



# AGILE BIO LABS: PEPTIDE RESEARCH CHEAT SHEET

*A Simple Guide to Current Areas of Peptide Research*

Educational Guide for Research Awareness  
Transparent Testing · Verified Quality · Responsible Education

## ABOUT AGILE BIO LABS

Agile Bio Labs was founded with a simple mission: to help people better understand the science of longevity, performance, and healthy aging through transparent education and uncompromising quality.

What began as a personal journey and a shared curiosity about peptides and the future of medicine evolved into a family-built company dedicated to making complex science more accessible. Our team, Carl Johnson, Ande Johnson, Chris Johnson, and Taylor Johnson, shares a common belief that people deserve clear information, verified testing, and documentation they can trust.

Our own experiences exploring longevity, performance, and healthy aging inspired us to create Agile Bio Labs. We are passionate about helping others navigate the rapidly evolving world of peptide and longevity research by making the science more approachable and easier to understand.

By focusing on education, transparency, and rigorous quality standards, we aim to empower people to better understand one of the most exciting frontiers in modern science.

**Our approach is straightforward: Sourced. Tested. Verified. Released.**

Every batch should be supported by evidence. Every claim should be grounded in science. Every customer should have access to the information needed to evaluate quality with confidence.

At Agile Bio Labs, we are not interested in hype. We are committed to responsible education, scientific integrity, and helping people explore the science shaping the future of medicine and healthy aging.

**Science Driven • Quality Proven**

## PEPTIDE RESEARCH

Different peptides are being studied for different purposes. Some are researched in areas such as recovery, metabolism, skin and hair health, sleep, cognitive performance, and healthy aging. This guide provides a simple overview of common compounds and the scientific areas in which they are being investigated.

## EDUCATIONAL DISCLAIMER

This information is provided for informational and educational purposes only. It does not constitute medical advice and does not diagnose, treat, cure, or prevent disease.

Research compounds are not intended for human or veterinary use unless approved by applicable regulatory authorities.

# METABOLIC & BODY COMPOSITION RESEARCH

## GLP-1

### **What It Is Being Studied For:**

GLP-1 receptor agonists are being studied for their role in appetite signaling, glucose regulation, energy balance, and body composition research. These compounds interact with pathways involved in satiety and metabolic function and have become a major area of interest in obesity, diabetes, and longevity research.

### **Key Research Areas:**

- Appetite signaling
- Glucose regulation
- Energy balance
- Body composition
- Metabolic health

### **Why People Are Interested:**

GLP-1-based therapies have become one of the most widely studied and recognized advances in modern metabolic medicine.

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## GLP-2

### **What It Is Being Studied For:**

GLP-2 analogs are being studied for their potential role in intestinal integrity, nutrient absorption, gastrointestinal adaptation, and gut-related signaling pathways. Researchers are particularly interested in how these compounds influence the structure and function of the intestinal lining.

### **Key Research Areas:**

- Intestinal integrity
- Nutrient absorption
- Gastrointestinal adaptation
- Gut barrier biology
- Digestive health research

### **Why People Are Interested:**

GLP-2-based therapies have drawn attention for their role in gastrointestinal and intestinal

research.

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### **GLP-3**

#### **What It Is Being Studied For:**

GLP-3 refers to next-generation multi-pathway metabolic compounds designed to engage multiple signaling systems involved in appetite regulation, glucose control, energy expenditure, and body composition. These compounds are being studied for their potential role in advancing metabolic and longevity research.

#### **Key Research Areas:**

- Appetite signaling
- Glucose regulation
- Energy expenditure
- Body composition
- Healthy aging research

#### **Why People Are Interested:**

Multi-pathway metabolic compounds are among the most closely watched areas in obesity, metabolic, and longevity research because they are designed to influence several biological pathways simultaneously.

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### ***Cagrilintide***

#### **What It Is Being Studied For:**

Cagrilintide is a long-acting amylin analog being studied for its role in appetite signaling, gastric emptying, satiety pathways, and body composition research. Amylin is a naturally occurring peptide hormone that works alongside insulin and other metabolic signals to help regulate food intake and energy balance. Researchers are investigating cagrilintide both as a standalone compound and in combination with other metabolic agents as part of next-generation obesity and longevity research.

#### **Key Research Areas:**

- Appetite signaling
- Satiety pathways
- Gastric emptying
- Energy balance
- Body composition
- Metabolic health

### **Why People Are Interested:**

Cagrilintide has attracted significant attention because it targets amylin pathways that complement GLP-based signaling, making it an important area of interest in advanced metabolic and body composition research.

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## ***Mazdutide***

### **What It Is Being Studied For:**

Mazdutide is a next-generation dual-pathway metabolic compound being studied for its potential role in appetite signaling, glucose regulation, energy balance, and body composition research. It is designed to engage multiple receptor systems involved in metabolic control, making it an area of growing interest in obesity, diabetes, and healthy aging research.

### **Key Research Areas:**

- Appetite signaling
- Glucose regulation
- Energy balance
- Body composition
- Metabolic health
- Healthy aging research

### **Why People Are Interested:**

Mazdutide has generated significant attention because it represents a new class of multi-pathway metabolic compounds designed to influence more than one biological signaling system simultaneously. Researchers are closely monitoring these compounds as part of the next evolution of metabolic and longevity science.

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## ***Survodutide***

### **What It Is Being Studied For:**

Survodutide is a dual-pathway metabolic compound being studied for its potential role in appetite signaling, glucose regulation, energy balance, and body composition research. By engaging multiple receptor systems involved in metabolic control, researchers are investigating its effects in obesity, liver health, and broader metabolic science.

