

THERAPEUTIC PEPTIDE PROFILE

Selank: Nootropic & Anxiolytic

An in-depth scientific analysis of its chemical structure, discovery history, neurochemical mechanisms, clinical applications, and safety profile.

PART I

Discovery & Molecular Profile

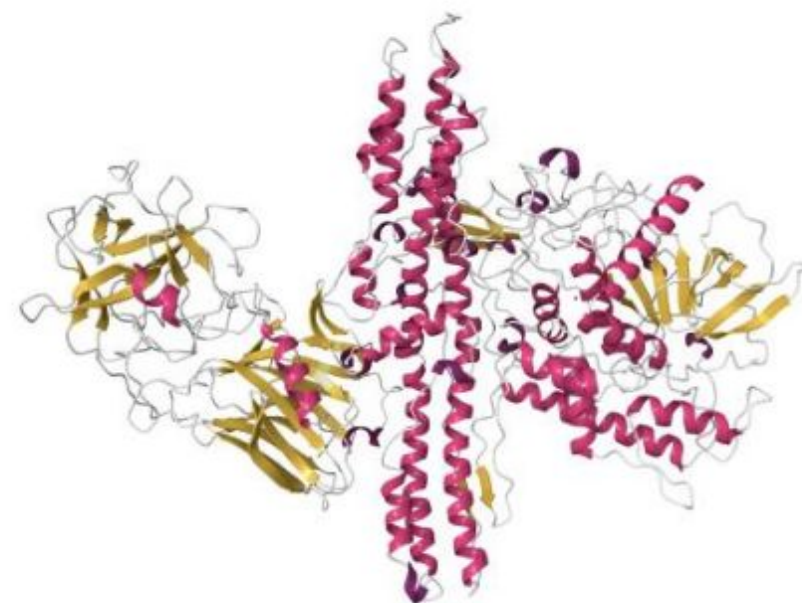


Introduction to Selank



Sequence: Thr-Lys-Pro-Arg-Pro-Gly-Pro (TKPRPGP)

- Tuftsins Analog:** Selank is a synthetic heptapeptide derived from the natural immunopeptide tuftsins (found in IgG antibodies).
- Pro-Gly-Pro Tail:** The addition of the tripeptide tail C-terminally protects the molecule from rapid enzymatic degradation, expanding its biological activity.
- Dual Profile:** Functions simultaneously as a cognitive enhancer and a calming, non-sedating anti-anxiety compound.



History of Discovery



Soviet Academy Roots

Developed during the late **1990s** at the **Institute of Molecular Genetics** of the Russian Academy of Sciences, under the direction of Academician Nikolai Myasoedov.

Designed as a complementary compound to Semax (another prominent peptide nootropic) with a distinct focus on mitigating acute anxiety and psychological stress without cognitive drag.

