EDUCATIONAL CLINICAL OVERVIEW

Selank

Tuftsin-Derived Heptapeptide · Compounded Intranasal Formulation · Not FDA-Approved

Drug Class	**Synthetic heptapeptide (Thr-Lys-Pro-Arg-Pro-Gly-Pro), structurally derived from the immunomodulatory tetrapeptide tuftsin; studied in the literature as an anxiolytic, nootropic, and immunomodulatory peptide; not an FDA-approved drug**
Compounded Form	Intranasal solution (commonly 0.15%–0.75% concentration ranges reported in practice); compounded under USP <797>
Regulatory Status	Not FDA-approved for any indication in the United States.
Literature-Discussed Areas	Generalized anxiety disorder / neurasthenia (Russian clinical literature) / Stress and mood regulation / Immunomodulatory and antiviral research (preclinical) — discussed here for scientific background only, not as promoted indications
Revision Date	July 2026

IMPORTANT — NOT FDA-APPROVED / COMPOUNDING STATUS UNRESOLVED / FOR PROVIDER EDUCATION ONLY

Selank is not an FDA-approved drug and has not been evaluated by the FDA for safety, efficacy, or quality for any indication in the United States. It is not approved by the FDA for the treatment, cure, mitigation, or prevention of any disease, including generalized anxiety disorder or neurasthenia. Selank's status as a permissible Section 503A compounding ingredient is currently unresolved and should be independently verified before any compounding decision (see Section 1). This document is a literature summary for the education of licensed healthcare providers only. It is not intended for patient distribution and is not promotional or marketing material. Nothing in this document should be construed as a recommendation by ReviveRX that Selank be prescribed, compounded, or administered for any particular patient or condition, or as a representation that Selank is currently available for lawful compounding. All prescribing and compounding decisions, and confirmation of current regulatory status, rest solely with the treating provider and dispensing pharmacy.

1 · Regulatory Status

Selank has two distinct, easily conflated layers of U.S. regulatory status: FDA drug approval, and Section 503A bulk-compounding eligibility. Selank has no FDA-approved indication for any use in the United States. It is approved in the Russian Federation since 2009 for generalized anxiety disorder and neurasthenia — a foreign approval, not a U.S. FDA approval, and not equivalent to FDA-level substantiation of safety or efficacy.

Separately, Selank's Section 503A compounding eligibility is currently unresolved. Selank acetate was placed on FDA's Category 2 (“significant safety concerns”) interim 503A bulks list in 2023, then removed from Category 2 effective September 27, 2024, after the nominator withdrew. Removal from Category 2 does not place a substance on the 503A bulks list or authorize compounding — a bulk substance must comply with a USP/NF monograph, be a component of an FDA-approved drug, or appear on the 503A bulks list, and Selank meets none of these. Unlike Semax, BPC-157, and TB-500, Selank was not included in FDA's July 23–24, 2026 PCAC review batch, and no separate review date has been identified. This section is a snapshot as of the revision date and should be reconfirmed against FDA's current published materials before any compounding decision. All prescribing, sourcing, and compliance decisions remain the sole responsibility of the licensed prescriber and dispensing pharmacy.

2 · Evidence Limitations

The evidence base for Selank has significant limitations that apply throughout this document and are not offset by the volume of preclinical or foreign literature available.

- Principal human trials originate from Russian institutions and Russian-language journals; English abstracts often omit full methodology, effect sizes, and statistics.
- No independent Western randomized, placebo-controlled trial has been identified — the largest trial (Zozulia et al., 2008) used an active comparator (medazepam), not placebo, in 62 patients.
- Long-term human safety data, abuse potential, and withdrawal profile are explicitly unstudied. No human reproductive or developmental safety data exist.
- Mechanistic claims (GABA-A modulation, enkephalinase inhibition, immune gene expression) are drawn substantially from in vitro and animal studies; human clinical mechanisms are not established.

3 · Overview & Mechanism of Action

Selank (Thr-Lys-Pro-Arg-Pro-Gly-Pro) is a synthetic heptapeptide developed by the Institute of Molecular Genetics of the Russian Academy of Sciences, structurally based on tuftsin — a naturally occurring immunomodulatory tetrapeptide fragment of immunoglobulin G — extended with a Pro-Gly-Pro tripeptide for metabolic stability. Intranasal administration is the route used in essentially all published human studies, intended to allow CNS entry while avoiding poor oral stability; this rationale is proposed, not directly confirmed pharmacokinetically in humans, and no published PK studies characterizing CNS penetration or bioavailability were identified.

