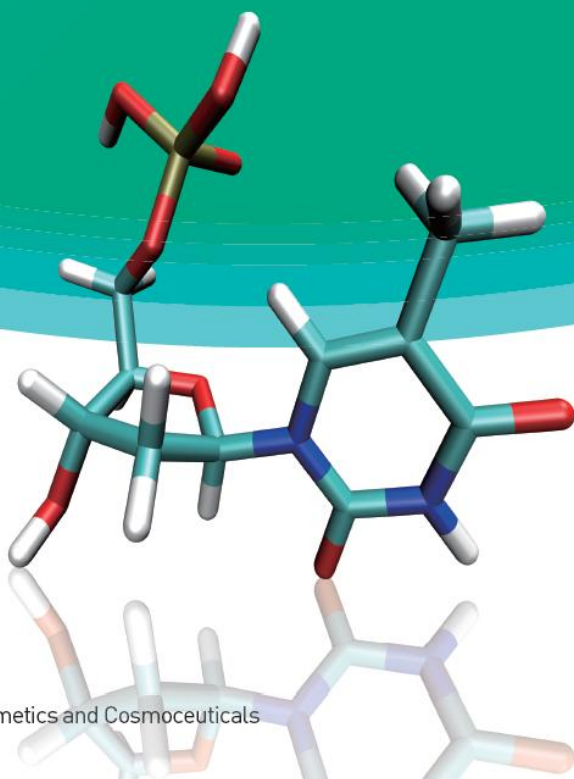


Peptides as Cosmetic Ingredient



Provides Functional Cosmetic Ingredients for High Value Cosmetics and Cosmeceuticals

<http://www.cosmo-bio.com>

<http://www.biofdnc.com>

전남 화순군 화순읍 내평리 121번지(산단길 12-55번지) 전남생물의약품연구센터 내 (주)바이오에프디앤씨 김수정 연구개발이사
Tel: 82-61-373-8381 Fax: 82-61-373-8382 e-mail: sjkim@biofdnc.com homepage: www.cosmo-bio.com

BIO-FD&C Peptides List

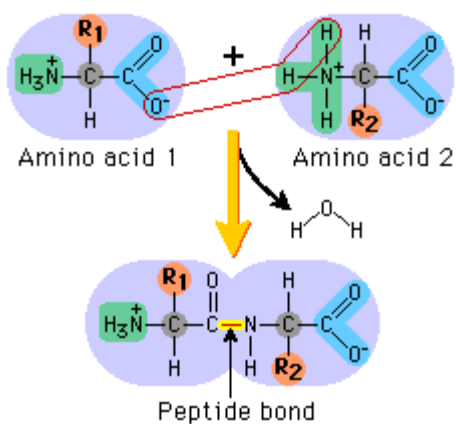
Anti-aging Peptide	Anti-wrinkle peptide	Whitening peptide	Anti-hair loss & hair growing peptide
BF-Dynorphin	Elastin essential peptide	Cyclitol	Anagen
BF-Enkephalin	Elastin anti-wrinkle peptide	ElaX-MV	Elanoren
Epiderm-X	Healix	Gallovox	Elastin scalp peptide
Heal-VB7	Keratin essential peptide	Melabet	Elastin hair peptide
Neuropeptide-1	Lipovax	Purosol	HG-Thymopentin
Neoendorphin	Prospin	Redovax	HG-Phyto-Thymopentin
Polyol	Skinup-US	Respep	Innogrowin
Rejuccell-US	Silk essential peptide	Sonitin	Keratin essential peptide
Retinovax	Sinpep	Symvastin	Keratin scalp peptide
VH-Cellup	Wrinkle-X	Whitening peptide	Phyto-thymosin beta 4

Anti-inflammatory & Anti-oxidant peptide	Anti-microbial and skin protecting peptide	Anti-acne peptide	Anti-atopic dermatitis peptide
Antiox-VH	Anti-Microbial Peptide-Aurein	Acnobet	Phyto-NEP
Qtant		Acnoheal	
Ursolin		Acnoin	
Phytopeptide-1		Hairen	
Therapep			
Vitamin peptide			

