Neurotransmitter-inhibitor Peptide

"Botox-like" peptide but more safer without side-effects
Cell-communicating ingredient & Signaling molecule
Say bye-bye to senescence of skin
Anti-premature decrepitude, Anti-wrinkle, Anti-aging
Laugh loudly without wrinkles

Spec Chem Group (For Customer Only)
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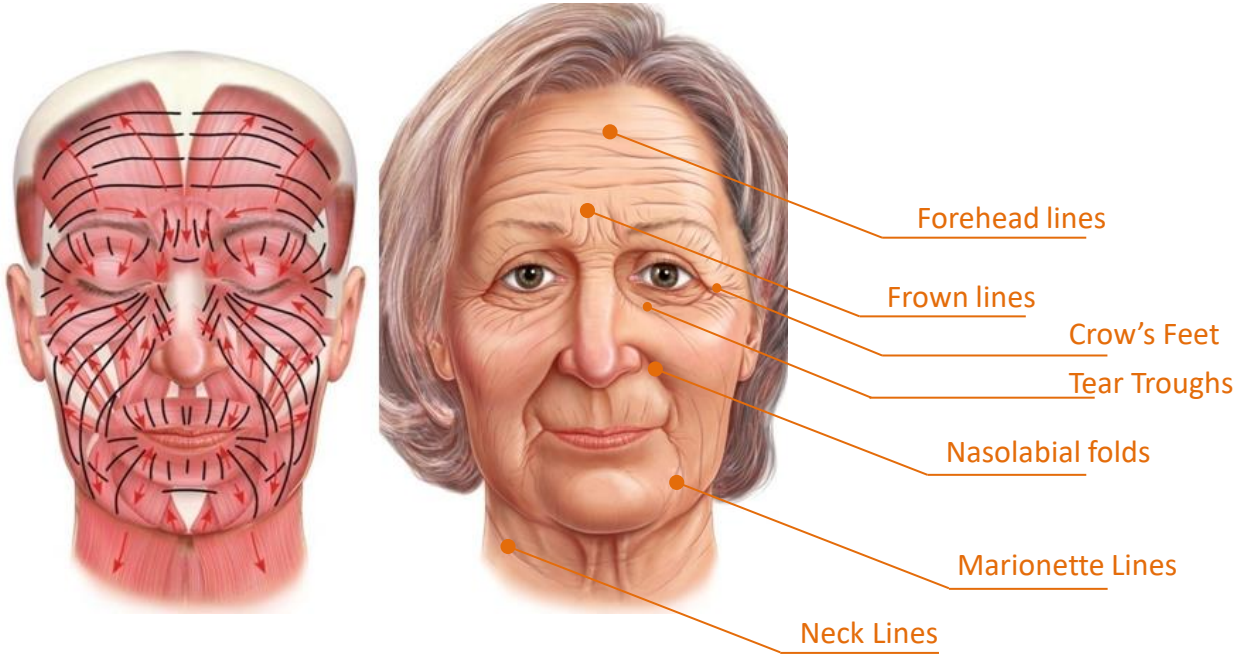
(Technical & Market Dep.)
Tentative, Dec.19 2020

Contents

1 The Overview of Expressional Lines and Its Causes

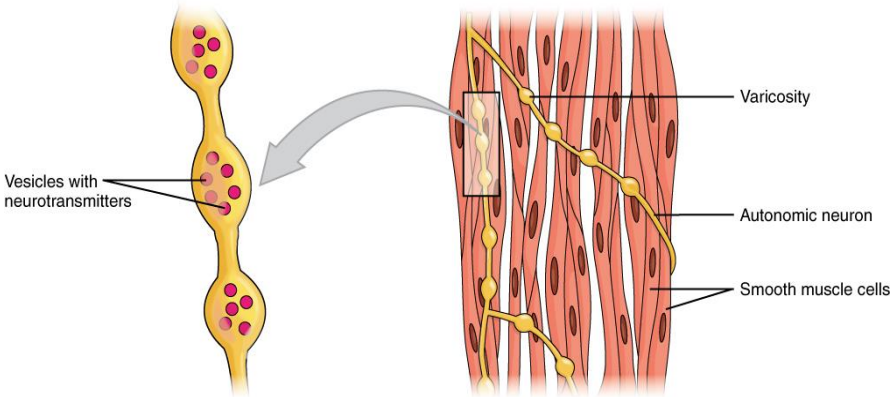
Expressional Lines/Wrinkles:

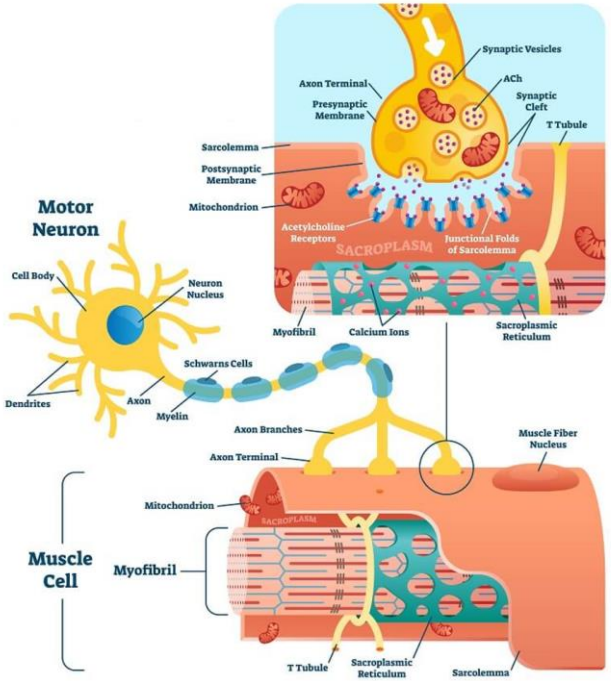
We all experience dozens of emotions every day. Naturally, each of these emotions comes with a different facial expression.
After hundreds of different facial expressions per day, 365 days per year, for several decades on end, expression lines can begin to take shape.



- When you're young, these lines simply disappear once your face returns to a resting position.
- But, over time, these expression lines start to become permanent, leading to wrinkles.

Neuromuscular Junction (NMJ)

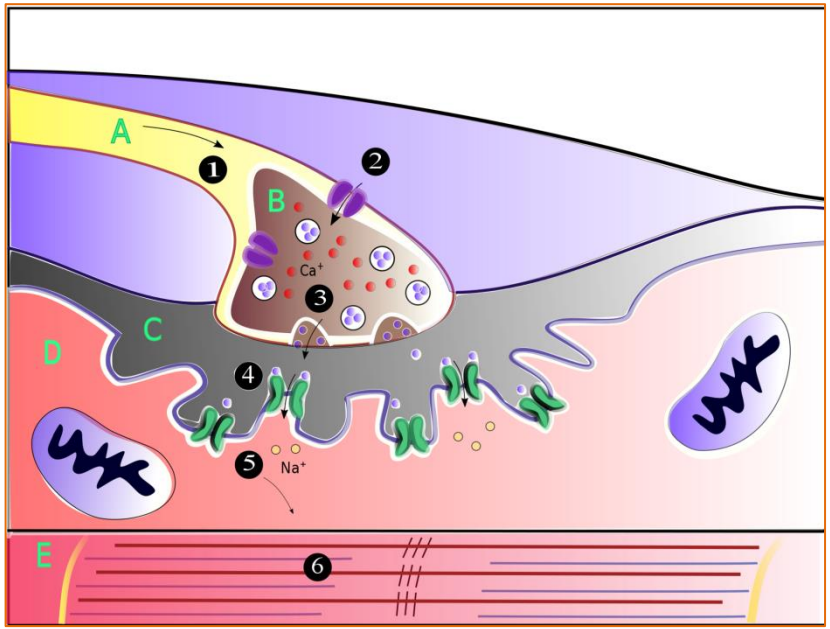




- A neuromuscular junction (or myoneural junction) is a chemical synapse between a motor neuron and a muscle fiber.
- It allows the motor neuron to transmit a signal to the muscle fiber, causing muscle contraction.