### **Key Research Areas:**

- Appetite signaling
- Glucose regulation

- Energy balance
- Body composition
- Liver and metabolic research
- Healthy aging research

#### **Why People Are Interested:**

Survodutide has drawn considerable attention as part of a new generation of metabolic compounds designed to influence more than one signaling pathway simultaneously. Researchers are particularly interested in its potential applications in body composition and metabolic health research.

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### **AOD9604**

#### **What It Is Being Studied For:**

AOD9604 is a peptide fragment derived from the C-terminal region of growth hormone. It is being studied for its potential role in lipid metabolism, energy utilization, and body composition research. Unlike full growth hormone, this fragment is designed to focus on specific metabolic signaling pathways and has become an area of interest in obesity and healthy aging research.

#### **Key Research Areas:**

- Lipid metabolism
- Energy utilization
- Body composition
- Metabolic health
- Healthy aging research

#### **Why People Are Interested:**

AOD9604 has attracted attention because it represents a targeted approach to metabolic research, focusing on pathways involved in fat metabolism and energy balance without replicating the full range of growth hormone activity.

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### **5-Amino-1MQ**

#### **What It Is Being Studied For:**

5-Amino-1MQ is a small-molecule research compound (not a peptide) being studied for its potential role in cellular metabolism, energy expenditure, and body composition research. It is investigated as an inhibitor of nicotinamide N-methyltransferase (NNMT), an enzyme involved in metabolic regulation and adipose tissue biology. Researchers are exploring how modulation of this pathway may influence fat metabolism and broader metabolic function.

### **Key Research Areas:**

- Cellular metabolism
- Energy expenditure
- Adipose tissue biology
- NNMT inhibition
- Body composition
- Metabolic health

### **Why People Are Interested:**

5-Amino-1MQ has generated significant interest because it targets a distinct metabolic pathway associated with energy utilization and adipose regulation, making it a compelling area of study in next-generation body composition and longevity research.

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## ***SLU-PP-332***

### **What It Is Being Studied For:**

SLU-PP-332 is a small-molecule research compound (not a peptide) being studied for its potential role in mitochondrial function, energy expenditure, and metabolic regulation. It is designed to activate estrogen-related receptors (ERRs), which are involved in cellular energy production and oxidative metabolism. Researchers are investigating how modulation of these pathways may influence endurance, metabolic flexibility, and body composition.

### **Key Research Areas:**

- Mitochondrial function
- Energy expenditure
- Oxidative metabolism
- Metabolic flexibility
- Endurance research
- Body composition

### **Why People Are Interested:**

SLU-PP-332 has generated significant interest because it targets core pathways involved in cellular energy production and mitochondrial performance, making it an exciting area of research in metabolism, exercise physiology, and healthy aging.

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# RECOVERY & TISSUE RESEARCH

## **BPC-157**

### **What It Is Being Studied For:**

BPC-157 is a synthetic peptide derived from a naturally occurring protective protein found in gastric tissue. It is being studied for its potential role in tissue repair pathways, gastrointestinal integrity, angiogenesis, and inflammatory signaling. Researchers are investigating its relevance to tendon, ligament, muscle, and gut-related research.

### **Key Research Areas:**

- Tissue repair pathways
- Tendon and ligament research
- Muscle recovery
- Gastrointestinal integrity
- Angiogenesis
- Inflammatory signaling

### **Why People Are Interested:**

BPC-157 is one of the most widely recognized research peptides because of the broad scientific interest in its potential role in structural repair, recovery biology, and gastrointestinal research.

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## **TB-500 (Thymosin Beta 4)**

### **What It Is Being Studied For:**

Thymosin Beta 4, commonly referred to as TB-500, is a synthetic version of a naturally occurring peptide involved in cellular migration and tissue remodeling. It is being studied for its potential role in wound healing pathways, angiogenesis, inflammatory signaling, and musculoskeletal recovery research. Researchers are particularly interested in its relevance to tendon, ligament, muscle, and connective tissue biology.

### **Key Research Areas:**

- Tissue remodeling
- Cellular migration
- Tendon and ligament research
- Muscle recovery
- Angiogenesis
- Inflammatory signaling

### **Why People Are Interested:**

TB-500 has become a widely recognized research peptide because of strong scientific interest in its potential role in structural repair, flexibility, and recovery-related biological processes.

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## ***Wolverine Blend***

### **What It Is Being Studied For:**

Wolverine Blend combines two widely studied peptides, BPC-157 and Thymosin Beta 4 (TB-500). This combination is being studied for its potential role in tissue repair pathways, connective tissue remodeling, gastrointestinal integrity, angiogenesis, and inflammatory signaling. Researchers are interested in how these peptides may complement one another in musculoskeletal and recovery-related research.

### **Key Research Areas:**

- Tissue repair pathways
- Tendon and ligament research
- Muscle recovery
- Gastrointestinal integrity
- Connective tissue remodeling
- Angiogenesis
- Inflammatory signaling

### **Why People Are Interested:**

Wolverine Blend is popular in research because it combines two of the most recognized peptides in recovery science, offering a broader approach to studying structural repair and regenerative biology.

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## ***KLOW Blend***

### **What It Is Being Studied For:**

KLOW Blend combines four widely studied compounds: GHK-Cu, KPV, BPC-157, and Thymosin Beta 4 (TB-500). This comprehensive formulation is being studied for its potential role in tissue repair pathways, collagen signaling, skin remodeling, gastrointestinal integrity, immune modulation, and inflammatory regulation. Researchers are interested in how these compounds may work together across regenerative, cosmetic, and recovery-focused research.

