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Si Belle

BTX

Botulinum-inspired
Peptide Skin Booster

Technical information for clinicians
and professional distribution partners





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A wrinkle-focused peptide concept

From hydration to expression-line care

DEVELOPMENT BACKGROUND

Conventional skin boosters focus on hydration and skin conditioning. The source introduces a peptide-based concept focused on expression-related wrinkles and the biological pathways associated with contraction signals.

THE FORMULATION CONCEPT

The original concept combines botulinum-inspired peptide mechanisms with a skin-booster format. The following pages present ingredient mechanisms, analytical testing, a human evaluation and supporting third-party research.

Technical contents

Product concept and composition pp.3-4
Ingredient mechanisms and analytical testing pp.5-8
Human evaluation p.9
Supporting peptide research and summary pp.10-14

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BOTULINUM-INSPIRED PEPTIDE SKIN BOOSTER

A peptide-based skin-booster concept designed for expression-related wrinkle care. The source describes several peptide mechanisms associated with neurotransmitter signalling and muscle-contraction pathways.



PRODUCT PRESENTATION

Si Belle BTX
2.5 mL x 1 EA
Supplied actual product packaging.

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Source positioning: "Botulinum toxin-free"

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Composition & primary efficacy

Five peptides in the source formulation

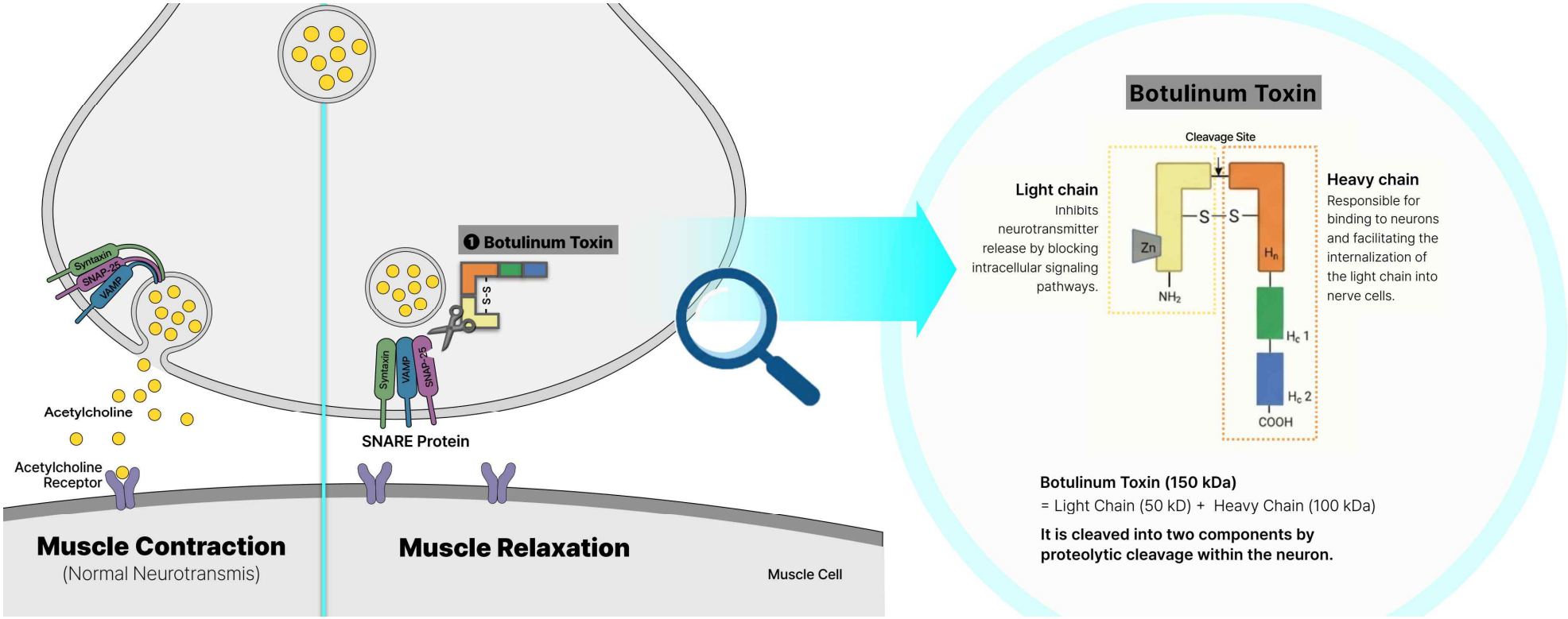
INGREDIENT NAME	SOURCE FUNCTION	APPLICATION
sr-(Oligopeptide-91 Clostridium Botulinum Polypeptide-1)	SNAP-25 mimic	Anti-wrinkle
Arginine/Lysine Polypeptide	Antagonist of ACh	Anti-wrinkle
Acetyl Hexapeptide-8	SNAP-25 mimic	Anti-wrinkle
Acetyl Octapeptide-3	SNAP-25 mimic	Anti-wrinkle
Pentapeptide-18	Enkephalin mimic	Anti-wrinkle

