DC Upregulex®

INCI: Water, Butylene Glycol, Phospholipids, Hydrolyzed Sericin

December 7, 2010 rev.

DC1516

Dermal Renewal for Silky, Smooth Skin

With its origins in ancient China, silk has long history of beautification; from its use in rich, luxurious fabrics, to cosmetic preparations to smooth and protect the skin. Growing demand for silk through the years has to improved and expanded production across Asia and throughout the rest of the world.

Silk in its natural form is composed of two major components; fibroin, a filamentous protein that forms the fiber, and sericin, a high molecular weight protein which binds the fibrous material together. During commercial silk production, the natural silk is processed, harvesting the fibroin for textile applications. The by-product of this process, the sericin, has an extremely high affinity to keratin and offers numerous well-documented cosmetic benefits, providing protective and restorative activity to hair and skin.

Today the anti-aging skincare benefits of silk can be formulated into an array of products using **DC Upregulex®**: Highly active fractions of sericin peptides delivered with a soy phospholipids vectorizing carrier. These multi-layer vesicles are concentrated with nature's own skin revitalizing and conditioning system, providing cellular nutrition and activation of multiple dermal renewal processes. DC Upregulex® helps restore a more even, youthful skin appearance, supports general skin health and repairs fragile, dry, damaged skin.

BENEFITS

- Collagen stimulation
- Improvement of Cell Proliferation
- Anti-elastasic
- Tissue remodeling
- Tyrosinase inhibition
- Hyaluronic acid stimulation
- Film forming
- ECM support and enhancement

APPLICATIONS

- Brightening
- Improves resilience
- Firming and Plumping
- Wrinkle reduction
- Smoothing
- Conditioning
- Hydration and Skin Elasticity
- Anti-aging

TYPICAL PROPERTIES

Appearance	Milky Brown Liquid
Odor	Characteristic
pH	4.75 - 6.50
Specific Gravity	0.990 - 1.150

FORMULATION GUIDELINES

Recommended Use Level	2-6%
	Add below 40°C, pH 4.0-8.0

RESOURCES OF NATURE

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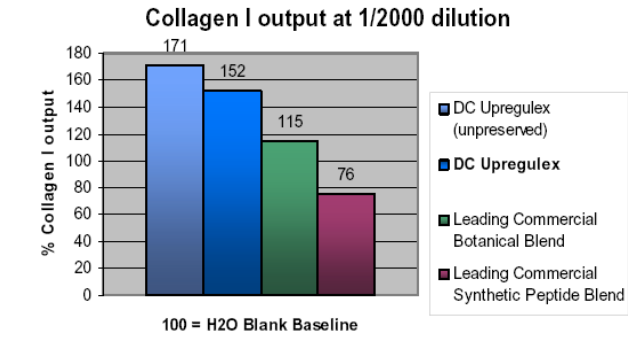
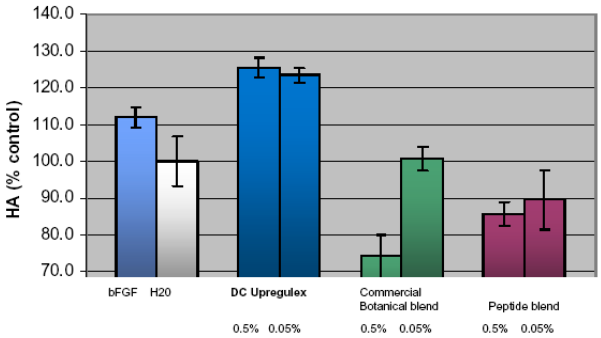
COLLAGEN STIMULATION ACTIVITY
(by Human Dermal Fibroblasts)



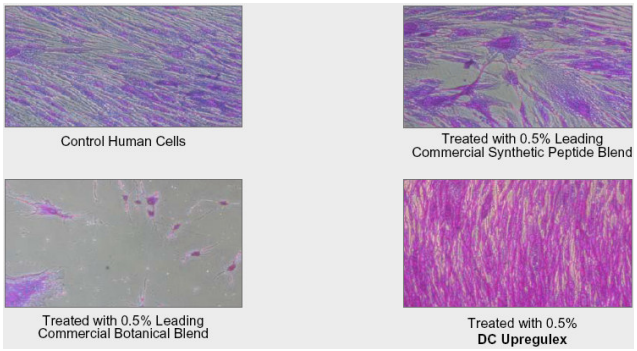
DC Upregulex® demonstrates a superior collagen stimulating performance over leading commercial active skin care ingredients with similar claims.

