

NEUROCOL Y

Resource to Restore a Youthful Skin



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"Marine animals could hold the key to looking young"



Sea urchins are able to change the elasticity of collagen within their bodies, and could hold the key to maintaining a youthful appearance. Because marine creatures such as sea urchins, known as echinoderms have the "messenger molecules" known as peptides, which are released by cells and tell other cells in their bodies what to do. Sea urchins have a peptide that is very similar to calcitonin, a hormone that regulates the collagenous stiffness. Thus, Sea urchins can rapidly change their connective tissues and this is controlled by the nervous system.

Consumers continuously demand the youthful skin texture. They seek products that delay the dermatological signs of skin aging due to environmental stresses, such as fine lines, wrinkles, and sagging skin due to a progressive loss of cell growth, proliferation and functionality in the skin layers. Sea urchin's ability of regulating the stiffness of their texture can be a good solution for this eager.

NEUROCOL Y is a rich source of hydrolyzed collagen from Sea urchin called 'hormone of sea'

Inspired by the Sea urchin's capability of the rapid skin texture change, Dermalab has developed a novel composition which contains the expression stimulator related to the collagenous stiffness.

Calcitonin Gene-Related Peptide (CGRP), a neuropeptide, is originated from epidermal and dermal nerve endings, and it can inhibit the immune responses against external and internal stimuli. As this peptide is to gradually decrease with age (neuro aging), the supplement of this peptide or expression stimulator can lead to an anti-aging effect.

NEUROCOL Y contains ingredients that stimulate the expression of calcitonin gene-related peptide (CGRP), and it can return the neuro-aged skin to the healthy stage. NEUROCOL Y can be used for the applications to fine lines, wrinkles typically found in aged, and environmentally damaged skin.

MECHANISM

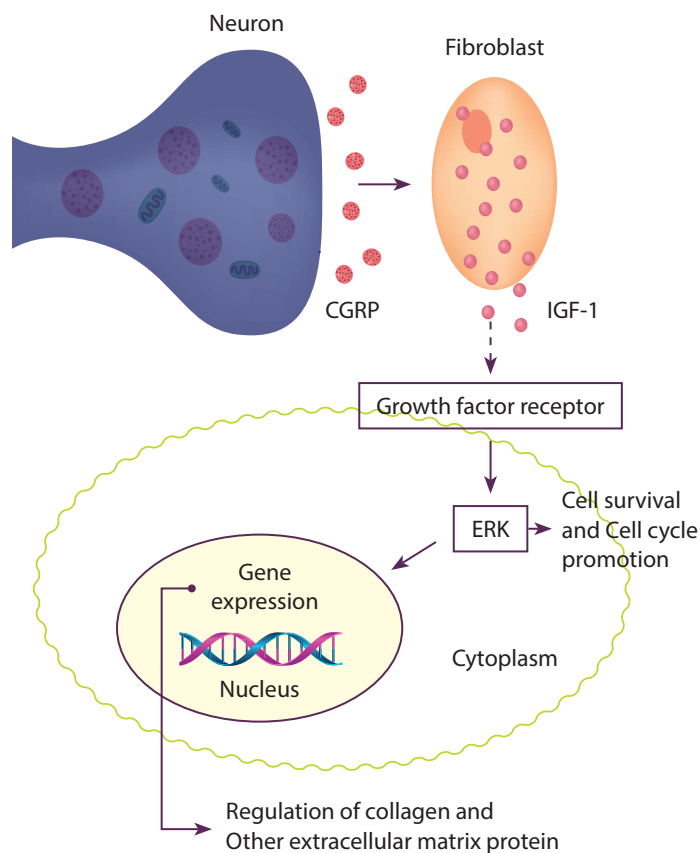
The skin neuroendocrine system plays an important role in preservation of structural and functional integrity of the skin.

The sensory neurons release a calcitonin-gene related peptide (CGRP) on activation of vanilloid receptor-1 (VR-1) by a wide variety of noxious physical and chemical stimuli.

CGRP increases the production of insulin-like growth factor-1 (IGF-1).

IGF-1 plays various important roles in cellular proliferation, differentiation, survival and functions of the cell, thereby contributing to the maintenance of tissue integrity.

IGF-1 signaling is active in the skin and has been linked to skin aging. IGF-1 upregulates the expression of collagen and inhibits the expression of matrix metalloproteinase-1 (MMP-1), a collagenase that breaks down the collagen matrix in the dermis.



NEUROCOL Y maintains the metabolic activity of the youth skin by recovering the stiffness of skin texture.

1. NEUROCOL Y promotes the release of neuropeptides weakened by aging, and maintains the vitality of skin cells.
2. NEUROCOL Y regains the cell activity by stimulating the endogenous metabolism activator.
3. NEUROCOL Y increases the elasticity of skin by stimulating the production of collagen.