2 How Expressional Wrinkles were formed

Causes of Expressional Lines/Wrinkles:



Muscles contract when they receive signals from motor neurons. The **neuromuscular junction (NMJ) is the site of the signal exchange**. The steps of this process in vertebrates occur as follows:

(1) The action potential reaches the axon terminal.

(2) Calcium ions flow into the axon terminal.

(3) Acetylcholine (ACh) is released into the synaptic cleft.

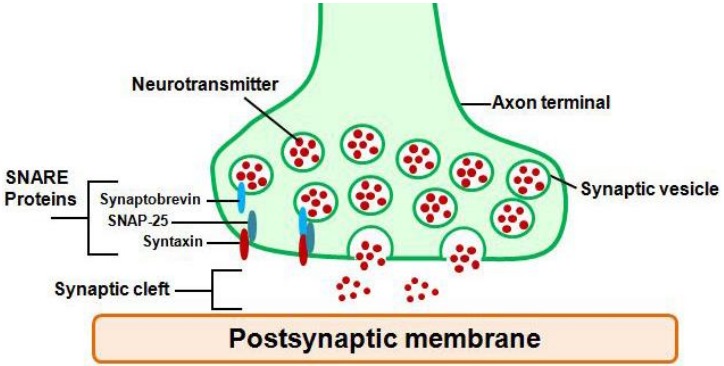
(4) Acetylcholine binds to postsynaptic receptors.

(5) This binding causes ion channels to open and allows sodium ions to flow into the muscle cell.

(6) The flow of sodium ions across the membrane into the muscle cell generates an action potential which induces muscle contraction.

Labels: A: Motor neuron axon B: Axon terminal C: Synaptic cleft D: Muscle cell E: Part of a Myofibril

Synaptic Vesicles/Neurotransmitter Vesicles



Abbreviations
SNAP-25 = synaptosomal-associated protein 25
SNARE = soluble *N*-ethylmaleimide-sensitive factor activating protein receptor
VAMP2 = vesicle-associated membrane protein 2

- Synaptic vesicles (or neurotransmitter vesicles) store various neurotransmitters that are released at the synapse.
- Neurotransmitter type(s): norepinephrine, dopamine, histamine, serotonin and **acetylcholine (ACh)**; gamma-Aminobutyric acid (GABA) and glycine; glutamate.
- Acetylcholine is the neurotransmitter used at the neuromuscular junction—in other words, it is the chemical that motor neurons of the nervous system release in order to activate muscles.
- Properly prevent the release of Ach is one of the key steps

SNARE Complex (*chemical synapse)*

SNARE proteins – "SNAP REceptor"

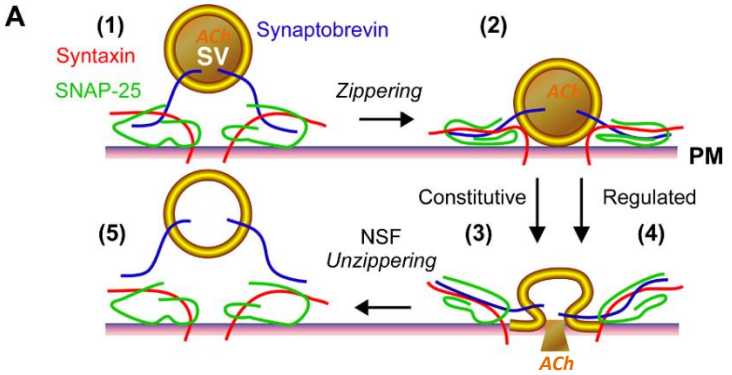
- The primary role of SNARE proteins is to mediate vesicle fusion – the fusion of vesicles with the target membrane; this notably mediates (exocytosis)
- The best studied SNAREs are those that mediate the neurotransmitter release of synaptic vesicles in neurons.

SNARE Complex

① **SNAP-25:** *is a Target Soluble NSF (Nethylmaleimide-sensitive factor) , Attachment Protein Receptor (tSNARE) Protein, SNAP-25 is a component of the trans-SNARE complex, which accounts for membrane fusion specificity and directly executes fusion by forming a tight complex that brings the synaptic vesicle and plasma membranes together.*

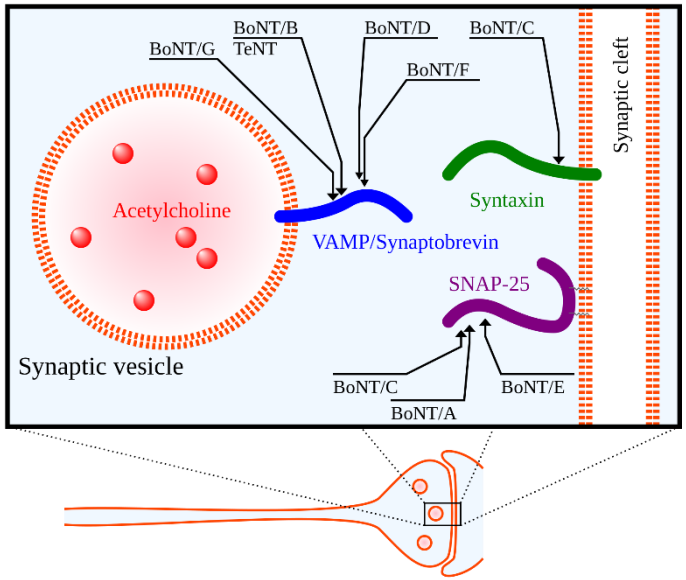
② VAMP-Vesicle associated membrane proteins: *a family of SNARE proteins with similar structure, and are mostly involved in vesicle fusion.*

③ Syntaxins: *a family of membrane integrated Q-SNARE proteins participating in exocytosis.*



This figure provides a simple overview of the interaction of SNARE proteins with vesicles during exocytosis. Shows SNARE complex assembly, zippering, and disassembly.

Why neuromuscular toxins (Botox) is harmful?



Target molecules of botulinum neurotoxin (abbreviated BoNT) and tetanus neurotoxin (TeNT), toxins acting inside the axon terminal.

- the toxin cleaves SNARE proteins meaning that the acetylcholine vesicles cannot bind to the intracellular cell membrane, this stops nerve signaling, leading to paralysis by damaging t-SNARES and v-SNARES and thus inhibiting synaptic transmission.
- **Damaged SNAP-25, VAMP and Syntaxin in SNARE Proteins can't finish assembly-zippering-disassembly recycle with vesicles during exocytosis.**
- Bigger molecular size, hard to be delivered transdermally, need to be injected, may be injected into the wrong muscle group or with time spread from the injection site, causing temporary paralysis of unintended muscles. Cause Inintended Injection Accident & Side-effects: facial paralysis, muscle weakness, trouble swallowing, headaches, flu-like symptoms, and allergic reactions.

Why we need neuromuscular (neurotransmitter-inhibitor peptide) peptides?

