

Thymosin Alpha - 1

What is Thymosin Alpha-1?

Thymosin alpha-1 (Tα1) is a peptide fragment derived from **prothymosin alpha**, a protein that is primarily expressed in the thymus gland. It plays a critical role in the regulation of the immune system and is often referred to as an **immunomodulator** because of its ability to enhance immune responses and restore immune balance.

Potential Benefits

1. Immune System Regulation

- **Boosting Immune Response:** Tα1 enhances the production and activation of T-cells, especially CD4+ and CD8+ T-cells, improving the immune system's ability to fight infections.
- **Modulating Inflammation:** It reduces excessive inflammatory responses, which can protect tissues from damage in autoimmune diseases or chronic inflammation.

2. Antiviral Properties

- **Chronic Viral Infections:** Tα1 has shown promise in treating chronic viral infections like hepatitis B and C, by improving the immune system's ability to clear the virus.
- **COVID-19 and Respiratory Infections:** It has been used experimentally to improve outcomes in COVID-19 and other viral pneumonias by boosting immunity and reducing hyperinflammation.

3. Cancer Therapy

- **Adjunctive Therapy:** Tα1 supports the immune system during chemotherapy and radiation by increasing the activity of natural killer (NK) cells and cytotoxic T-cells.
- **Tumor Suppression:** Studies suggest it can inhibit tumor progression by modulating the immune system's ability to recognize and destroy cancer cells.

4. Autoimmune and Inflammatory Diseases

- **Immune Tolerance:** Tα1 helps balance the immune system in autoimmune diseases, reducing overactivity without suppressing immune defenses entirely.
- **Conditions:** Potential applications include lupus, rheumatoid arthritis, and multiple sclerosis.

5. Anti-Aging and General Wellness

- **Thymic Function Decline:** Tα1 supplementation may compensate for declining thymus activity with age, supporting immune health in older adults.
- **Infections in Elderly:** It may help reduce susceptibility to infections in immunosenescent individuals.

6. Wound Healing

- **Tissue Repair:** By promoting the proliferation of fibroblasts and other repair cells, Tα1 can accelerate wound healing and reduce infection risks in chronic or slow-healing wounds.

7. Gut and Microbiome Health

- **Immune Modulation in the Gut:** Tα1's effects on the immune system extend to improving the gut's immune barrier, potentially aiding conditions like inflammatory bowel disease (IBD).

Potential Side Effects and Precautions

Thymosin alpha-1 (Tα1) is generally considered safe and well-tolerated in clinical use, with minimal side effects reported. However, as with any therapeutic agent, there are potential side effects, especially in sensitive populations or when used in higher doses.

1. Common Side Effects

These are typically mild and self-limiting:

- **Injection Site Reactions:** Redness, swelling, tenderness
- **Fatigue:** Some individuals may feel mild fatigue after administration.
- **Headache:** Rare, but may occur in sensitive individuals.
- **Nausea or Digestive Upset:** Uncommon but possible, particularly if the immune system is already under stress.

2. Rare or Serious Side Effects

These are uncommon but may occur in some patients:

- **Allergic Reactions:** Rash, Itching, Swelling. Severe reactions such as anaphylaxis are extremely rare but possible.
- **Flu-like Symptoms:** Fever, chills, muscle aches
- **Immune Overactivation:** In rare cases, overactivation of the immune system may lead to unintended inflammation or autoimmunity.
- **Hypersensitivity Reactions:** Patients with known sensitivities to peptides or similar compounds should use Tα1 cautiously.

Factors Influencing Side Effects

1. **Dosage:** Higher doses may increase the risk of side effects, although Tα1 is generally well-tolerated even at therapeutic levels.
2. **Pre-existing Conditions:** Patients with autoimmune disorders, severe immune dysfunction, or hypersensitivity reactions may experience more pronounced effects.
3. **Concurrent Medications:** Interactions with other immune-modulating drugs could influence the side effect profile.

Dosage Guidelines

General Dose: 1.5 mg (0.3ml or 30 units) SQ every 3-7 days.

