ECM-5

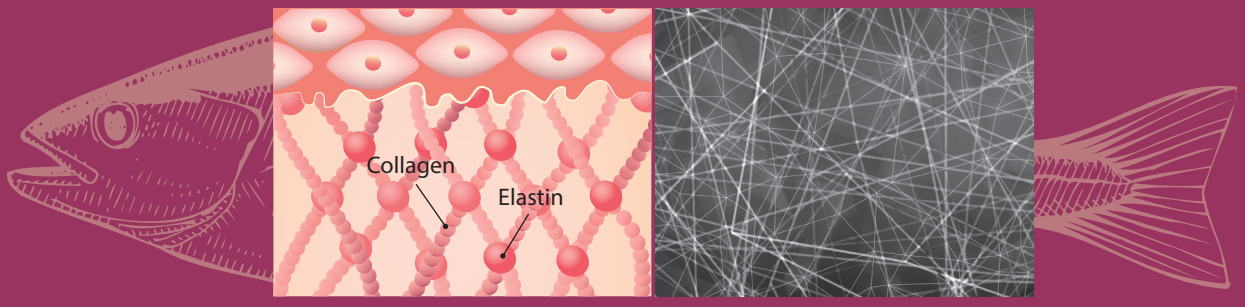
Elastin Formation Booster

DermaLab
(주) 더마랩

ECM-5

Elastin Formation Booster

***Theragra chalcogramma* (Pollock, Walleye pollock, Alaska pollock)**



Pollock….

- protects its body from the extreme environment such as cold.
- safe from bovine spongiform encephalopathy (BSE), pesticides and antibiotics.
- contains high percentage of amino acids such as glycine, proline and desmosine.

ECM-5….

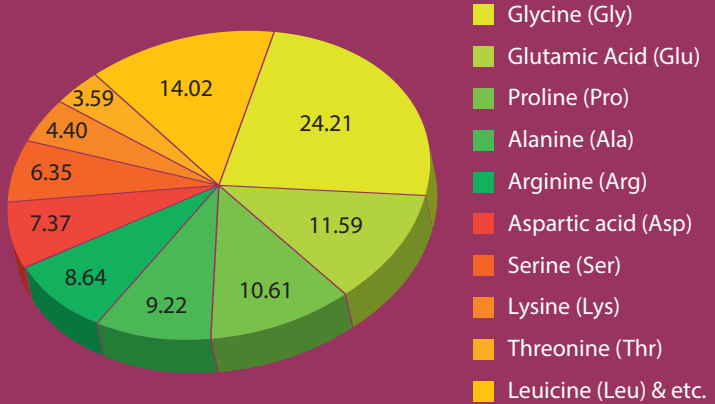
- is made from the Pollock Skin.
- contains a hydrolyzed elastin with a low molecular weight.

