

RESEARCH MONOGRAPH . COMPOUND PROFILE

# Argireline (Acetyl Hexapeptide-8)

*A six-residue acetylated peptide modeled on the N-terminal SNAP-25 sequence cleaved by botulinum neurotoxin, used in topical cosmetic formulations for expression-line reduction.*

|                |                                                                    |
|----------------|--------------------------------------------------------------------|
| DOCUMENT       | KDC-MN-1349                                                        |
| ISSUED         | 2026-05-10                                                         |
| REVISION       | 1.0                                                                |
| AUTHOR         | Kodiac bioLabs Research                                            |
| COMPOUND CLASS | SNAP-25 mimetic hexapeptide topical neuromuscular cosmetic peptide |

RESEARCH USE ONLY

## ABSTRACT

Argireline (Acetyl hexapeptide-8; Ac-Glu-Glu-Met-Gln-Arg-Arg-NH<sub>2</sub>; CAS 616204-22-9 or 575826-37-6 acetate; molecular weight 888.97 free peptide) is a six-residue N-acetylated, C-amidated peptide developed by the Spanish company Lipotec (now part of Lubrizol) and marketed as Argireline since 2002. The peptide sequence corresponds to the N-terminus of SNAP-25, a key SNARE complex protein that mediates synaptic vesicle fusion at the neuromuscular junction; SNAP-25 is the substrate cleaved by botulinum neurotoxin type A (Botox) at the same N-terminal region. The pharmacological argument for Argireline as a topical cosmetic ingredient is that the peptide competes with endogenous SNAP-25 for assembly into the SNARE complex, weakening neurotransmitter release at the neuromuscular junction at the application site and reducing the muscular contraction that drives expression-line formation. The mechanism is qualitatively similar to botulinum toxin but operates at substantially lower potency and through a distinct molecular mechanism (competitive SNAP-25 mimicry rather than enzymatic cleavage of endogenous SNAP-25). Topical penetration of an intact polar hexapeptide through the stratum corneum is intrinsically poor; modern Argireline formulations use liposomal encapsulation or other delivery vehicles to improve penetration. Published clinical evidence is mixed and dominated by manufacturer-sponsored studies; independent academic studies report modest reduction in expression-line depth at 30 days of twice-daily 10 percent topical application, substantially less than the effect of intramuscular botulinum toxin. The compound is sold as a cosmetic ingredient (not a regulated drug) in essentially all major cosmetic markets

including the United States, EU, and East Asia. Stability of formulated solutions is moderate; solid peptide stored at refrigerated conditions has multi-year shelf life.

# 1. Compound Identification

**Argireline (Acetyl Hexapeptide-8)** is described as snap-25 mimetic hexapeptide topical neuromuscular cosmetic peptide. A six-residue acetylated peptide modeled on the N-terminal SNAP-25 sequence cleaved by botulinum neurotoxin, used in topical cosmetic formulations for expression-line reduction.

## 1.1 Class summary

SNAP-25 mimetic hexapeptide topical neuromuscular cosmetic peptide

## 1.2 Subtitle

A six-residue acetylated peptide modeled on the N-terminal SNAP-25 sequence cleaved by botulinum neurotoxin, used in topical cosmetic formulations for expression-line reduction.

## 2. Abstract

Argireline (Acetyl hexapeptide-8; Ac-Glu-Glu-Met-Gln-Arg-Arg-NH<sub>2</sub>; CAS 616204-22-9 or 575826-37-6 acetate; molecular weight 888.97 free peptide) is a six-residue N-acetylated, C-amidated peptide developed by the Spanish company Lipotec (now part of Lubrizol) and marketed as Argireline since 2002. The peptide sequence corresponds to the N-terminus of SNAP-25, a key SNARE complex protein that mediates synaptic vesicle fusion at the neuromuscular junction; SNAP-25 is the substrate cleaved by botulinum neurotoxin type A (Botox) at the same N-terminal region. The pharmacological argument for Argireline as a topical cosmetic ingredient is that the peptide competes with endogenous SNAP-25 for assembly into the SNARE complex, weakening neurotransmitter release at the neuromuscular junction at the application site and reducing the muscular contraction that drives expression-line formation. The mechanism is qualitatively similar to botulinum toxin but operates at substantially lower potency and through a distinct molecular mechanism (competitive SNAP-25 mimicry rather than enzymatic cleavage of endogenous SNAP-25). Topical penetration of an intact polar hexapeptide through the stratum corneum is intrinsically poor; modern Argireline formulations use liposomal encapsulation or other delivery vehicles to improve penetration. Published clinical evidence is mixed and dominated by manufacturer-sponsored studies; independent academic studies report modest reduction in expression-line depth at 30 days of twice-daily 10 percent topical application, substantially less than the effect of intramuscular botulinum toxin. The compound is sold as a cosmetic ingredient (not a regulated drug) in essentially all major cosmetic markets including the United States, EU, and East Asia. Stability of formulated solutions is moderate; solid peptide stored at refrigerated conditions has multi-year shelf life.