Primary focus: visible smoothing of expression lines and relaxed-looking skin. Wrinkle depth, count, volume and area are examined in the source human evaluation on p.9.

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SNAP-25 and neurotransmission

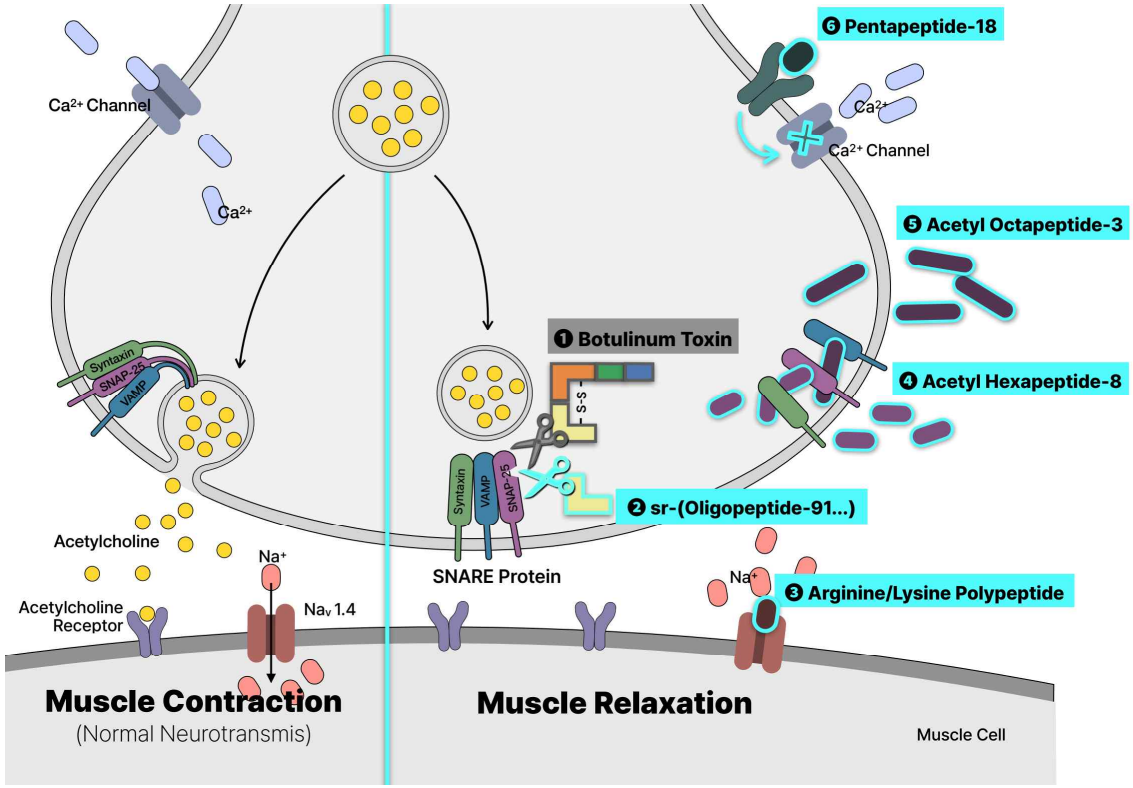
Acetylcholine release depends on the SNARE complex. The source describes botulinum toxin light-chain activity as cleavage of SNAP-25, reducing neurotransmitter release. The heavy chain is presented as the binding and internalization component.



