

LABORATOIRES  
**FILOGA**  
— PARIS



SCIENTIFIC BROCHURE  
**NCEF 2.0 COMPLEX**

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## A PATENTED SUPERIOR TECHNOLOGY

### NCEF<sup>[1]</sup> RENOVATED TECHNOLOGY:

- / **New encapsulation system** for an optimal delivery of active ingredients
- / **Patented technology**<sup>[2]</sup>: Ingredient Blend
- / **Clinically proven superior benefits** on anti-ageing & cellular activity

### RENOVATED FORMULA

- / Reducing from 50 to **10 most concentrated ingredients**
- / Maintaining **Mesotherapy-inspired spirit**

**30x** MORE CONCENTRATED  
In **10** MOST POTENT MESO-INJECTIONS ACTIVES + HA

AMINO ACIDS, VITAMINS, ANTIOXIDANTS,  
COENZYMES & MINERALS

## A NEW DELIVERY SYSTEM ENSURING A HIGH AND DEEP SKIN PENETRATION

### A NEW ENCAPSULATION TECHNOLOGY PROMOTING DEEP DIFFUSION

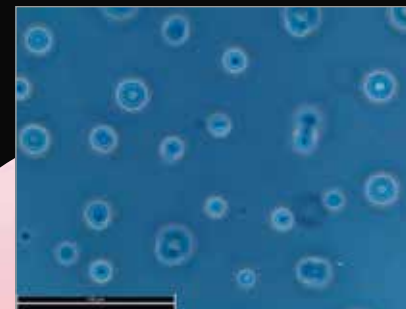
Multilamellar vesicles-based system that can incorporate hydrophobic and hydrophilic actives to improve penetration of active ingredients.

IMAGES OF MULTILAMELLAR VESICLES BY LIGHT MICROSCOPY

BRIGHTFIELD



PHASE CONTRAST



[1] NCEF [New Cellular Encapsulated Factors] - Unique complex inspired by fillers (hyaluronic acid) and revitalizing actives (amino-acids, vitamins, antioxidants). [2] US Patent 10,702,475; US Patent 11,026,873/Europe EP3383504B1/China ZL201580085613.2; US Patent US11,938,212 B2/Patent-pending in Europe and China.

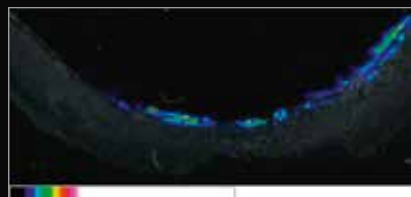
## A NEW DELIVERY SYSTEM ENSURING A HIGH AND DEEP SKIN PENETRATION

### A NEW ENCAPSULATION TECHNOLOGY PROMOTES ENHANCED DELIVERY INTO THE SKIN

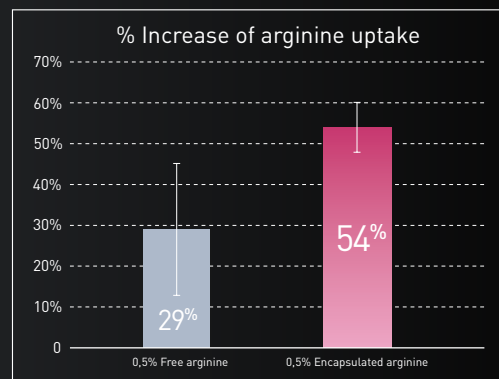
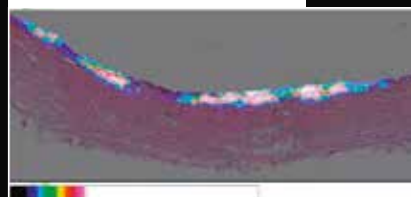
Mass spectrometry test comparing the skin penetration of arginine, key NCEF active, with and without an encapsulation system.

The results show a higher color gradient for encapsulated arginine reflecting a higher penetration.