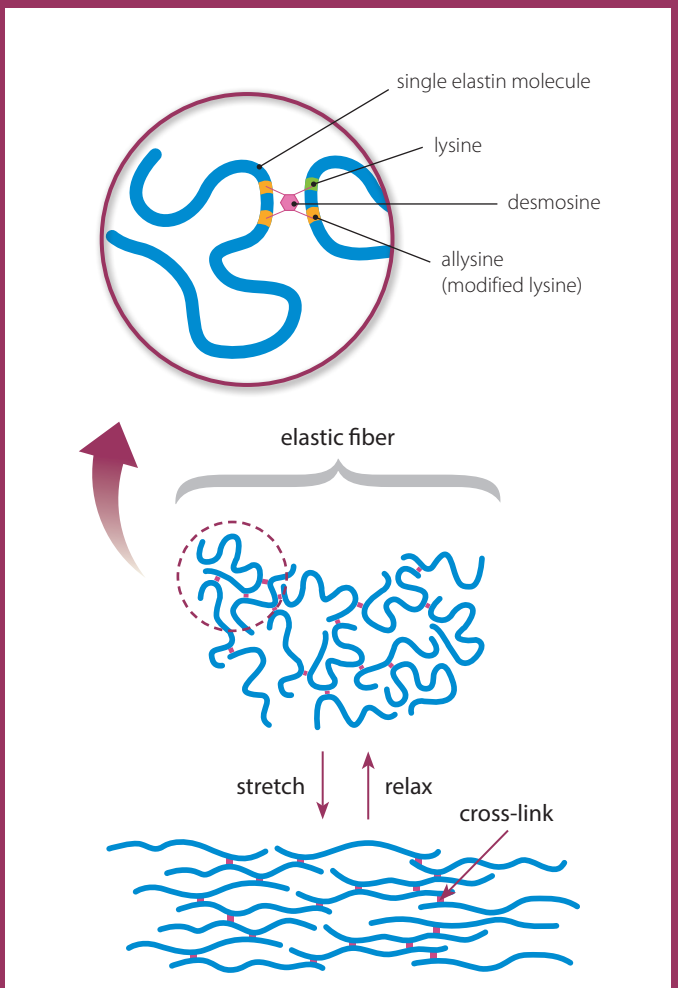
"ECM-5" - Hydrolyzed Elastin

<ECM-5 contains amino acids such as glycine, proline and desmosine>

- Elastin is a protein present in the ECM (Extracellular matrix).
- Elastin is responsible for the flexibility and elasticity of the ECM.
- Elastin contains Desmosine which is found only in Elastin.
- Desmosine is an essential amino acid for cross-linking elastic fibers and plays an important role in regulating contraction and relaxation.
- Cross-link is very important to maintain the functionality and structure of elastin.
- Proline-Glycine enhances synthesis of elastin by human dermal fibroblast.

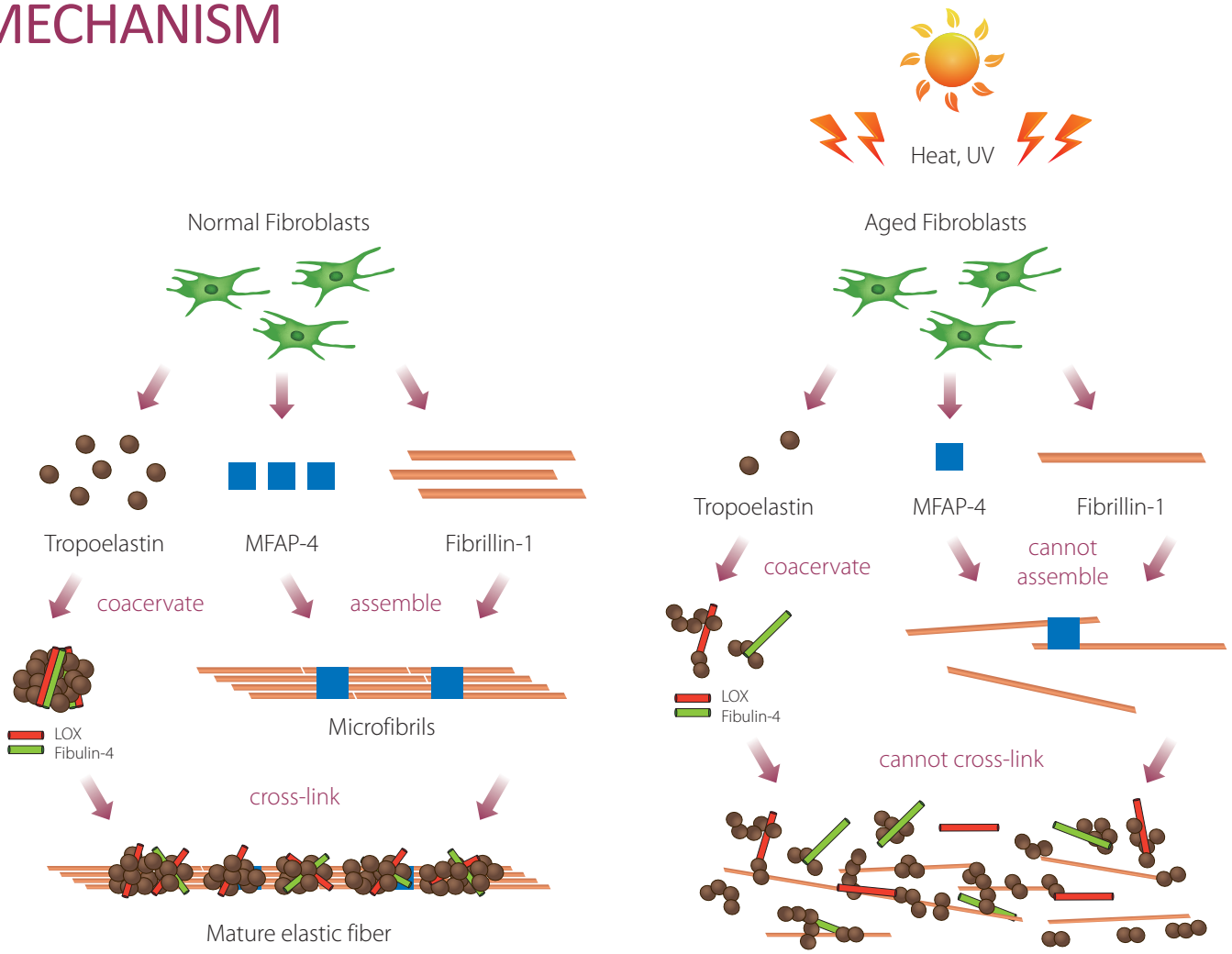
[Composition of hydrolyzed elastin's amino acids]