### 3. Mechanism of Action

Competitive SNAP-25 mimicry at the SNARE complex assembly site. Reduced neurotransmitter release at the neuromuscular junction at the application site. Mild expression-line reduction.

The mechanistic profile described above represents the consensus position from peer-reviewed literature where available; for compounds with sparse formal characterization, this section reflects vendor-grade reports and structurally-related class pharmacology and should be interpreted with appropriate caution.

## 4. Pharmacokinetics and Routes of Administration

Pharmacokinetic data are summarized within the abstract for compounds with formal Phase 1 records. Compounds without published human pharmacokinetic studies are noted as such; investigators should treat the absence of data as a research limitation.

## 5. Reported Research Dose Ranges

Topical 5 to 10 percent solution in liposomal or hydrogel vehicle, applied to expression-line zones twice daily.

Doses are scaled from clinical use where the compound is approved as a medicine, from Phase 2/3 trials where development advanced, or from rodent dose-response data scaled by allometric assumptions where the compound has no human clinical record. Investigators should treat dose ranges from research-chemical-grade vendors as starting points for their own pharmacokinetic and tolerability characterization rather than validated dosing recommendations.

## 6. Sourcing and Quality Verification

Investigators should obtain analytical confirmation of identity (mass spectrometry; for peptides, additionally amino acid analysis or N-terminal sequencing) and purity (HPLC area-percent, ideally greater than 95 percent) on every lot. Vendor certificates of analysis vary in quality; third-party analytical confirmation through independent laboratories (e.g., Janoshik Analytical, Anabolic Lab) is the gold standard for research-grade peptides and small molecules.

For compounds with established pharmaceutical-grade marketing in any jurisdiction, sourcing from the marketed product (where legal and accessible) provides the highest quality assurance.

## 7. Reconstitution and Handling

Peptides should be reconstituted in bacteriostatic water or sterile water for injection in the volume appropriate to the desired concentration; lyophilized peptides should be allowed to come to room temperature before reconstitution to minimize precipitation. Reconstituted peptides should be stored refrigerated and used within the timeframe specified by the manufacturer (typically 14 to 30 days for bacteriostatic water reconstitutions, shorter for sterile water).

Small molecules: storage conditions vary by compound; consult the certificate of analysis for the specific product. Most are stable at room temperature in dry, dark conditions; oxidation-sensitive compounds (e.g., catecholamine precursors) require cool storage and protection from light.

## 8. Stack Interaction Considerations

Investigators combining this compound with other research substances should consider receptor-level interactions (additive effects at shared targets), enzyme-level interactions (CYP-mediated drug-drug interactions where applicable), and pharmacodynamic interactions (additive sedation, additive serotonergic activity, additive hemodynamic effects).

The stack interaction section in published monographs of well-characterized compounds is necessarily incomplete for any specific combination; investigators should treat novel combinations with elevated caution and titrate gradually.

## 9. References

1. Blanes-Mira C, et al. A synthetic hexapeptide (Argireline) with antiwrinkle activity. Int J Cosmet Sci 2002.
2. Wang Y, et al. The efficacy of Argireline in vitro and in vivo. J Cosmet Dermatol 2013.
3. Reddy BY, et al. Topical antiaging peptides: a systematic review. J Drugs Dermatol 2015.

---

*This monograph is provided for research use only. Not for medical, diagnostic, or therapeutic purposes. Not for human consumption. Compound class generalizations are noted where compound-specific data are sparse; investigators should weight the evidence accordingly.*