FREE ARGININE



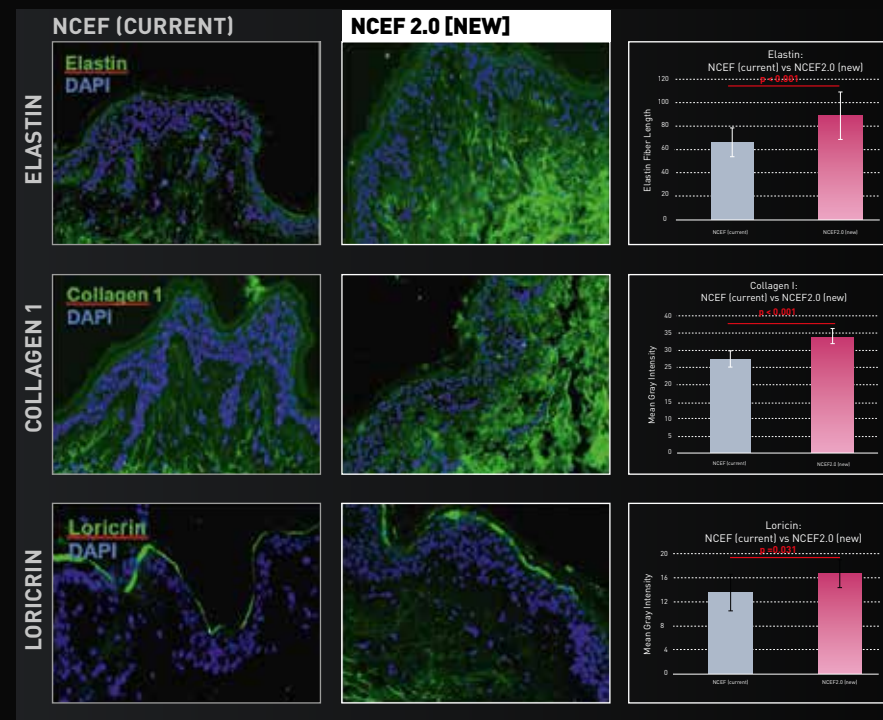
ENCAPSULATED ARGININE



This new encapsulation technology enables a 54% increase of arginine uptake delivered to the skin, while unencapsulated is +29%

## MULTILEVELED ACTIONS TO PROMOTE A COMPREHENSIVE REVITALIZING EFFECT

### SKIN ELASTICITY (ELASTIN), SKIN FIRMNESS (COLLAGEN 1) AND SKIN BARRIER (LORICRIN) ARE SIGNIFICANTLY IMPROVED<sup>[3]</sup>



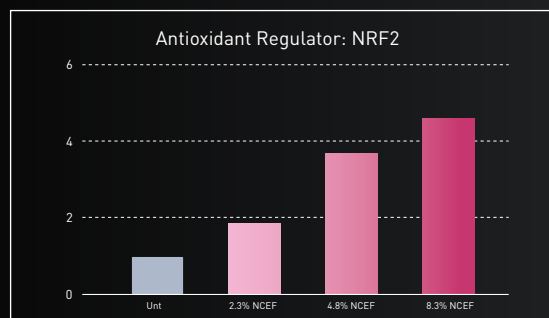
[3] Immunostaining on human skin explants from a 48-year-old woman of Caucasian origin, Fitzpatrick II phototype. Tissues were treated every day for 7 days and harvested. DAPI is a fluorescent marker for the nucleus.

## A POTENT BLEND WITH ANTIOXIDANT PROPERTIES

### THE NCEF 2.0 COMPLEX INDUCES THE EXPRESSION OF NRF2 GENE, A KEY REGULATOR OF THE CELLULAR ANTIOXIDANT DEFENCE SYSTEM<sup>[4]</sup>

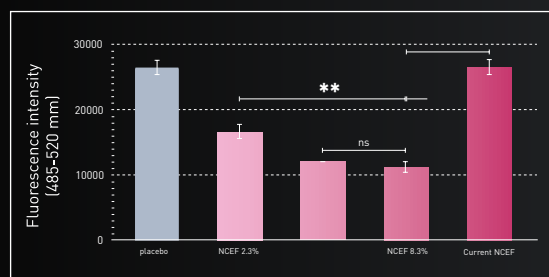
The NRF2 gene codes for the transcription factor Nrf2 (erythroid 2-related factor) which regulates the expression of antioxidant enzymes.