### **Key Research Areas:**

- Tissue repair pathways
- Collagen signaling

- Skin remodeling
- Gastrointestinal integrity
- Immune modulation
- Inflammatory regulation
- Connective tissue research
- Healthy aging research

#### **Why People Are Interested:**

KLOW Blend has generated significant interest because it combines several of the most recognized compounds in recovery, skin, and inflammatory research into a single formulation designed to support broad scientific exploration.

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### **ARA-290**

#### **What It Is Being Studied For:**

ARA-290 is a synthetic peptide derived from erythropoietin (EPO) and is being studied for its potential role in tissue protection, inflammatory regulation, nerve signaling, and cellular repair pathways. Unlike erythropoietin, ARA-290 is designed to target specific innate repair receptors without stimulating red blood cell production. Researchers are investigating its relevance to neuropathy, tissue recovery, and regenerative biology.

#### **Key Research Areas:**

- Nerve signaling
- Tissue protection
- Inflammatory regulation
- Cellular repair pathways
- Neuropathy research
- Regenerative biology

#### **Why People Are Interested:**

ARA-290 has attracted growing interest because it selectively targets innate repair pathways involved in tissue resilience and nerve-related research. It represents an exciting area of investigation at the intersection of neurology, inflammation, and regenerative science.

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# SKIN, HAIR & COSMETIC RESEARCH

## ***GHK-Cu***

### **What It Is Being Studied For:**

GHK-Cu is a naturally occurring copper-binding tripeptide found in human plasma and tissues. It is being studied for its potential role in collagen signaling, skin remodeling, wound healing pathways, hair follicle biology, and extracellular matrix regulation. Researchers are investigating how this peptide may influence tissue repair and the visible characteristics associated with healthy skin and hair.

### **Key Research Areas:**

- Collagen signaling
- Skin remodeling
- Hair follicle biology
- Wound healing pathways
- Extracellular matrix regulation
- Healthy aging research

### **Why People Are Interested:**

GHK-Cu has become one of the most widely recognized peptides in cosmetic and regenerative science because of its association with skin appearance, hair-related research, and tissue remodeling pathways.

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## ***GLOW Blend (GHK-Cu / BPC-157 / TB-500)***

### **What It Is Being Studied For:**

Glow Blend combines GHK-Cu, BPC-157, and Thymosin Beta 4 (TB-500), three widely studied compounds in cosmetic and regenerative science. This formulation is being studied for its potential role in collagen signaling, skin remodeling, tissue repair pathways, hair-related biology, and inflammatory regulation. Researchers are interested in how these compounds may complement one another across skin, hair, and recovery-focused research.

### **Key Research Areas:**

- Collagen signaling
- Skin remodeling
- Hair follicle biology
- Tissue repair pathways
- Connective tissue research
- Inflammatory regulation
- Healthy aging research

### **Why People Are Interested:**

Glow Blend has attracted strong interest because it combines several of the most recognized compounds in regenerative and cosmetic research into one comprehensive formulation designed to support broad scientific exploration.

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## ***Snap-8***

### **What It Is Being Studied For:**

Snap-8 is a synthetic peptide derived from the SNAP-25 protein sequence and is being studied for its potential role in neuromuscular signaling and facial expression-related pathways. Researchers are investigating how this peptide may influence the appearance of expression lines and other visible characteristics associated with skin aging.

### **Key Research Areas:**

- Neuromuscular signaling
- Expression line research
- Skin appearance
- Cosmetic peptide science
- Healthy aging research

### **Why People Are Interested:**

Snap-8 has become a well-known cosmetic peptide because it is widely studied in formulations focused on skin appearance and age-related changes in facial dynamics.

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## ***Melanotan II (MT-2)***

### **What It Is Being Studied For:**

Melanotan II is a synthetic analog of alpha-melanocyte-stimulating hormone ( $\alpha$ -MSH) and is being studied for its potential role in melanocortin receptor signaling, pigmentation pathways, appetite regulation, and other neuroendocrine processes. Researchers are investigating how activation of these receptors may influence melanin production and broader physiological signaling.

### **Key Research Areas:**

- Melanocortin receptor signaling
- Pigmentation biology
- Melanin production
- Appetite-related signaling
- Neuroendocrine research

**Why People Are Interested:**

Melanotan II has attracted substantial scientific interest because it interacts with the melanocortin system, which is involved in pigmentation and several other biological pathways.

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# SLEEP, RECOVERY AND HORMONE SIGNALING RESEARCH

## ***CJC-1295 (With and Without DAC)***

### **What It Is Being Studied For:**

CJC-1295 is a synthetic analog of growth hormone–releasing hormone (GHRH) that is being studied for its potential role in endogenous growth hormone signaling, sleep-related biology, recovery pathways, body composition, and metabolic regulation. Two primary forms are commonly used in research: one with Drug Affinity Complex (DAC), designed for a longer duration of action, and one without DAC, which has a shorter activity profile.

### **Key Research Areas:**

- Growth hormone signaling
- Sleep and recovery research
- Body composition
- Metabolic regulation
- Cellular repair pathways
- Healthy aging research

### **Why People Are Interested:**

CJC-1295 has attracted significant interest because it is designed to stimulate the body's natural growth hormone pathways. Researchers are particularly interested in how differences in formulation may influence hormone signaling patterns and downstream biological processes.

