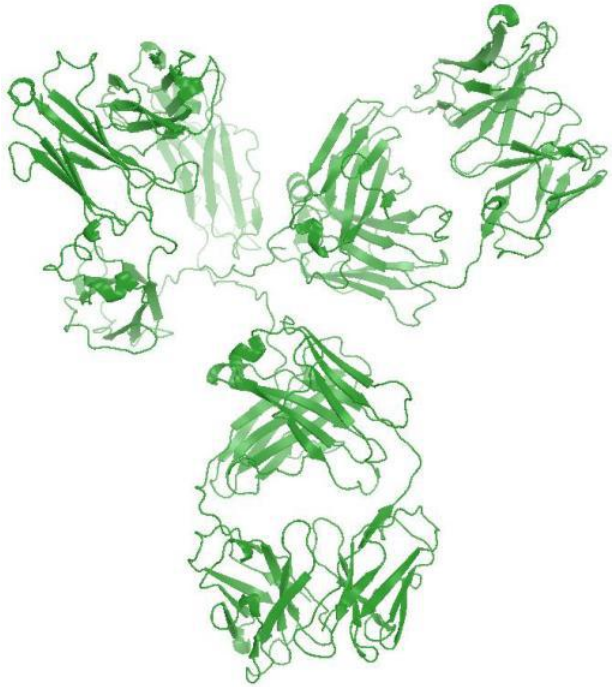
READLINE

UltraHeal-P4P7 (Palmitoyl tetrapeptide-7)

Readline® Skincare

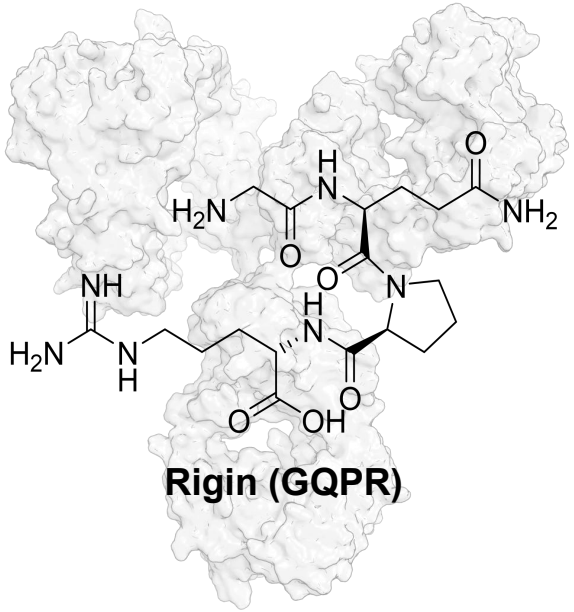
The Origin of GQPR (Rigin)

Immunoglobulin G functional fragment



G V Q V H N A K T K P R E Q Q Y D S T Y
R V V S V L T V L H Q D W L D G K E Y K
C K V S D K A L P A P I E K T I S K A K
G Q P R E P Q V Y T L P P S R E E M T K …

Immunoglobulin G



Rigin (GQPR)

Name: Rigin

Peptide sequence: Gly-Gln-Pro-Arg (GQPR)

Source: Human immunoglobulin G fragment 341-344

Effects: Stimulate macrophages and granulocytes, improve phagocytosis; Kill tumor cells

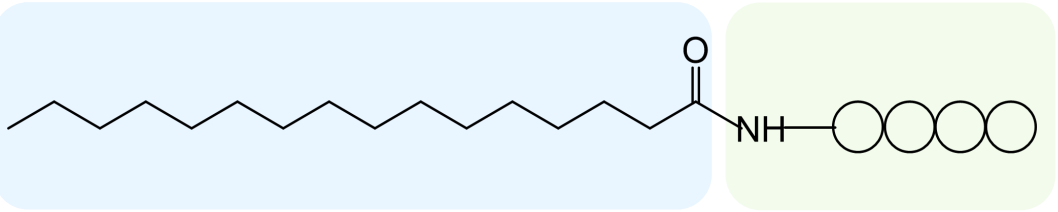
Application: Anti-infection, anti-tumor

Problem: Short peptide chain, short half-life in vivo, easily to be hydrolyzed

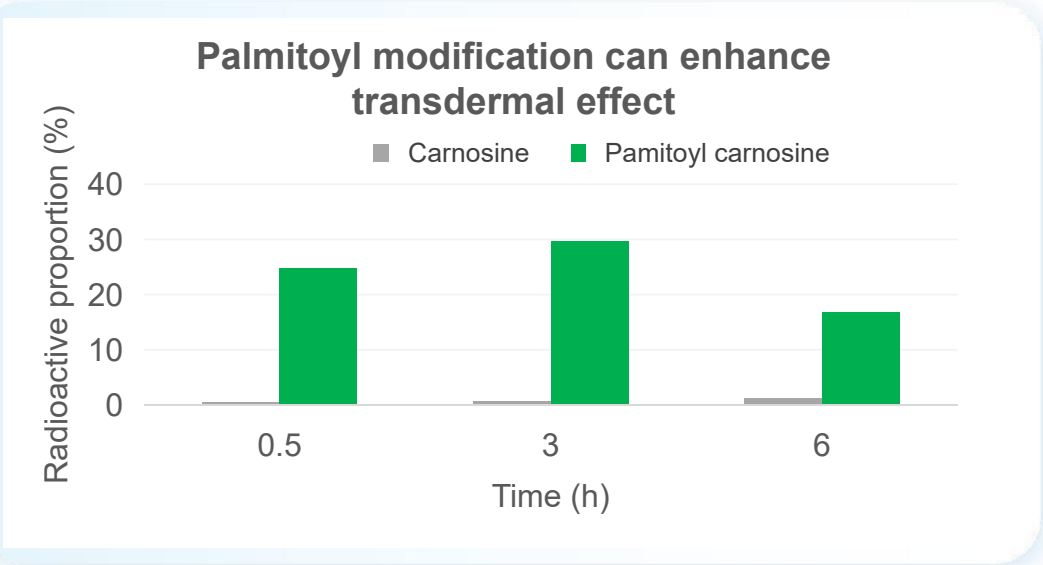
READLINE

Palmitoyl modification can enhance transdermal delivery

Palmitoylation



Palmitoyl group | Peptide



Benefits of palmitoylation for short peptides:

