

SILAB

CELLDETOX®

A BREAKTHROUGH BIOLOGICAL PATHWAY
FOR SKIN CELL DETOXIFICATION

In order to maintain homeostasis, cells must rid themselves of superfluous and altered constituents. They can achieve this through two complementary mechanisms: proteasomes and autophagy. In the field of cosmetology, a lot of research has been carried out on proteasomes, while the autophagy process remained understudied.

Inspired by research on the mechanism of autophagy carried out in the field of Neurology, SILAB research introduces CELLDETOX®, an active precursor extracted from yeast:

- CELLDETOX® boosts the autophagy system: it stimulates the formation of autophagosomes, responsible for sequestering altered cell constituents, and delivers them to lysosomal degradation.
- CELLDETOX® reinforces the cell detoxification process: it reduces the level of oxidized proteins and peroxidized lipids.
- CELLDETOX® smoothes skin microrelief on cheeks and improves the complexion of 'intoxicated' skin.

CELLDETOX® is recommended for regenerating, repairing and detoxifying skincare.



09/2009 edition - All the scientific and technical data in this document are the SILAB's exclusive property



Engineering natural active ingredients



CELLDETOX®

Rich in α -glucans from *Candida saitoana*

Boosts the autophagic system

- stimulates LC3 synthesis
- favours the formation of lysosomes

Reinforces cell detoxification

- reduces the level of oxidized proteins
- reduces the level of peroxidized lipids

Improves the surface condition of the skin

- smoothes microrelief
- improves skin radiance

REPAIRING & DETOXIFYING EFFECT

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GENERAL PRINCIPLES

After 3 years research carried out in partnership with the University of Limoges* on the mechanism of skin cell autophagy, SILAB introduces an exclusive product CELLETOX®, a purified active ingredient extracted from yeast, *Candida saitoana*. By stimulating autophagy, the cellular detoxification system, CELLETOX® rids cells of altered constituents which accumulate within them and intoxicate them.

* Mitochondrial Physiology Laboratory - Professor Marie-Hélène RATINAUD.

► CELLETOX® boosts the autophagy system:

The mechanism of autophagy is made up of several stages:

- formation of a multi-membrane structure which grows to capture and sequester the cytoplasmic material to be degraded, forming in this way an autophagosome,
- Autophagosome and lysosome fusion enabling the degradation of waste material by lysosomal enzymes.

Tested *in vitro* on keratinocytes, CELLETOX® was shown to stimulate both autophagosome formation and lysosomal activity.

► CELLETOX® reinforces the cell detoxification process:

Tested *in vivo* at 3% on 'intoxicated' skin, CELLETOX® was shown to significantly reduce the level of oxidized proteins and peroxidized lipids.

► CELLETOX® improves skin texture:

Tested *in vivo* at 3% on 'intoxicated' skin, CELLETOX® was shown to smooth significantly skin microrelief on cheeks and correct parameters linked to the quality of skin complexion.

By noticeably smoothing facial lines and illuminating skin complexion, CELLETOX® reduces the visible signs of age and restores natural radiance to intoxicated and tired skin. CELLETOX® is recommended for detoxifying and repairing skincare.

TECHNICAL SHEET

- **Latin name:** *Candida Saitoana*
- **I.N.C.I. name:** Hydrolyzed *Candida Saitoana* Extract
- **Cas N°:** 1151559-87-3

Form

- Aqueous solution
- Aspect: limpid liquid
- Odor: weak
- Color: light yellow

Analytical features

- Dry matter: 30 - 45 g/l
- Total sugar (Glucose assay): 13 - 20 g/l
- pH: 3.5 - 4.5
- Preservative: Phenoxyethanol 0.50 %
Ethylhexylglycerin 0.20 %

Bacteriology

- Sterile product
- No yeast and mould present
- No pathogenic germs present

Packaging

Sterile 1L and/or 5L plastic container

Storage

Store preferably at 20°C and in a dark place

Use

- Fully soluble in aqueous medium
- Solubility in ethanol: soluble up to 20/80 ethanol/water (v/v)
- Can withstand temperatures up to 80°C for at least two hours
- Stable at pH between 2 and 10
- Recommended amount: 0.5 to 3%

Innocuousness

- ✓ Determination of irritant potential on caucasian skin: **Non irritant**
- ✓ No mutagenicity according to Ames' test
- ✓ Non phototoxic
- ✓ Non cytotoxic
- ✓ Evaluation of sensitizing capacity on human volunteers with normal skin: **Non sensitizing** (Marzulli-Maibach method)

COSMETIC EFFICACY

EFFECT OF CELLETOX® ON THE AUTOPHAGY SYSTEM

Stimulates synthesis of LC3 protein

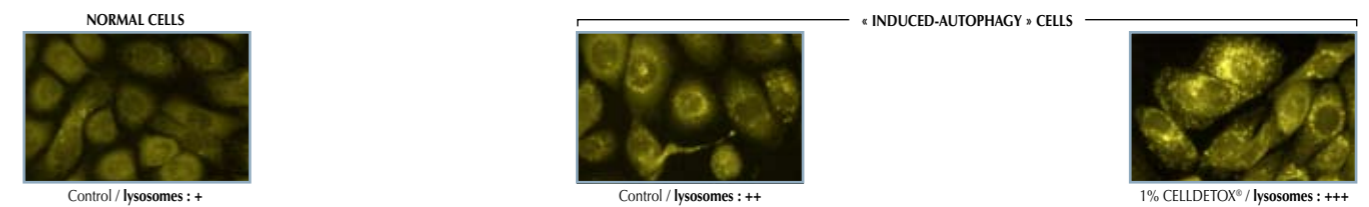
Study carried out using Western Blot analysis and immunocytochemistry on human keratinocytes and normal HaCat keratinocytes respectively, whose autophagy was induced with a moderate dose of H₂O₂.