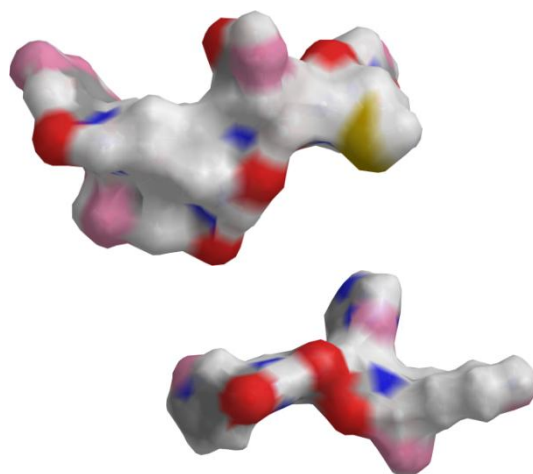


What is Peptides ?

Peptides are short polymer formed from the linking, in a defined order, of α -amino acid. The link between one amino acid residue and the next is known as an amide bond or a peptide bond.



Peptide bond



Molecular structure of BIO-FD&C biomimetic peptide

BIO-FD&C Cosmetic Biomimetic Peptides ?

- *highly active biological materials can bind cellular receptors*
- *physically stable in cosmetic chemical conditions*
- *very small to effectively penetrate skin barrier and transdermal layers*
- *highly safe based on amino acid composition*

● General Information

Trade Name	Elastin Anti-Wrinkle Peptide™
INCI Name	Pentapeptide-37
Molecular Characteristics	Repeated Active Sequence of Natural Human Elastin
Product Type	Pure Peptide Powder or Liposome Encapsulated Solution
Cosmetic Function	Elastin & Collagen Stimulating, Anti-aging, Healthy Skin Supplement
Biological Function	Supplement skin elastin peptide and stimulate collagen synthesis
Recommended Dosage	~ 20 ppm

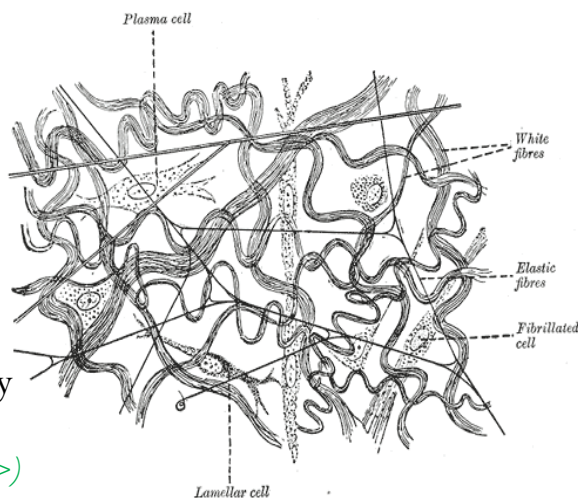


● Biological Mechanism of Elastin Anti-Wrinkle Peptide

Elastin is a protein in connective tissue that is elastic and allows many tissues in the body to resume their shape after stretching or contracting. Elastin helps skin to return to its original position when it is poked or pinched.

Elastin is also an important load-bearing tissue in the bodies of vertebrates and used in places where mechanical energy is required to be stored. In humans, elastin is encoded by the ELN gene.

