonist	A compound that activates a receptor – binds and triggers its response.
AMPK	AMP-activated protein kinase – cellular energy sensing master switch. MOTS-c activates it.
Angiogenesis	Formation of new blood vessels. Critical to healing. BPC-157 primary mechanism.
Apoptosis	Programmed cell death. SS-31 inhibits apoptosis in damaged neurons.
BDNF	Brain Derived Neurotrophic Factor – promotes neurogenesis and synaptic strengthening. Semax primary mechanism.
Biofilm	Protective bacterial community matrix that resists standard antibiotics. LL-37 disrupts it.
BUD	Beyond-Use Date. Lyophilized powder: up to 2 years. Reconstituted liquid: weeks to months.
Cardiolipin	Phospholipid found almost exclusively in inner mitochondrial membrane. SS-31 targets it.
Cathelicidin	Family of antimicrobial peptides. LL-37 is the human cathelicidin.
Circadian rhythm	Internal 24-hour biological clock. Pinealon supports it.
COA	Certificate of Analysis – independent lab document confirming identity and purity.
DAC	Drug Affinity Complex – modification on CJC-1295 that binds albumin to extend half-life.
GABA / GABAergic	Primary inhibitory neurotransmitter system. Selank modulates it.
GDNF	Glial Cell Derived Neurotrophic Factor. Brain growth factor. Stimulated by Cerebrolysin.
GHK-Cu	Glycyl-L-Histidyl-L-Lysine Copper. Copper tripeptide for collagen and regeneration.
GIP	Glucose-Dependent Insulinotropic Polypeptide. Second receptor tirzepatide activates.
GLP-1	Glucagon-Like Peptide-1. Gut hormone reducing appetite and stimulating insulin.
Glucagon	Hormone raising blood glucose. Retatrutide activates glucagon receptor to accelerate fat burning.
Glymphatic system	Brain waste clearance system. Active only during deep sleep. Clears amyloid beta. Pinealon supports.
GMP	Good Manufacturing Practice. Regulatory standard for pharmaceutical manufacturing. Centre Labs certified.

Word	Meaning
GnRH	Gonadotropin-Releasing Hormone. Hypothalamus signal initiating the HPG cascade.
GRAS	Generally Recognized As Safe. FDA designation. AOD-9604 received GRAS after clinical trials.
GHRH	Growth Hormone Releasing Hormone. Hypothalamic signal. Sermorelin and CJC mimic it.
GHRP	Growth Hormone Releasing Peptide. Pituitary signal. Ipamorelin is the most selective GHRP.
HPG axis	Hypothalamic-Pituitary-Gonadal. Reproductive hormones: testosterone, estrogen, progesterone.
HPLC	High Performance Liquid Chromatography. Gold standard purity testing on COAs.
IGF-1	Insulin-like Growth Factor 1. Produced by liver in response to GH. AOD-9604 does NOT raise IGF-1.
Inflammaging	Chronic low-grade inflammation driving the aging process. KPV and TA-1 address it.
Lipolysis	Breakdown of stored fat. AOD-9604 primary mechanism.
Lipogenesis	Formation of new fat. AOD-9604 inhibits it.
Lyophilized	Freeze-dried. All Centre Labs peptides ship as lyophilized powder – up to 2-year shelf life.
MC1R / MC3R / MC4R	Melanocortin receptors 1, 3, 4. PT-141 and Melanotans act on these.
Melanogenesis	Melanin production in skin cells. Melanotan-1 and 2 stimulate it.
Mitochondria	Cellular power plants producing ATP energy. Central to aging, fatigue, and metabolic function.
MOTS-c	Mitochondrial Open Reading Frame of the 12S rRNA-c. Peptide encoded in mitochondrial DNA.
NAD+	Nicotinamide Adenine Dinucleotide. "Nicotin" = B3 etymology, not nicotine.
NF-kB	Nuclear Factor kappa B. Master switch controlling inflammatory gene expression. KPV inhibits it.
NGF	Nerve Growth Factor. Brain growth factor stimulated by Cerebrolysin.
Neurogenesis	Growth of new neurons. Semax and Cerebrolysin promote it.