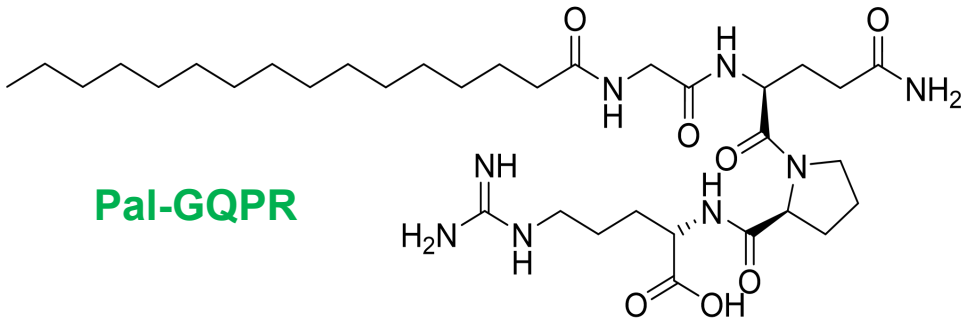
- **Increased hydrophobicity:** improves solubility in lipid environments.
- **Enhanced stability:** greater resistance to enzymatic degradation.
- **Improved transdermal delivery:** boosts the ability to cross cell membranes.
- **Natural localization:** aids in proper localization within cells.

READLINE

UltraHeal-P4P7:

Powerful soothing and firming peptide

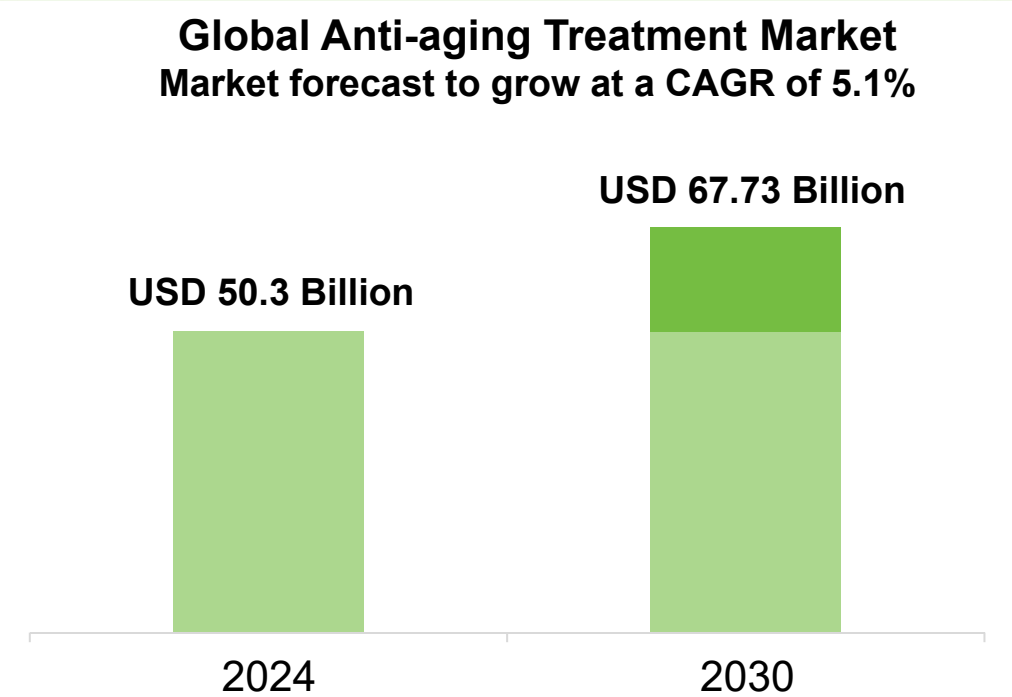
- **INCI Name:** Palmitoyl tetrapeptide-7
- **CAS No.:** 221227-05-0
- **Molecular Formula:** $C_{34}H_{62}N_8O_7$
- **Molecular Weight:** 694.8 g mol^{-1}
- **Efficacy:** Soothing, firming
- **Dosage:** 10−1000 ppm