The mechanisms below are reported hypotheses drawn from preclinical, in vitro, and a limited number of human studies — not confirmed clinical mechanisms of action in humans.

- **GABAergic Modulation —** Radioligand and cell-culture studies report Selank acts as a positive allosteric modulator of GABA-A receptor binding, with joint Selank/benzodiazepine effects described as non-additive and mechanistically distinct from the benzodiazepine site. These are in vitro/cell-culture findings; human receptor-occupancy has not been confirmed.
- **Monoamine Regulation —** Preclinical literature reports enhanced serotonin, dopamine, and norepinephrine turnover, proposed as a contributor to mood/motivation effects seen in small human studies — a proposed mechanism, not a confirmed human pharmacodynamic effect.
- **Enkephalinase Inhibition —** An in vitro human serum study (Kost et al., 2001) reported Selank inhibits enkephalin-degrading enzymes (IC50 ~10 μM). A separate small trial (Zozulia et al., 2008) reported serum enkephalin changes associated with symptom improvement — an association in a non-placebo-controlled trial, not a proven mechanism.
- **Neurotrophic and Immune Effects —** BDNF/TrkB upregulation has been proposed to support synaptic plasticity, based on preclinical/mechanistic literature without robust human confirmation. Separately, small mechanistic studies report normalization of cytokine expression (e.g., IL-6 suppression, Uchakina/Uchakin et al., 2008) and preclinical antiviral activity against influenza A; these support an immunomodulatory hypothesis but do not establish a clinical indication.

4 · Clinical Evidence Summary

Studies below are summarized for literature-review purposes only. Design limitations (Evidence Level column and Section 2 above) should be considered before extrapolating to clinical practice.

Study	Design / Population	Reported Findings	Evidence Level	Key Limitation
Zozulia et al. (2008)	Active-comparator trial vs. medazepam; 62 patients with GAD or neurasthenia (30 Selank, 32 medazepam)	Reported anxiolytic effect similar to medazepam on Hamilton/Zung/CGI scales; additional antiasthenic and psychostimulant effects reported for Selank; serum enkephalin activity changes correlated with symptom improvement	Level III (active-comparator, non-placebo)	No placebo arm; English-language abstract lacks full effect sizes/p-values; regionally concentrated

Medvedev et al. (2014)	Comparative trial vs. phenazepam; 60 patients with phobic-anxiety and somatoform disorders	Reported pronounced anxiolytic and mild nootropic effects; reported improved quality of life vs. phenazepam without notable additional side effects	Level III (active-comparator)	Small sample; regional publication; limited independent replication
Uchakina/Uchakin et al. (2008)	Ex vivo cell-culture and clinical-biological study; patients with depression / GAD / neurasthenia	Reported suppression of IL-6 gene expression in cultured cells from depressed patients; reported inverse Th1/Th2 serum cytokine dynamics over 14 days of treatment	Mechanistic (ex vivo + small clinical correlate)	Fold-change/percent-change magnitudes not reported in English abstract; small sample
Conference abstract (Selank 2700 µg/day, GAD)	Clinical scale + pharmaco-EEG study of rapid vs. gradual responders	Reported ~40% “rapid responder” subgroup with HARS improvement by Day 3; ~60% “conventional responder” subgroup improving by Day 14; distinct EEG signatures between subgroups	Level IV (conference abstract)	Published as a conference abstract, not a full peer-reviewed paper; limited methodological detail available
Kost et al. (2001)	In vitro/ex vivo human serum study	Reported enkephalinase inhibition by Selank and Semax, IC50 ~10 µM	Mechanistic (in vitro)	Enzymatic assay only; not a clinical outcome study
Kasian/Kolomin et al.	Animal study (rats with opiate dependence)	Reported Selank, like diazepam, attenuated aversive signs of morphine withdrawal	Preclinical (animal)	Animal model only; not evidence of a human withdrawal-mitigation effect

Additional preclinical literature includes reports of antiviral activity in an experimental influenza A model (Ershov, Uchakin, et al., 2009) and gene-expression studies in neuroblastoma cell culture examining GABAergic pathway effects. These are preclinical/mechanistic findings noted for scientific context, not clinical evidence of efficacy in patients.