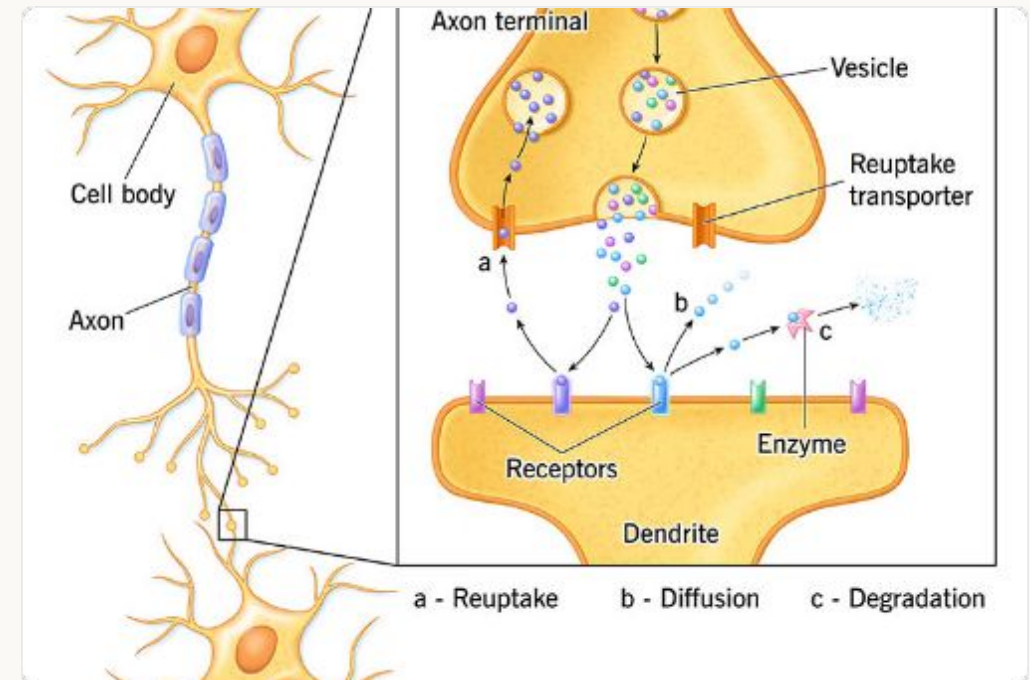
Following successful clinical validation, it was officially registered and approved as a pharmaceutical agent in Russia in **2009** for neurasthenia and GAD.

PART II

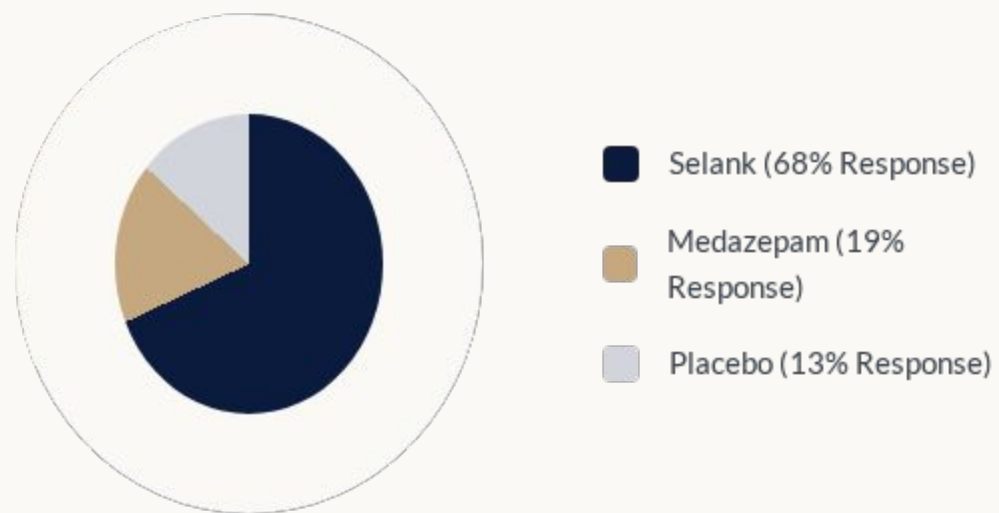
Clinical Uses & Mechanisms

Triple Action Profile

-  **Anxiolytic Support:** Acts as a positive allosteric modulator on GABAA receptors, increasing inhibitory synaptic currents without inducing standard sedative-hypnotic side effects.
-  **Nootropic Activity:** Rapidly upregulates BDNF and NGF in the hippocampus, boosting neuroplasticity, cognitive processing speed, and learning retention under pressure.
-  **Immunomodulation:** Maintains cytokine balance by modulating Interleukin-6 (IL-6) expression and simulating human tuftsin antiviral activity to bolster physical resilience.



Efficacy in Clinical Trials



Comparative Trial Insights

In head-to-head Russian clinical trials involving 62 patients with Generalized Anxiety Disorder (GAD) and neurasthenia, Selank matched the anxiolytic strength of classic tranquilizers.