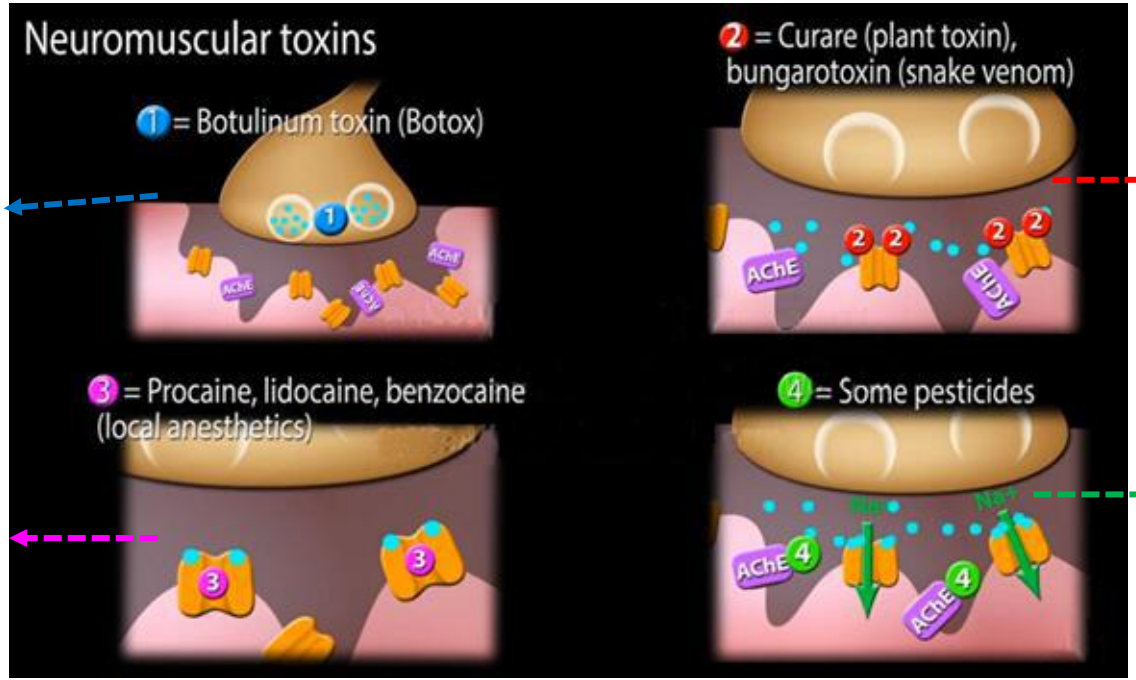
- Not disturb the normally physiological function of SNARE proteins
- Not damage the normally neural conduction
- Refuse to facial paralysis, maintain normal facial expression
- Easy to be delivered transdermally, smaller molecules
- No need for injection, can be applied externally on skin
- Biomimetic molecular design, much safer and without side-effects
- No skin allergic reactions and no skin irritation
- Bioactive, much purer, identified mechanism (key-lock model)
- Without plunder of wild resources, not toxin

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

Neuromuscular Peptides VS Neuromuscular toxins (Botox)-Existing Mechanism & Future Development

cleaves SNARE proteins
Disrupts acetylcholine release
from Pre-SNAP Conjunction

Block Sodium Channels



Prevents binding to the
Acetylcholine Receptor (AChR)
Not Open Sodium Channels

Block acetylcholinesterase (AChE) activity, Blocks muscle relaxation.

Why not increase AChE activity, Help muscle relaxation.

AChE: *Acetylcholinesterase，also known as AChE or acetylhydrolase, is the primary cholinesterase in the body. It is an enzyme that catalyzes the breakdown of acetylcholine (into choline and acetate) and of some other choline esters that function as neurotransmitters. AChE is found at mainly neuromuscular junctions and in chemical synapses of the cholinergic type, where its activity serves to terminate synaptic transmission. It belongs to carboxylesterase family of enzymes. It is the primary target of inhibition by organophosphorus compounds such as nerve agents and pesticides.*

Neurotransmitter-inhibitor Peptide

Neurotransmitter-inhibitor peptide is a Botox-like but much safer mechanism. By inhibiting neurotransmitter, such as excessive release of acetylcholinesterase at neuromuscular junction (or increasing the activity of acetylcholinesterase) and exocytosis of neurons etc., these peptides can locally block the signal transmission and muscle contraction, so as to relax facial muscles and smooth fine lines. It is widely used, especially suitable for the facial expression muscle (canthus, face and forehead).

Neurotransmitter-inhibitor Peptide in Personal Care Products (Biomimetic Molecular/Peptide)

Acetyl Hexapeptide-8	SpecPed® AH8P
Acetyl Octapeptide-3	SpecPed® AO3P
Dipeptide Diaminobutyroyl Benzylamide Diacetate	SpecPed® SKEP
S-Mu-Conotoxin CnIIIC	SpecPed® MCC21P

Neurotransmitter-inhibitor Peptide (Clinical: Spec Chem-in vitro & vivo)

SpecPed® MCC21P (S-Mu-Conotoxin CnIIIC)

Starting: 2H 3%(0.01%) VS (15-45M 0.5ppm)

Duration: 15-1h/once

Data provided by Spec Chem's Safety & In vitro & vivo & Evaluation Center, along with SGS

SpecPed® SKEP (Dipeptide Diaminobutyroyl Benzylamide Diacetate)

Starting: 14D 25 ppm

Duration: 14D(V↓8.7%)~28D(V↓20.26%)

(twice/day)

SpecPed® AH8P (Acetyl Hexapeptide-8)

Starting: 14D 50 ppm

Duration: 14D~28D (V↓20.4%) ~56D (V↓25.9%)

(twice/day) SGS

SpecPed® WA (Peptide Complex)

SpecPed® AH8P

SpecPed® SKEP

SpecPed® MCC21P

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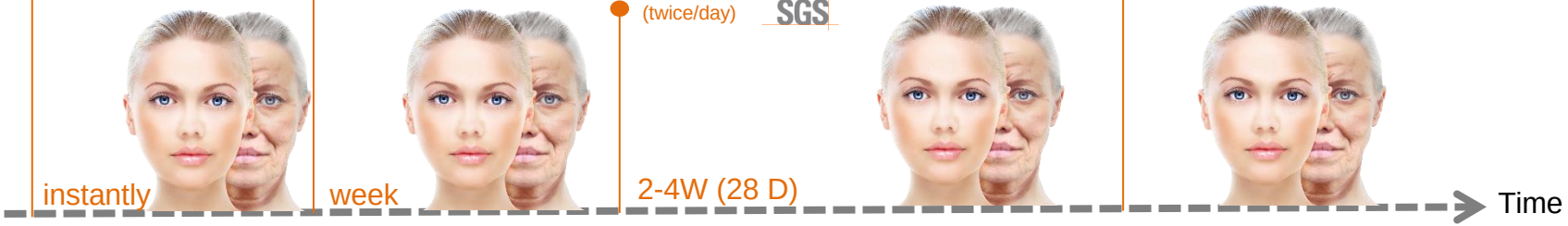
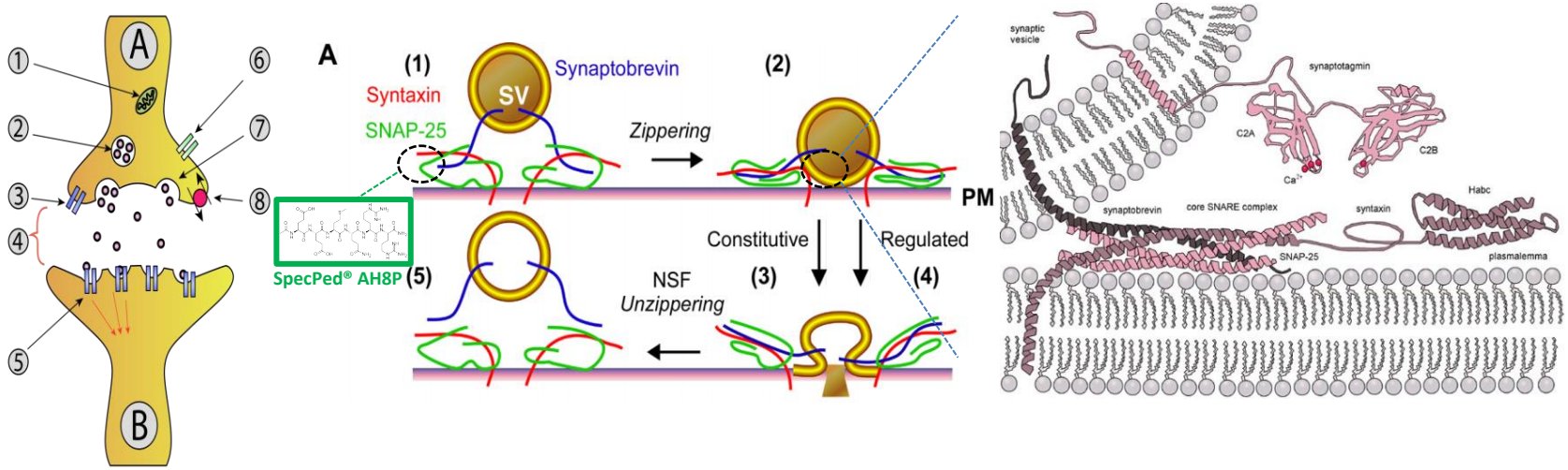


Safe and reliable (no injection, no stiffness), quick and lasting!