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Peptide pathways at a glance

The source compares SNAP-25 cleavage, SNARE-complex inhibition, sodium-channel activity and enkephalin-receptor signalling. Its original mechanism table and pathway schematic are reproduced together below.



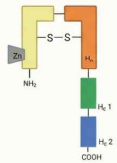
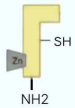
	Ingredient	Classification	Mechanism	Characteristics
1	**Botulinum Toxin**	Toxin	SNAP-25 Cleavage (Irreversible)	Physically cleaves and destroys the SNAP-25 protein to block neurotransmission.
2	**sr-(Oligopeptide-91 Clostridium Botulinum Polypeptide-1)**	Active Toxin Domain + Delivery Peptide	SNAP-25 Cleavage (Peptide-based)	Extracts only the "cleaving" function of the toxin and uses Oligopeptide-91 as a carrier for cell penetration.
3	**Arginine/Lysine Polypeptide** (S-Mu-conotoxin CnIIIC)	Channel Blockade	NaV1.4 Sodium Channel Blockade	Immediate wrinkle relaxation
4	**Acetyl Hexapeptide-8**	SNARE Inhibition	Competitive Inhibition of SNAP-25	Inhibits acetylcholine (ACh) release by mimicking the SNARE complex to prevent its proper formation.
5	**Acetyl Octapeptide-3**	SNARE Inhibition	Competitive Inhibition of SNAP-25	An extended version of Argireline; the longer amino acid sequence provides stronger binding to maximize ACh inhibition.
6	**Pentapeptide-18**	Receptor Blockade	Enkephalin Receptor Binding	Mimics enkephalins to bind to receptors, closing calcium channels and reducing the release of ACh at the source.

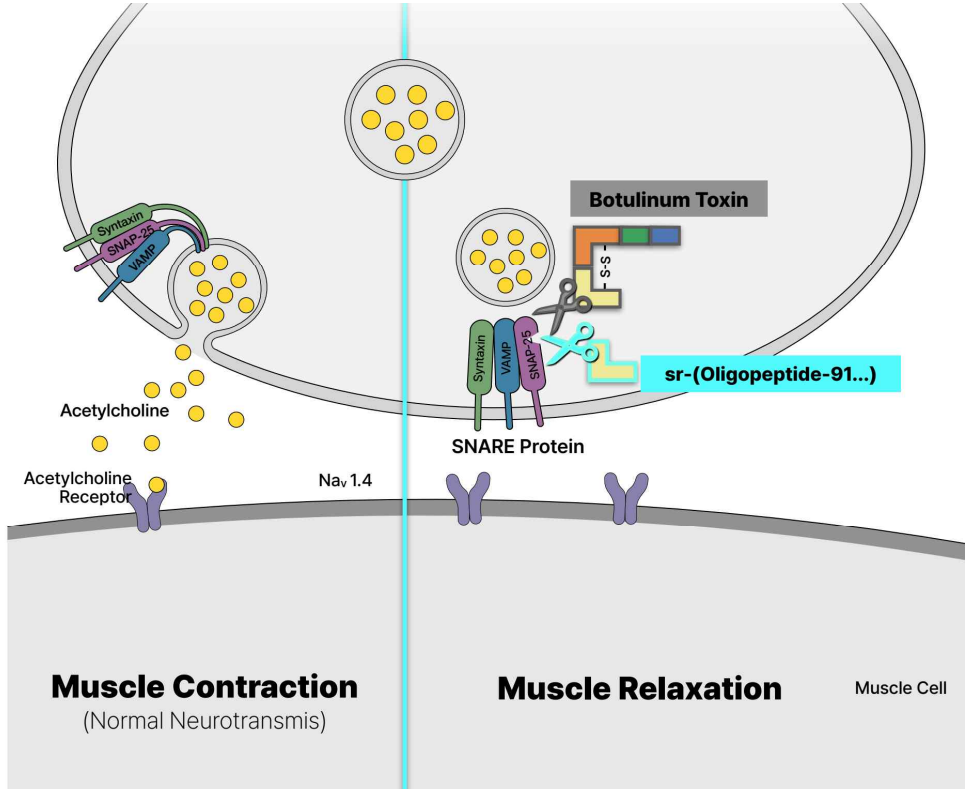
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Recombinant peptide technology