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## ***Ipamorelin***

### **What It Is Being Studied For:**

Ipamorelin is a selective growth hormone secretagogue being studied for its potential role in endogenous growth hormone signaling, sleep-related biology, recovery pathways, body composition, and metabolic regulation. Researchers are investigating how activation of ghrelin receptor pathways may influence pulsatile growth hormone release and downstream biological processes associated with recovery and healthy aging.

### **Key Research Areas:**

- Growth hormone signaling
- Sleep and recovery research
- Body composition
- Metabolic regulation

- Ghrelin receptor signaling
- Healthy aging research

#### **Why People Are Interested:**

Ipamorelin has become one of the most widely recognized growth hormone secretagogues because of its selective mechanism and its relevance to research focused on recovery, metabolic health, and age-related hormone changes.

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### ***2X Blend (CJC-1295 Without DAC / Ipamorelin)***

#### **What It Is Being Studied For:**

This combination blend includes CJC-1295 Without DAC and Ipamorelin, two widely studied compounds involved in endogenous growth hormone signaling. Together, they are being studied for their potential role in sleep-related biology, recovery pathways, body composition, metabolic regulation, and healthy aging research. Researchers are interested in how these compounds may complement one another through distinct but related signaling pathways.

#### **Key Research Areas:**

- Growth hormone signaling
- Sleep and recovery research
- Body composition
- Metabolic regulation
- Ghrelin receptor signaling
- Healthy aging research

#### **Why People Are Interested:**

This combination has become one of the most recognized formulations in growth hormone research because it pairs two well-known compounds designed to support the body's natural hormone signaling pathways.

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### ***Sermorelin***

#### **What It Is Being Studied For:**

Sermorelin is a synthetic analog of growth hormone-releasing hormone (GHRH) and is being studied for its potential role in endogenous growth hormone signaling, sleep-related biology, recovery pathways, body composition, and metabolic regulation. Researchers are investigating how stimulation of the body's natural growth hormone pathways may influence downstream processes associated with cellular repair and healthy aging.

#### **Key Research Areas:**

- Growth hormone signaling
- Sleep and recovery research
- Body composition
- Metabolic regulation
- Cellular repair pathways
- Healthy aging research

#### **Why People Are Interested:**

Sermorelin has attracted longstanding scientific interest because it works by stimulating the body's own growth hormone signaling pathways. Researchers are particularly interested in its relevance to recovery, metabolic health, and age-related changes in hormone regulation.

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### ***Tesamorelin***

#### **What It Is Being Studied For:**

Tesamorelin is a synthetic growth hormone-releasing hormone (GHRH) analog that is being studied for its potential role in endogenous growth hormone signaling, body composition, visceral adipose tissue research, and metabolic regulation. Researchers are investigating how this peptide may influence growth hormone secretion and the downstream biological pathways associated with metabolism, recovery, and healthy aging.

#### **Key Research Areas:**

- Growth hormone signaling
- Visceral adipose tissue research
- Body composition
- Metabolic regulation
- Cellular recovery
- Healthy aging research

#### **Why People Are Interested:**

Tesamorelin has attracted significant scientific and clinical interest because it is a well-characterized peptide with a targeted mechanism involving growth hormone release. Researchers are particularly interested in its relevance to body composition and age-related metabolic changes.

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### ***DSIP (Delta Sleep- Inducing Peptide)***

#### **What It Is Being Studied For:**

DSIP is a naturally occurring neuropeptide that is being studied for its potential role in sleep architecture, circadian regulation, stress response, and neuroendocrine signaling.

Researchers are investigating how this peptide may influence the biological pathways associated with restorative sleep and overall nervous system regulation.

**Key Research Areas:**

- Sleep architecture
- Circadian rhythm regulation
- Stress response
- Neuroendocrine signaling
- Nervous system regulation
- Healthy aging research

**Why People Are Interested:**

DSIP has attracted sustained interest because of its connection to sleep-related biology and the growing recognition that restorative sleep is central to recovery, cognitive performance, and healthy aging.

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***Selank***

**What It Is Being Studied For:**

Selank is a synthetic peptide originally developed as an analog of tuftsin and is being studied for its potential role in neurotransmitter signaling, stress response, cognitive performance, and immune modulation. Researchers are investigating how this peptide may influence the biological pathways associated with mood, focus, and neuroimmune communication.

**Key Research Areas:**

- Neurotransmitter signaling
- Stress response
- Cognitive performance research
- Neuroimmune communication
- Immune modulation
- Nervous system regulation

**Why People Are Interested:**

Selank has attracted significant scientific interest because of its growing role in neurobiology research and its potential relevance to cognitive function and stress-related pathways.

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***Semax***

**What It Is Being Studied For:**

Semax is a synthetic peptide originally developed as an analog of adrenocorticotrophic hormone (ACTH) fragments and is being studied for its potential role in neurotrophic signaling, cognitive performance, neurotransmitter regulation, and stress response. Researchers are investigating how this peptide may influence brain-derived neurotrophic factor (BDNF) pathways and broader mechanisms involved in learning and memory.

**Key Research Areas:**

- Neurotrophic signaling
- Cognitive performance research
- Learning and memory pathways
- Neurotransmitter regulation
- Stress response
- Nervous system research

**Why People Are Interested:**

Semax has generated substantial interest because of its growing role in neuroscience research and its potential relevance to cognitive performance and neuroplasticity.