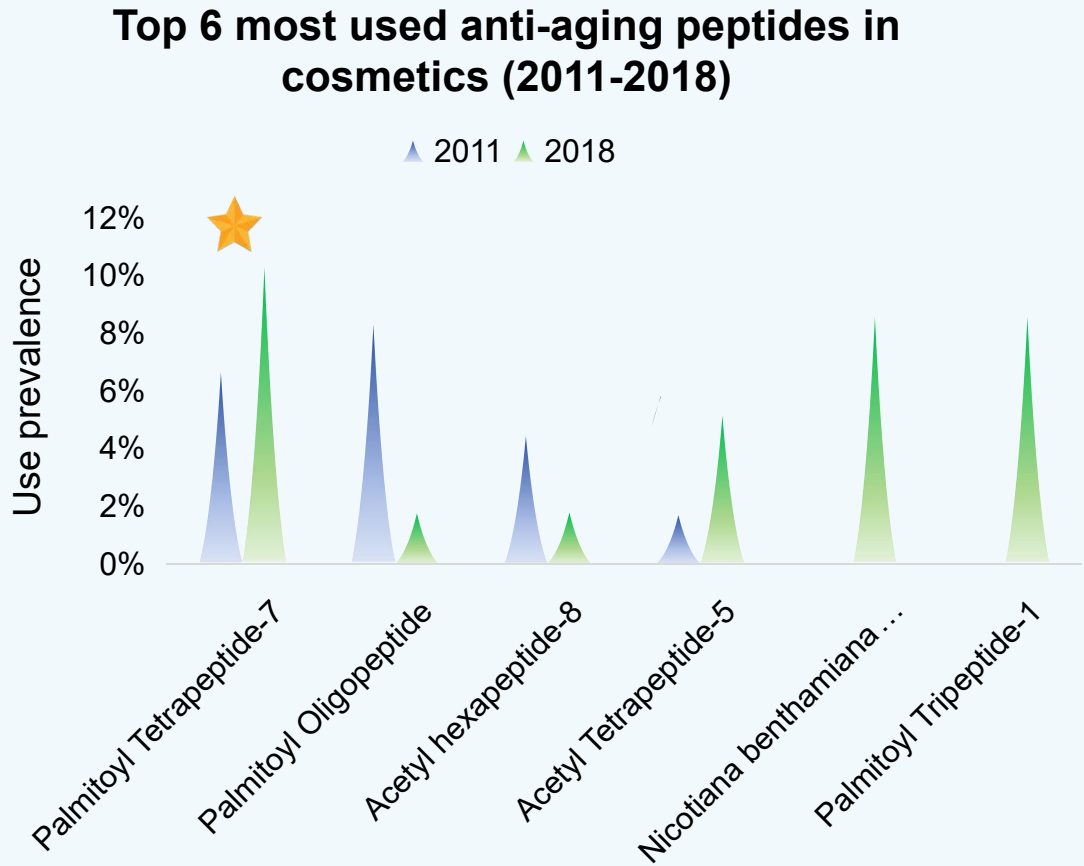


Pal-GQPR

READLINE

UltraHeal-P4P7: A highly popular anti-aging peptide





READLINE

Data source: Research and Markets (2023); M. S. Ferreira et al., *Cosmetics* 7.4 (2020): 91

Versatile market applications of UltraHeal-P4P7

La Mer

The Eye Concentrate

Anti-aging, repairing

$ 275/ 15 mL

FILORA

Optim-Eyes

Anti-wrinkle, firming

$ 62/ 15 mL

Dermalogica

MultiVitamin Power Recovery Mask

Anti-aging, soothing

$ 68/ 75 mL

CLINIQUE

Smart Clinical Repair™ Wrinkle Correcting Serum

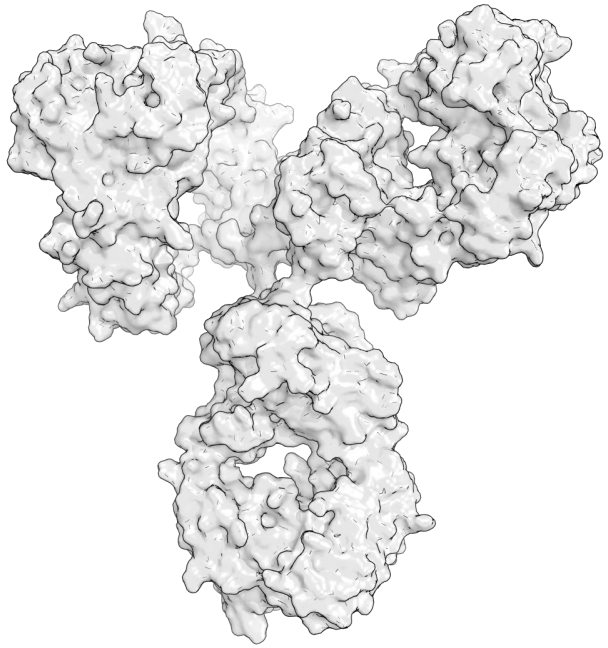
Repairing, firming

$ 77/ 50 mL

READLINE

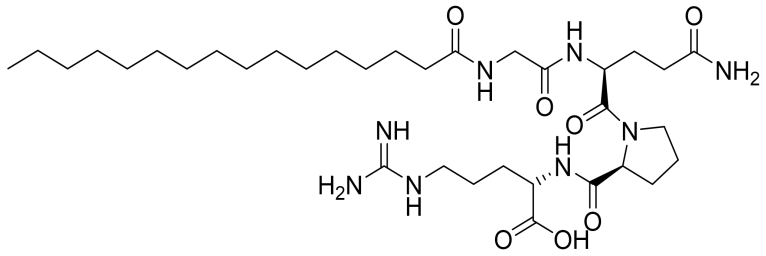
UltraHeal-P4P7:

Suppresses inflammation and promotes repair



…GVQVHNAKTKPREQQYDSTY
RVVSVLTVLHQDWLDGKEYK
CKVSDKALPAPIEKTISKAK
GQPREPQVYTLPPSREEMTK…

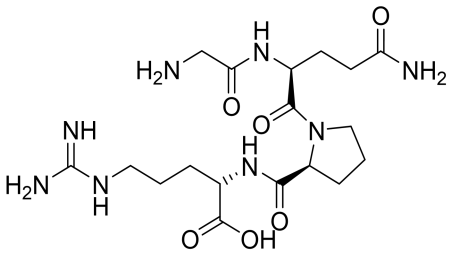
Immunoglobulin G



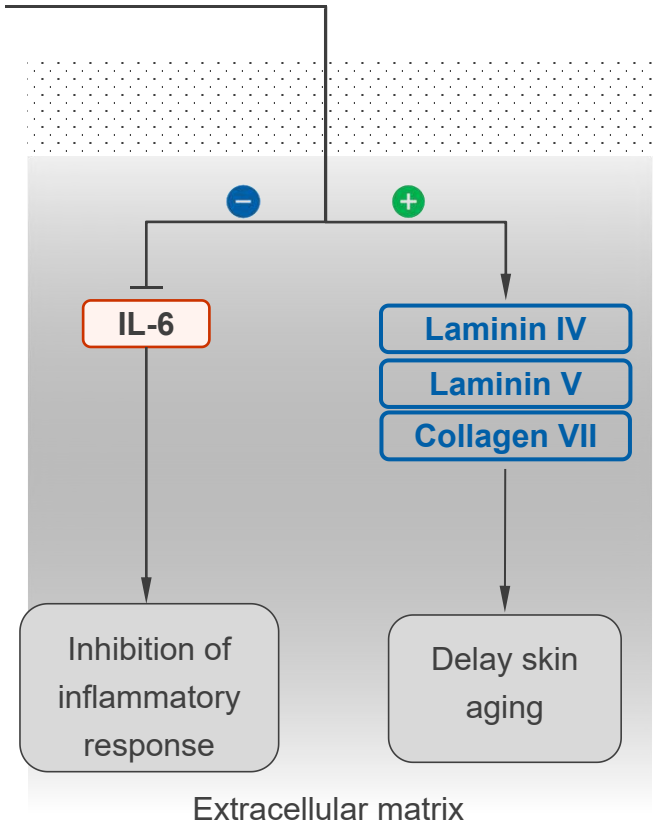
Pal-GQPR

Fatty acid modification

Enhances transdermal permeability



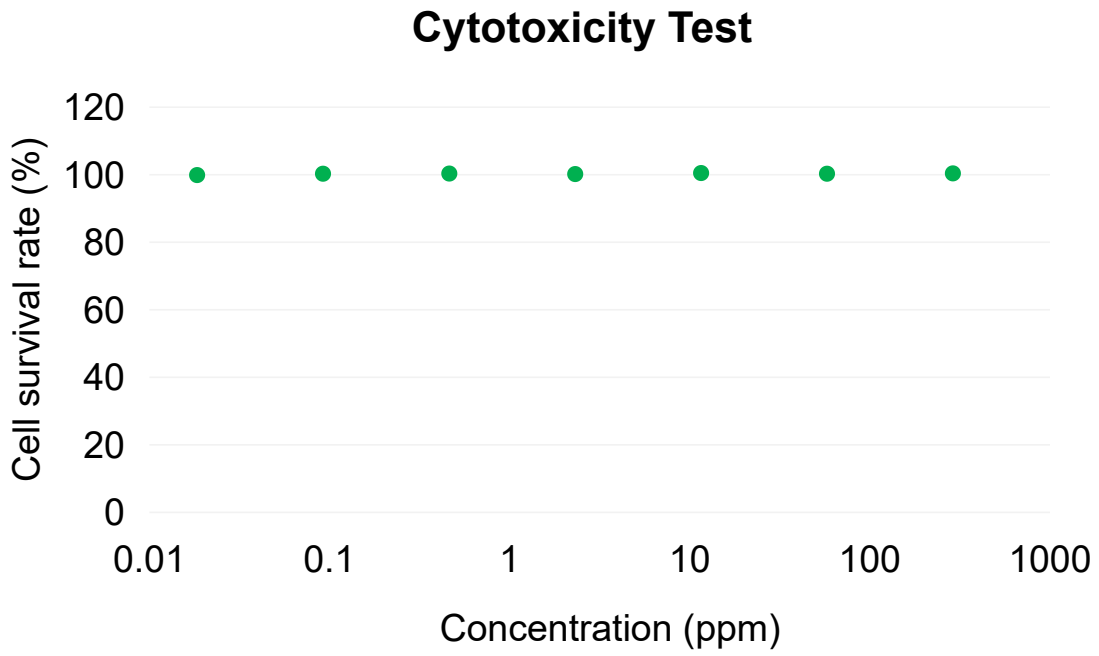
GQPR



READLINE

In vitro

UltraHeal-P4P7: No cytotoxicity within 1000 ppm



- Cytotoxicity was not observed in the concentration range of 0.01 − 1000 ppm UltraHeal-P4P7.

UltraHeal-P4P7: Safety for use

Patch Test

Group	Number of subjects	observe time	Patch test number of different skin reaction levels				
			0	1	2	3	4
Readline UltraHeal-Pro	30	0.5 h	30	0	0	0	0
		24 h	30	0	0	0	0
		48 h	30	0	0	0	0
Negative control	30	0.5 h	30	0	0	0	0
		24 h	30	0	0	0	0
		48 h	30	0	0	0	0