The source describes a recombinant, highly purified protein comprising the light chain of botulinum toxin. It identifies SNAP-25 as the shared biological target and describes direct enzymatic cleavage of the SNARE protein complex.

Key Differences

	Botulinum	sr-(Oligopeptide-91 Clostridium Botulinum Polypeptide-1)
Mechanism	SNAP-25 Cleavage	
Structure	 Heavy Chain + Light Chain (Scissors)	 Delivery Peptide + Light Chain (Scissors)
Feature	Botulinum Toxin	Peptide
Size	Large	Small (Peptide Level)
Delivery	The Heavy Chain acts as a carrier to find and enter the nerve cell.	No Heavy Chain. It uses Oligopeptide-91 as a "high-pass" delivery tag to enter the cell.
Toxicity	Risk Potential (Heavy chain is responsible for strong binding and systemic diffusion)	Low Toxicity (No Heavy Chain = No Spread, Reversible = Naturally Metabolized)



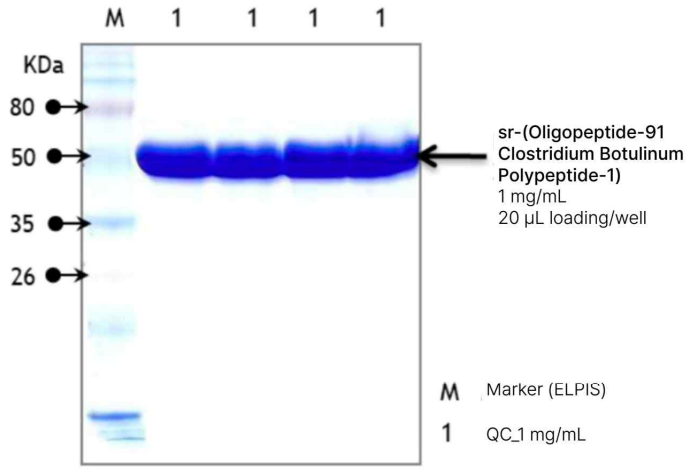
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Analytical and cellular assays

SDS-PAGE and two cellular viability assays

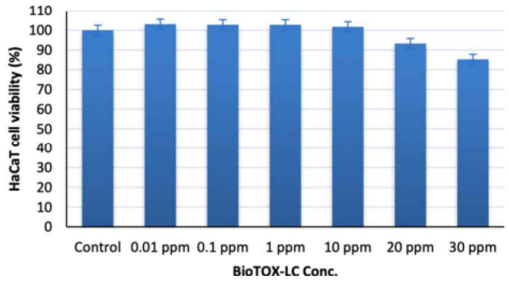
Qualitative / Quantitative Analysis

SDS-PAGE Analysis

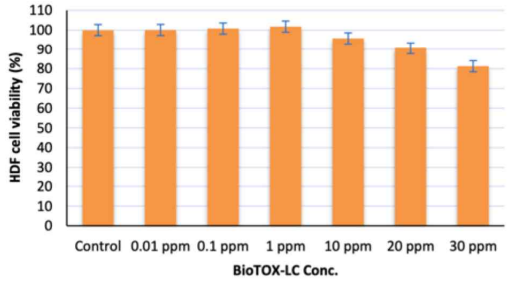


Cytotoxicity Assay

In Human Epidermal Cells



In Human Dermal Fibroblasts



No cytotoxicity was observed at ingredient concentrations of 10 ppm or below compared with control in the reported epidermal-cell and dermal-fibroblast assays.