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# LONGEVITY & CELLULAR HEALTH RESEARCH

## **NAD+**

### **What It Is Being Studied For:**

NAD+ is a naturally occurring coenzyme found in every living cell and is essential for cellular energy production, mitochondrial function, DNA repair, and metabolic regulation. Researchers are studying NAD+ for its potential role in supporting cellular resilience, oxidative stress response, and the biological pathways associated with healthy aging and longevity.

### **Key Research Areas:**

- Cellular energy production
- Mitochondrial function
- DNA repair pathways
- Metabolic regulation
- Oxidative stress response
- Healthy aging research

### **Why People Are Interested:**

NAD+ has become one of the most widely recognized molecules in longevity science because of its central role in energy metabolism and cellular maintenance. Scientific interest has grown as researchers explore how NAD+ levels may influence age-related changes in cellular performance.

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## **MOTS - C**

### **What It Is Being Studied For:**

MOTS-c is a naturally occurring mitochondrial-derived peptide being studied for its potential role in energy metabolism, insulin sensitivity, exercise adaptation, and metabolic resilience. Because it is encoded within mitochondrial DNA, researchers are investigating how this signaling molecule may influence cellular stress responses, mitochondrial communication, and the biological pathways associated with healthy aging.

### **Key Research Areas:**

- Mitochondrial function
- Energy metabolism
- Insulin sensitivity
- Exercise adaptation
- Metabolic flexibility

- Cellular resilience
- Healthy aging research

#### **Why People Are Interested:**

MOTS-c has become one of the most closely followed peptides in longevity science because of its unique connection to mitochondrial signaling and metabolic health. Researchers are particularly interested in its potential relevance to energy regulation, performance, and age-related changes in cellular function.

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### ***Epitalon***

#### **What It Is Being Studied For:**

Epitalon is a synthetic tetrapeptide modeled after epithalamin-derived signaling peptides. It is being studied for its potential role in telomere biology, cellular aging pathways, circadian regulation, and oxidative stress response. Researchers are investigating how this peptide may influence the molecular mechanisms associated with longevity and age-related cellular function.

#### **Key Research Areas:**

- Telomere biology
- Cellular aging pathways
- Circadian rhythm regulation
- Oxidative stress response
- Cellular resilience
- Healthy aging research

#### **Why People Are Interested:**

Epitalon has become one of the most recognized peptides in longevity research because of its association with telomere maintenance and age-related cellular processes. It continues to attract attention in scientific studies focused on healthy aging and biological resilience.

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### ***N-Acetyl Epitalon Amidate***

#### **What It Is Being Studied For:**

N-Acetyl Epitalon Amidate is a modified analog of Epitalon designed to enhance peptide stability and resistance to enzymatic degradation. It is being studied for its potential role in telomere biology, cellular aging pathways, circadian regulation, and oxidative stress response. Researchers are investigating whether structural modifications may improve the durability and bioavailability of this well-known longevity peptide.

### **Key Research Areas:**

- Telomere biology
- Cellular aging pathways
- Circadian rhythm regulation
- Oxidative stress response
- Peptide stability
- Healthy aging research

### **Why People Are Interested:**

This modified Epitalon analog has attracted attention because it builds upon one of the most recognized peptides in longevity science while incorporating structural changes intended to improve stability and extend research utility.

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## ***Pinealon***

### **What It Is Being Studied For:**

Pinealon is a short peptide originally investigated in neurobiology and aging research. It is being studied for its potential role in neuronal signaling, gene expression, oxidative stress response, and the cellular pathways associated with cognitive performance and healthy aging. Researchers are exploring how this peptide may influence brain-related and age-associated biological processes.

### **Key Research Areas:**

- Neuronal signaling
- Cognitive performance research
- Gene expression
- Oxidative stress response
- Cellular resilience
- Healthy aging research

### **Why People Are Interested:**

Pinealon has attracted growing interest because it is part of a broader class of peptides being studied for their potential relevance to brain health, cellular protection, and longevity science.

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## ***Thymalin***

### **What It Is Being Studied For:**

Thymalin is a peptide complex originally derived from thymic tissue and is being studied for its potential role in immune regulation, gene expression, cellular repair, and the biological

pathways associated with healthy aging. Researchers are investigating how thymic peptides may influence immune function and age-related changes in cellular resilience.

**Key Research Areas:**

- Immune regulation
- Thymic signaling
- Gene expression
- Cellular repair
- Healthy aging research
- Immunosenescence research

**Why People Are Interested:**

Thymalin has attracted considerable interest because it combines immune-focused research with longevity science. Researchers are particularly interested in how thymic peptides may help illuminate the relationship between immune health and aging.

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**FOXO4**

**What It Is Being Studied For:**

FOXO4-DRI is a synthetic peptide designed to disrupt interactions between FOXO4 and p53, two proteins involved in cellular survival and senescence pathways. Researchers are studying this compound for its potential role in senolytic research, which focuses on understanding and selectively targeting senescent cells that accumulate with age. This area of investigation is considered one of the most promising frontiers in longevity science.

**Key Research Areas:**

- Cellular senescence
- Senolytic research
- p53 signaling
- Cellular resilience
- Healthy aging research
- Age-related biology

**Why People Are Interested:**

FOXO4-DRI has generated significant attention because it is specifically designed to study senescent cell biology. Researchers are closely watching this field as they explore the relationship between senescent cell accumulation and aging.

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### **What It Is Being Studied For:**

SS-31, also known as Elamipretide, is a mitochondria-targeted peptide being studied for its potential role in mitochondrial membrane integrity, ATP production, oxidative stress response, and cellular energy metabolism. Researchers are investigating how this peptide interacts with cardiolipin, a key phospholipid within the inner mitochondrial membrane, to better understand mitochondrial performance and age-related changes in cellular function.