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

SpecPed® AH8P (Acetyl Hexapeptide-8)



- SNARE complex is a key targeted protein complex for the release of acetylcholine (Ach) in synapses. The function of SNARE is to promote the release of Ach and lead to muscle contraction. SNARE Complex consists of three proteins: vesicle associated membrane protein (VAMP)/vesicle fusion protein, synaptic fusion protein/membrane integrated protein (Syntaxin) and synapse related proteins/Nethylmaleimide-sensitive factor (NSF) attachement protein Receptor Protein (SNAP-25).
- **SpecPed ® AH8P has similar structure to SNAP-25** and can **compete with SNAP-25 to occupy the position in SNARE Complex**, thus inhibiting releasing Ach and relaxing the muscles.

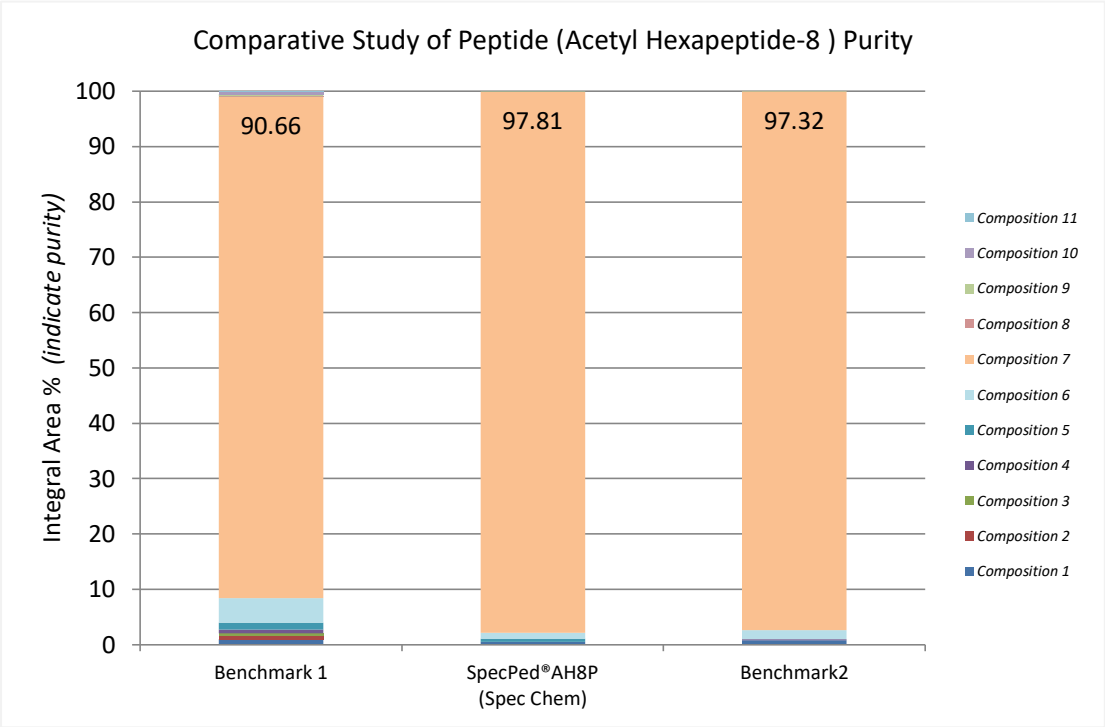
SpecPed® AH8P (Acetyl Hexapeptide-8)

Product Information of Peptide Powder:

Trade Name:	SpecPed®AH8P
INCI Name:	Acetyl Hexapeptide-8
Dosage:	Daily care: 0.005-0.05% Intensive care: 0.05-0.2%
Application:	A ideal alternative to Botulinum Toxin, targeting the wrinkles caused by the contraction of muscles of facial expression
Suggested pH:	3-8
Packing:	10g, 100g or Customizable
Storage condition:	Cool and dry place, protect from light, 2-8℃ for common storage, -20℃ for long time storage
Shelf life:	2 years

Items	Standards
Appearance	White powder
Identity by MS	889.0±1.0
Water (K.F.)	Not more than 7.0%
Peptide content	Not less than 80.0%
Purity (HPLC)	Not less than 98.0%
Amino acid composition	±10 % of theoretical

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide



SpecPed® AH8P (Acetyl Hexapeptide-8) shows:

- **Less Impurities**

  With less content in each undesirable composition compared with benchmarks.

- **Much Purer**

  With less compositions compared with bechmarks (1-eleven; 2-five)

- **More Bioactive**

  With more working composition (97.81% > 97.32% >90.66%)

SpecPed® AH8P (Acetyl Hexapeptide-8)

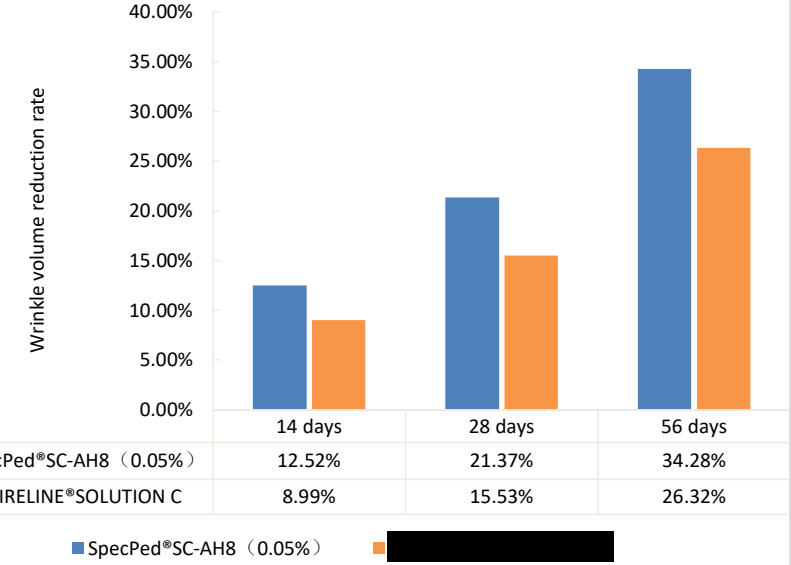
Product Information of Peptide solution (0.05%, 500ppm):

Trade Name:	SpecPed® SC-AH8(0.05%)
INCI Name:	Acetyl Hexapeptide-8, Aqua, Caprylyl Glycol &Ethylhexylglycerin
Dosage:	Daily care: 0.5-3% Intensive care: 3-10%
Application:	A ideal alternative to Botulinum Toxin, targeting the wrinkles caused by the contraction of muscles of facial expression
Packing:	1kg,10kg,20kg/barrel.
Storage condition:	Cool and dry place, protect from light, 2-8℃ for long time storage.
Shelf life:	2 years

Items	Standards
Appearance	Clear solution
Odor	Characteristic
Peptide content	≥0.05%
Heavy metals (as Pb)	Not more than 10 ppm
Arsenic (as As2O3)	Not more than 2 ppm
Aerobic plate count	≤100cfu/ml
Yeast & mould	≤100cfu/ml
Escherichia coli	Negative
Salmonella	Negative