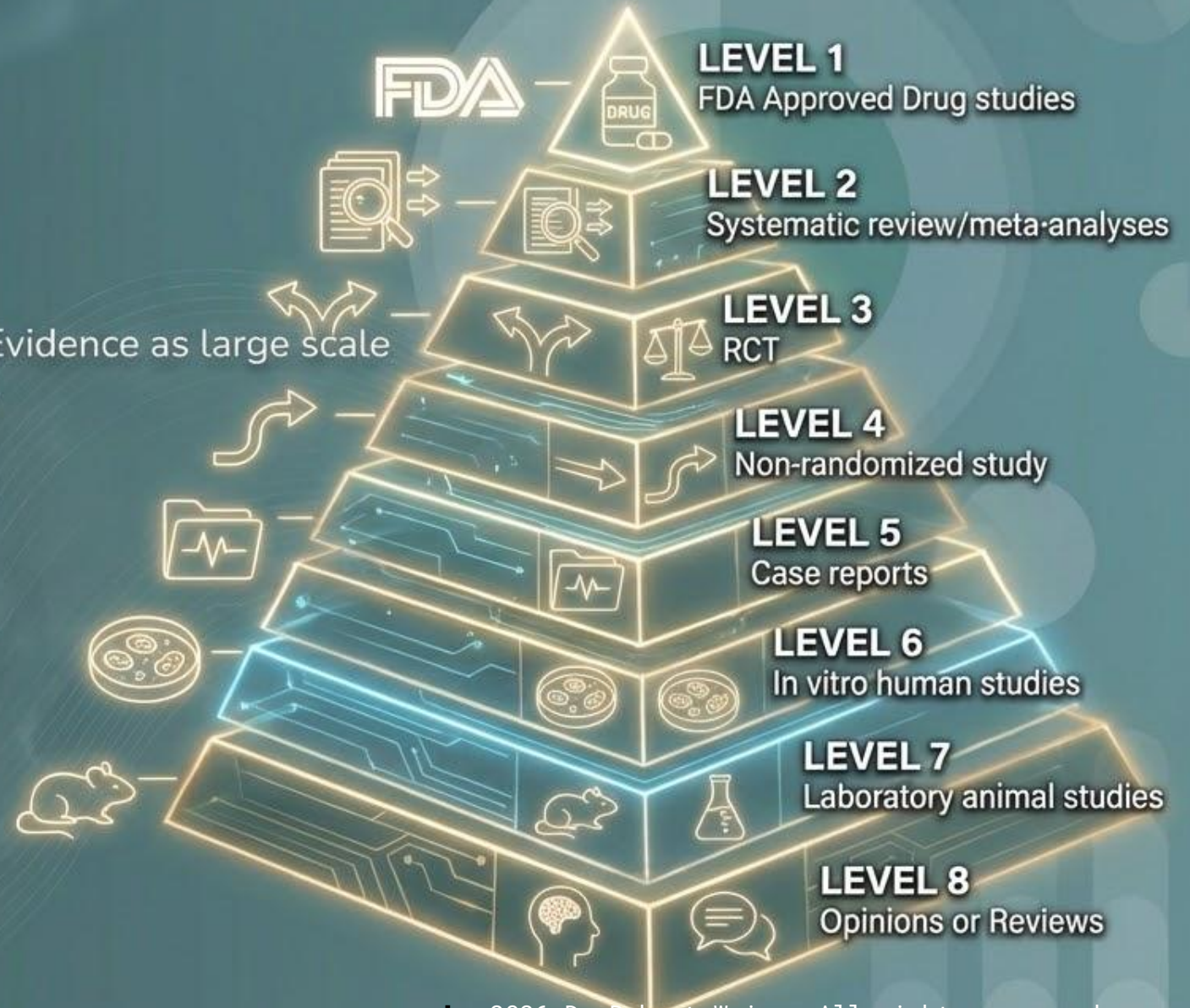
Unlike the control drug Medazepam, Selank therapy delivered a statistically significant **anti-asthenic** and **psychostimulant** effect, actively combating fatigue.