DOSE-DEPENDANT  
IMPROVED ANTIOXIDANT  
ENZYME REGULATION



### THE NCEF 2.0 COMPLEX PROMOTES THE REDUCTION OF OXIDATIVE STRESS AND PROVIDES A SIGNIFICANT ANTIOXIDANT PROTECTION<sup>[5]</sup>

DOSE-DEPENDENT  
INHIBITION OF FREE  
RADICALS



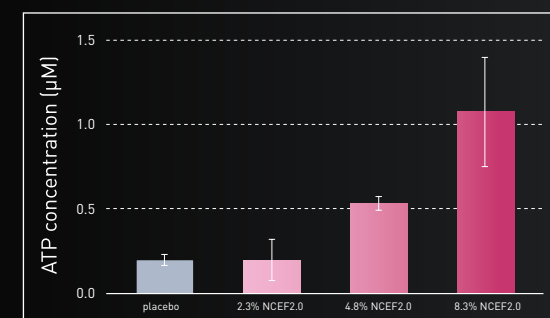
n.s.: non significant  
\*\*p<0.01

## PROMOTING CELL ENERGY AND VITALITY

### THE NCEF 2.0 COMPLEX INDUCES THE INCREASE OF ATP CONCENTRATION, SOURCE OF ENERGY FOR USE AND STORAGE AT THE CELLULAR LEVEL<sup>[6]</sup>

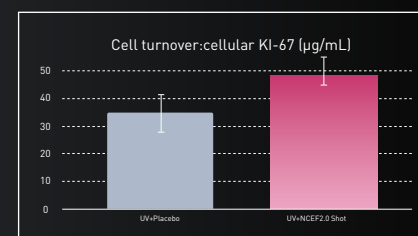
ATP (adenosine triphosphate) is a nucleotide which provides energy to drive and support many processes in living cells. It is commonly referred to as the "energy currency" of the cell<sup>[7]</sup>.

DOSE-DEPENDENT  
INCREASE OF ATP  
PRODUCTION



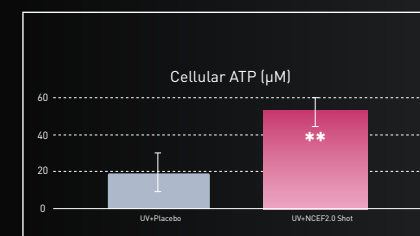
### AFTER UV-INDUCED STRESS, THIS NEW TECHNOLOGY PROMOTES CELL VITALITY BY INCREASING THE CELL RENEWAL AND ENERGY PRODUCTION<sup>[8]</sup>

CELL RENEWAL IS INCREASED



p=0.059

ENERGY PRODUCTION IS INCREASED



\*\*p<0.01 (p=0.0033)

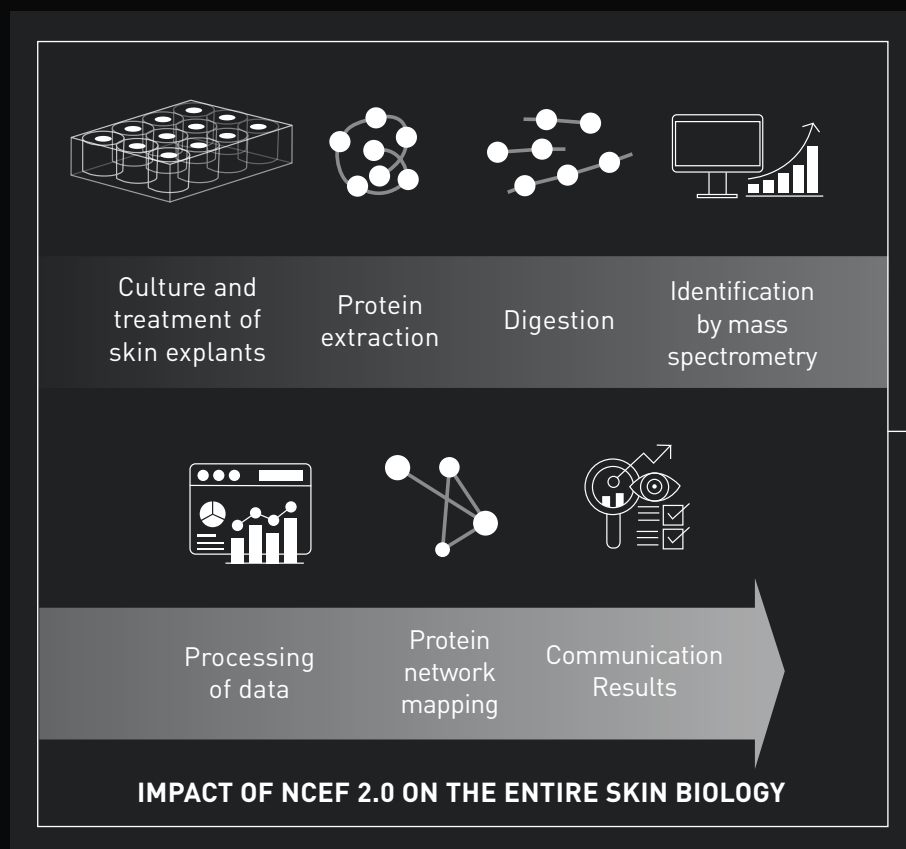
[6] *In vitro* measure, EpiDermFTTM, direct application every 24h and collected at 48h. [7] Dunn J, Grider MH. Physiology, Adenosine Triphosphate. [Updated 2023 Feb 13]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK553175/>. [8] *In vitro* measurement, EpiDerm, 10J/cm<sup>2</sup> UV irradiation, followed by application of products (placebo or NCEF2.0 shot), tissues were collected 24 hours post irradiation and processed for ATP measurement or protein extraction (KI67 ELISA).

