



**RES  
PHARMA**  
INNOVATIVE INGREDIENTS

# Functional Ingredients

## D-FACTOR<sup>®</sup>

SKIN REGENERATING FACTOR



## D-FACTOR®

*in vitro* evidence

Is a skin regenerating factor, biochemical precursor of glycosaminoglycans. It exhibits remarkable moisturizing and skin regenerating properties, stimulating the production of glycosaminoglycans and proteins from the extracellular matrix of the skin.

**A weak skin barrier makes skin more permeable to external environment aggressions and water-loss.  
Thanks to its moisturizing properties, D-factor increase hydration deep within the layers of the skin.**

**In vitro test shows how D-Factor® favours the penetration of active ingredients to deeper layers of epidermis and increases the elasticity of the skin.**

**In vivo** study demonstrates D-Factor® acts as a strong moisturizer.

### BENEFITS

- SKIN REGENERATING
- DEEP MOISTURIZING
- ACTIVE INGREDIENTS CARRIER
- SKIN BARRIER STRENGTHENER

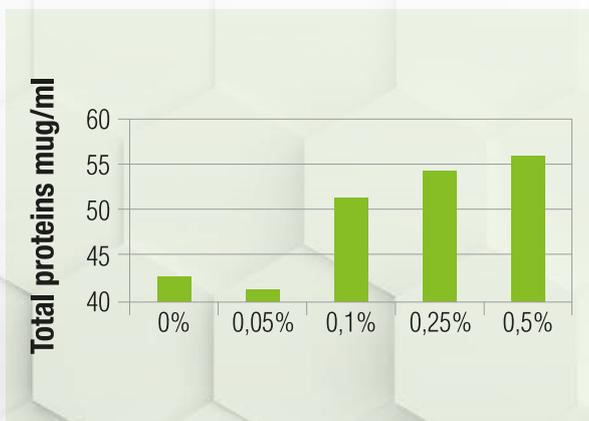
### APPLICATION

- PROTECTION AND PREVENTION OF SKIN AGEING
- MOISTURIZING CREAM
- HAIR CARE
- DRY AND MATURE SKIN
- ANTI STRESS SKIN FORMULATION

## SKIN REGENERATION

*in vitro* evidence

D-Factor® increases the elasticity of the skin and gives it an invigorated and moisturized appearance. It also leaves the skin feeling soft and silky to the touch.



The in vitro test was performed on healthy human fibroblasts exposed to different concentrations of D-Factor®. After 24 hours of treatment the regenerating activity was evaluated through the quantification of the total amount of synthesized proteins.

The regenerating activity of D-Factor® supports cellular turn-over, and therefore also the neo biosynthesis of extracellular matrix that contribute to the maintenance of its tri-dimensional structure.

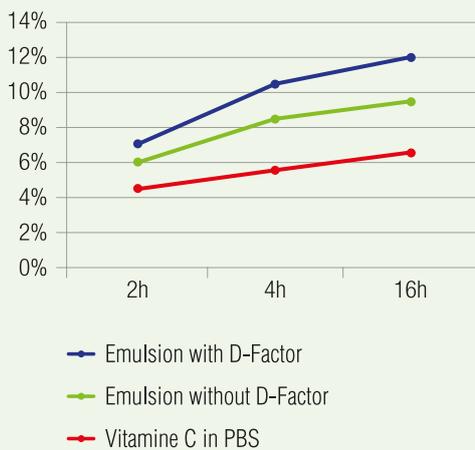
# IN VITRO TEST

## D-FACTOR®: THE PERFECT ALLY TO BOOST ACTIVE INGREDIENTS

in vitro evidence

D-Factor® offers a marked ability as a carrier of cosmetic active water-soluble molecules; it increases the bio-availability of active ingredients naturally boosting their effectiveness.

### The percutaneous absorption level of vitamin C was conducted on a tri-dimensional skin



The *in vitro* test to measure the percutaneous absorption level of vitamin C was conducted on a tri-dimensional skin model with HPLC evaluation of the transport of trans-epithelium active ingredients.

The emulsion contains 0.5% of D-Factor®.

The bio-availability of Vitamin C resulted increased by +21.6% after 16 hours and confirms D-Factor® favours the percutaneous transport of the active, improving the bio-availability in the deeper layers of the epidermis.

## SKIN MOISTURIZATION

D-Factor® acts as a powerful moisturiser, stimulating the intradermal biosynthesis of the GAG in the extracellular matrix and the water binding properties of these molecules.



in vivo test

### Moisturization after prolonged use of cream containing D-Factor at 3%



#### In vivo test

20 volunteers aged between 18-70 years

Daily application

D-Factor® at 3%

Moisturization was measured using a corneometer.

The results highlights the moisturization increases during the whole period of application of the cream containing D-Factor®.

## HOW TO USE D-FACTOR®

### Recommended Use:

Level 0,5 – 3%.

### Incorporation

Add to water phase and dissolve. If necessary, adjust pH of the formulation.

### Physical Appearance

White powder

### Toxicological Data

Patch test (100%): non irritant

*In vitro* Ocular Irritation® test ( 3% neutral pH): slightly irritan .

**RES  
PHARMA**  
INNOVATIVE INGREDIENTS

RES PHARMA INDUSTRIALE SRL - Via G. Pastore, 3 - 20056 Trezzo s/Adda, Milano - ITALY  
T +39.02.90 99 41 - info@respharmaind.com - www.respharmaind.com



The data provided in this publication is based on our current knowledge and experience and is offered free of charge and in good faith for guidance only. It does not constitute a guarantee in the legal sense of the term and in view of the multiple factors that may affect processing and applications, it does not relieve those to whom we supply our products from the responsibility of carrying out their own tests and experiments. All express and implied warranties are disclaimed. Any relevant patent rights and existing legislations and regulations must be observed.