Structure of Elastin (from Wikipedia ->)



● Relationship between Aging & ECMs (Elastin & Collagen)
(reference: Laryngoscope. 2008 September ; 118(9): 1700–1704)

Characteristics of Age-Related Changes in Cultured Human Vocal Fold Fibroblasts

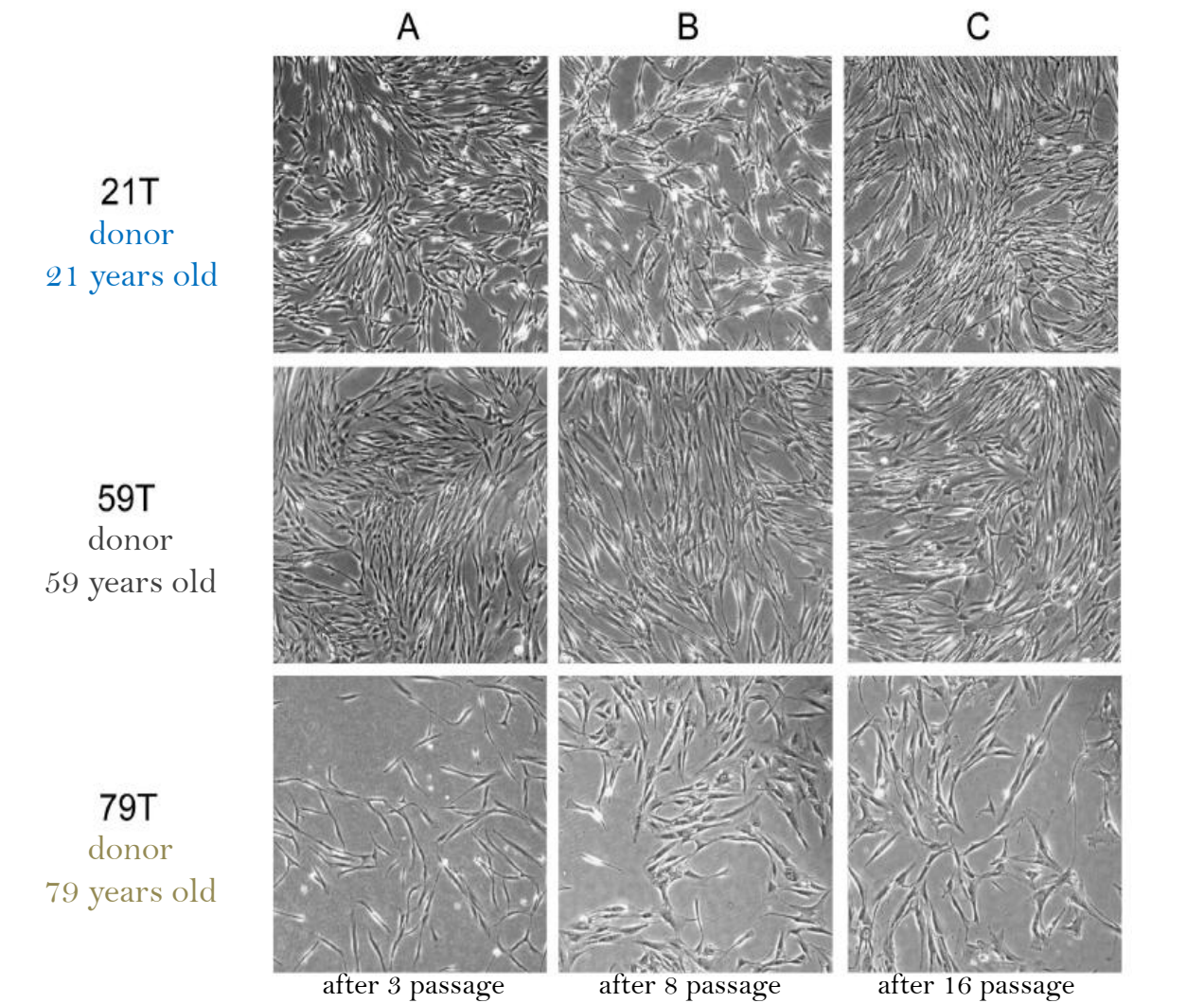
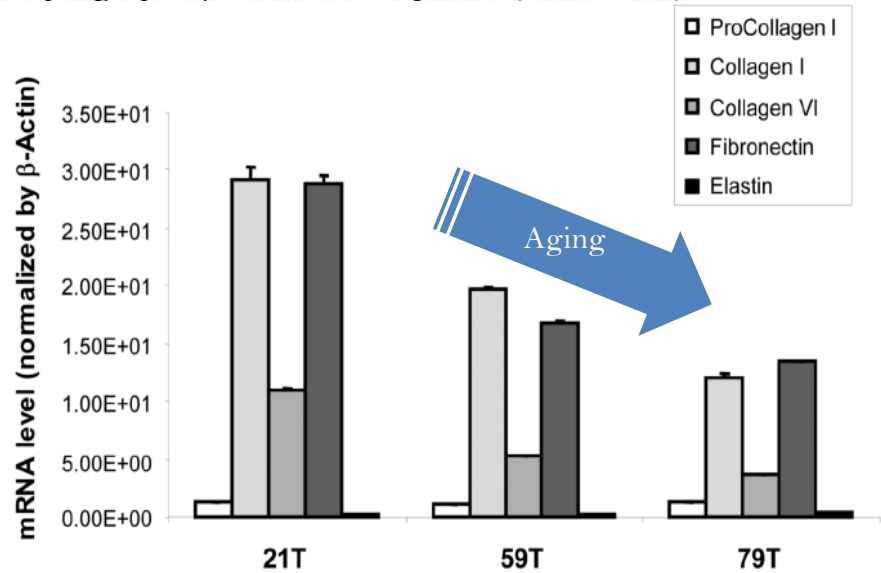
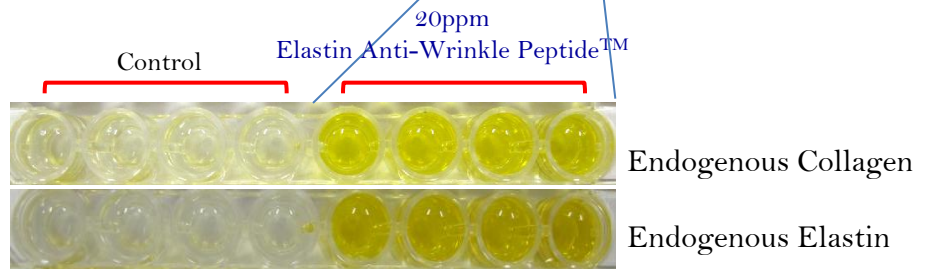
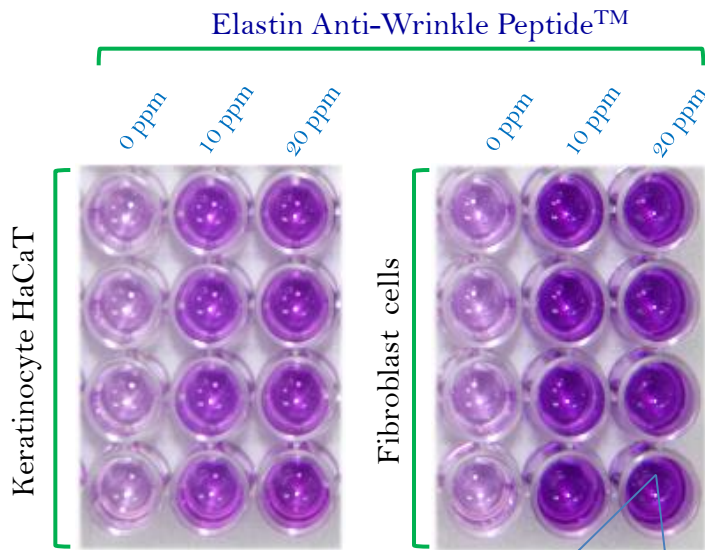