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Human evaluation

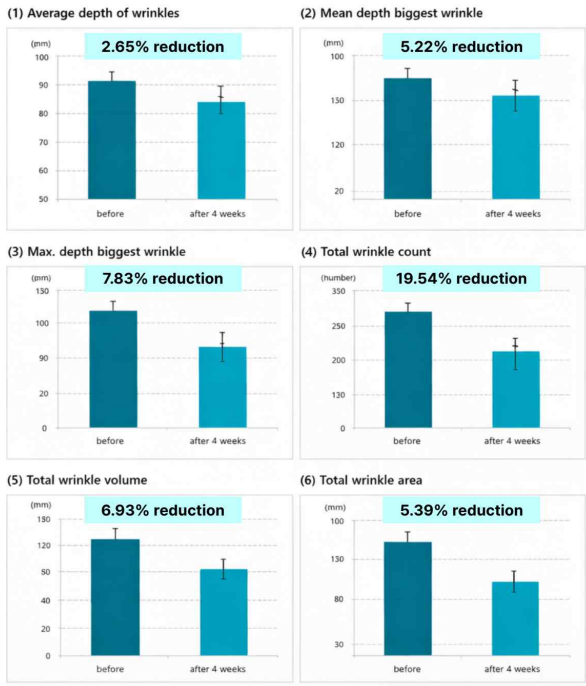
21 subjects | 1 ppm study formulation | 4 weeks

H&Bio Co., Ltd. / Korea Skin Clinical Research Center. Mean age: 49.43 +/- 4.43 years; range: 41-54 years. The source reports wrinkle improvement and no adverse skin reactions during the study period.

Nasolabial Fold Image



Nasolabial Fold Analysis Results



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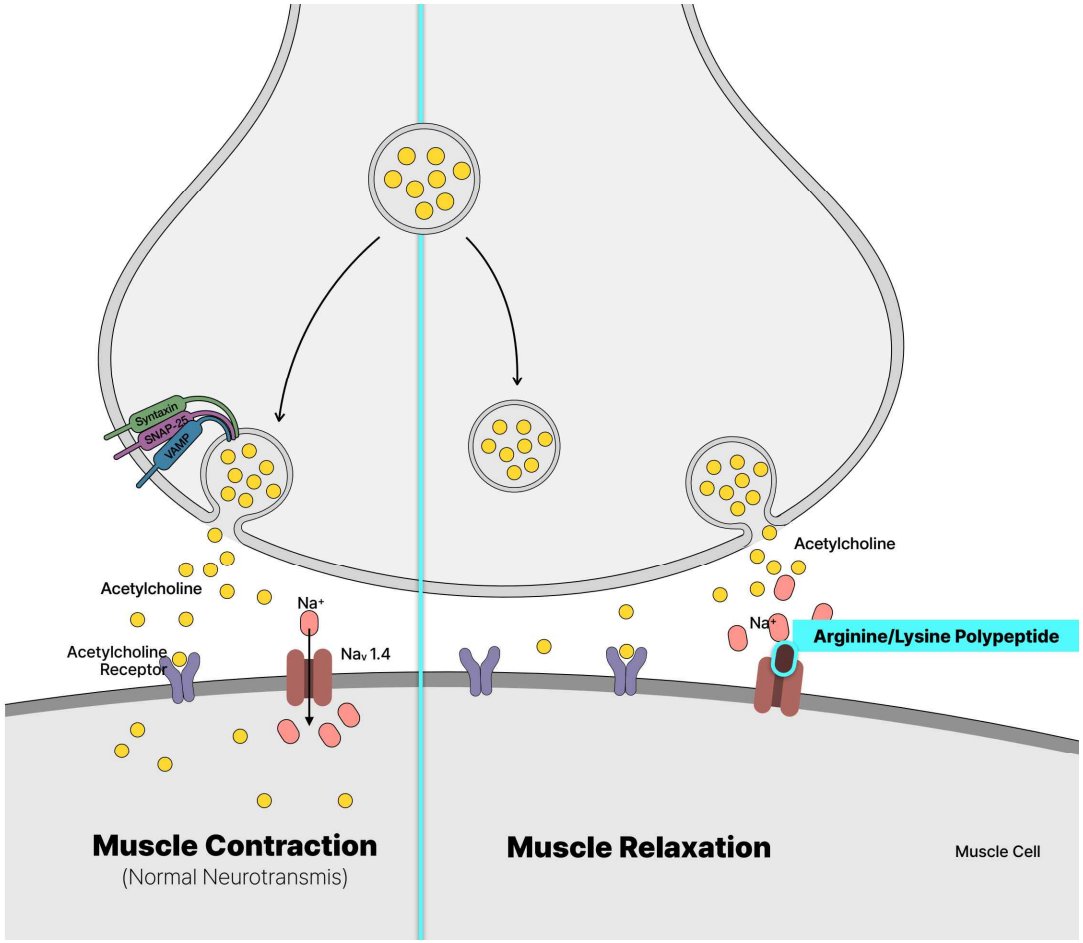
Arginine/Lysine Polypeptide