Word	Meaning
Oxytocin	Bonding hormone. Shares MC4R pathway with PT-141 – explains yawning response on MT-2/PT-141.
Peptide	Short chain of amino acids (fewer than 50). All Centre Labs products.
Photoprotection	UV radiation protection via melanin. Melanotan-1 primary benefit.
Pineal calcification	Age-related calcium deposits reducing melatonin output. Nearly universal by age 60. Pinealon addresses.
Pituitary	Master gland at brain base. Controls GH, thyroid, adrenal, and reproductive hormones.
PDE5 inhibitor	Phosphodiesterase type 5 inhibitor (Viagra, Cialis). Peripheral vascular – different from PT-141.
Reconstitute	Adding bacteriostatic water to lyophilized powder to create injectable solution.
Sirtuin	Proteins that repair DNA damage. NAD+ activates sirtuins.
SPPS	Solid-Phase Peptide Synthesis. Merrifield's method (Nobel 1984). Used for all Centre Labs products.
Subcutaneous	Under the skin. Most peptide injections are subcutaneous.
Telomerase	Enzyme that rebuilds telomere length. Normally suppressed in adult cells. Epitalon activates it.
Telomere	Protective cap on chromosome end. Shortens with every cell division – the biological aging clock.
Thymic involution	Age-related shrinkage of thymus gland. Reduces immune function. TA-1 compensates.
Triple agonist	Activates three receptors. Retatrutide hits GLP-1, GIP, and glucagon receptors.
Tuftsinn	Natural immunomodulatory peptide. Selank is derived from it.
VEGF	Vascular Endothelial Growth Factor. Brain growth factor stimulated by Cerebrolysin.
Visceral fat	Fat around internal organs, especially abdominal. Multiple products target it.



SECTION 6

Historical Background: The Soviet Story

The Roots: 1902 to 1960s

In 1902 British physiologists Bayliss and Starling discovered secretin — the first hormone ever identified and it happened to be a peptide. Starling coined the word “hormone” in 1905. In 1921 Frederick Banting and Charles Best isolated insulin and used it to treat a dying diabetic patient — the first practical therapeutic peptide. Nobel Prize in 1923. In 1953 Frederick Sanger completed the first full amino acid sequence of insulin. That same year Vincent du Vigneaud synthesized oxytocin — the first peptide ever built chemically from scratch. Nobel Prize in 1955. In 1963 Bruce Merrifield developed Solid-Phase Peptide Synthesis (SPPS) — building peptides one amino acid at a time on a solid support bead. Nobel Prize in 1984. SPPS is the manufacturing method used for every Centre Labs product today.

The Soviet Secret

Most people in medicine have no idea this history exists. This is your dinner table story.

The Problem the Kremlin Gave to a Young Colonel

In the early 1970s the Soviet military faced a classified problem. They needed to keep submariners functional for months next to nuclear reactors on the ocean floor, keep cosmonauts healthy in space, and optimize the cognitive performance of special forces under extreme conditions. They believed the answer lay in biology.

In 1971 a young military physician named Vladimir Khatskelevich Khavinson graduated from the S.M. Kirov Military Medical Academy in Leningrad — the most prestigious military medical institution in the Soviet Union. By 1988 he was Chief of the Research Laboratory of Bioregulators — running a classified program with the full resources of the Soviet military machine. Khavinson later told researchers that much of his early work would be virtually impossible to replicate today — the Soviet military gave him essentially unlimited resources and materials that no Western ethical review board would ever approve.

What They Discovered

What Khavinson’s team found was that every organ in the body produces its own unique short peptides — two, three, or four amino acids long — that act as biological signals telling the organ’s cells what to do: divide, repair, rest, activate. They called them bioregulators. When you extract these peptides from one animal’s organ and administer them to an aging animal, the recipient organ begins to function more like a young organ. The pineal gland peptides restored melatonin production. The thymus peptides restored immune function. The brain peptides restored cognitive performance. They called this principle organ-specific peptide bioregulation.

From Military Secret to Longevity Science

In 1989 Khavinson founded Cytomed — beginning the process of moving his research from classified military application toward civilian medicine. In 1990 he received the USSR Council of Ministers Prize — the highest civilian scientific award in the Soviet Union. In 1991 the USSR collapsed. Military funding disappeared overnight. In 1992 he founded the St. Petersburg Institute of Bioregulation and Gerontology. The same peptides developed to protect soldiers from radiation were now being studied for their ability to slow human aging.