Tested at 1% on keratinocytes, CELLETOX® boosted significantly the synthesis of LC3, a specific autophagosome marker which sequesters non-functional cell residue, by a significant 19%. This effect was also observed using immunocytochemistry.

Stimulates the formation of lysosomes

Study carried out using immunocytochemistry and LysoTracker® fluorescent dye on HaCat keratinocytes, whose autophagy was induced with a moderate dose of H₂O₂.

Tested at 1% on keratinocytes, CELLETOX® boosted the formation of lysosomes, responsible for degrading cell residue contained in the autophagosome.



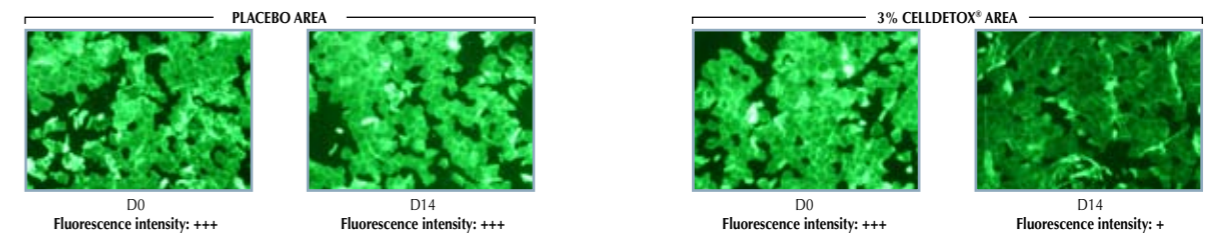
EFFECT OF CELLETOX® ON THE CELL DETOXIFICATION PROCESS

Study carried out on 19 healthy female volunteers, aged between 32 and 55 years old, average age: 45±7 years, selected on the criteria of intoxicated skin (high level of oxidized proteins and lipids).

Reduces level of oxidized proteins

Oxidized protein labelling using samples of *stratum corneum* harvested on cheeks with adhesive tape, before and after 14 days of applying product twice daily versus placebo.

CELLETOX®, formulated as a 3% emulsion, significantly reduced level of oxidized proteins by 13.9% (P=0.0051). These results were observed in 82% of volunteers.



Limits level of peroxidized lipids

Dosage of peroxidized lipids using samples of *stratum corneum* harvested with a metallic cylinder containing 1 ml absolute ethanol, before and after 14 days of applying product twice daily versus placebo.

CELLETOX®, formulated as a 3% emulsion, significantly reduced level of skin peroxidized lipids by 23.4% (P=0.0418). These results were observed in 71% of volunteers.

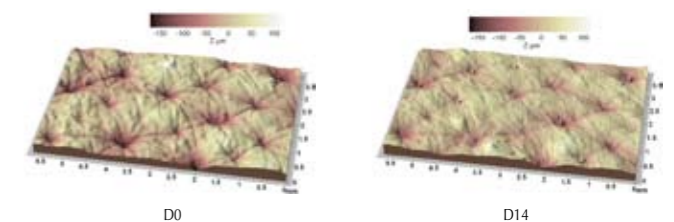
EFFECT OF CELLETOX® ON SKIN SURFACE TEXTURE

Study carried out on 19 healthy female volunteers, aged between 32 and 55 years old, average age: 45±7 years, selected on the criteria of intoxicated skin (high level of oxidized proteins and lipids).

Smooths skin microrelief

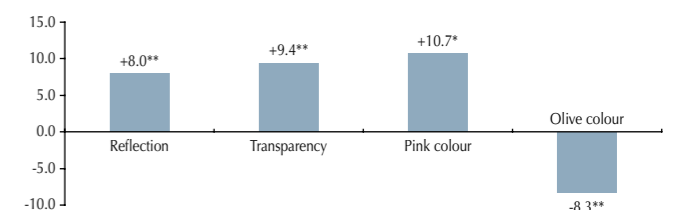
Skin replicas of cheeks analysed by fringe projection, before and after 14 days of applying product twice daily versus placebo.

CELLETOX®, formulated as a 3% emulsion, significantly reduced the parameters of average surface roughness: Sa and Sq values, respectively by 6.2% (P=0.0472) and 7.0% (P=0.0258). These results were observed in 71% of volunteers.



Improves skin complexion

Evaluation of skin complexion carried out as a double-blind study by an expert trained beforehand to evaluate different parameters reflecting the quality of skin complexion, before and after 14 days of applying CELLETOX®, formulated as a 3% emulsion, twice daily versus placebo. Evaluation rating scale (from 1 to 10).



* Significant result according to Student's t test (P≤0.05)
** Significant results according to Student's t test (P≤0.10)

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