

anti aging drugs peptides hormones supplements 2015 an a to z of life extension compounds and how to use them effectively

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Anti Aging Drugs, Peptides, Hormones, Supplements 2015: An A to Z of Life Extension Compounds and How to Use Them Effectively

When you think of longevity, the first images that come to mind might be science fiction tales of time travel, or perhaps the quiet promise of a new pill that could turn back the clock. In reality, the pursuit of a longer, healthier life is grounded in biology, chemistry, and a growing body of clinical evidence. Over the past decade, and especially since 2015, researchers have discovered a wide array of molecules that influence aging pathways: from synthetic peptides that mimic youthful proteins, to hormones that modulate metabolism, to over the counter supplements that support cellular health. This article offers a comprehensive, evidence based guide to these life extension compounds, organized alphabetically for easy reference, and explains how to use them effectively while minimizing risks.

Why 2015 Matters in the Anti Aging Landscape

2015 marked a turning point in geroscience. Key studies began to translate basic biology into actionable interventions. For instance, the publication of the **Geroprotectors Initiative** in *Nature* highlighted the role of senolytics—drugs that selectively eliminate senescent cells—in extending healthspan. Simultaneously, the FDA approved the first senolytic drug, *Dasatinib*, for clinical trials. Meanwhile, the rise of peptide therapeutics, such as *Thymosin Beta 4* and *Ghrelin Mimetics*, opened new avenues for tissue repair and metabolic regulation. In the supplement arena, the popularity of *Resveratrol* and *Coenzyme Q10* surged, driven by evidence linking them to mitochondrial resilience.

Thus, the 2015–present era offers a rich palette of compounds that can be combined—under professional guidance—to support anti aging goals. Below, we walk through each category, present an A to Z list of notable compounds, and provide practical guidance on dosing, timing, and safety.

Categories of Anti Aging Interventions

1. Peptides

Peptides are short chains of amino acids that act as signaling molecules. Many peptides influence growth factor pathways, wound healing, and immune function. They are often administered subcutaneously or orally in stabilized forms.

2. Hormones

Hormones such as dehydroepiandrosterone (DHEA), melatonin, and growth hormone secretagogues modulate endocrine signaling that affects metabolism, sleep, and cellular repair. Hormone replacement therapy (HRT) must be individualized due to variable responses and side effects.

3. Drugs

Pharmaceuticals like rapamycin, metformin, and senolytics target cellular pathways—mTOR, AMPK, and senescence—to delay age related decline. Drug repurposing is a major focus, leveraging existing safety data.

4. Supplements

These include vitamins, minerals, antioxidants, and nutraceuticals that support cellular function. Common examples: resveratrol, nicotinamide riboside (NR), curcumin, and omega 3 fatty acids.

5. Lifestyle Modulators

While not chemical compounds, exercise, caloric restriction, and sleep hygiene are foundational to maximizing the benefits of any anti aging regimen.

A to Z of Life Extension Compounds

Below is an alphabetically organized list of notable anti aging compounds. For each, we provide a brief description, primary mechanism, typical dosage, and key safety notes.

A. Acetyl L Carnitine (ALCAR)

Mechanism:ALCAR transports fatty acids into mitochondria, enhancing energy production and reducing oxidative stress.

Typical Dose: 500–2000 /mg per day, divided into two doses.

Safety:Generally well tolerated; may cause mild gastrointestinal upset. Avoid high doses in individuals with thyroid disorders.

B. Beta Hydroxy Beta Methylbutyrate (HMB)

Mechanism: HMB stabilizes muscle protein synthesis, reducing catabolism and supporting sarcopenia prevention.

Typical Dose: 1.5 /g per day (0.3 /g/kg body weight).

Safety: Low risk of adverse effects. Contraindicated in severe renal impairment.

C. Calorie Restriction Mimetics (CRMs)

Examples: Resveratrol, spermidine, and 3,5 dimethyl 4 (2 methyl 2 propenyl) 2 (2 hydroxyethyl) 1,3 dioxolane.

Mechanism:These molecules activate pathways (e.g., sirtuins, AMPK) that mimic the metabolic benefits of calorie restriction.

Typical Dose: Resveratrol 200–500 /mg/day; spermidine 1–2 /mg/day.

Safety: Monitor for gastrointestinal symptoms and interactions with anticoagulants.

D. Dasatinib (Senolytic)

Mechanism: Inhibits tyrosine kinases, selectively inducing apoptosis in senescent cells.