HYALURONIC ACID STIMULATION ACTIVITY
(by Human Dermal Fibroblasts)



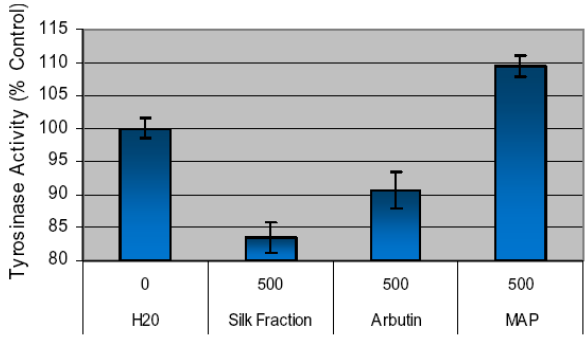
DC Upregulex® significantly stimulates HA bio-synthesis in comparison to leading products with similar claims.

CELLULAR NUTRITION & BIOCOMPATIBILTY



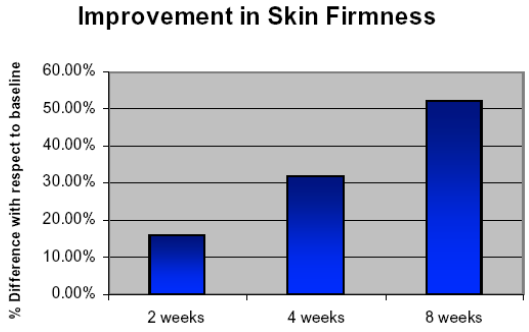
DC Upregulex® has excellent non-toxic bio-compatibility with human cells and provides a stimulating and nourishing environment for human fibroblast cells to remain active producing collagen and other dermal matrix components.

EFFECT ON TYROSINASE ACTIVITY (In-vitro)



The silk fraction used in DC Upregulex® inhibits tyrosinase enzyme activity.

EFFECT ON SKIN ELASTICITY/FIRMNESS
(In-vivo 5 Subject Screening)



Cutometer – R7 Biological Elasticity: Significant (p=0.01) improvement in skin elasticity/firmness with respect to baseline measurement was observed after 4 and 8 weeks.

CLINICAL EVALUATION

Dramatic visible improvement in skin tone and reduction in patchy redness after only 4 weeks

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HUMAN GENE EXPRESSION (via Microarray)

Gene Name	Modulation (%)	Significance
hyaluronoglucosaminidase 1	-13	Digestion of Hyaluronic acid
hyaluronan and proteoglycan link protein 1	+30	Assembly and stabilization of extracellular matrix
tubulin, beta 2B	+134	Building blocks of intracellular architecture and tensegrity
Matrix metalloproteinase 8	-16	Digestion of extracellular matrix proteins
kallikrein-related peptidase 8	-16	Protease of Serpin family
collagen, type XIV, alpha 1 (undulin)	+19	Extracellular matrix protein
collagen, type XI, alpha 1	+16	Mediates interactions between cells and extracellular matrix
collagen, type XV, alpha 1	+19	This chondroitin sulfate proteoglycan is secreted, among others, by fibroblasts endothelial cells and smooth muscle cells, contributes to cell polarity, as it is localized in basement membrane
superoxide dismutase 2, mitochondrial	+68	Antioxidant enzyme
laminin alpha2	+18	Laminins are the major non-collagenous component of the basal lamina, such as in epithelium. They are glycoproteins that are an integral part of the structural scaffolding of basement membranes. Laminins are secreted and incorporated into cell-associated extracellular matrices. They are shaped like a cross.
Kinesin 20A	+45	Molecular intracellular motor (ATPase)
Cytochrome P450	+19	Detoxification
carbohydrate(N-acetylglucosamine6-O) sulfotransferase 7	+15	Catalyses production of glycans essential for cell adhesion to extracellular matrix
phosphate cytidylyltransferase 1, choline, beta	+21	Controls the synthesis of phosphatidylcholin, an essential component of cell membranes