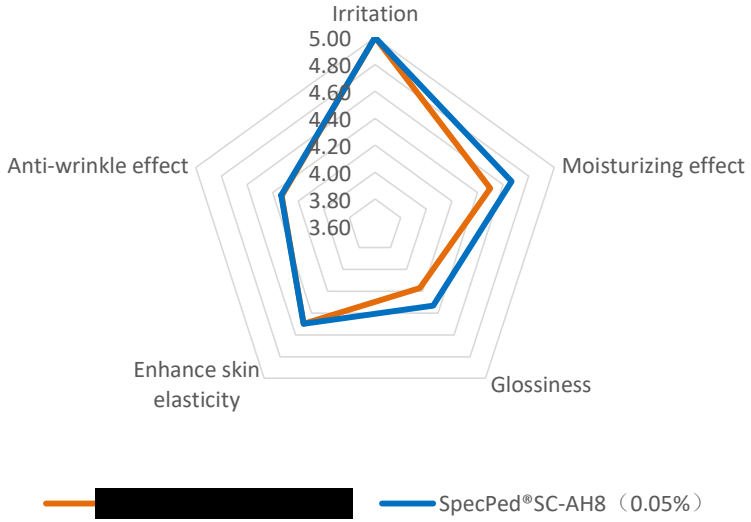
4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

Fig.1 The reduction rate of wrinkle volume after using (0.05%, 500ppm) AH8P Solution VS (0.05%, 500ppm) Benchmark Solution, use level of peptide solution @ 2.0% (i.e. total peptide active in formulation is 10ppm)



	14 days	28 days	56 days
SpecPed®SC-AH8（0.05%）	12.52%	21.37%	34.28%
ARGIRELINE®SOLUTION C	8.99%	15.53%	26.32%

Fig.2 The average score of two testing formulation containing (0.05%, 500ppm) AH8P solution VS (0.05%, 500ppm) Benchmark solution , evaluated by the subjects. Use level of peptide solution @ 2.0% (i.e. total peptide active in formulation is 10 ppm)



SpecPed® AH8P (Acetyl Hexapeptide-8)

Product Information of Peptide solution (0.1%, 1000ppm):

Trade Name:	SpecPed® SC-AH8 (0.1%)
INCI Name:	Acetyl Hexapeptide-8, Aqua, Caprylyl Glycol
Dosage:	&Ethylhexylglycerin
	Daily care: 0.1-1.5%
Application:	Intensive care: 1.5-5%
	A ideal alternative to Botulinum Toxin, targeting the wrinkles
Packing:	caused by the contraction of muscles of facial expression
Storage condition:	1kg,10kg,20kg/barrel.
	Cool and dry place, protect from light,
Shelf life:	2-8℃ for long time storage.
	2 years

Items	Standards
Appearance	Clear solution
Odor	Characteristic
Peptide content	≥0.1%
Heavy metals (as Pb)	Not more than 10 ppm
Arsenic (as As2O3)	Not more than 2 ppm
Aerobic plate count	≤100cfu/ml
Yeast & mould	≤100cfu/ml
Escherichia coli	Negative
Salmonella	Negative

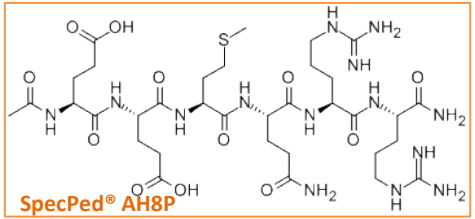
SpecPed® AO3P (Acetyl Octapeptide-3)

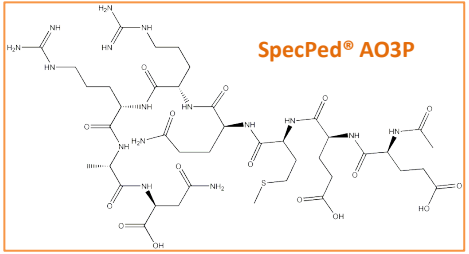
SpecPed® AO3P

Sequence: N-Acetyl-L-alpha-glutamyl-L-alpha-glutamyl-L-methionyl-L-glutaminyl-L-arginyl-L-arginyl-L-alanyl-L-alpha-asparagine

SpecPed® AH8P

Sequence: N-Acetyl-L-alpha-glutamyl-L-alpha-glutamyl-L-methionyl-L-glutaminyl-L-arginyl-L-argininamide





SpecPed® AO3P is an elongation of the SpecPed® AH8P, and an analogue of the N-terminal end of SNAP-25 that competes for a position in the SNARE complex, which is essential for muscle contraction.

SpecPed® AO3P (Acetyl Octapeptide-3)

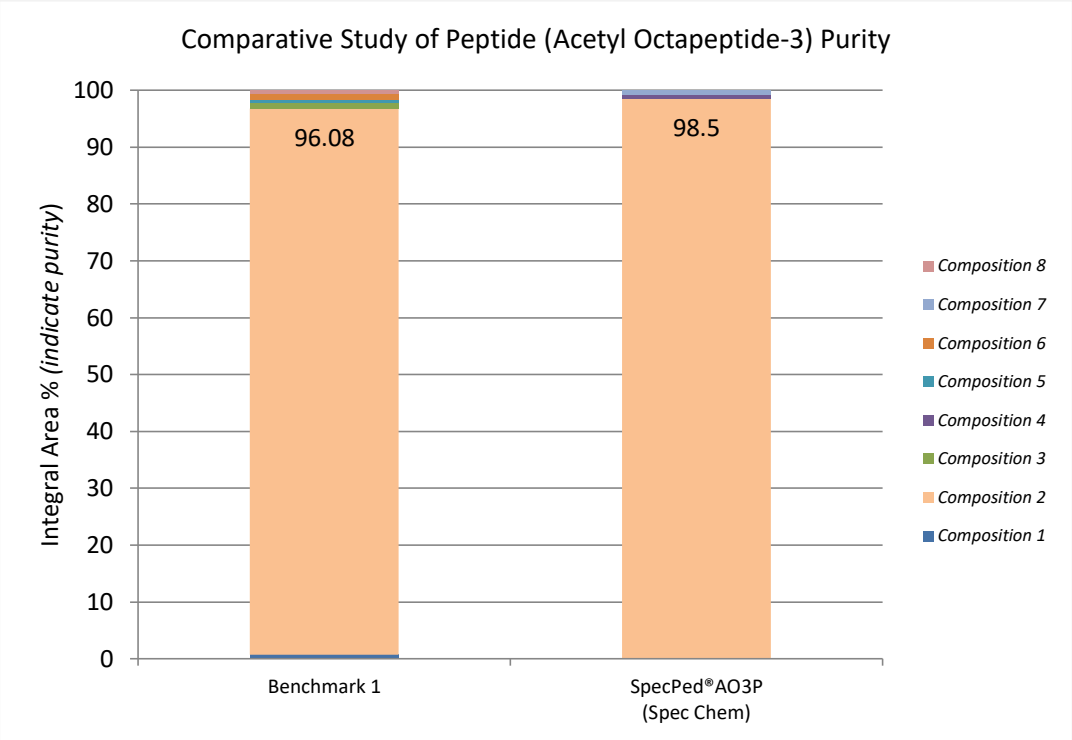
Product Information of Peptide Powder:

Product No.:	130010
Trade name:	SpecPed® AO3P
INCI name:	Acetyl Octapeptide-3
CAS No.:	868844-74-0
Storage:	Store in Cool and dry place, protect from light, 2-8℃for common storage, long time storage:-20℃.
Shelf life:	2 years
Package:	Customization

Items	Specification
Appearance	White powder
Purity	≥98.0%
Molecular Ion Mass	1075.2±1
Acetic acid (HPLC)	<15.0 %
Water Content(Karl Fischer)	≤8.0 %
Related Substances(HPLC)	Total impurities: <2.0%

Use Level: 0.005-0.05% (daily use), 0.05-0.1% even more (special use)

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide



SpecPed® AO3P (Acetyl Octapeptide-3) shows:

- **Less Impurities**

  With less content in each undesirable composition compared with benchmarks.