BIOMIMETIC PEPTIDE

The source describes a peptide inspired by compounds found in cone-snail venom. Its proposed activity concerns sodium channels on the surface of muscle fibres.

SIGNALLING PATHWAY

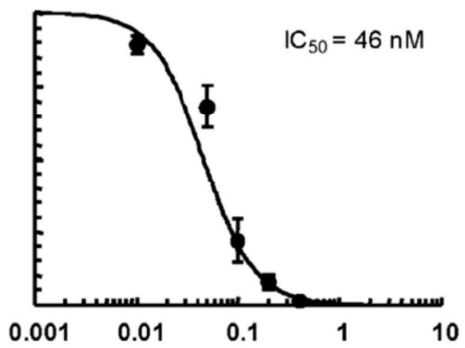
Following acetylcholine release and receptor binding, rapid sodium-ion influx is involved in the electrical signal that supports muscle contraction. The source schematic shows peptide interaction at the sodium-channel stage.



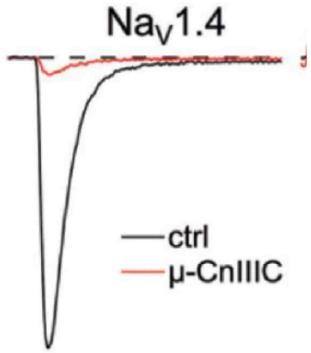
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CnIIIC: supporting pharmacology

Muscle and ion-channel activity in experimental models



British Journal of Pharmacology (2012) 166 1654–1668



British Journal of Pharmacology (2012) 166 1654–1668

Favreau et al. (2012) investigated synthetic CnIIIC in muscle and ion-channel preparations. The 46 nM result shown in the source concerns mouse extensor digitorum longus twitch tension.

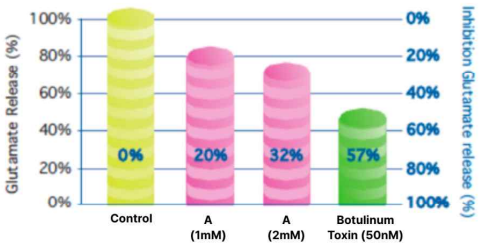
These experimental data provide pharmacological background; the graph is not a human wrinkle endpoint or a finished-product clinical dose.

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Acetyl Hexapeptide-8 & Octapeptide-3

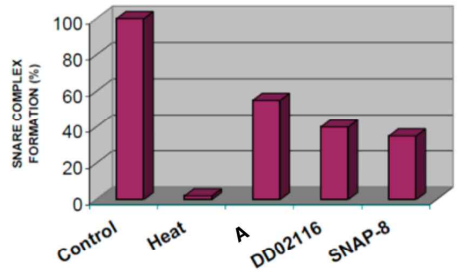
The source describes SNAP-25-derived peptides that compete in SNARE-complex formation and reduce acetylcholine release. It describes Octapeptide-3 as a Hexapeptide-8 derivative with higher biological activity in the cited material.

