Stimucap is an innovative cosmetic ingredient, formed by the balanced association of two functional compounds: Conjugated Linoleic Acid (CLA) and Sodium DNA. The uniqueness of this blend is based on the complementary actions of two active substances.

1) The molecule of Conjugated Linoleic Acid (CLA), a substance already showing an intrinsic biologic activity, with the tri-peptide Glutathione in its reduced form (GSH), partially neutralised with potassium ions that is similarly provided of an intrinsic biochemical activity (Fig. 1).

2) Sodium DNA is the INCI name of an active solution of nucleotide fragments which have been purified, depolymerised and finally neutralised with sodium ions.

**Composition**

Aqueous solution of the blend:
- Reduced glutathione, combined by acylation with one molecule of conjugated linoleic acid and partially neutralised.
- Fractions of deoxyribonucleic acid, sodium salt, average MW 250-500 kD.

**Inci name**

Potassium Glutathione Isomerized Linoleate (and) Sodium DNA

**Physico-Chemical and microbiological parameters**

- Appearance: From transparent to slightly veiled
- Colour: Colourless
- Odor: Characteristic
- pH: 6 - 8
- Dry Residue: 6.5 – 7.5%
- Total microbial count: Less than 100 CFU/g (Agar count)

**Storage conditions**

Keep in a fresh and dry place, far from the reach of light and humidity, in well closed containers.

**BIBLIOGRAPHY**

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5. ISPE, Valutazione strumentale dell’efficacia di un ingrediente cosmetico antirughe, Study 176/05/01-02, Milano (2005)
9. ISPE: Efficacy of a coadjutant topical treatment for preventing the hair loss. Study 239/06/01-02, Milano (2006)
The time-evolution of alopecia, the scalp affection generally known as baldness, is characterised by a cascade of irreversible phenomena. Firstly, a progressive involution and miniaturization of the hair follicle is observed. Then, the follicle shifts from the subcutaneous layer to the dermal superficial layer, giving rise to smaller and thinner hair shafts. Successively, a fibrosis of the connective tissue around the bulb takes place. This is frequently accompanied by inflammatory processes. After the onset of these modifications to the hair follicle and the surrounding tissues, hair loss and an irreversible atrophy of the bulb occur.

Stimucap has demonstrated to be highly effective in the prevention and reduction of premature hair loss, according to the reported experimental protocol.

TRANSPORT INTO CELLS AND ACTIVITY MECHANISM

In CLA Glutathione, the by-polar nature given by association of the linoleic chain, which is highly lipophile, with the very hydrophilic amino-acidic moiety, is responsible for the peculiar characteristics of biologic mobility of the compound. A very high bio-availability is thus derived, which is far superior to those of CLA and glutathione when considered individually. One can logically surmise that CLA Glutathione performs its maximum activity well before the biological breakdown into its two components takes place. At the scalp level, the anti-free radicals activity of GSH may counteract the degeneration of connective tissue around the bulbs, while linoleic acid acts on the inflammatory processes. Indeed, the input of CLA into the cells activates the arachidonic acid cycle, thus leading to the prostaglandins’ synthesis. These are extremely powerful molecules that act as mediators of the local inflammatory processes. Arachidonic acid, of which CLA is a precursor, requires oxygen and an electron donor in order to transform into prostaglandins. The latter activity may be guaranteed by GSH. In this case, it is readily available at the same action site as CLA, to which it is chemically bound, while it does not cross the epidermal barrier, when alone, for its hydrophilic nature. The explanation of the extraordinary activity of CLA Glutathione is based on such a mechanism (Fig. 2). Indeed, recent experimental evidence shows that CLA can induce an increase in the synthesis of intracellular GSH: a real sequence of self-feeding and self-boosting actions.

The functional mechanism of the molecules of Stimucap and the synergic activity they perform, make this product adequate for the treatment of degenerative diseases of the scalp, such as alopecia.