Botanical Serum, equivalent to Serum albumin
- Antiwrinkle, repairing, antiaging

**Fig. 1 – VEGESERYL® HGP LS 8572 = Nature, Analogies with animal Serum albumin, Benefits, Demonstration:**

- **A.** Nature: VEGESERYL® HGP LS 8572 is a botanical active, based on Albumin and Globulins, from Glycine Soja.
- **B.** VEGESERYL® HGP LS 8572 has many analogies with animal Serum albumin = MW distribution (B1), composition of constitutive amino acids (B2), solubility of proteins according to pH (B3), protein content.
- **C.** Production: VEGESERYL® HGP LS 8572 takes advantage of the latest advance in the biotechnology of proteins.
- **D.** Benefit/Demonstration = VEGESERYL® HGP LS 8572 is an anti-wrinkle and repairing active ingredient.

**Table B2: Distribution in Amino Acids**

<table>
<thead>
<tr>
<th>Nature of residue</th>
<th>HGP</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspartic acid</td>
<td>13.80</td>
<td>10.80</td>
</tr>
<tr>
<td>Glutamic acid</td>
<td>24.70</td>
<td>15.00</td>
</tr>
<tr>
<td>Serine</td>
<td>4.80</td>
<td>7.22</td>
</tr>
<tr>
<td>Glycine</td>
<td>5.10</td>
<td>4.80</td>
</tr>
<tr>
<td>Histidin</td>
<td>1.60</td>
<td>2.20</td>
</tr>
<tr>
<td>Arginine</td>
<td>9.00</td>
<td>3.30</td>
</tr>
<tr>
<td>Lysine</td>
<td>3.90</td>
<td>3.70</td>
</tr>
<tr>
<td>Threonine</td>
<td>4.20</td>
<td>7.80</td>
</tr>
<tr>
<td>Alanine</td>
<td>4.80</td>
<td>7.30</td>
</tr>
<tr>
<td>Proline</td>
<td>6.00</td>
<td>7.95</td>
</tr>
<tr>
<td>Valine</td>
<td>5.40</td>
<td>9.25</td>
</tr>
<tr>
<td>Cystine</td>
<td>2.40</td>
<td>1.30</td>
</tr>
<tr>
<td>Leucine</td>
<td>6.40</td>
<td>12.10</td>
</tr>
<tr>
<td>Phenylalanine</td>
<td>5.70</td>
<td>6.50</td>
</tr>
<tr>
<td>Tyr, Met, Leu</td>
<td>traces</td>
<td>0.78</td>
</tr>
</tbody>
</table>

**Graph B3: Protein solubility according to pH**

Soluble proteins in the active (%) vs pH

- **Serum albumin SA**
- **VEGESERYL® HGP LS 8572**

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Laboratoires Sérobiologiques S.A.
Why are proteinic active ingredients different?

Skin and hair, the main targets of care cosmetics, are made up of proteins.

When chemistry and biotechnology of proteins started in Europe, our Laboratories have contributed to this rise since 1950 by manufacturing and marketing some purified fractions of plasma proteins, relevant to Cosmetology, quite valued for their tensor, anti-wrinkle and repairing effects.

Skin and hair, the main targets of care cosmetics, are made of proteins: Keratin, Collagen, Actin, Elastin, Albumins, Globulins.

It is wise to protect and repair them with some components having a similar structure, excellent affinity and substantivity for them.

Why are proteinic active ingredients different?

- origin: animal (Collagen, Elastin, Keratin, Silk) botanical (Wheat, Soy bean, Lupin, Pea) marine (Collagen, Actin),
- MW: depending on the fact that they are hydrolyzed or not,
- distribution in amino acids and lateral groups,
- electric charge (proteins are either cations, anions or amphoteric).

3. VEGESERYL® HGP LS 8572 versus Serum albumin

Let us remind that the skin contains more than 50% of the extravascular pool of Serum albumin.

Animal serum, mainly made of 2 types of proteins (Serum albumin and Serum globulins) is known in cosmetology, for its immediate tensor effect, moisturizing and wrinkle smoothers.

Scientifically speaking, such benefits could be explained:

- by physical effect due to the unfolding of protein helical structure on drying, which forces the skin outwards and thus make the wrinkle smoother,
- by biological effect explained by the simultaneous presence in serum of factor of adhesion, of peptides regulating of survival, growth and differentiation, of essential nutrients.