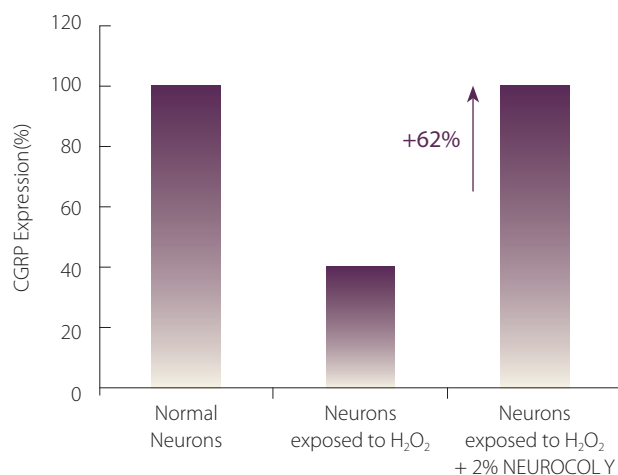
Expression rate of CGRP by NEUROCOL Y

The decrease in CGRP expression appears with age, its expression affects the structural & functional integrity of skin.

NEUROCOL Y PROMOTES THE RELEASE OF CGRP IN THE AGED NEURONS.

Protocol

Human neural cell (H9-Derived) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% NEUROCOL Y with 500 μM H₂O₂. The expression levels of mRNA were analyzed by RT-PCR.



IN-VITRO TEST

ENHANCEMENT EFFECT OF FIBROBLAST VITALITY

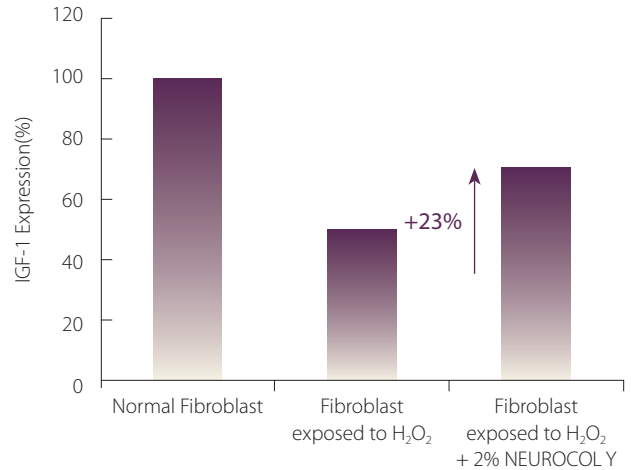
NEUROCOL Y INCREASES THE LEVEL OF IGF-1

IGF-1 plays an important role in maintenance of normal skin morphology and increases collagen synthesis by fibroblast.

NEUROCOL Y increases IGF-1 expression by 23%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% NEUROCOL Y with 500 µM H₂O₂. The expression levels of mRNA were analyzed by RT-PCR.



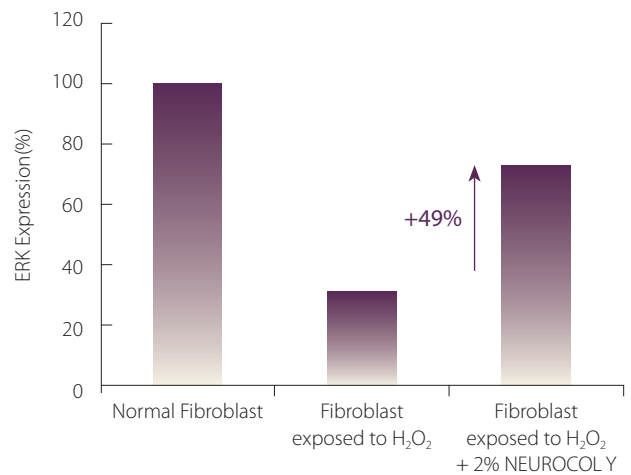
NEUROCOL Y INCREASES THE EXPRESSION OF ERK

Extracellular signal-regulated kinase (ERK) is a cell signaling molecule involved in cell survival and proliferation.

NEUROCOL Y increases ERK expression by 49%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% NEUROCOL Y with 500 µM H₂O₂. The expression levels of mRNA were analyzed by RT-PCR.



CELLULAR ACTIVATION EFFECT

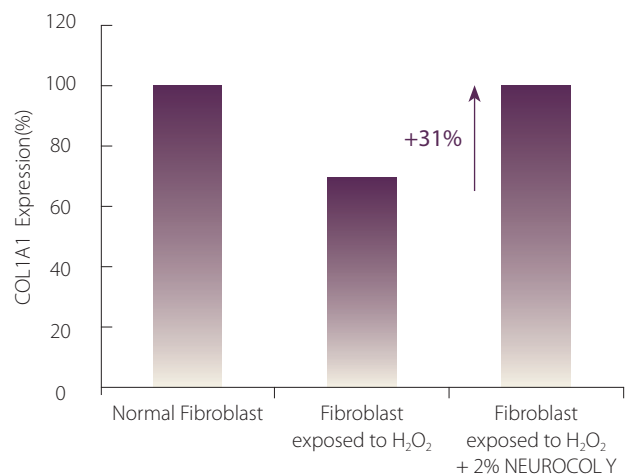
NEUROCOL Y INCREASES THE EXPRESSION OF COL1A1

COL1A1 encodes the major component of type I collagen, which belongs to a family of extracellular matrix (ECM) proteins.