5 · Safety Profile & Adverse Reactions

Safety information below is drawn from limited published literature, most involving short courses (2–4 weeks) in specific populations. It should not be characterized as an established or comprehensive safety profile.

- Selank is generally described in the literature reviewed as well tolerated over short courses, with reported effects limited to mild nasal irritation and occasional headache or fatigue — based on small samples and short durations, not a guarantee of safety.
- Comparative studies report a tolerability profile distinct from benzodiazepines, without the sedation or cognitive impairment associated with that drug class in the studies reviewed — based on limited literature, not dedicated head-to-head safety trials.
- Long-term human safety data, abuse potential, and withdrawal profile are explicitly unstudied. Preclinical animal studies report no evidence of dependence, withdrawal, teratogenicity, or mutagenicity, and minimal toxicity at high doses — preclinical findings that do not establish human safety margins.
- No human reproductive or developmental safety data have been identified.

Adverse Effect	Reported Frequency	Severity	Notes
Nasal irritation	Reported; not systematically quantified	Mild	May relate to formulation
Headache / fatigue	Rare, per literature reviewed	Mild	Not systematically characterized
Sedation / cognitive changes	Not reported with Selank alone	N/A	Monitor if combined with benzodiazepines — see Section 7
Long-term safety signals	Unstudied	Unknown	Explicitly flagged as an unknown in the literature

6 · Contraindications & Precautions

Relative Contraindications (Literature-Based, Not FDA Labeling)

- Known hypersensitivity to Selank, tuftsin, or any formulation component
- Pregnancy and breastfeeding (no human reproductive or developmental safety data identified)
- Active, undiagnosed psychiatric or neurological conditions warranting standard-of-care evaluation before adding an unapproved, investigational agent

Use With Caution

- Patients on benzodiazepines or other GABAergic/CNS-depressant medications — theoretical pharmacodynamic overlap (see Drug Interaction Considerations); monitor for sedation, cognitive changes, and orthostatic symptoms
- Patients with a history of substance use disorder — abuse potential in humans is explicitly unstudied; exercise standard caution applicable to any centrally active investigational agent
- Patients with hepatic or renal impairment — no dedicated pharmacokinetic data exist in these populations

7 · Drug Interaction Considerations: Selank and GABAergic / CNS-Active Agents

The following discussion is theoretical and mechanism-based. No dedicated human drug-interaction study of Selank with benzodiazepines or other CNS-active agents was identified. This is not a definitive clinical directive; providers should apply independent judgment and monitor closely if co-administration is being considered.

Reported Mechanistic Considerations

- Non-additive GABA-A modulation: in vitro radioligand-binding work reports that Selank's positive allosteric effect on GABA binding, when combined with benzodiazepines, produces a non-additive, distinct pattern of receptor modulation rather than a simple summation of effects. The clinical significance of this in vitro finding — whether it implies attenuation, potentiation, or no meaningful net change in a given patient — has not been established.
- Animal data on diazepam co-administration: a preclinical study in rats reported that Selank, like diazepam, reduced aversive signs of morphine withdrawal, and other preclinical work has examined combined diazepam/Selank effects on stress-related behavior. These are animal findings and should not be extrapolated to a predictable human co-administration effect.
- Sedation/cognitive monitoring: because Selank's proposed mechanism intersects with the GABAergic system, standard clinical caution supports monitoring for sedation, cognitive changes, and orthostatic symptoms if Selank is used alongside benzodiazepines or other CNS depressants — as a precaution based on mechanistic overlap, not a demonstrated clinical interaction.
- No pharmacokinetic interaction data (CYP450, transporter, or protein-binding) specific to Selank were identified in the literature reviewed.

8 · Dosing and Formulation Information (Literature Reference Only)

DOSING DISCLAIMER

No FDA-approved dosing exists for Selank, and Selank is not lawfully marketed or positioned as a dietary supplement in the United States. The information below is a summary of literature-reported regimens provided strictly as reference material. It is not a ReviveRX-recommended dosing protocol and does not substitute for the treating provider's independent clinical judgment, nor does it represent a determination that Selank is currently available for lawful compounding (see Section 1).