In care cosmetology, the marketing influence further to various targeted actions, has led us to this new requirement: to develop a botanical equivalent to animal serum, at least as efficient, or even more.
Anti-wrinkle repairing and smoothing effect, in vivo.

Aim
Demonstration of the anti-wrinkle activity of a cream containing 10% of VEGESERYL® HGP LS 8572 versus placebo cream.

Protocol
Study in double blind on 25 healthy female volunteers from 39 to 66 years old, having wrinkles on face, especially at the crow’s foot level.

Bidaily treatment on the face, in the morning and in the evening, during 4 weeks with randomization:
- placebo cream on a hemi-face,
- cream with VEGESERYL® HGP LS 8572 on the other hemi-face.

The comparative anti-wrinkle effect has been quantitatively evaluated by image analysis, before and after 4 weeks of treatment, on a negative silicon replica of the crow’s foot. Visualization by confocal microscopy (Fig. 1).

Results
The cream with 10% VEGESERYL® HGP LS 8572 has shown a statistically significant anti-wrinkle activity, with reduction of 23.3% of the wrinkle depth, compared to placebo.

Silky and softening effect, in vivo.

Aim
Demonstration of the softening activity of a cream containing 10% VEGESERYL® HGP LS 8572 versus a placebo cream.

Protocol
Study on 15 female volunteers having a very dry skin. Study in double blind. Evaluation of the softening effect by frictiometry after a single application. Measurement 5 minutes after application.

Results
VEGESERYL® HGP LS 8572 has induced a clear improvement (+ 34.34%) of skin softness versus placebo.

Improvement of cutaneous elasticity.

Aim / Protocol
Demonstration of the improvement of skin elasticity by a cream containing 10% VEGESERYL® HGP LS 8572 versus placebo.

Study on 15 volunteers having a loss of elasticity on the outer side of a forearm: bidaily treatment during 6 weeks in double blind. Quantitative measurement by vertical extensiometry (Fig. 5) (= cutometer).

Result
VEGESERYL® HGP LS 8572 has induced a clear improvement (+ 28%) of skin elasticity.

Fig. 6 – Evolution of skin elasticity after a 6 week treatment by VEGESERYL® HGP LS 8572 at 10%, versus placebo.
**Strong and cumulative, hydro-retaining effect in vivo.**

**Aim / Protocol**
Demonstration of the strong moisturizing activity of a cream containing 10% VEGESERYL® HGP LS 8572 versus placebo in double blind. The moisturizing activity is measured by conductimetry and clinical evaluation on 30 female volunteers, having a very dry skin. Biodial treatment for 6 weeks.

**Results**

*a* - conductimetry (Fig. 7)
The hydro-retaining effect of VEGESERYL® HGP LS 8572 is quick and increases with the number of applications.

*b* - Clinical evaluation (Fig. 8)
Evaluation 5 minutes after application, at T=0, after 10, 21, 31 and 42 days. VEGESERYL® HGP LS 8572 improves skin softness and dryness. The results of the 6 week treatment show that this effect is cumulative.

**Nutritious, vitalizing and protective effect on human fibroblasts.**

**Aim**
Comparison of the activity of VEGESERYL® HGP LS 8572 and Serum albumin (SA), the substance of reference: the level of DNA and ATP illustrates the metabolic activity of cells, the level of released LDH characterizes cell suffering; the measurements were carried out on skin cells in growth and in survival.

**Results** (Fig. 9)
VEGESERYL® HGP LS 8572 and Serum albumin have improved cell survival and cell growth, and decreased cell suffering.
The biological activity of VEGESERYL® HGP LS 8572 is significantly higher than the activity of Serum albumin, at the same concentration.

**Preventive cytoprotecting effect against a surfactant, on human fibroblast.**

**Aim**
The capability of VEGESERYL® HGP LS 8572 to protect human fibroblasts against deleterious effect of a surfactant (Sodium Lauryl Ether Sulfate = SLES) has been measured, compared to animal serum.

**Protocol**
Cell suffering in presence of SLES is measured by the quantity of LDH released in the culture medium.

**Results** (Fig. 10)
VEGESERYL® HGP LS 8572 has shown a good cytoprotecting effect against surfactant.