[4] qRT PCR on EpiDermFTTM, after 48h treatment. [5] *In tubo* analysis measuring hydrogen peroxide with and without the addition of serum.

# DECIPHERING ITS CELLULAR IMPACT WITH PROTEOMICS STUDIES

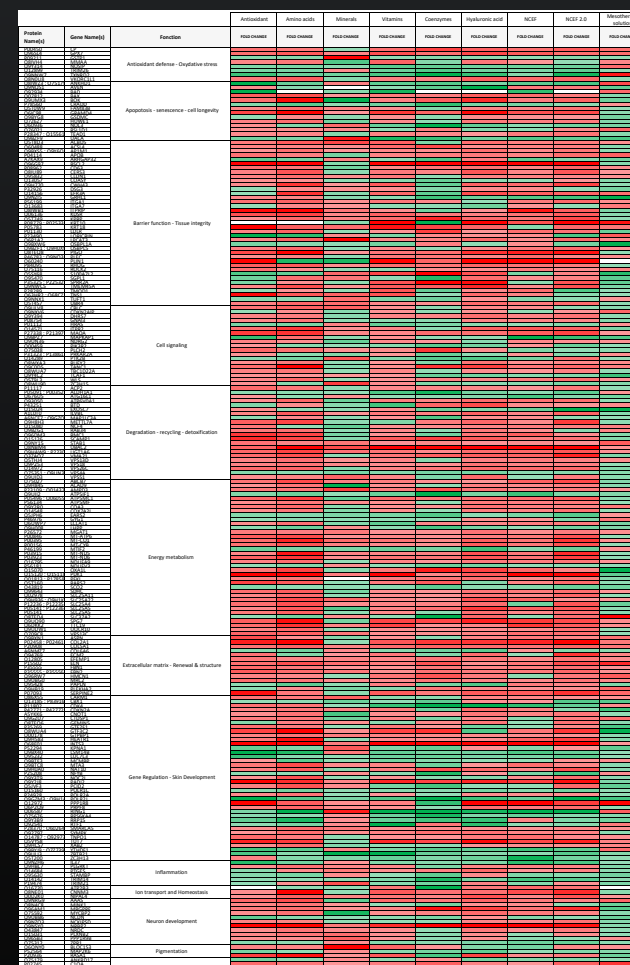
## METHODOLOGY

/ 3 different skin explants from women aged from 46 to 55 years old  
/ NCEF 2.0 applied once a day for 7 days compared to a Placebo (control)