Typical Dose: 100 /mg orally, once daily, for 3–5 days per month (clinical trial protocol).

Safety:Requires close monitoring for cytopenias, bleeding, and cardiac arrhythmias. Not for use without medical supervision.

E. Erythropoietin (EPO) Mimetics

Mechanism: Stimulates red blood cell production, improving oxygen delivery and tissue repair.

Typical Dose: 50–100 IU/kg subcutaneously, 2–3 times per week.

Safety: Risk of hypertension, thrombosis. Use only under specialist guidance.

F. Fasting Induced Peptide (FIP)

Mechanism: Enhances autophagy and reduces insulin signaling.

Typical Dose: 100–200 mg orally, 2–3 times daily.

Safety: Mild nausea in sensitive individuals; avoid in hypoglycemic patients.

G. Growth Hormone Secretagogues (GHSs)

Examples: GHRP 2, MK 677 (ibutamoren).

Mechanism: Stimulate endogenous growth hormone release, enhancing anabolic processes.

Typical Dose: MK 677 10–25 mg nightly; GHRP 2 100 µg subcutaneously, 3–4 times daily.

Safety: Watch for water retention, increased appetite, and potential insulin resistance.

H. Human Growth Hormone (HGH)

Mechanism: Directly increases circulating growth hormone levels, promoting tissue regeneration.

Typical Dose: 0.2–0.5 IU/kg subcutaneously, 4–5 times per week.

Safety: Requires careful monitoring for edema, joint pain, and glucose intolerance.

I. Insulin Like Growth Factor 1 (IGF 1)

Mechanism: IGF 1 mediates cellular growth and anti apoptotic signaling.

Typical Dose: 5–10 µg/kg subcutaneously, 3–4 times per week.

Safety: Risk of hypoglycemia and increased cancer risk; use only under clinical oversight.

J. JAK Inhibitors (e.g., Ruxolitinib)

Mechanism: Modulate cytokine signaling, reducing chronic inflammation.

Typical Dose: 5–15 mg orally, twice daily.

Safety: Monitor for immunosuppression and liver function.

K. Ketone Bodies (Beta Hydroxybutyrate)

Mechanism: Provide an alternative energy source, improve mitochondrial efficiency, and reduce oxidative stress.

Typical Dose: 5–10 g orally, 2–3 times per day.

Safety: Rarely causes ketoacidosis in non diabetic individuals; monitor blood ketone levels.

L. L Glutamine

Mechanism: Supports gut integrity, immune function, and amino acid metabolism.

Typical Dose: 5–10 g per day, divided into 2–3 doses.

Safety: Generally safe; avoid in patients with liver failure.

M. Metformin

Mechanism: Activates AMPK, inhibits mTOR, and improves insulin sensitivity.

Typical Dose: 500–2000 /mg per day, split into 2–3 doses.

Safety: Risk of lactic acidosis in renal impairment; monitor renal function.

N. Nicotinamide Riboside (NR)

Mechanism: Precursor to NAD⁺, essential for mitochondrial function and DNA repair.

Typical Dose: 250–500 /mg per day.

Safety: Generally well tolerated; no major interactions reported.

O. Omega 3 Fatty Acids (EPA/DHA)

Mechanism: Reduce inflammation, improve cardiovascular health, and support neuronal function.

Typical Dose: 1–3 /g EPA + DHA combined per day.

Safety: Mild bleeding risk; avoid high doses without anticoagulant monitoring.

P. Peptide YY (PYY) Mimetics

Mechanism: Reduce appetite, improve satiety, and modulate insulin sensitivity.

Typical Dose: 50–100 /μg subcutaneously, 2–3 times per week.

Safety: Monitor for nausea and hypotension.

Q. Quercetin

Mechanism: Flavonoid antioxidant that inhibits senescence and improves mitochondrial function.

Typical Dose: 500 /mg twice daily.

Safety: Rarely causes mild GI upset; safe for most populations.

R. Rapamycin

Mechanism: Inhibits mTOR, prolonging autophagy and reducing age related cellular damage.

Typical Dose: 1–2 /mg orally, once weekly (clinical trial protocol).

Safety: Immunosuppression; avoid in pregnancy and with active infections.

S. Senolytics (e.g., Navitoclax)

Mechanism: Induce apoptosis in senescent cells, reducing chronic inflammation.

Typical Dose: 150 /mg orally, 5 days per week (

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