[Site of desmosine for cross-linking elastic fibers]

MECHANISM



- Tropoelastin production from Fibroblast
- Coacervation of Tropoelastin
- Cross-linking by LOX and Fibulin-4
- Microfibril formation by MFAP-1 and Fibrillin-1

- Decrease of Tropoelastin formation and Fibroblast viability
- Decrease of Tropoelastin coacervation
- Decrease of Cross-linking
- Decrease of Microfibril formation

SOLUTION

ECM-5

1. Tropoelastin formation ↑
2. LOX expression ↑
3. Fibulin-4 expression ↑

Boosting Effect on Elastin Formation

4. MFAP-4 expression ↑
5. Fibrillin-1 expression ↑
6. Elastin production ↑

IN-VITRO TEST

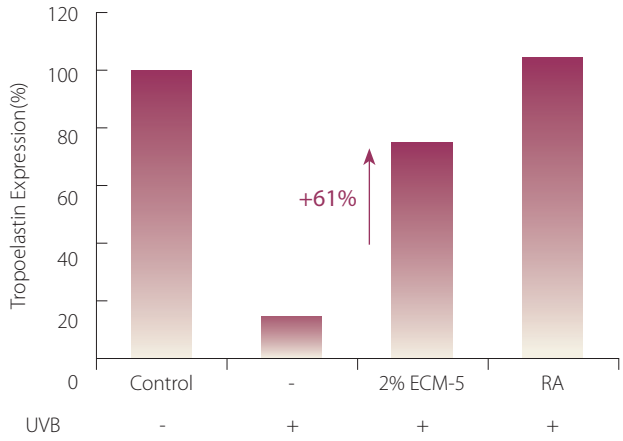
ECM-5 INCREASES THE EXPRESSION OF TROPOELASTIN

The tropoelastin is the fundamental building component of all elastin.

ECM-5 increases the expression of Tropoelastin by 61%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37℃, CO_2: 5%) in presence of 2% ECM-5. After irradiation with 100 mJ/cm^2 of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR. RA : Retinoic Acid 50 ppm



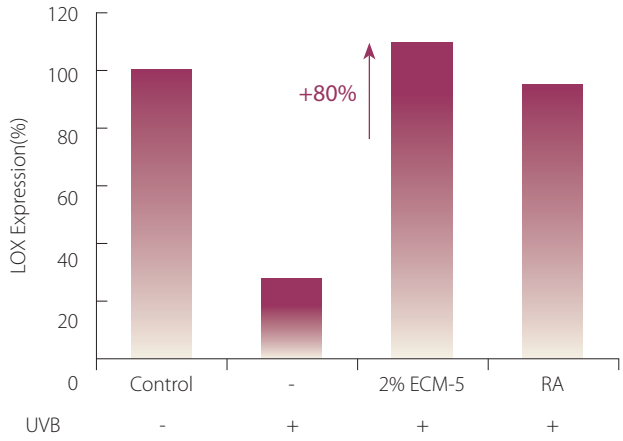
ECM-5 INCREASES THE EXPRESSION OF LOX

Lysyl oxidase (LOX) is an extracellular copper enzyme that catalyzes formation of aldehydes from lysine residues in collagen and elastin precursors.