Figure 1. Morphology of primary hVFF from different aged-donors (21T, 59T and 79T)

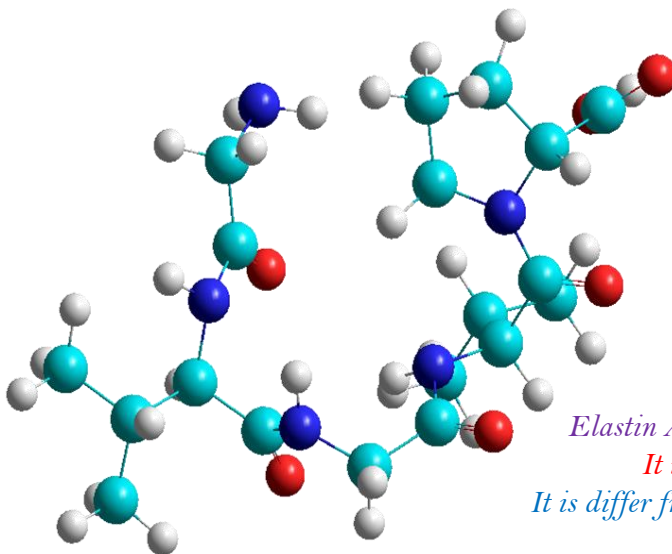


● Experimental Data

Treatment 10 and 20 ppm **Elastin Anti-Wrinkle Peptide™** significantly increased proliferation of human keratinocyte and fibroblast (collagen producing) cells .



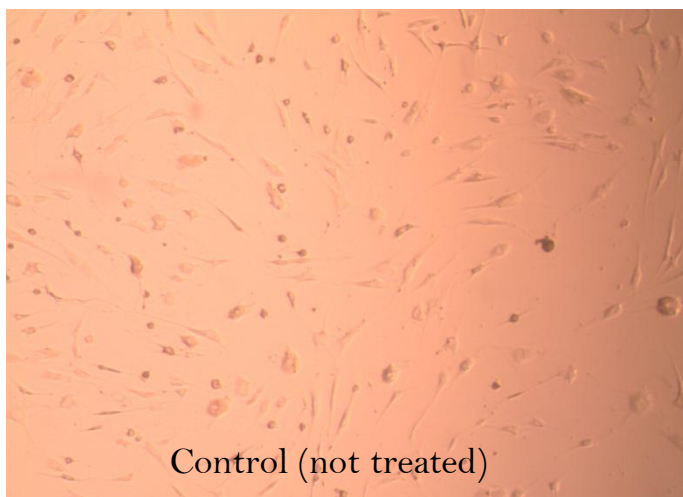
Treatment various concentration of Elastin Anti-Wrinkle Peptide™ significantly stimulated endogenous synthesis of collagen and elastin in fibroblast.



*Structure of
Elastin Anti-Wrinkle Peptide™*

*Elastin Anti-Wrinkle Peptide™ Is Unique !
It is Human Elastin Core Part !
It is differ from fish, pig, or other animal collagen !*

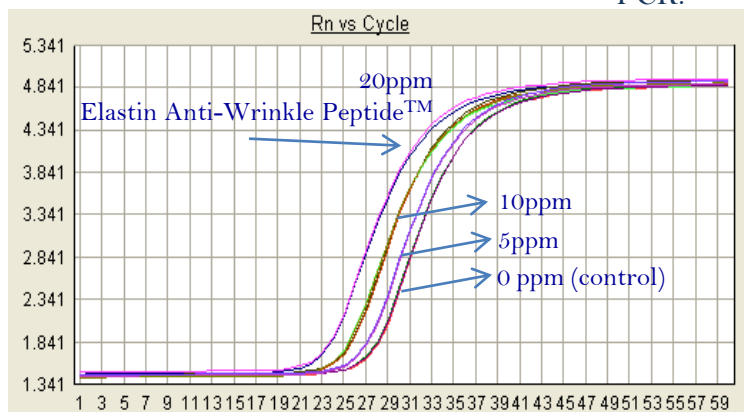
Exogenous Elastin Peptides Can Increase Total Collagen in Living Skin !