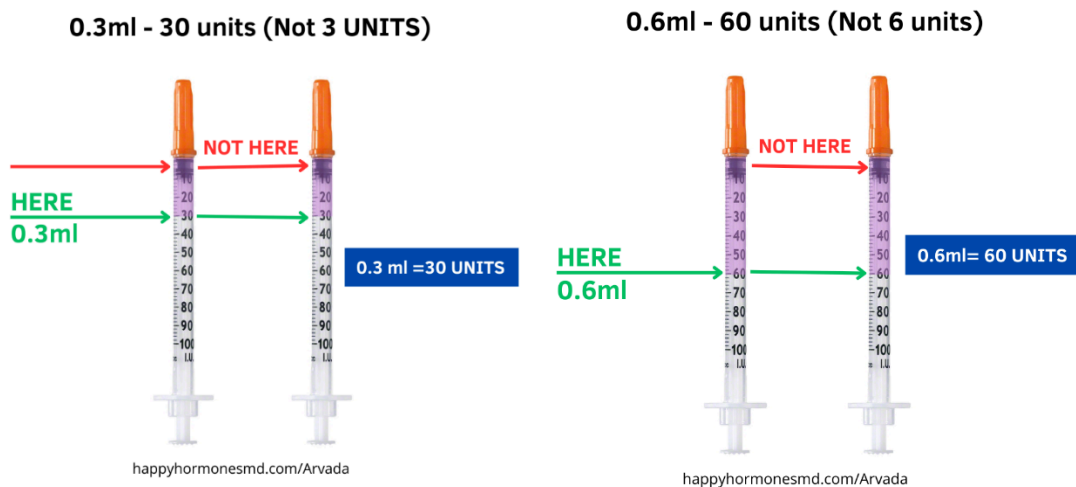
Chronic Viral Infections (e.g., Hepatitis B and C): 1.5 mg (0.3ml or 30 units) twice weekly for 6 to 12 months.

Cancer Support: 1.5 to 3 mg (0.3 – 0.6ml or 30-60 units) administered 2 to 3 times weekly during treatment, often used alongside chemotherapy.

Immune Deficiency: 1.5 mg (0.3ml or 30 units) twice weekly for 3 to 6 months, with reassessment after the initial course.

Acute Viral Infections: 1.5 mg (0.3ml or 30 units) daily for 5 to 10 days, as used in some COVID-19 protocols.

Vaccine Adjuvant: 1.5 mg (0.3ml or 30 units) administered once on the day of vaccination to potentially enhance vaccine response



Cost

Thymosin Alpha 1 is currently only available as a research peptide. Please see document titled “Research Peptide Information” in the Education Folder under Records in the patient portal.

Thymosin Alpha 1- 10mg Vial (5mg/ml)

- **10mg vial:** \$98.50 (includes shipping and bacteriostatic water). **One vial = 6 Doses.**

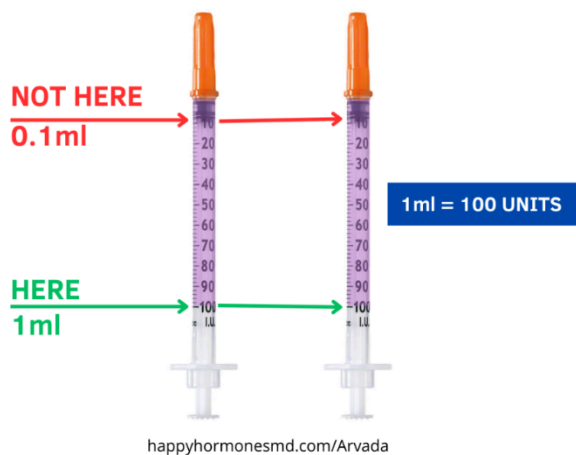
Reconstitution Instructions

IMPORTANT:

- Follow the instructions below regarding the amount of bacteriostatic water to use when reconstituting the peptide. **DO NOT** follow the instructions that come with the peptide.
- **Do NOT** throw away the vial of bacteriostatic water!!! It is a multiuse vial and can be used for your next order!

Inject **2ml of bacteriostatic water** into the vial (2ml = 200 units). You will need to inject 2 full 1ml syringes of water into the vial.

1 ml - 100 units (Not 10 UNITS)



- See the **document** titled “*Reconstituting Medications in Powder Form*” in the Education Folder in the patient portal.
- See the following Instructional **videos** in the Education Folder in the patient portal:
 - “*Reconstituting Powdered Medications*”
 - “*Injection Video – Introduction*”
 - “*Injection Video – Drawing Up the Medication*”
 - “*Injection Video – Administering the Medication*”

Storage and Stability

- Vials are shipped as **lyophilized powder**, requiring no refrigeration during shipping.
- In Lyophilized Form:
 - Stable for up to 3 years in the freezer and 2 years in the refrigerator.
 - Protect from light.
- Once Reconstituted:
 - Stable for 6 weeks.
 - Must be refrigerated and kept away from light.
 - Avoid placing vials in the refrigerator door to prevent degradation from frequent temperature changes.

Important Disclosures

- These statements have not been evaluated by the US Food and Drug Administration (FDA).
- Not intended to diagnose, treat, cure, or prevent any disease.
- Compounded drugs and research peptides are not FDA-approved but are produced under strict quality control measures.

Quality Assurance

- All peptides are subjected to third-party testing with publicly available Certificates of Analysis (COA).
- Testing includes:
 - RP-HPLC (Reversed-Phase High-Performance Liquid Chromatography)
 - Mass Spectrometry (MS)
 - Sterility Testing
 - Additional tests meeting or exceeding U.S. Pharmacopeia (USP) and USP-National Formulary (NF) regulations.
- The manufacturer ensures quality, safety, and efficacy, complying with regulatory standards.