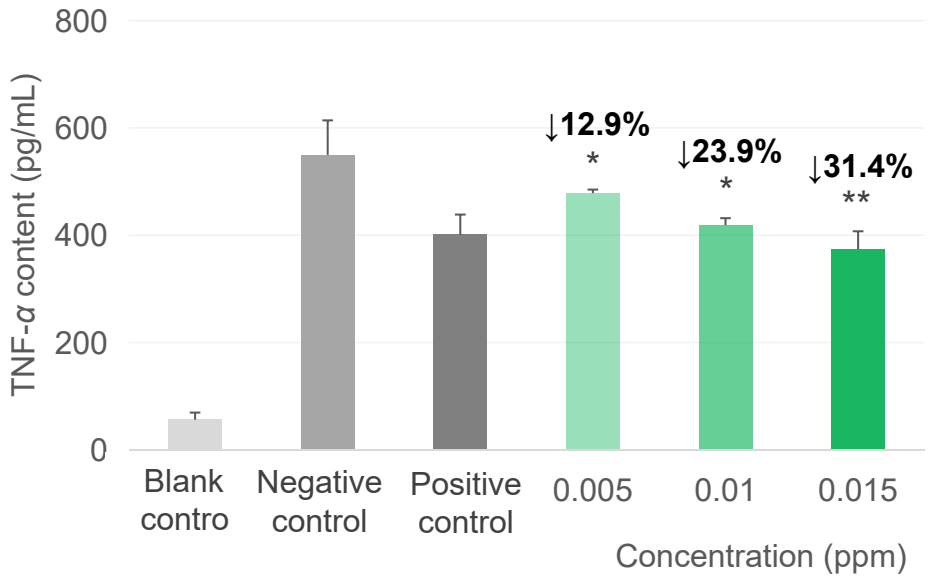
Result: Human skin patch test showed **200 ppm UltraHeal-Pro**, and 0 of 30 subjects had skin adverse reactions.

READLINE

In vitro

UltraHeal-P4P7:

can inhibit the secretion of TNF-α and has anti-inflammatory effect



In vitro	RAW 264.7	Culture for 24 h
Blank control	Cell culture medium	
Negative control	LPS	
Positive control	LPS + Dex	
Test group	UltraHeal-P4P7	
Test method	Detect absorbance at 450 nm	
	Guangzhou Institute of Microbiology Co., LTD.	

0.015 ppm UltraHeal-P4P7 suppressed TNF-α by **31.4%**.

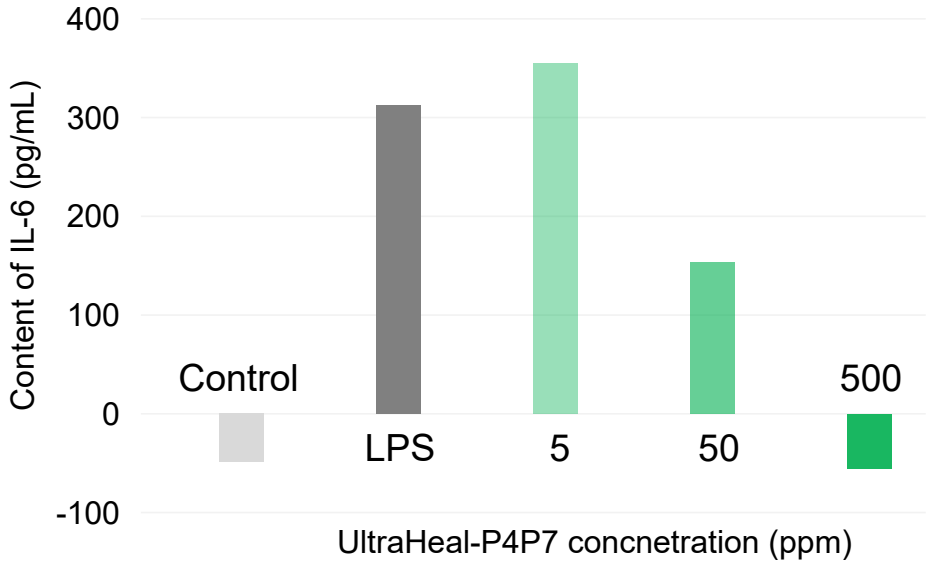
READLINE

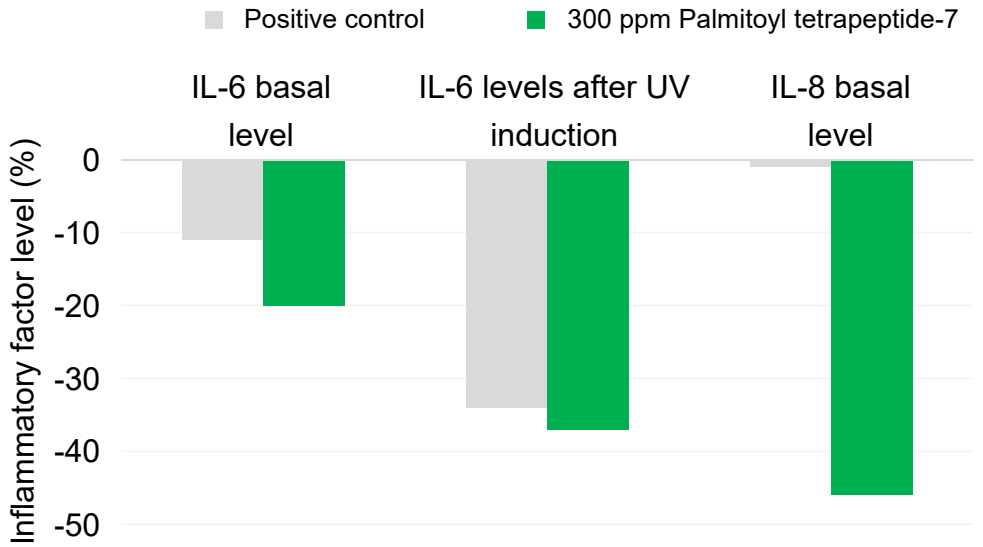
Vinay Bhardwaj.Cosmetics 2022, 9, 80

In vitro

UltraHeal-P4P7:

can inhibit the secretion of inflammatory factors IL-6 and IL-8

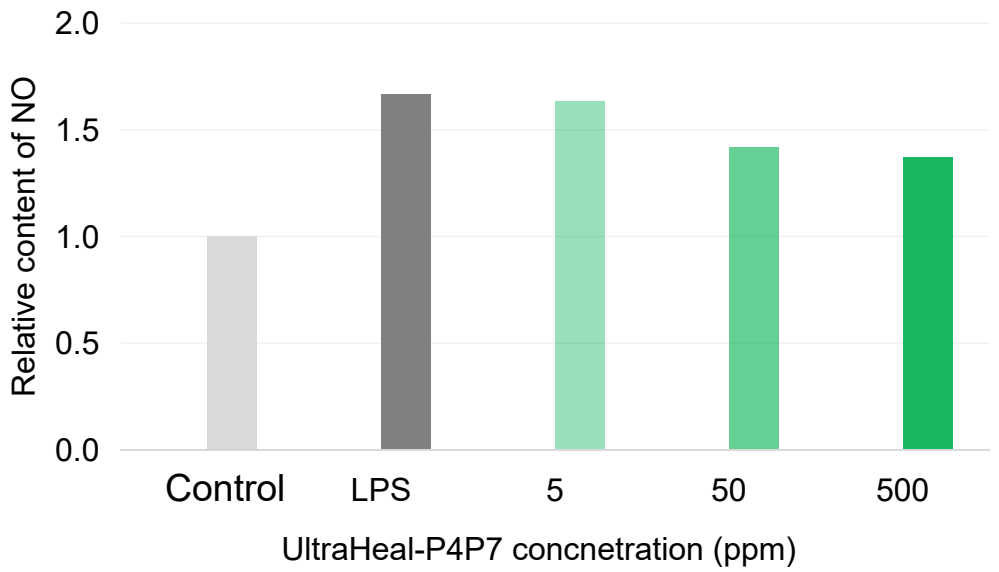




UltraHeal-P4P7 can significantly reduce inflammation factors after LPS stimulation and UV exposure.

READLINE

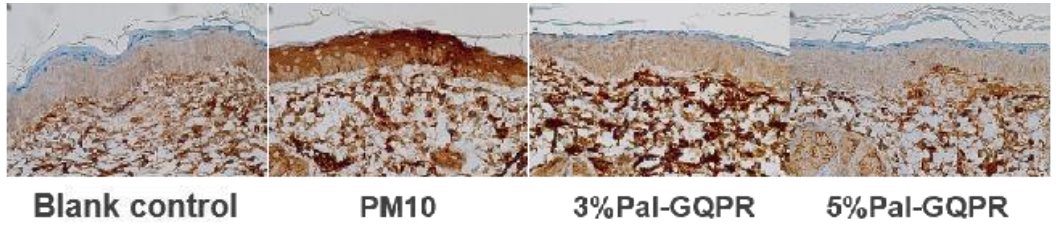
UltraHeal-P4P7:
can inhibit the production of NO after LPS stimulation

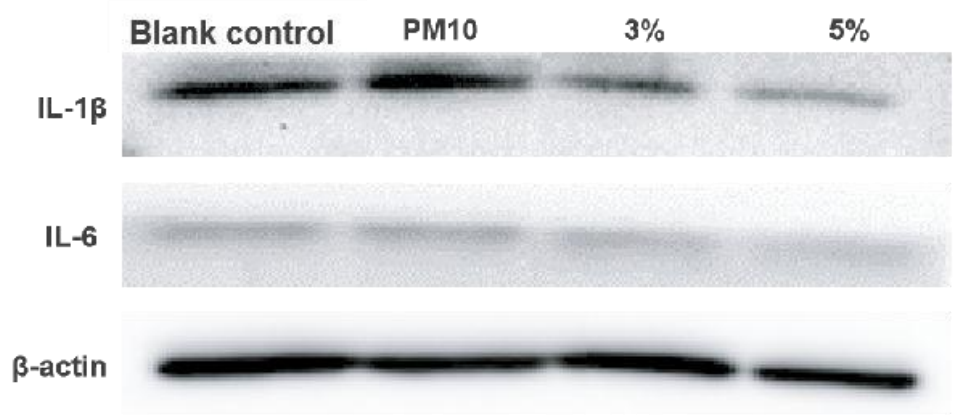


UltraHeal-P4P7 can reduce the over production of NO induced by LPS stimulation and reduce inflammation.

READLINE

UltraHeal-P4P7:
a promising antipollution cosmetic ingredient





UltraHeal-P4P7 can inhibit secretion of IL-1*β* and IL-6 induced by PM10 and has a soothing effect.