Context in Literature	Regimen / Concentration	Dose Reported	Duration Reported
Zozulia et al. (2008) GAD/neurasthenia trial	Intranasal	Roughly 0.3–0.9 mg/day divided into 2–3 doses (per broader literature)	Course-based; exact duration not detailed in English abstract
Conference abstract, rapid/gradual responders	Intranasal	2,700 mcg/day (2.7 mg/day)	Assessed through Day 14
General literature range (multiple sources)	Intranasal, 0.15%–0.75% solutions reported in practice	0.3–0.6 mg/day divided into 2–3 doses	2–4 weeks in the clinical studies reviewed

9 · Summary & Clinical Context

Selank is a tuftsin-derived heptapeptide with a moderate preclinical and mechanistic literature base. It is not FDA-approved and has not been evaluated by the FDA. Long-term safety, abuse potential, withdrawal profile, and reproductive/developmental safety all remain explicitly unstudied. Any discussion of anxiety, neurasthenia, immune, or other clinical outcomes in this document reflects literature review only and is not a representation that Selank is safe, effective, or currently compoundable for those purposes, nor a recommendation for its use, nor a suggestion that ReviveRX is promoting Selank for any disease or condition.

Distinguishing features noted in the literature — such as the reported absence of sedation, cognitive impairment, or dependence relative to benzodiazepines — are based on a limited, largely Russian evidence set and should be described as observations from the available literature rather than established safety advantages. Providers evaluating Selank, including in combination with benzodiazepines or other GABAergic agents, should rely on independent clinical judgment, confirm current Section 503A status directly with their dispensing pharmacy and FDA's published materials, and review the primary literature cited below.

10 · References & Disclaimer

Key References

Zozulia AA, Neznamov GG, Siuniakov TS, et al. Efficacy and possible mechanisms of action of a new peptide anxiolytic selank in the therapy of generalized anxiety disorders and neurasthenia. Zh Nevrol Psikhiatr Im S S Korsakova. 2008;108(4):38-48. PMID: 18454096.

Medvedev VE, Tereshchenko ON, Israelian AIu, et al. A comparison of the anxiolytic effect and tolerability of Selank and phenazepam in the treatment of anxiety disorders. 2014.

Kost NV, Sokolov OYu, Gabaeva MV, et al. Semax and Selank inhibit the enkephalin-degrading enzymes of human serum. Russ J Bioorg Chem. 2001;27(3):156-159.

Kolomin T, Shadrina M, Slominsky P, et al. Selank administration affects the expression of some genes involved in GABAergic neurotransmission. 2016.

Uchakina ON, Uchakin PN, et al. Immunomodulatory effects of Selank in patients with generalized anxiety disorder and neurasthenia. Zh Nevrol Psikhiatr Im S S Korsakova. 2008. PMID: 18577961.

Ershov FI, Uchakin PN, et al. Antiviral activity of Selank in an experimental influenza A (H3N2) infection model. Vopr Virusol. 2009.

Kasian A, Kolomin T, et al. Selank, like diazepam, attenuates aversive signs of morphine withdrawal in opiate-dependent rats.

P-1114. Rapid and slow response during treatment of generalized anxiety disorder with peptide anxiolytic Selank. Conference abstract, European Psychiatry.

U.S. Food and Drug Administration. Bulk Drug Substances Nominated for Use in Compounding Under Section 503A of the FD&C Act — Interim 503A Bulks List (Category 2 removal re: Selank acetate, effective September 27, 2024).

U.S. Food and Drug Administration. Federal Register Notice, Pharmacy Compounding Advisory Committee meeting, April 2026 (Category 2 removals and July 23–24, 2026 PCAC review scope).

DISCLAIMER

This Educational Clinical Overview is intended exclusively for licensed healthcare professionals and is not intended as patient-directed information. It does not constitute medical advice, a prescribing protocol, or a determination of current regulatory or compounding eligibility. Selank is not FDA-approved for any indication in the United States. Prescribers and dispensing pharmacies are solely responsible for confirming current regulatory status and for all clinical decisions, dosing, monitoring, informed consent, and regulatory compliance. This document is subject to revision as the regulatory landscape evolves.