### **Key Research Areas:**

- Mitochondrial membrane integrity
- Cellular energy production
- ATP synthesis
- Oxidative stress response
- Cellular resilience
- Healthy aging research

### **Why People Are Interested:**

SS-31 has become one of the most closely watched peptides in mitochondrial research because of its targeted approach to cellular energy systems. Scientific interest continues to grow as researchers explore the relationship between mitochondrial health, performance, and longevity.

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## ***Thymosin Alpha-1***

### **What It Is Being Studied For:**

Thymosin Alpha-1 is a naturally occurring peptide originally isolated from the thymus gland and is being studied for its potential role in immune signaling, T-cell function, inflammatory regulation, and age-related immune changes. Researchers are investigating how this peptide may influence immune resilience and the biological pathways associated with healthy aging.

### **Key Research Areas:**

- Immune signaling
- T-cell function
- Immune modulation
- Inflammatory regulation
- Immunosenescence research
- Healthy aging research

### **Why People Are Interested:**

Thymosin Alpha-1 has attracted significant scientific interest because it bridges immune research and longevity science. Researchers are particularly interested in its potential

relevance to immune resilience and age-related changes in immune performance.

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### ***MIC Blend (4X Blend)***

#### **What It Is Being Studied For:**

MIC Blend combines four commonly studied lipotropic nutrients: Methionine, Choline Chloride, L-Carnitine, and Dexpanthenol (Vitamin B5). This formulation is being studied for its potential role in lipid metabolism, mitochondrial energy production, methylation pathways, and hepatic function. Researchers are interested in how these nutrients may work together to support metabolic efficiency and cellular energy pathways.

#### **Key Research Areas:**

- Lipid metabolism
- Methylation pathways
- Mitochondrial energy production
- Hepatic function research
- Cellular energy metabolism
- Metabolic health

#### **Why People Are Interested:**

MIC Blend has attracted broad interest because it combines several well-known lipotropic and metabolic nutrients into a single formulation used in body composition and metabolic research.

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### ***Lipotropic Blend (8X Blend)***

#### **What It Is Being Studied For:**

Lipotropic Blend is a multi-ingredient formulation containing L-Carnitine, L-Arginine, Methionine, Inositol, Choline, and B vitamins. This combination is being studied for its potential role in lipid metabolism, methylation pathways, mitochondrial energy production, and hepatic function. Researchers are interested in how these nutrients may work together to support body composition and overall metabolic research.

#### **Key Research Areas:**

- Lipid metabolism
- Methylation pathways
- Mitochondrial energy production
- Cellular energy metabolism
- Hepatic function research
- Metabolic health

**Why People Are Interested:**

Lipotropic blends have attracted broad interest because they combine several well-known metabolic and nutrient cofactors into a single formulation used in body composition and metabolic research.

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# IMMUNITY & INFLAMMATORY RESEARCH

## ***Glutathione***

### **What It Is Being Studied For:**

Glutathione is a naturally occurring tripeptide composed of glutamine, cysteine, and glycine and is one of the body's most important intracellular antioxidants. Researchers are studying glutathione for its potential role in oxidative stress response, cellular detoxification pathways, mitochondrial function, and immune support. Because glutathione is involved in protecting cells from reactive oxygen species, it has become a major focus in longevity and metabolic research.

### **Key Research Areas:**

- Oxidative stress response
- Cellular detoxification
- Antioxidant defense
- Mitochondrial function
- Immune support
- Healthy aging research

### **Why People Are Interested:**

Glutathione has attracted widespread interest because it plays a central role in cellular protection and redox balance. Researchers are investigating how maintaining glutathione levels may influence overall cellular resilience and age-related changes in oxidative stress.

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## ***KPV***

### **What It Is Being Studied For:**

KPV is a short tripeptide derived from alpha-melanocyte-stimulating hormone ( $\alpha$ -MSH). It is being studied for its potential role in inflammatory signaling, immune modulation, skin biology, and gastrointestinal barrier research. Researchers are investigating how this peptide may influence cytokine pathways and support studies related to inflammatory balance and tissue integrity.

### **Key Research Areas:**

- Inflammatory signaling
- Immune modulation
- Gastrointestinal barrier research
- Skin biology
- Cytokine regulation

### **Why People Are Interested:**

KPV has gained significant attention because it is a small, targeted peptide being studied in both gut and skin research. Its growing role in inflammatory and immune-related investigations has made it a notable compound in regenerative and longevity science.

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## ***Thymosin Alpha-1***

### **What It Is Being Studied For:**

Thymosin Alpha-1 is a naturally occurring peptide derived from the thymus gland and is being studied for its potential role in immune signaling, T-cell maturation, inflammatory regulation, and age-related immune changes. Researchers are investigating how this peptide may influence immune resilience and the biological pathways associated with healthy aging and immunosenescence.

### **Key Research Areas:**

- Immune signaling
- T-cell maturation and function
- Immune modulation
- Inflammatory regulation
- Immunosenescence research
- Healthy aging research

### **Why People Are Interested:**

Thymosin Alpha-1 has attracted significant scientific interest because it sits at the intersection of immune research and longevity science. Researchers are particularly interested in how thymic peptides may help illuminate the relationship between immune function, resilience, and aging.

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## ***LL-37***

### **What It Is Being Studied For:**

LL-37 is a naturally occurring antimicrobial peptide derived from the cathelicidin family and is an important component of the innate immune system. Researchers are studying LL-37 for its potential role in immune signaling, antimicrobial defense, wound healing pathways, inflammatory regulation, and skin biology. It has become a major area of interest in immunology, dermatology, and regenerative research.

