

Selank — Research Summary

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1. What It Is

Selank is a synthetic heptapeptide (Thr-Lys-Pro-Arg-Pro-Gly-Pro) derived from tuftsin, an immunomodulatory tetrapeptide (Thr-Lys-Pro-Arg), with an added Pro-Gly-Pro tail for metabolic stability. Developed in Russia beginning in the 1990s, it is registered as an anti-anxiety drug in Russia (typically administered intranasally) but is not FDA-approved.

Mechanism: Does not bind the GABA-A receptor directly the way benzodiazepines do. Instead, gene-expression studies suggest it modulates the GABAergic system indirectly, alongside effects on serotonergic, dopaminergic, and enkephalin pathways.

2. Reported Effects in Research Literature

Nearly all clinical evidence for Selank comes from Russian research groups; no large-scale, Western-style randomized controlled trials have been published.

- Most-cited clinical comparison: A Russian study compared Selank against the benzodiazepine medazepam in approximately 62 patients with generalized anxiety disorder or neurasthenia, reporting anxiolytic effects comparable to the benzodiazepine, with an added observation of reduced asthenia (fatigue/weakness) that medazepam did not address.
- Mechanistic (radioligand binding): Selank was shown to affect [3H]GABA binding as a positive allosteric modulator; joint administration with benzodiazepines produced non-cumulative, distinct effects, suggesting the two act at different (though possibly overlapping) binding sites.
- Cell-based gene-expression study (human neuroblastoma IMR-32 cells): Selank alone did not change expression of 84 genes involved in GABAergic neurotransmission, but modulated the expression changes produced by GABA or olanzapine when co-administered — suggesting a modulatory rather than direct-binding role.
- Animal data: Selank enhanced the anxiety-reducing effect of diazepam in rats under chronic mild stress conditions, without simple additive effects.
- A 2018 review (International Journal of Molecular Sciences) collected molecular evidence describing Selank's actions across GABAergic, serotonergic, dopaminergic, and monoamine pathways, plus effects on immune/inflammation-related gene expression.
- Research limitations: No large-scale Western RCTs exist; most trials are small, Russian, and not independently replicated. Comprehensive interaction studies with modern psychiatric medications (SSRIs, SNRIs, MAOIs) are lacking. Long-term human safety data is limited, with most clinical studies lasting weeks to months.

3. Clinical & Preclinical Study References

Efficacy and possible mechanisms of action of a new peptide anxiolytic selank in the therapy of generalized anxiety disorders and neurasthenia. (Russian clinical comparison study, ~62 patients.)

Seredenin SB, et al. Selank anxiolytic effect studies. 1990, 1998.

GABA, Selank, and Olanzapine Affect the Expression of Genes Involved in GABAergic Neurotransmission in IMR-32 Cells. Front Pharmacol. 2017. PMC5328971

Peptide Selank Enhances the Effect of Diazepam in Reducing Anxiety in Unpredictable Chronic Mild Stress Conditions in Rats. PMC5322660

Review (molecular mechanisms across GABAergic/serotonergic/dopaminergic pathways). Int J Mol Sci. 2018. PMID: 30255741

Regulatory/Safety Note: Selank is not FDA-approved. The FDA has identified insufficient safety information and potential immunogenicity concerns specific to compounded Selank acetate — worth noting distinctly from the general "not FDA-approved" status shared by most compounds in this set.

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