The Telomere Connection

The problem of protecting submariners from chronic radiation drove Khavinson's team deep into DNA protection and repair biology — because radiation accelerates telomere shortening. Telomeres are the protective caps on chromosomes that shorten with every cell division. A compound that activates telomerase — rebuilding telomere length — would theoretically protect cells from radiation-induced aging. The Cold War military problem led directly to one of the most profound longevity discoveries in modern science: Epitalon. In 1996 he was nominated for the Nobel Prize for discovering short-chain peptides as gene switches. The Nobel Prize for telomere research came in 2009. The West was still catching up.

The Scale of the Work

Professor Khavinson's career to date: 775 scientific publications, 196 patents across Russia, the US, Canada, Australia, Europe, Japan, Korea, and Israel, 6 peptide pharmaceutical drugs introduced into clinical practice, 64 peptide food supplements, the St. Petersburg Institute with 15 laboratories and 150 researchers, and 20-40% lifespan extension in animal models through peptide bioregulator therapy.

Semax and Selank — The Cognitive Warfare Program

Parallel to Khavinson's longevity research, a separate program at the Institute of Molecular Genetics of the Russian Academy of Sciences focused on a different military problem: how do you keep a soldier thinking clearly and making good decisions under extreme stress without sedation, addiction risk, or impaired motor function?

Semax was developed from a fragment of ACTH with modifications for stability and brain penetration. Selank was developed from Tuftsin — a natural immune peptide — modified to reduce anxiety through the GABAergic system without sedation or dependence. Both became approved medications in Russia and Ukraine. Both are widely used in Eastern Europe. Both are largely unknown in the United States. When you walk into a US provider's office with a confident conversation about Semax and Selank, you are bringing 40 years of Soviet military cognitive research to a market only now beginning to discover these compounds exist.

The Four Nobel Prizes

For scientifically sophisticated providers, the Nobel Prize chain is a compelling summary of the validated science underlying this catalog:

- » 1923 — Banting and Macleod: Insulin — peptides as therapeutics
- » 1955 — du Vigneaud: First synthetic peptide — chemical peptide synthesis
- » 1984 — Merrifield: Solid-phase peptide synthesis — the manufacturing method that makes this catalog possible
- » 2009 — Blackburn, Greider, Szostak: Telomeres and telomerase — directly validates Epitalon's mechanism

The Three-Minute Dinner Table Version

In the 1970s the Soviet military had a problem. They needed to keep submariners functional for months on the ocean floor, next to nuclear reactors. They gave a young military physician named Colonel Khavinson essentially unlimited resources and told him to figure it out.

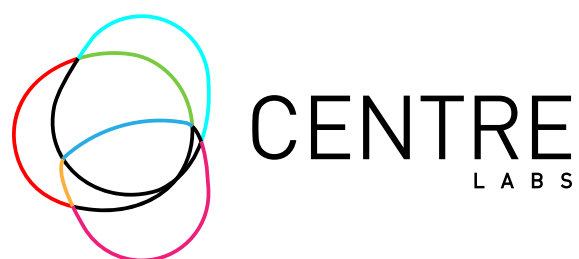
What he discovered over 40 years was extraordinary: every organ in your body produces its own short peptides — molecular signals that tell your cells to repair, regenerate, and stay young. He isolated these peptides, synthesized them, and showed that you could send your aging organs messages from their younger selves.

His work on radiation protection led him into telomere biology — the protective caps on your chromosomes that burn down with every cell division like a fuse. He found a peptide that switches telomerase back on, rebuilding telomere length. The Nobel Prize for that science came in 2009. Khavinson was nominated in 1996.

The Soviet Union collapsed in 1991. The military funding disappeared. Khavinson took his research and founded the St. Petersburg Institute of Bioregulation and Gerontology. The compounds developed to protect soldiers from radiation are now in longevity clinics across the United States.

The Cold War ended. The science survived. And now it's in your clinic.

Key Point



www.centrelabs.org