



*Globularia cordifolia*

**Function:**

Anti-ageing bodyguard.

**Definition:**

Plant extract obtained by stem cell culture of *Globularia cordifolia*.

**Properties:**

Helps reduce the level of pro-ageing agents and local micro-inflammation. Decreases skin redness and enhances natural skin glow. The skin feels appeased and irradiates its beauty.

**Characteristics:**

Provides the skin with the power of protecting and regenerating itself. Promotes detoxification (maintains proteasome activity), cell lifespan extension (stimulates sirtuin-1) and tissue regeneration (preserves skin stem cells).

**Points of interest:**

RESISTEM™ helps the skin to build its own anti-ageing defence system thanks to a hormesis-like mechanism.

**INCI Name:**

(Check PCPC on-line dictionary for latest INCI name)  
pending

**Applications:**

All anti-ageing products.

**Formulation:**

Water soluble.  
Add to the formula between 25°C and 50°C.

**Recommended use level:**

2%



Beautifully immunized against time

Plant stem cell-based beauty bodyguard

Skin luminosity: **+9.2%**/placebo  
Skin redness: **-13.4%**/placebo

before



after 2 months



## In vivo tests

### ANTI-AGEING DEFENCE

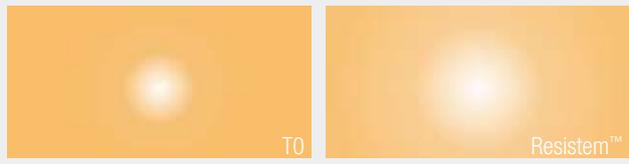
20 female volunteers, mean age 34 years old, 39% cigarette smokers, applied twice daily a cream containing 2% RESISTEM™ for 2 months to one half of the face versus placebo. (Cosm'O Laboratory)

● **ANTI-TOXIN** - images

Luminance L\* ..... +9.2%, p<0.01/placebo

● **SKIN TRANSPARENCY** - Transluderm™

The deeper the light penetrates into the skin, the more transparent the skin. Maximal light penetration ..... +67%, p<0.03/T0



● **ANTI-REDNESS** - images

Skin redness a\* ..... -13.4%, p<0.01/placebo



**RESISTEM™ stimulates cell detoxification in order to restore natural skin glow. The skin feels appeased and irradiates its beauty.**

### ANTI-AGEING APPEASEMENT - Neurometer®

22 female volunteers, mean age 44 years old, with reactive skin applied twice daily a cream containing 2% RESISTEM™ for 1 month on the forearm versus placebo.

Pro-ageing agents neutralisation ..... +23.6%, p<0.01/placebo

**Thanks to the neutralisation of pro-ageing agents, hyperexcitability of cutaneous nerves endings is reduced.**

### ANTI-AGEING BEAUTY - Goniophotometry

● **ANTI-IMPERFECTION EFFECT**

The specular light emits a clear image whereas the diffuse light emits a blurred image. The diffuse light then provides a soft-focus effect that lessens skin imperfections. (Cosm'O Laboratory, same protocol)

Specular light ..... -9.1%, p<0.02/T0

Diffuse light ..... +17.9%, p<0.01/T0



**RESISTEM™ visibly improves the complexion evenness for a fresh looking skin.**

## In vitro tests performed with 2% RESISTEM™

### CELL REGENERATION AND WOUND HEALING

● **MAINTENANCE OF CREATIN KINASE ACTIVITY**

On H<sub>2</sub>O<sub>2</sub> stressed human fibroblasts ..... +54%/control+H<sub>2</sub>O<sub>2</sub>, p<0.01  
Immunofluorescence on skin explants after a daily application for 6 days of a cream containing 2% RESISTEM™ ..... +42%/placebo, p<0.01



**RESISTEM™ helps metabolism and fast cell regeneration.**

● **SKIN STEM CELL PRESERVATION**

Cloning efficiency method on human keratinocyte stem cell culture (stem cells, TAC progenitors and primary keratinocytes).

Number of cells maintained at the stem cell state (by counting their colonies):

Control ..... 5.4

Resistem™ ..... 12.6, p<0.01/control



**RESISTEM™ preserves the stem cell character and the stem cell niche.**

● **CELL RECOLONISATION**

On injured human keratinocytes exposed to UVB irradiations



**RESISTEM™ promotes wound healing phenomenon and supports cell proliferation.**

### CELL LONGEVITY

● **STIMULATION OF SIRTUIN-1 SYNTHESIS**

ELISA method on human keratinocytes ..... +74%/control, p<0.01  
Immunofluorescence on skin explants after a daily application for 6 days of a cream containing 2% RESISTEM™ ..... +12%/placebo, p<0.03

● **MAINTENANCE OF MITOCHONDRIAL POTENTIAL**

On H<sub>2</sub>O<sub>2</sub> stressed human fibroblasts ..... +40%/control+H<sub>2</sub>O<sub>2</sub>, p<0.01

### CELL DETOXIFICATION

● **MAINTENANCE OF PROTEASOME ACTIVITY**

On H<sub>2</sub>O<sub>2</sub> stressed human fibroblasts ..... +57%/control+H<sub>2</sub>O<sub>2</sub>, p<0.01

● **REDUCTION OF GLYCATION REACTIONS**

Anti-glycation effect ..... -64%/control, p<0.01

● **INHIBITION OF INTRACELLULAR PEROXIDES**

On stressed human keratinocytes ..... -88%/control+H<sub>2</sub>O<sub>2</sub>, p<0.01

● **STIMULATION OF SOD AND CATALASE SYNTHESIS**

Immunofluorescence on skin explants after a daily application for 6 days of a cream containing 2% RESISTEM™

SOD ..... +36%/placebo, p<0.01

Catalase ..... +78%/placebo, p<0.01

**ex vivo:** Test performed on 14 women, mean age 57.5 years old, who applied twice daily a cream containing 2% RESISTEM™ on the cheeks for 2 months. Stripping.

● Increase in SOD activity ..... +32%/placebo, p<0.01

● Decrease in protein carbonyl level ..... -18%/placebo, p<0.01

**RESISTEM™ stimulates the elimination of cell debris and protects the skin from the stress generated by reactive species.**