### **Key Research Areas:**

- Innate immune signaling

- Antimicrobial defense
- Wound healing pathways
- Skin biology
- Inflammatory regulation
- Tissue repair research

#### **Why People Are Interested:**

LL-37 has attracted significant scientific attention because it combines immune-focused and regenerative research interests. Researchers are particularly interested in how this naturally occurring peptide may influence host defense, tissue integrity, and inflammatory balance.

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### **VIP-10**

#### **What It Is Being Studied For:**

Vasoactive Intestinal Peptide (VIP) is a naturally occurring neuropeptide involved in immune signaling, smooth muscle regulation, and inflammatory pathways. VIP10 is being studied for its potential role in respiratory biology, inflammatory regulation, mucosal integrity, and neuroimmune communication. Researchers are investigating how this peptide may influence the interaction between the nervous and immune systems.

#### **Key Research Areas:**

- Immune signaling
- Inflammatory regulation
- Respiratory research
- Mucosal integrity
- Neuroimmune communication
- Smooth muscle signaling

#### **Why People Are Interested:**

VIP has attracted substantial scientific interest because it is involved in multiple regulatory systems throughout the body, including the lungs, gastrointestinal tract, and immune system. Researchers are particularly interested in its potential relevance to inflammatory and respiratory biology.

# MUSCLE GROWTH & PERFORMANCE RESEARCH

## ***IGF-1 LR3***

### **What It Is Being Studied For:**

IGF-1 LR3 is a modified analog of insulin-like growth factor-1 (IGF-1) designed to have an extended duration of activity. Researchers are studying this growth factor for its potential role in cellular proliferation, protein synthesis, nutrient partitioning, muscle biology, and tissue repair pathways. It is widely investigated in metabolic, regenerative, and performance-focused research.

### **Key Research Areas:**

- Cellular proliferation
- Protein synthesis
- Muscle biology
- Tissue repair pathways
- Nutrient partitioning
- Growth factor signaling

### **Why People Are Interested:**

IGF-1 LR3 has attracted significant scientific interest because of its central role in anabolic signaling and tissue growth pathways. Researchers are particularly interested in its relevance to recovery, body composition, and regenerative biology.

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## ***IGF-DES***

### **What It Is Being Studied For:**

IGF-DES is a shortened analog of insulin-like growth factor-1 (IGF-1) that is being studied for its potential role in localized growth factor signaling, cellular proliferation, protein synthesis, muscle biology, and tissue repair pathways. Researchers are investigating how this modified structure may influence receptor activity and regenerative processes.

### **Key Research Areas:**

- Localized growth factor signaling
- Cellular proliferation
- Protein synthesis
- Muscle biology
- Tissue repair pathways
- Regenerative research

**Why People Are Interested:**

IGF-DES has attracted strong interest because of its targeted growth factor signaling and its relevance to muscle and regenerative biology research.

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***GHRP-6*****What It Is Being Studied For:**

GHRP-6 is a synthetic growth hormone secretagogue that is being studied for its potential role in endogenous growth hormone signaling, ghrelin receptor activation, appetite-related pathways, recovery biology, and body composition research. Researchers are investigating how this peptide may influence pulsatile growth hormone release and downstream metabolic processes.

**Key Research Areas:**

- Growth hormone signaling
- Ghrelin receptor activation
- Appetite-related pathways
- Recovery biology
- Body composition
- Metabolic regulation

**Why People Are Interested:**

GHRP-6 has attracted longstanding scientific interest because it combines growth hormone signaling research with appetite-related pathways, making it relevant to both metabolic and performance-focused investigations.

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***Hexarelin*****What It Is Being Studied For:**

Hexarelin is a synthetic growth hormone secretagogue and ghrelin receptor agonist that is being studied for its potential role in endogenous growth hormone signaling, recovery pathways, body composition, and cardiometabolic research. Researchers are investigating how this peptide may influence pulsatile growth hormone release and related biological processes.

**Key Research Areas:**

- Growth hormone signaling
- Ghrelin receptor activation
- Recovery biology
- Body composition

- Cardiometabolic research
- Healthy aging research

#### **Why People Are Interested:**

Hexarelin has attracted significant scientific interest because of its potent activity in growth hormone research and its broader relevance to metabolic and cardiovascular biology.

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### **ACE-031**

#### **What It Is Being Studied For:**

ACE-031 is a recombinant fusion protein designed to bind and inhibit myostatin and related signaling molecules involved in muscle growth regulation. Researchers are studying ACE-031 for its potential role in skeletal muscle development, lean mass regulation, and neuromuscular biology. This compound has attracted interest in both rare disease research and performance-related investigations.

#### **Key Research Areas:**

- Myostatin inhibition
- Skeletal muscle growth
- Lean mass regulation
- Neuromuscular biology
- Growth factor signaling
- Regenerative research

#### **Why People Are Interested:**

ACE-031 has generated significant scientific interest because it targets one of the most important pathways involved in limiting muscle growth. Researchers are particularly interested in understanding how modulation of this pathway may influence muscle biology and tissue development.

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### **GDF-8 (Myostatin)**

#### **What It Is Being Studied For:**

GDF-8, also known as myostatin, is a naturally occurring growth factor that helps regulate skeletal muscle development. Researchers study myostatin and compounds that modulate this pathway to better understand muscle growth, lean mass regulation, tissue remodeling, and neuromuscular biology. This signaling system is a major focus in regenerative medicine, rare disease research, and performance-related science.