Cell growth assay was conducted on CCD-986sk cell line.
After 72 hrs treatment of EAWP, fibroblast cells was activated and proliferated.

Elastin Anti-Wrinkle Peptide™ Increase Lysyl Oxidase in Skin !

Treatment 20 ppm Elastin Anti-Wrinkle Peptide™ significantly increased the expression of lysyl oxidase up to **318%** in fibroblast CCD-986sk by real-time PCR.



*Expression level of
lysyl oxidase in fibroblast !*

*Lysyl oxidase is a key enzyme for
formation of collagen fibril !*

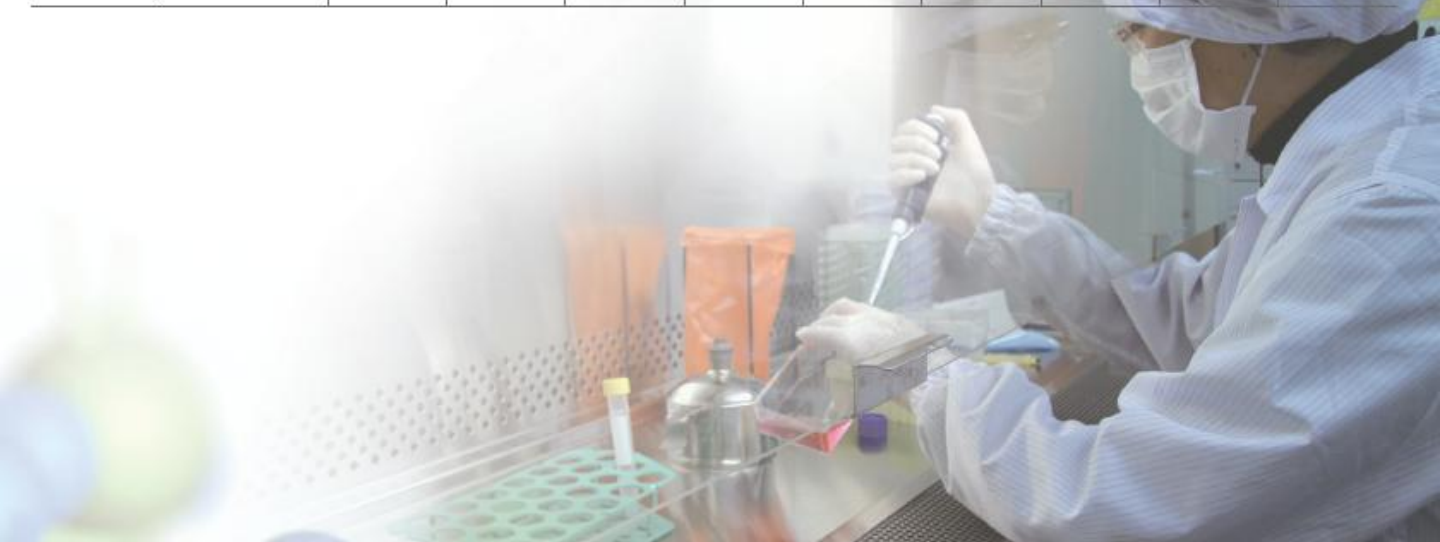
Do you need more peptide ?