- **Much Purer**

  With less compositions (3) compared with benchmark (6)

- **More Bioactive**

  With more working composition (98.5% > 96.08%)

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

SpecPed® AO3P (Acetyl Octapeptide-3)

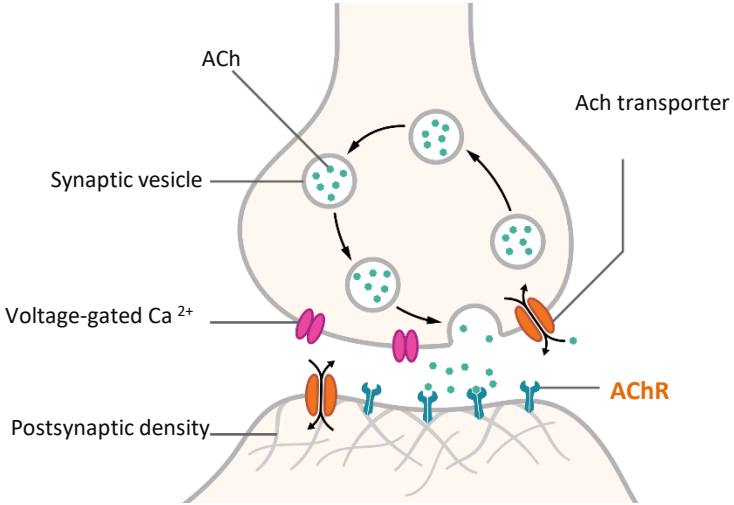
Product Information of Peptide solution (0.05%, 500ppm) :

Product No.:	135009
Trade name:	SpecPed® SC-AO3 (0.05%)
INCI name:	Acetyl Octapeptide-3, Caprylyl Glycol& Ethylhexylglycerin, Aqua
CAS No.:	868844-74-0, 1117-86-8&70445-33-9, 7732-18-5
EC No.:	--,214-254-7 &408-080-2, 231-791-2
Storage:	Normal storage, in cool & dry place, protect from light. Long storage:2～ 8℃
Shelf life:	2 years
Package:	Customization

Use Level: 2.0-10.0%, can be claimed Preservative free

Items	Specification
Appearance	Clear solution
Odor	Characteristic
Peptide content	≥0.05%
Heavy metals (as Pb)	Not more than 10ppm
Arsenic (as As2O3)	Not more than 2ppm
Aerobic plate count	Max 100cfu/ml
Yeast & mould	Max 100cfu/ml
scherichia coli	Negative
Salmonella	Negative

SpecPed® SKEP (Dipeptide Diaminobutyroyl Benzylamide Diacetate)



AChR is an integral membrane protein, n/m AChR
the nicotine ACh receptor (nAChR) is also a Na+, K+ and Ca2+ ion channel

SpecPed® SKEP can

- Mimic the shape of the acetylcholine (ACh) molecule
- Fit into the ACh receptors (AChR)/bind to acetylcholine receptors at neuromuscular junctions
- Block the ACh flow and muscle contraction
- Relax muscle and decrease dynamic wrinkles

SpecPed® SKEP (Dipeptide Diaminobutyroyl Benzylamide Diacetate)

Product Information of Peptide Powder:

Product No.:	130023
Trade Name:	SpecPed® SKE-P (Powder)
INCI Name:	Dipeptide diaminobutyroyl Benzylamide diacetate
CAS No.:	823202-99-9
Application:	Anti-wrinkle and etc.
Dosage:	0.0025-0.5% (daily use), 0.5%-1.0%, even more
Storage:	(special use)
	Normal storage:Storage in cool,dry place,protect from
Shelf life:	light. Long storage:2～8℃.
Package:	2 years
	10g, 100g, Customization

Items	Specification
Appearance	White to off-white powder
Molecular Ion Mass	495.58±1
ESI-MASS (Dipeptide diaminobutyroyl Benzylamide)	375±1
Purity (HPLC)	≥98.0%
Total impurities	<2.0%
Single impurity(HPLC)	<1.0%
Acetic acid (HPLC)	≤25.0%
Water Content(Karl Fischer)	≤8.0 %
Peptide Content	≥65%

SpecPed® SKEP (Dipeptide Diaminobutyroyl Benzylamide Diacetate)

Product Information of Peptide solution (0.25%, 2500ppm) :

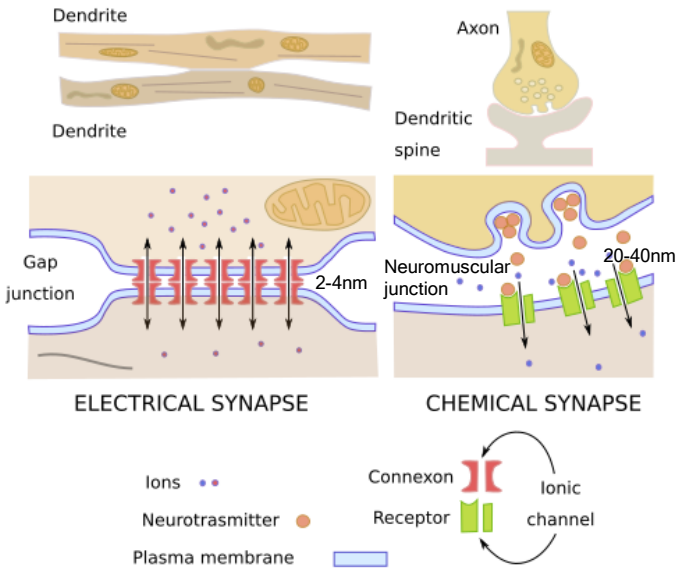
Product No.:	135023-1
Trade Name:	SpecPed® SKE, 0.25% (Solution)
INCI Name:	Dipeptide diaminobutyroyl Benzylamide diacetate, Aqua, Glycerin, Caprylyl Glycol &Ethylhexylglycerin
CAS No.:	823202-99-9, 7732-18-5, 56-81-5, 1117-86-8 & 70445-33-9
Application:	Anti-wrinkle and etc.
Dosage:	1.0-20.0% (daily use), 20.0-50.0%, even more (special use)
Storage:	Store in cool and dry place, away from light. 2~8℃ for common storage. -20℃ for long time storage.
Shelf life:	2 years
Package:	10g, 100g, Customization

Items	Specification
Appearance	Clear to slightly opaque, Colourless to yellowish, viscous liquid.
Relative Density（d20/20）	1.150 ~ 1.220
Refractive Index（n25）	1.410 ~ 1.450
Peptide content	≥0.25%
pH	4.0-6.0
Aerobic plate count	≤100 cfu/mL
Yeast & mould	≤100 cfu/mL
Escherichia coli	Negative
Salmonella	Negative

*** SpecPed® SKE, 0.1% (Solution), SpecPed® SKE, 0.12% (Solution) and other concentration can be customizable!**

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

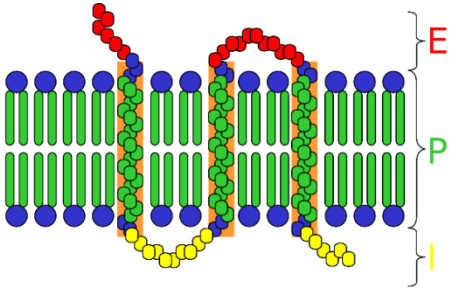
Electrical or Chemical signal (*Synapse & Its Typical Types*)