Particulate matter (PM10) elements

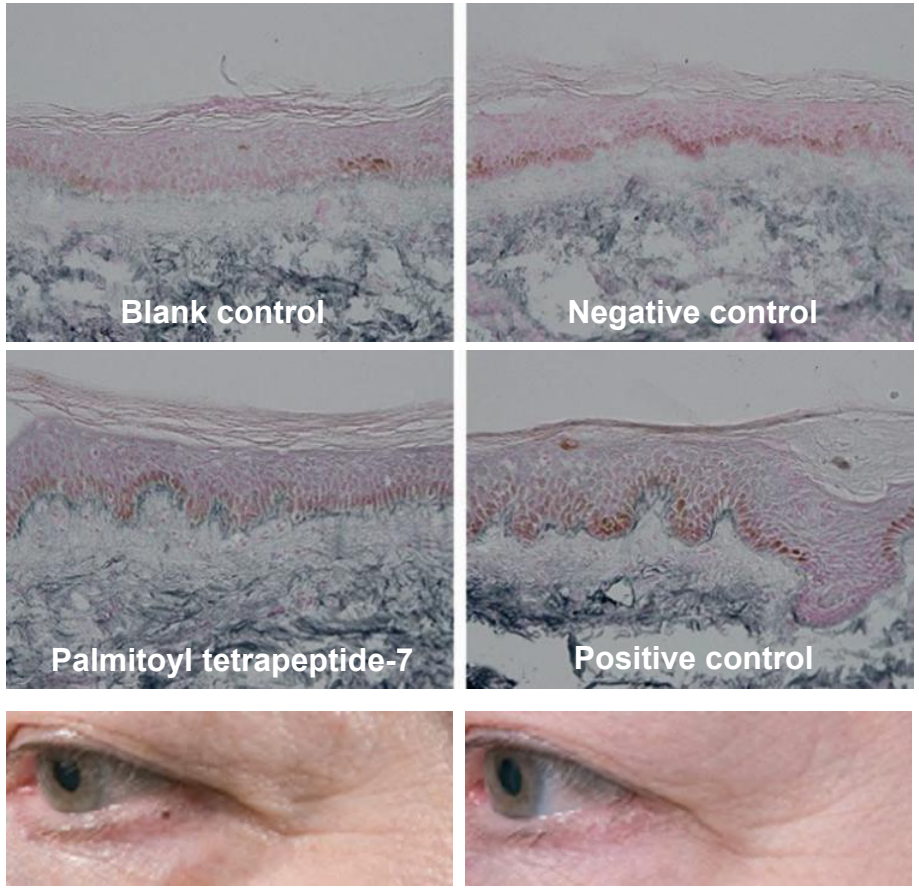
Element	Certified value (mg)
Arsenic (As)	7.1
Cadmium (Cd)	0.9
Lead (Pb)	113.0
Nickel (Ni)	58.0

- Blank control: no treatment;
- Negative control: PM10
- Test group: PM10 + 3% Pal-GQPR; PM10 + 5% Pal-GQPR

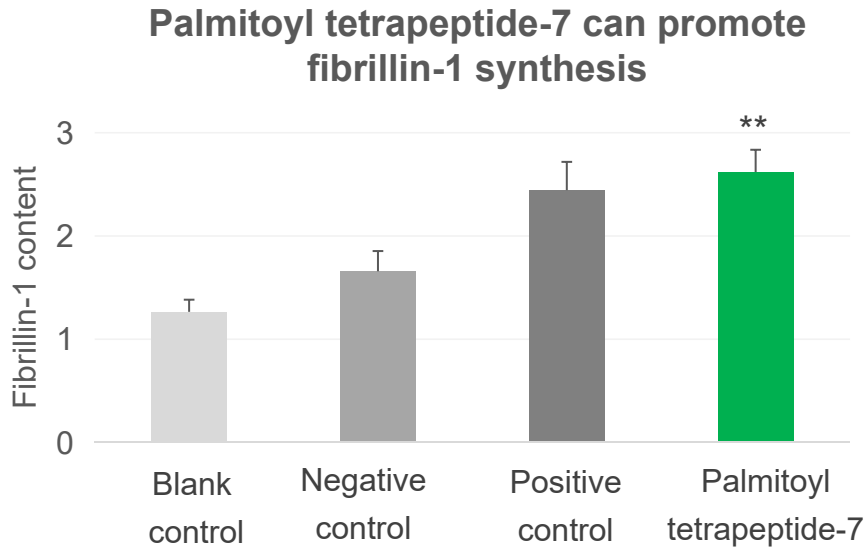
READLINE

M.K. Kim et al., *Asian J. Beauty Cosmetol.*, 2021, 19, 165–174

UltraHeal-P4P7 can promote fibrillar synthesis



Before use　　6 months



- In vitro + human test
- Blank control: No product used;
- Negative control: Placebo;
- Positive control: All trans retinoic acid
- Conclusion: **Product with palmitoyl tetrapeptide-7 can promote the synthesis of fibrillin-1 and has anti-aging effect.**

READLINE

R.E . Watson et al., *Br. J. Dermatol.*, 2009, 161(2), 419-26.

UltraHeal-P4P7: COSMOS approved

Conformity attestation

N°Z76691-20240319_0705

ECOCERT

Ecocert Greenlife SAS hereby confirms that:

Shenzhen Readline Biotech Co.,Ltd.

Floor3,Building2,ShenzhenBiologyIncubator,No.10,GaoxinC.1stAve.,Maling, Community,YuehaiResidentialDistrict,NanshanDistrict,S, ShenzhenCity, China

has raw materials approved in accordance with standard requirements:

COSMOS v4 in force (including all sub-versions)

ECOCERT COSMOS APPROVED

For the following products categories:

Biotechnological microbial origin, Made with chemical transformation (mono ingredients), Cosmetic formulation bases

PPAI : Physically Processed Agro-Ingredients / CPAI : Chemically Processed Agro-Ingredients / NNI : Non Natural Ingredients (Petrochemical origin) / PeMo : Petrochemical Moiety

Without animal origin : Raw material compliant to the complementary assessment « without animal origin » in force

The asterisk * is used to identify the commercial name of the raw materials concerned by the appendices II and/or V of the Cosmos-standard.

Attestation issued on 19 March 2024 and valid until 31 December 2024.