Botulinum Toxin Mimic Activity



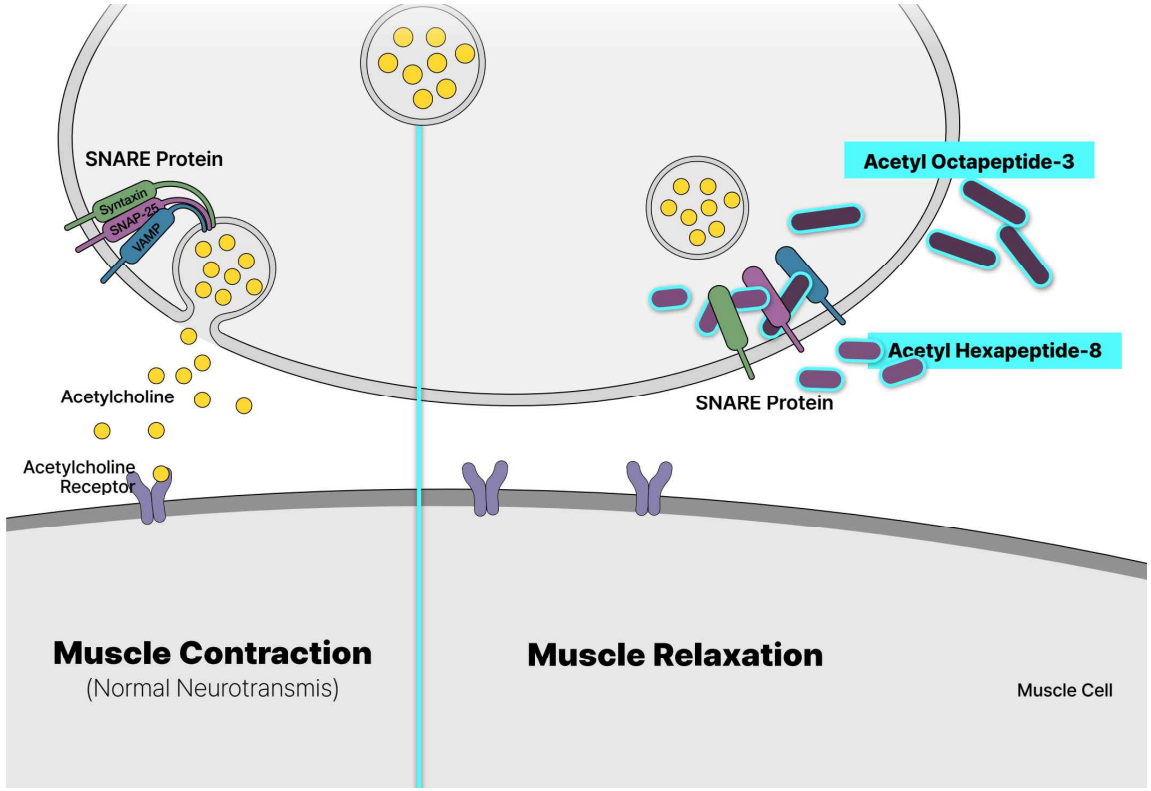
Muscle contraction inhibitory activity

Inhibition of SNARE complex formation by peptides derived from SNAP-25



A : Commercial ingredient of Acetyl Hexapeptide-8

*This information is cited from a third-party product(Lipotec S.A.U.) for reference purposes.