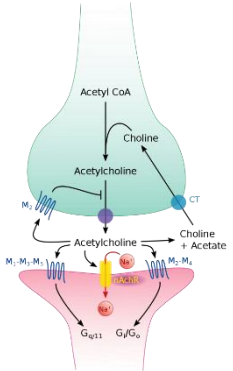
- In the nervous system, a synapse is a structure that permits a neuron (or nerve cell) to pass an electrical or chemical signal to another neuron or to the target effector cell.
- Two fundamentally different types of synapses
  - **Chemical Synapse**: *release of a chemical called a **neurotransmitter (acetylcholine…)**, the neurotransmitter may initiate an electrical response or a secondary messenger pathway that may either excite or inhibit the postsynaptic neuron. (**electrical & chemical signal both**)*
  - **Electrical Synapse**: a mechanical and electricallyconductive link between two neighboring neurons. ***the main advantage of an electrical synapse is the rapid transfer of signals from one cell to the next. (electrical signal only)***

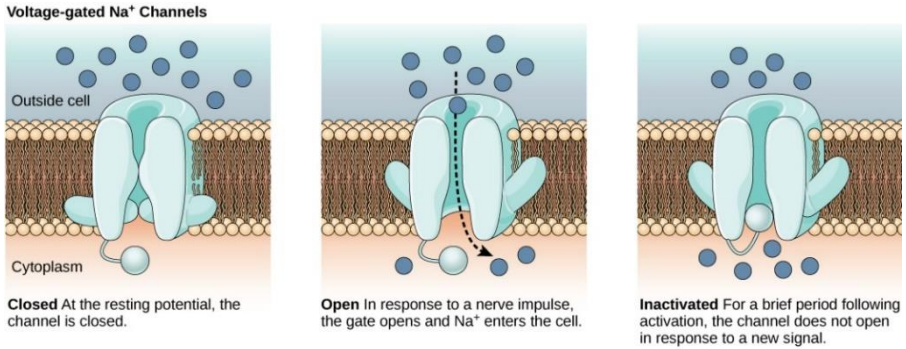
Compared with Chemical signal, **electrical signal (***both in chemical & Electrical synapses***)→fast, no delay, synchronously, bidirectional, plasticity and etc.**

SpecPed® MCC21-fast-acting peptide/myorelaxant (Mu-Conotoxin)



E=extracellular space; P=plasma membrane; I=intracellular space





- Sodium channels are integral membrane proteins (above picture) that form ion channels, conducting sodium ions (Na+) through a cell's plasma membrane.
- Voltage-gated & ligand-gated sodium Channels

- SpecPed® MCC21, as the Gating Modifier of Na^+ Channel, blocked voltage-dependent sodium channels in a long-lasting manner, especially Nav1.4 (IC50 = 1.3 nM) (Gene: SCN4A) which regulates skeletal muscle expression.
- SpecPed® MCC21 also blocked the nAChR subtype (α3β2) (IC50 = 450 nM)

Biomimetic molecular design, non-neurotoxin, non-animal source, safer origin! But more potent anti-wrinkle peptide!

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

SpecPed® MCC21 Fast-acting Peptide Solution

Product No.:	135063
Trade Name:	SpecPed® MCC21 (0.001%, 10ppm)
INCI Name:	S-Mu-Conotoxin CnIIIC, Aqua, Glycerin, 1,2-Hexanediol & Ethylhexylglycerin, Polysorbate 20
CAS NO.:	936616-33-0, 7732-18-5, 56-81-5, 6920-22-5 & 70445-33-9, 9005-64-5
EC NO.:	-, 231-791-2, 200-289-5, 230-029-6 & 408-080-2, 500-018-3
Application:	Anti-wrinkle, anti-oxidation and etc.
Dosage:	Daily use: 1-5%; Intensive use: 5-25%
Storage:	Store in cool and dry place, away from light. 2~8℃ for long-term storage.
Shelf life:	2 years
Package:	Customization

Items	Specification
Appearance	Clear solution
Odor	Characteristic
pH	5.0~8.0
Peptide content	≥0.001%
Aerobic plate count	≤100cfu/g
Yeast & mould	≤10cfu/g

Formulation Tips: Water-soluble, add it directly into formula when below 40℃.

SpecPed® MCC21 Fast-acting Peptide Solution

Product No.:	135063-2
Trade Name:	SpecPed® MCC21 (0.001%, plus) 10ppm
INCI Name:	Arginine/Lysine Polypeptide (S-Mu-Conotoxin CnIIIC), Aqua, Butylene Glycol, Trehalose, 1,2-Hexanediol & Ethylhexylglycerin
CAS NO.:	31014-78-5 (936616-33-0), 7732-18-5, 107-88-0, 6138-23-4, 6920-22-5 & 70445-33-9
EC NO.:	-(-), 231-791-2, 203-529-7, 612-140-5, 230-029-6 & 408-080-2
Application:	Anti-wrinkle, anti-oxidation and etc.
Dosage:	Daily use: 1-5%; Intensive use: 5-25%
Storage:	Store in cool and dry place, away from light. 2~8℃ for long-term storage.
Shelf life:	2 years
Package:	Customization

Items	Specification
Appearance	Clear solution
Odor	Characteristic
pH	5.0~8.0
Peptide content	≥0.001%
Aerobic plate count	≤100cfu/g
Yeast & mould	≤10cfu/g

Formulation Tips: Water-soluble, Claim Preservative-free, add it directly into formula when below 40℃.

S-Mu-Conotoxin CnIIIC is replaced by Arginine/Lysine Polypeptide (CAS NO. 31014-78-5) for regulation compliance

4 Spec Chem's Solution of Neurotransmitter-inhibitor Peptide

SpecPed® MCC21 Fast-acting Peptide Solution

Product No.:	135063-1
Trade Name:	SpecPed® MCC21 (0.01%, 100 ppm)
INCI Name:	Arginine/Lysine Polypeptide (S-Mu-Conotoxin CnIIIC), Aqua, 1,2-Hexanediol & Ethylhexylglycerin
CAS NO.:	31014-78-5 (936616-33-0), 7732-18-5, 6920-22-5 & 70445-33-9
EC NO.:	-(-), 231-791-2, 230-029-6 & 408-080-2
Application:	Anti-wrinkle, anti-oxidation and etc.
Dosage:	Daily use: 0.1-0.5%; Intensive use: 1.0-2.5%
Storage:	Store in cool and dry place, away from light. 2~8℃ for long-term storage.
Shelf life:	2 years
Package:	Customization

Items	Specification
Appearance	Clear solution
Odor	Characteristic
pH	5.0~8.0
Peptide content	≥0.01%
Aerobic plate count	≤100cfu/g
Yeast & mould	≤10cfu/g

Formulation Tips: Water-soluble, add it directly into formula when below 40℃.

S-Mu-Conotoxin CnIIIC is replaced by Arginine/Lysine Polypeptide (CAS NO. 31014-78-5) for regulation compliance

Neurotransmitter-inhibitor Peptide (Clinical: Spec Chem-in vitro & vivo)

SpecPed® MCC21P (S-Mu-Conotoxin CnIIIC)

Starting: 2H 3% (0.01%) VS (15-45M 0.5ppm)

Duration: 15-1h/once

Data provided by Spec Chem's Safety & In vitro & vivo & Evaluation Center, along with SGS

SpecPed® SKEP (Dipeptide Diaminobutyroyl Benzylamide Diacetate)

Starting: 14D 25 ppm

Duration: 14D(V↓8.7%)~28D(V↓20.26%) (twice/day)

SpecPed® AH8P (Acetyl Hexapeptide-8)

Starting: 14D 50 ppm/10ppm

Duration: 14D/ (V ↓12.5%) ~28D (V↓20.4%) ~56D (V↓25.9%) (twice/day) SGS

SpecPed® WA (Peptide Complex)

SpecPed® AH8P

SpecPed® SKEP

SpecPed® MCC21P

…

Safe and reliable (no injection, no stiffness), quick and lasting!

5 Commercial Products with Neurotransmitter-inhibitor Peptide

Commercial Products Containing Acetyl Hexapeptide-8

Estee Lauder

Revitalizing Supreme Night Intensive Restorative Crème

Deeply nourishing, Estée Lauder Revitalizing Supreme Night Intensive Restorative Crème gives your skin a radiant glow. With a highly concentrated formula that works throughout the night, the cream helps to smooth fine lines and keeps your face feeling firmer. It targets concerns that include dehydration, dullness and ageing, making it an efficient, multi-use product.