ECM-5 increases the expression of LOX by 80%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37℃, CO_2: 5%) in presence of 2% ECM-5. After irradiation with 100 mJ/cm^2 of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR. RA : Retinoic Acid 50 ppm



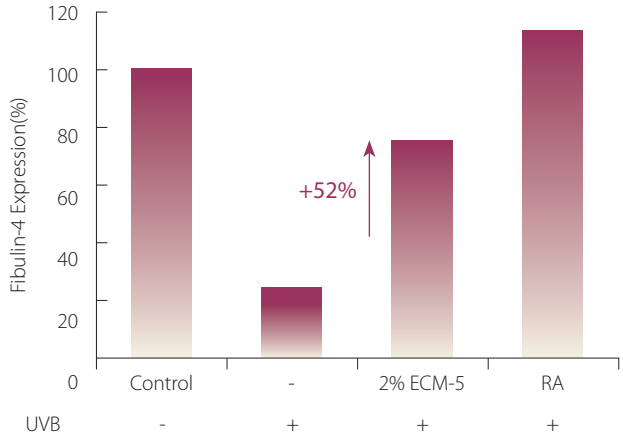
ECM-5 INCREASES THE EXPRESSION OF FIBULIN-4

Fibulin-4 (FBLN4) is indispensable for the assembly of mature elastic fibers.

ECM-5 increases the expression of FBLN4 by 52%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37℃, CO_2: 5%) in presence of 2% ECM-5. After irradiation with 100 mJ/cm^2 of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR. RA : Retinoic Acid 50 ppm



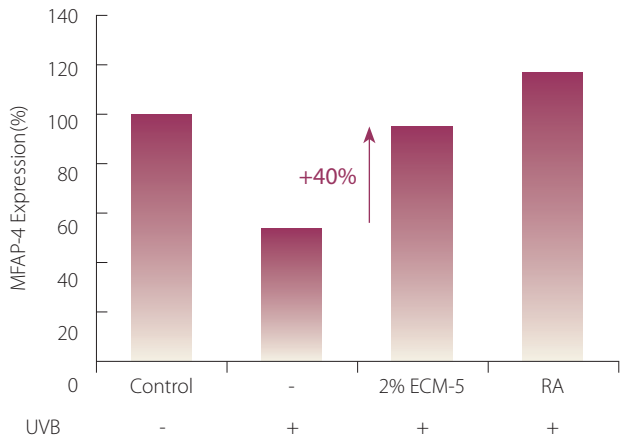
ECM-5 INCREASES THE EXPRESSION OF MFAP-4

Microfibrillar-associated protein 4 (MFAP-4) plays a critical role in fibrillin-1 based microfibril assembly and is associated with elastic fiber formation.

ECM-5 increases the expression of MFAP-4 by 40%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37℃, CO_2: 5%) in presence of 2% ECM-5. After irradiation with 100 mJ/cm^2 of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR. RA : Retinoic Acid 50 ppm



IN-VITRO TEST

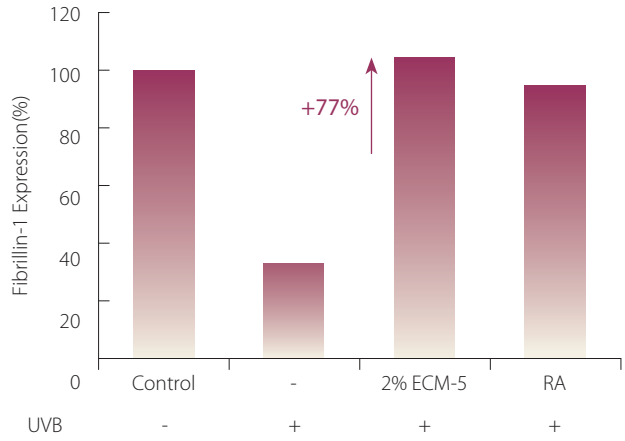
ECM-5 INCREASES THE EXPRESSION OF FIBRILLIN-1

Fibrillin-1 is an extracellular matrix glycoprotein which is essential for the formation of elastic fibers.