#### **Key Research Areas:**

- Myostatin signaling
- Skeletal muscle development
- Lean mass regulation
- Tissue remodeling
- Neuromuscular biology
- Regenerative research

#### **Why People Are Interested:**

The myostatin pathway is one of the most important biological regulators of muscle growth. Researchers are highly interested in understanding how modulation of this pathway may influence muscle biology and age-related changes in body composition.

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## **AICAR**

#### **What It Is Being Studied For:**

AICAR (5-Aminoimidazole-4-carboxamide ribonucleotide) is a small-molecule research compound (not a peptide) that is being studied for its potential role in AMPK activation, energy metabolism, mitochondrial function, and exercise physiology. Researchers are investigating how this compound may influence cellular energy sensing, metabolic flexibility, and endurance-related pathways.

#### **Key Research Areas:**

- AMPK activation
- Energy metabolism
- Mitochondrial function
- Metabolic flexibility
- Exercise physiology
- Endurance research

#### **Why People Are Interested:**

AICAR has generated substantial scientific interest because it targets AMPK, one of the body's most important cellular energy sensors. Researchers are particularly interested in how activation of this pathway may influence metabolic health, endurance, and healthy aging.

# FERTILITY & REPRODUCTIVE RESEARCH

## ***HCG (Human Chorionic Gonadotropin)***

### **What It Is Being Studied For:**

Human Chorionic Gonadotropin (HCG) is a naturally occurring glycoprotein hormone that is being studied for its role in luteinizing hormone (LH) receptor signaling, steroidogenesis, reproductive biology, and endocrine regulation. Researchers investigate HCG to better understand hormone production pathways and the physiological processes involved in fertility and gonadal function.

### **Key Research Areas:**

- LH receptor signaling
- Steroidogenesis
- Reproductive biology
- Endocrine regulation
- Fertility research
- Hormonal signaling

### **Why People Are Interested:**

HCG has long been an important research and clinical tool because of its well-characterized role in reproductive endocrinology and hormone signaling.

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## ***HMG (Human Menopausal Gonadotropin)***

### **What It Is Being Studied For:**

Human Menopausal Gonadotropin (HMG) is a purified mixture of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) activity. Researchers study HMG for its role in follicular development, spermatogenesis, reproductive endocrinology, and hormonal signaling. It is an important tool in fertility and endocrine research.

### **Key Research Areas:**

- FSH and LH signaling
- Follicular development
- Spermatogenesis research
- Reproductive endocrinology
- Fertility research
- Hormonal regulation

### **Why People Are Interested:**

HMG has attracted longstanding interest because it provides both FSH and LH activity, making it highly relevant to studies involving reproductive biology and endocrine function.

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## ***Kisspeptin***

### **What It Is Being Studied For:**

Kisspeptin is a naturally occurring peptide that plays a central role in the hypothalamic-pituitary-gonadal (HPG) axis. Researchers study kisspeptin for its potential role in gonadotropin-releasing hormone (GnRH) signaling, reproductive endocrinology, puberty, and fertility-related pathways. It is a key molecule in neuroendocrine and reproductive biology research.

### **Key Research Areas:**

- GnRH signaling
- Reproductive endocrinology
- Fertility research
- HPG axis regulation
- Puberty-related pathways
- Neuroendocrine signaling

### **Why People Are Interested:**

Kisspeptin has become one of the most important molecules in reproductive research because of its central role in regulating hormonal signaling and fertility-related biological processes.

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## ***PT-141***

### **What It Is Being Studied For:**

PT-141, also known as Bremelanotide, is a synthetic analog of alpha-melanocyte-stimulating hormone ( $\alpha$ -MSH). Researchers study PT-141 for its potential role in melanocortin receptor signaling, central nervous system pathways, sexual behavior research, and neuroendocrine regulation. It has become an important compound in studies exploring the interaction between the brain and reproductive signaling.

### **Key Research Areas:**

- Melanocortin receptor signaling
- Neuroendocrine regulation
- Central nervous system pathways
- Sexual behavior research
- Reproductive biology

- Hormonal signaling

**Why People Are Interested:**

PT-141 has attracted significant scientific interest because it acts through central melanocortin pathways rather than peripheral vascular mechanisms, making it a unique tool in neuroendocrine and reproductive research.

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## THE FUTURE OF PEPTIDE SCIENCE

Peptide science will continue to expand as researchers develop more stable molecules, more selective receptor targeting, improved delivery systems, and multi-pathway designs. Areas of rapid development include metabolic disease research, weight management science, mitochondrial biology, tissue repair, immune modulation, cognitive support, dermatology, and longevity science.

The most important trend is precision. Researchers are moving away from broad, nonspecific interventions and toward molecules designed to communicate with defined biological systems. Peptides are well suited for this future because they operate through the language of biology: sequence, structure, receptor interaction, and signaling response.

For Agile Bio Labs, the future of peptide science should be built on three standards: transparency, verification, and responsible education. Peptides may represent one of the most promising areas of modern biological research, but their promise depends on quality, documentation, ethical positioning, and scientific honesty.



Final Educational Disclaimer: This guide is for informational and educational purposes only. It does not diagnose, treat, cure, or prevent disease and should not be used for clinical decision-making, prescribing, dosing, or treatment planning. Any references to peptide categories, mechanisms, or pathways are provided for general scientific education and research awareness only. Research compounds are not intended for human or veterinary use unless approved by the appropriate regulatory authorities.