NEUROCOL Y increases the expression of COL1A1 by 31%.

Protocol

Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% NEUROCOL Y with 500 µM H₂O₂. The expression levels of mRNA were analyzed by RT-PCR.



IN-VITRO TEST

CELLULAR ACTIVATION EFFECT

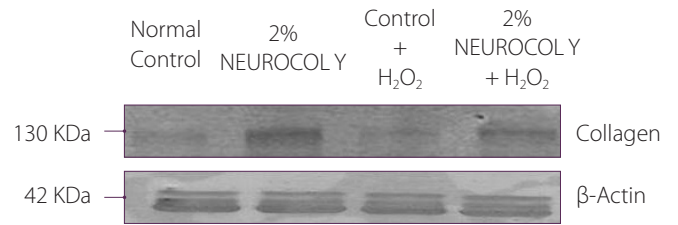
NEUROCOL Y INCREASES COLLAGEN

Collagen is a protein that strengthens and supports many tissues in the body, including cartilage, bone, tendon and skin.

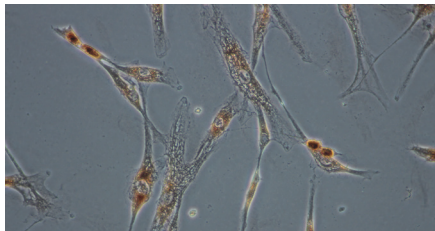
NEUROCOL Y increases collagen expression in fibroblast.

Protocol

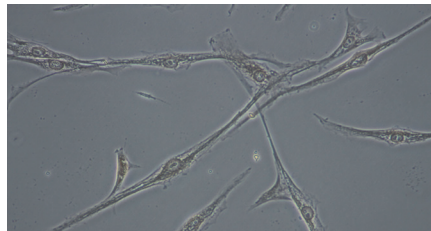
Human dermal fibroblast (HDFa) cultures were incubated during 36 hours (at 37°C, CO₂: 5%) in presence of 2% NEUROCOL Y with and without 500 µM H₂O₂. The expression levels of protein were analyzed by western blot.



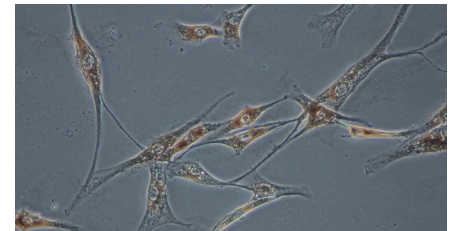
NEUROCOL Y REACTIVATES COLLAGEN SYNTHESIS



Normal Fibroblast



Fibroblast exposed to H₂O₂



Fibroblast exposed to H₂O₂ + 2% NEUROCOL Y

Protocol

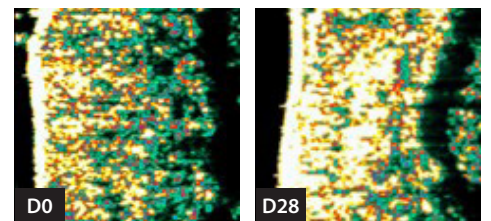
Collagen was detected by immunohistochemistry in human dermal fibroblast (HDFa). Images were captured using an optivision image capture system. H₂O₂: 500 µM

IN-VIVO TEST

Skin Density Enhancement Effect

NEUROCOL Y improves skin density

- Volunteers : 10 male & female aged between 27 and 49 years old.
- Formulation : Lotion containing 2% Neurocol Y
- Application : twice a day for 28 days.
- Analysis : Evaluate a density in dermis and epidermis of crow's feet with Dermalab Ultrasound

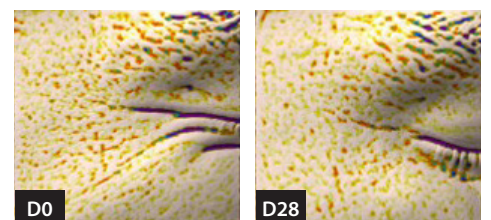


Neurocol Y improves skin density in dermis and epidermis Average + 110.03% Up to + 172.66%

Anti Wrinkle Effect

NEUROCOL Y reduce a crow's feet

- Volunteers : 10 male & female aged between 27 and 49 years old.
- Formulation : Lotion containing 2% Neurocol Y
- Application : twice a day for 28 days.
- Analysis : Evaluate a decrease of crow's feet with Antera 3D



Decrease of Crow's feet Average -14.16% Up to -35.5%



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Cosmetic activities	<ul style="list-style-type: none">• Promotion of CGRP expression in aged neurons• Enhancement of Fibroblast vitality• Stimulation of COL1A1 expression• Stimulation of Collagen production• Rejuvenation of Dermal stiffness
INCI name	<p>NEUROCOL Y Water (and) Butylene Glycol (and) Phenoxyethanol (and) Ethylhexylglycerin (and) Hydrolyzed Collagen</p> <p>NEUROCOL Y (HD) Water (and) Butylene Glycol (and) 1,2-Hexanediol (and) Hydrolyzed Collagen</p>
Recommended % of use	NEUROCOL Y 2% NEUROCOL Y (HD) 2%