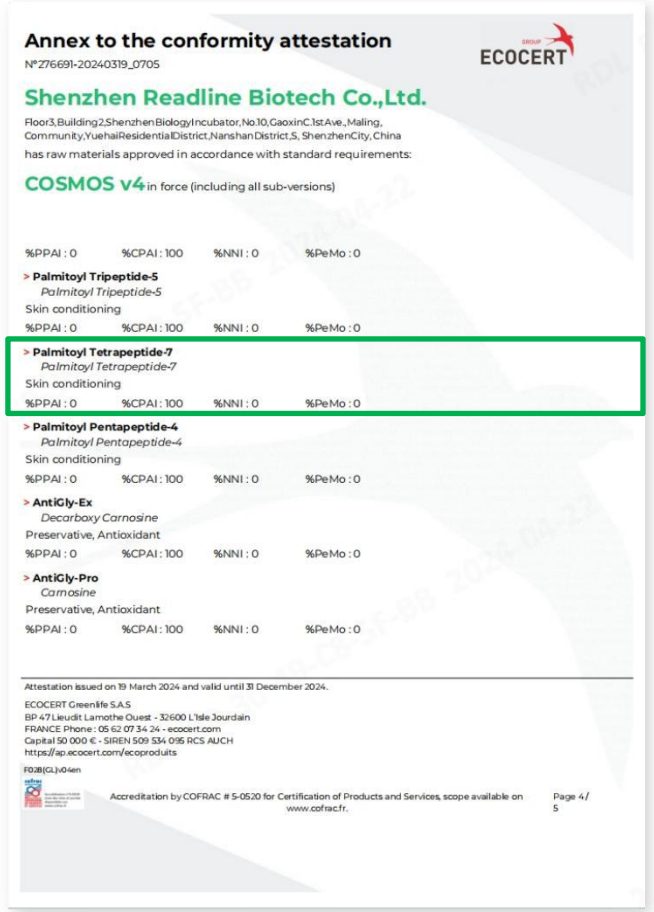
ECOCERT Greenlife S.A.S
BP 47 Lieudit Lamothe Ouest - 32600 L'Isle Jourdain
FRANCE Phone : 05 62 07 34 24 - ecocert.com
Capital 50 000 € - SIREN 509 534 095 RCS AUCH
https://ap.ecocert.com/ecoproduits

Emilie CHERHAL, General Manager

F03B(GL)v04en

Accreditation by COFRAC # 5-0520 for Certification of Products and Services, scope available on www.cofrac.fr.

Page 1 / 5



Annex to the conformity attestation

N°Z76691-20240319_0705

ECOCERT

Shenzhen Readline Biotech Co.,Ltd.

Floor3,Building2,ShenzhenBiologyIncubator,No.10,GaoxinC.1stAve.,Maling, Community,YuehaiResidentialDistrict,NanshanDistrict,S, ShenzhenCity, China

has raw materials approved in accordance with standard requirements:

COSMOS v4 in force (including all sub-versions)

%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

> **Palmitoyl Tripeptide-5**
Palmitoyl Tripeptide-5
Skin conditioning
%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

> **Palmitoyl Tetrapeptide-7**
Palmitoyl Tetrapeptide-7
Skin conditioning
%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

> **Palmitoyl Pentapeptide-4**
Palmitoyl Pentapeptide-4
Skin conditioning
%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

> **AntiGly-Ex**
Decarboxy Carnosine
Preservative, Antioxidant
%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

> **AntiGly-Pro**
Carnosine
Preservative, Antioxidant
%PPAI : 0 %CPAI : 100 %NNI : 0 %PeMo : 0

Attestation issued on 19 March 2024 and valid until 31 December 2024.

ECOCERT Greenlife S.A.S
BP 47 Lieudit Lamothe Ouest - 32600 L'Isle Jourdain
FRANCE Phone : 05 62 07 34 24 - ecocert.com
Capital 50 000 € - SIREN 509 534 095 RCS AUCH
https://ap.ecocert.com/ecoproduits

F03B(GL)v04en

Accreditation by COFRAC # 5-0520 for Certification of Products and Services, scope available on www.cofrac.fr.

Page 4 / 5

READLINE

UltraHeal-P4P7: Application information

Application Guide

- **Purity**：≥ 98.0%
- **Solubility**：Slightly soluble in water
- **Condition**：Protect from light, seal tightly, and store at 2–8 ° C
- **Suggested dosage**：10−1000 ppm
- **Solubility guide:** (a) Can be completely soluble in ethanol; (b) Heating butanediol to 40−45 ° C, then continue to stir until completely dissolved.

Documents

☒ SPEC	☒ COA	☒ MSDS
☒ TDS	☒Material safety information	☒ Leaflet
☒ Product PPT	☒ Safety assessment report	☒ Test method
☒ HPLC spectrum	☐ Stability study	☐ Structure confirmation report
☐ Literature	☒ In vitro study	☐ Human efficacy report
☐ Permeability report	☒ Flow chart	☒ Declaration of ingredients
☒ COSMOS certificate	☒ HALAL	☐ Formulation guide
☒ Hazardous substances statement	☒ Natural origin index	☒ Declaration of origin
☒ Patent	☒ Non-GMO	☐ Others

READLINE

Green Technology Healthy Life

Exclusively Distributed By:

Integrity Ingredients Corporation

"Your Innovation Partner"

www.integrityingredientscorp.com • info@integrityingredientscorp.com
(310) 782-0282

LinkedIn

www.linkedin.com/company/readline/

0755-2665 9310 sales@szreadline.com www.szreadline.com