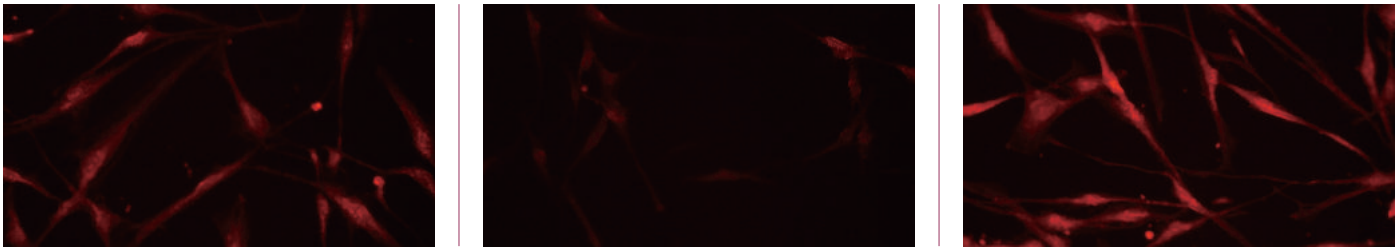
ECM-5 increases the expression of Fibrillin-1 by 77%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37℃, CO_2: 5%) in presence of 2% ECM-5. After irradiation with 100 mJ/cm^2 of UV-B for 3hrs, the expression levels of mRNA were analyzed by RT-PCR. RA : Retinoic Acid 50 ppm



ECM-5 REACTIVATES ELASTIN SYNTHESIS



Normal Fibroblast

Fibroblast exposed to UVB

Fibroblast exposed to UVB + 2% ECM-5

Protocol

Elastin was detected by immunohistochemistry in human dermal fibroblast (HDFa). Images were captured using an optivision image capture system. (UVB : 100 mJ/cm^2)

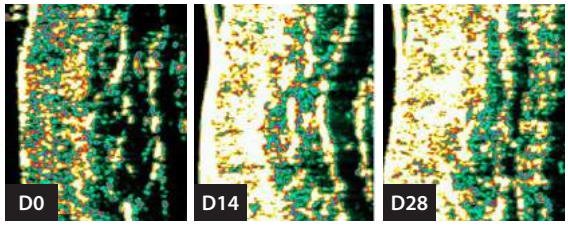
IN-VIVO TEST

ECM 5 INCREASES THE DERMAL THICKNESS

2% ECM 5 cream increases the Dermal Thickness intensity.
+16.4 % on average after 28 days and up to +49.7 %

Measurement method of dermal thickness

Application of 2 % ECM 5 Cream for 4 weeks on face. Dermal thickness was evaluated by Dermalab Combo Ultrasound (Cortex Technologies).

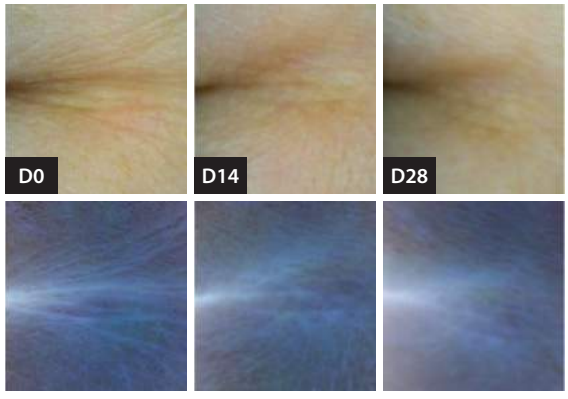


ECM 5 DECREASES THE CROW'S FEET

2% ECM 5 cream decreases the Crow's feet intensity.

Measurement method of Crow's Feet

Application of 2 % ECM 5 Cream for 4 weeks on face. Crow's feet was evaluated by ARAM 200 (Human Vision System).



Dermalab Co., Ltd.

231, Munmakgongdan-gil, Munmak-eup, Wonju-si, Gangwon-do, South Korea
TEL. +82-33-732-7561 FAX. +82-33-732-7563
info@dermalab.co.kr www.dermalab.co.kr

Cosmetic activities	• Stimulation of Tropoelastin expression • Stimulation of LOX & Fibulin-4 expression • Stimulation of MFAP-4 & Fibrillin-1 expression • Rejuvenation of Elastin production
INCI name	ECM-5 Water (and) Butylene Glycol (and) Phenoxyethanol (and) Ethylhexylglycerin (and) Hydrolyzed Elastin ECM-5 (HD) Water (and) Butylene Glycol (and) 1,2-Hexanediol (and) Hydrolyzed Elastin
Recommended % of use	ECM-5 2% ECM-5 (HD) 2%