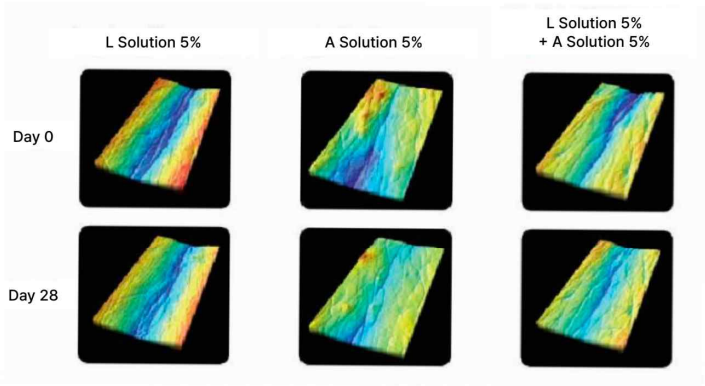


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Pentapeptide-18

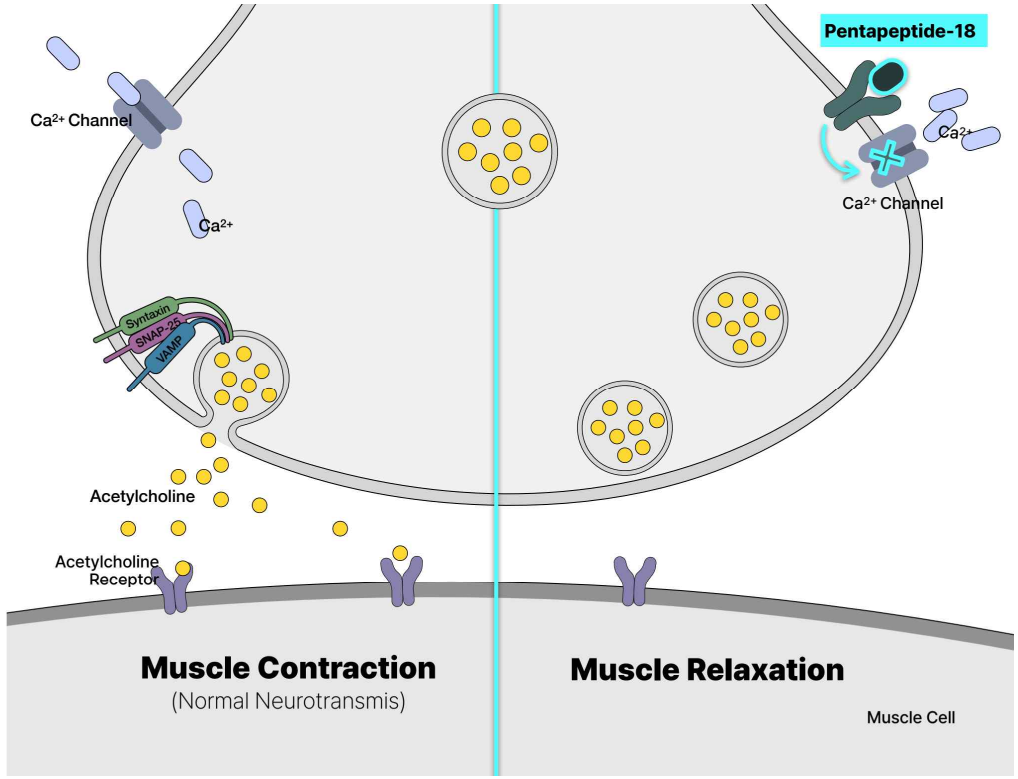
The source describes enkephalin-receptor binding and reduced calcium-channel opening, followed by reduced acetylcholine release. The third-party images compare Pentapeptide-18, Acetyl Hexapeptide-8 and their combination.

Anti-wrinkle effect with/without Acetyl Hexapeptide-8



L : Commercial ingredient of Pentapeptide-18
A : Commercial ingredient of Acetyl Hexapeptide-8

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A differentiated peptide concept

WRINKLE-FOCUSED SKIN CARE

A botulinum-inspired peptide skin-booster concept, developed around expression-line care and the ingredient pathways presented in this brochure.



SOURCE COMPARISON	BOTULINUM TOXIN	CONVENTIONAL SKIN BOOSTER	SI BELLE BTX PEPTIDE CONCEPT
Feature	Neurotoxin	Hydration-focused	Peptide neuromodulation
Expected focus	Muscle paralysis	Skin conditioning	Wrinkle-relaxing concept
Source category	Drug	Cosmetic	Cosmetic-grade peptides

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Botulinum-inspired Peptide Skin Booster

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