The trial established that Selank increases endogenous leu-enkephalin activity, stabilizing baseline emotional tone and mitigating autonomic dysfunction.

Evidence

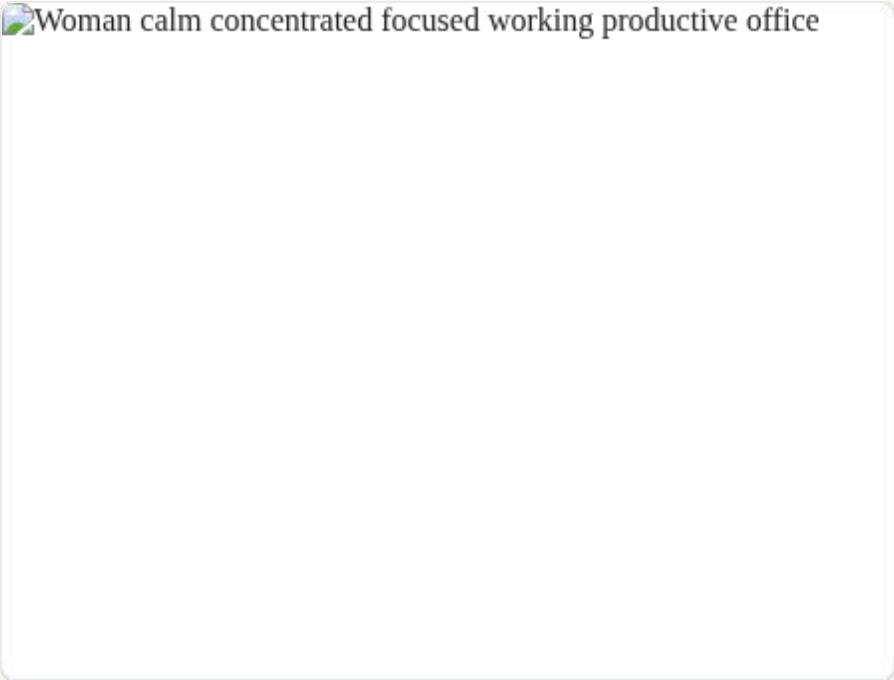
Peptides Have Low Levels of Medical Evidence as large scale clinical trials have not been performed.

*Levels 6, 7 and 8 only



Selank vs. Benzodiazepines

Parameter	Selank Peptide	Benzodiazepines
Mechanism	Allosteric GABA modulation	Direct GABA-A binding
Sedation	Absent (Alert, focused calm)	High (Sleepiness, lethargy)
Cognition	Enhances learning & BDNF	Impairs memory (Amnesic)
Dependence	None (Safe for cycling)	Severe addiction risk
Motor Skill	Fully preserved	Impaired (Ataxia risk)



PART III

Administration & Safety

Dosage & Administration

Intranasal Spray (Standard)

The standard Russian formulation uses a 0.15% aqueous solution of Selank.

Protocol: 2 to 3 drops in each nostril, 2 to 3 times daily (500 mcg to 1500 mcg daily limit).

Subcutaneous Injection (Research)

Often used in research settings to guarantee complete systemic bioavailability.

Protocol: 100 mcg to 500 mcg injected once daily, scheduled in the morning.



Safety & Adverse Effects

- 👍 **Highly Tolerated:** Human clinical trials indicate a complete absence of serious toxic effects or clinical overdoses.
- 👉 **Mild Local Reactions:** Potential intranasal application reactions include transient nasal mucosal irritation or dry throat.
- ⚠️ **Regulatory Warnings:** The US FDA warns against compounded variants, citing lack of local manufacturing oversight and potential risk of aggregate immunogenicity.



Questions & Answers

Exploring the potential of therapeutic neuropeptides.

Clinical Research & Scientific Database | IMG RAS

Image Sources



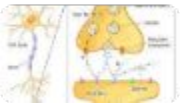
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Image Sources



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