## ANALYSIS OF ALL THE PROTEINS REPRESENTED ON HEAT MAP

5664 PROTEINS ANALYZED

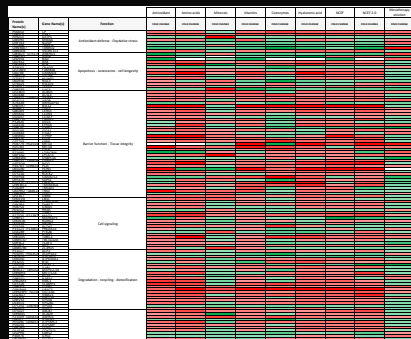




## DECIPHERING ITS **CELLULAR IMPACT** WITH **PROTEOMICS STUDIES**

NCEF 2.0

**149**  
PROTEINS SIGNIFICANTLY  
IMPACTED



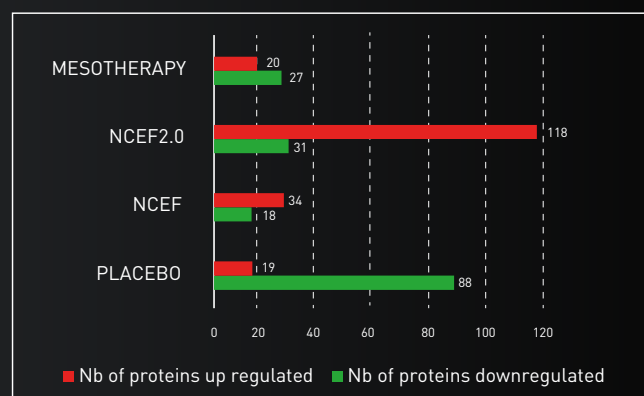
**118**

PROTEINS SIGNIFICANTLY  
UPREGULATED

**31**

PROTEINS SIGNIFICANTLY  
DOWNREGULATED

**Number of proteins significantly modified according to the different testing conditions.** The protein pattern of expression induced by NCEF 2.0 is strictly different to other tested conditions, with a higher number of proteins upregulated while the placebo mainly induced protein downregulation.



## AN INTEGRATED FACTOR PROMOTING A 360° REVITALIZATION

### ENERGY PRODUCTION

Proteins involved in energy production in the skin cells:

19

proteins  
upregulated

- Cytochrome C oxidase **+98%**
- Cytochrome B **+70%**
- ATP synthase **+70%**
- ADP/ATP translocase 3 **+60%**
- NADH-ubiquinone oxidoreductase chain 6 **+86%**

### METABOLISM OF CELL PROTEINS

Proteins optimize protein metabolism (maturation, quality and trafficking) to ensure a proper activity:

30

proteins  
upregulated

- GPI transaminase component PIG-S **+115%**
- ER lumen protein-retaining receptor 1 **+66%**
- Trafficking protein particle complex subunit 8 **+97%**
- Trans-Golgi network integral membrane protein 2 **+48%**

### SIGNAL TRANSDUCTION, CELL RENEWAL & SKIN HEALTH HOMEOSTASIS

Proteins involved in messaging growth factors signals and promoting cell proliferation:

31

proteins  
upregulated<sup>[9]</sup>

- Serpine2 **+99%**
- Protein-tyrosine kinase 2-beta **+40%**
- Growth hormone-inducible transmembrane protein **+88%**
- Transforming protein RhoA **+31%**
- Tetranectin [TN] **+137%**

### SKIN ARCHITECTURE, INTEGRITY & BARRIER FUNCTION

Proteins involved in cell anchorage, cell migration, cytoskeleton network and skin barrier function:

10

proteins  
upregulated

- Profilin-2 **+103%**
- Integrin alpha-1 **+47%**
- Anoctamin-6 **+72%**
- GPI ethanolamine phosphate transferase 3 **+134%**

### RENEWAL & STRUCTURE EXTRACELLULAR MATRIX (ECM)

Proteins involved in matrix assembly, organization and modeling for a global anti-aging effect:

6

proteins  
upregulated

- Extracellular matrix protein 2 **+97%**
- Tropoelastin **+76%**
- Fibrillin 2 **+48%**
- C-type mannose receptor 2 **+34%**



[9] Controlled and healthy cell proliferation: negative feedback regulators and pro-apoptotic proteins also upregulated.

## AN INTEGRATED FACTOR PROMOTING A 360° REVITALIZATION

THE NEW NCEF 2.0 COMPLEX PROMOTES ENERGY  
PRODUCTION WHICH IS A BASE FOR CELLULAR  
VITALITY MECHANISMS

**PROTEIN  
METABOLISM**

**CELL RENEWAL  
AND SKIN HEALTH  
HOMEOSTASIS**

**SKIN INTEGRITY  
AND  
BARRIER FUNCTION**

**ECM ORGANIZATION  
FOR A GLOBAL  
ANTI-AGING EFFECT**





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