Estee Lauder

Micro Essence Skin Activating Treatment Lotion

A groundbreaking essence-in-lotion that activates and strengthens skin's foundation to reveal a youthful-looking glow.

Estee Lauder

Revitalizing Supreme+ Global Anti-Aging Cell Power Crème

The key to younger-looking skin. Unlock your skin's youth potential and see it spring back with new bounce, glow with radiant vitality. With Estée Lauder's exclusive RevitaKey Technology featuring exclusive moringa extract, this silky-soft, deeply nourishing multi-action crème encourages skin's natural power to amplify collagen and elastin. Lines and wrinkles look dramatically reduced. Skin's visible firmness, density and elasticity is significantly improved.

Tom Ford

Research Serum Concentrate

A luxurious, highly potent serum that absorbs instantly into skin to visibly enhance texture, tone, and luminosity. The serum concentrate immediately jumpstarts tired looking skin, helping it to absorb and retain moisture. The appearance of pores, lines, and wrinkles is diminished while skin's healthy radiance and visible resiliency are renewed.

5 Commercial Products with Neurotransmitter-inhibitor Peptide

Commercial Products Containing Acetyl Octapeptide-3

Le Mieux Retinol Serum

Creamy serum features 0.5% retinol, apple stem cells, and skin-smoothing peptides to resurface and tighten skin, minimize lines and wrinkles, and improve rough texture. Revolutionary 3- tier delivery system enhances the effectiveness of retinol and lowers potential for skin irritation. Features teprenone, a plant derivative that protects the tips of chromosomes, extending the lifespan of skin cells and facilitating cellular repair.

Le Mieux Eye Wrinkle Corrector

Hello, bright eyes! This genius eye-lifting complex airbrushes away fine lines, wrinkles, puffiness, and dark circles. Skin-firming peptides, vitamins, cupuacu butter, and mega-potent ginseng extract help enhance circulation and restore elasticity for a smoother, brighter, unforgettable look. Helps firm & lift eye contours Minimizes the look of fine lines & wrinkles Reduces the appearance of dark circles & puffiness Brightens & rejuvenates

Le Mieux Rx Complex Serum

This all-in-one anti-aging serum with 5 potent peptides, moisture-binding hyaluronic acid, and a superior antioxidant blend helps reduce the appearance of wrinkles, improve tone, and enhance texture. Features 4 concentrated moisturizing agents to replenish dry skin, and the most stable form of Vitamin C (MAP) to promote radiant, healthy-looking skin.

Le Mieux 24 Hour Age Defying Cream

This incredibly luscious, rich cream with skin-perfecting peptides, ceramides, and cupuacu, shea, and kukui butters fortifies skin's essential moisture barrier, reduces the appearance of fine lines and wrinkles, and promotes firmness, resiliency, and hydration for up to 24 hours. Ideal for mature skin and for improving the appearance of crepey, weathered neck skin.

5 Commercial Products with Neurotransmitter-inhibitor Peptide

Commercial Products Containing Acetyl Octapeptide-3

Peter Thomas Roth Peptide 21 Wrinkle Resist Serum

Packed with a 73% compl of 21 Peptides and Neuropeptides and 2 Gamma Proteins, this revolutionary wrinkle-fighting serum helps skin appear noticeably younge Effectively targets every area of the face and neck 360° results, helping to visibly reduce the look of fine lines and wrinkles.

Peter Thomas Roth Un-Wrinkle Eye Concentrate

Packed with anti-aging peptides and neuropeptites, this powerful formula firms the delicate outer eye area and reduces the appearance of fine lines, wrinkles and crows feet. Hyaluronic acid deeply hydrates while aloe vera and sweet almond extract soothe inflammatio and clarify the skin for a healthier, clearer complexion. Complete with antioxidant-rich vitamins A and E, this nourishing crean also protects your skin from damaging free radicals.

Peter Thomas Roth Un-Wrinkle Turbo Line Smoothing Toning Lotion

Deep wrinkle fighting, line smoothing, toning lotion with 18 anti-aging neuropeptides and peptides. Visibly helps reduce the appearance of the six most stubborn deep wrinkles and expression lines. Removes surface impurities, treats, refreshes, softens and also prepares skin for beauty treatments. Hyaluronic acid hydrates skin. Vitamins A, C, and E help fight free radical attack. The result is a beautifully balanced complexion for optimal skin care performance.

Peter Thomas Roth Un-Wrinkle Turbo Face Serum

Un-Wrinkle® turbo-charged! The most potent solution for results that appear youthful and natural, not plastic. Turbo-charged formula helps diminish the appearance of the six most stubborn deep wrinkles and facial expression lines: forehead wrinkles, the "11" lines, nose "scrunch" creases, parentheses, pout lines and marionette lines. Proprietary 72% solution of 18 neuropeptides and peptides includes the original Un-Wrinkle® blend at 23%, now turbocharged with an additional 49% peptide solution. Each of the 18 neuropeptides and peptides works in a different and specifically targeted way.

5 Commercial Products with Neurotransmitter-inhibitor Peptide

Commercial Products Containing Dipeptide Diaminobutyroyl Benzylamide Diacetate

Kate Somerville Line Release Under Eye Repair Cream

Carefully blended complex of peptides that helps reduce the look of puffiness and dark circles promoting a more youthful appearance. Acetyl Hexapeptide-3 reduces the appearance of wrinkles making the eyes look lifted and more contoured.

Open Formula Peptide Moisturizer (10% Peptides)

This peptide-based moisturizer is formulated to target fine lines. The peptides are delivered in a plumping cream.

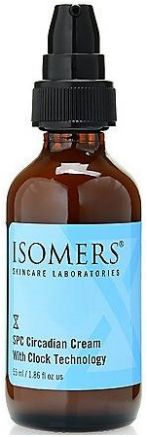
L'Oreal Paris Revitalift Derm Intensives 1.5 % Pure Hyaluronic Acid Serum

Intensive hydrating 1.5% pure Hyaluronic Acid Serum replenishes moisture for plumped, youthfully supple skin with bounce. Light-as-air gel serum absorbs quickly with no tacky feel or leftover residue. Hyaluronic Acid is a potent hydration-attracting molecule naturally found in skin. It enhances skin's own moisture-retention for lasting hydration. This formula scientifically blends 0.5% high molecular weight Hyaluronic Acid and 1% low molecular weight Hyaluronic Acid. Smoother, more supple feeling skin starts day 1. Fragrance free, paraben free. No mineral oil or synthetic dyes. Suitable for sensitive skin. Validated with dermatologists. Intensive hydrating 1.5 percent pure Hyaluronic Acid serum for plumped, youthfully supple skin with bounce Lightweight gel serum absorbs quickly with no tacky feel or leftover residue Smoother, more supple feeling skin starts day 1 - In 1 week, visibly plumps skin Paraben free, fragrance free Made in United States Every morning & evening, apply 2-3 drops to the face and neck, and gently smooth into skin. Avoid the eye area. For best results, please use with other RevitaLift products

Peter Thomas Roth Serum UnWrinkle Eye

5 Commercial Products with Neurotransmitter-inhibitor Peptide

Commercial Products Containing Mu-Conotoxin Cniiic



Isomers

Spc Circadian Cream With Clock Technology

The cream is designed to provide the latest bio-functional peptides to work with the skin's natural circadian cycle to help promote moisture defense during the day and moisture restoration at nighttime.

Indeed Labs Snoxin Ii

Dr. Nigma

Serum No. 1

No1 Serum is a high performance elixir packed with clinically researched plant stem cells, hyaluronic acid, and marine peptides delivered into the skin through her patented Light Water Technology. This innovative formula hydrates to plump up fine lines and wrinkles for more youthful, glowing skin.

Thank you for your attention!

Spec-Chem Group

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