BIO-FD&C Peptides Selection Guide

Biomimetic Peptides	Anti-aging	Anti-wrinkle	Whitening	Anti-hair loss & hair growing	Anti-inflammation	Anti-oxidant	Anti-microbial	Anti-acne	Anti-atopy
BF-Dynorphin	★★★	★★		★★					
BF-Enkephalin	★★★	★★		★★					
Epiderm-X	★★★	★★	★	★	★	★★			
Heal-VB7	★★★	★★	★	★★	★	★			
Neuropeptide-1	★★★	★★		★★					
Neoendorphin	★★★	★★		★★					
Polyol	★★★	★	★★		★	★			★
Rejucell-US	★★★	★	★		★	★			
Retinovax	★★★	★★		★	★★	★			
VH-Cellup	★★★	★	★★	★★	★	★		★	
Elastin essential peptide	★★	★★★		★★					
Elastin anti-wrinkle peptide	★★	★★★		★					
Healix	★	★★★	★	★	★★	★★			
Keratin essential peptide	★★	★★★		★★					
Lipovax	★	★★★		★★	★★	★★		★	
Prospin	★★	★★★	★★		★	★			
Skinup-US	★★	★★★	★		★	★		★	★
Silk essential peptide	★★	★★★		★★					
Sinpep	★	★★★		★			★★		
Wrinkle-X	★★	★★★			★	★	★		
Cyclitol	★		★★★		★★	★★		★	★
ElaX-MV		★	★★★		★		★		
Gallowax	★		★★★		★★	★★		★	★
Melabet	★★	★	★★★		★★				
Purosol		★	★★★	★	★	★			
Redovax		★	★★★	★	★★	★★		★	
Respe	★		★★★		★★	★			
Sonitin	★	★	★★★		★	★			
Symvastin		★	★★★		★★	★★		★	★
Whitening peptide	★		★★★						

Peptides Selection Guide

Biomimetic Peptides	Anti-aging	Anti-wrinkle	Whitening	Anti-hair loss & hair growing	Anti-inflammation	Anti-oxidant	Anti-microbial	Anti-acne	Anti-atopy
Anagen	★	★	★★	★★★★					
Elanoren	★	★	★★	★★★★			★★	★	★
Elastin scalp peptide	★	★		★★★★					
Elastin hair peptide	★	★		★★★★					
HG-Thymopentin		★	★	★★★★					
HG-Phyto-Thymopentin		★	★	★★★★	★	★	★		
Innogrowin		★		★★★★	★				
Keratin essential peptide	★	★★		★★★★					
Keratin scalp peptide	★	★	★	★★★★					
Phyto-thymosin beta 4		★	★	★★★★	★	★			
Antiox-VH	★				★★★★	★★★★			
Qtant	★	★	★		★★★★	★★★★		★	
Ursolin		★★	★		★★★★	★★★★		★	
Phytopeptide-1		★★	★		★★★★	★★★★			★
Therapep		★★	★		★★★★	★★★★			★
Vitamin peptide		★★	★★		★★★★	★★★★			
Anti-Microbial Peptide-Aurein							★★★★	★★	★★
Acnobet							★★	★★★★	★
Acnoheal							★★	★★★★	★
Acnoin							★★	★★★★	★
Hairen	★	★					★★	★★★★	★★
Phyto-NEP		★★		★★★★	★★	★★		★★	★★★★



Provides Functional Cosmetic Ingredients for
High Value Cosmetics and Cosmeceuticals



BIO-FD&C

*Innovative Leader
in Cosmeceutical Ingredient*

Phytopeptides
*from BIO-FD&C revolutionizes anti-aging
and skin cell rejuvenating!*

***BIO-FD&C Co., Ltd.,
We are your innovative partner for
your most valuable cosmetics!***

Phytopeptides are the latest innovations from BIO-FD&C skin research. Phytopeptides are bio-active ingredients obtained cutting-edge technologies improving efficacy, solubility, and stability of functional peptides by conjugating with various plant-originated phytochemicals possessing high anti-oxidant and anti-inflammation activities.



BIO-FD&C
(주)바이오프디엔씨

In Jellanamdo Biopharmaceutical Research Center [JBRC], 121 Naepyeong-Ri,
Hwasun-Eup, Hwasun-Gun, Jellanamdo, S. Korea
BIO-FD&C Co., Ltd. Medicinal Nano-material Research Institute
Tel: 82-61-373-8381 Fax: 82-61-373-8382 e-mail: sjkim@biofdnc.com
Main office: 451-7 Nonhyun-Dong, Namdong-Gu, Incheon, Korea
<http://www.cosmo-bio.com> <http://www.biofdnc.com>