

Cobiorepair WGC

INCI name

Aqua (Water), Umbilical extract.

Description



COBIOREPAIR WGC is a **Novel cosmetic** ingredient with outstanding regenerative properties, obtained by specific purification process, from Wharton's jelly of porcine umbilical cord. It combines a **synergistic mixture** of concentrated **highly bioactive sulphated glycosamino-glycans (GAGs)** of low molecular weight + **HA** of high and low molecular weight.

Sulfated GAGs provides anchor points to specific growth factors involved in tissue regeneration, repair processes, cell growth and differentiation, synthesis and remodeling of the ECM.

Sulfated GAGs are very difficult to be chemically synthesized due to the long chain lengths and the complex patterns of modification by sulfating and

epimerization.

As it is composed of natural products, COBIOREPAIR WGC, has high potential to boost the innate ability of skin to regenerate.

With age, the molecules responsables for giving support and density to the skin: collagen, elastin, fibronectin, hyaluronic acid, declines. COBIOREPAIR WGC has shown by numerous studies, to be able to **stimulate the creation of these components** and **increase the number of fibroblasts**, primary cell of the dermis.

Natural source. Wharton's jelly

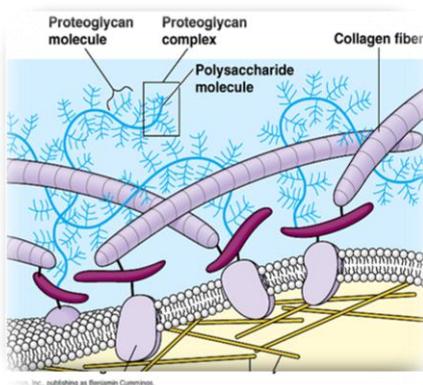
Wharton's jelly, first described in 1656 by Thomas Wharton, is the mucous connective tissue surrounding the umbilical cord. This tissue is characterized by an abundant and specialized extracellular matrix with gelatinous texture that surrounds, protects and insulates the umbilical

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blood vessels, and participates in the regulation of umbilical cord blood flow. Wharton's jelly is the main component of the umbilical cord and it is organized in a twisted spiral structure. This organization, as well as its thick walls, vascular muscles and numerous elastic fibres contribute to resist pressures and intrauterine fetal tractions.

Wharton's jelly has a high number and diversity of ECM components, mainly collagen, which provides resistance to extension and compression; hyaluronic acid, which confers hydration and protects the cord from mechanical pressures; and several sulphated GAGs that provide anchor points to specific growth factors: fibroblast growth factor (FGF), transforming growth factor β (TGF- β), platelets derived growth factor (PDGF) and epidermal growth factor (EGF) involved in tissue regeneration and repair processes such as cell growth, differentiation and synthesis and remodelling of the ECM.

Composition & Characteristics



COBIOREPAIR WGC is composed by 50% Natural HA of high and low molecular weight + 50% Sulfated GAGs of low molecular weight, <50 KDa, which can penetrate the epidermis, mimicking the dermal ECM and providing regenerative and antioxidant properties of high bioactive value.

COBIOREPAIR WGC is a Patented hydrogel. Acellular extract with natural origin and high affinity with the skin.

- Hyaluronic acid:** Hyaluronic acid is the glycosaminoglycan found in higher concentrations in the skin. Hyaluronic acid is involved in several processes such as repair and maintenance of general integrity of ECM. It is considered the main structural macromolecule involved in cell proliferation and migration.
- › **Chondroitin sulphate:** Chondroitin sulfate is a linear polymer formed by the repetition of a dimer of D-glucuronic acid and N-acetylgalactosamine. Its inhibits the activity of the enzymes responsible for the degradation of the cartilage matrix components. It also acts as anti-inflammatory.
- › **Other sulfated GAGs:** Dermatan sulphate is one of the major components of the skin and a potent cell activator. It behaves as an anticoagulant by its selective inhibitory effect on thrombin through heparin cofactor II, being very effective in vivo due to its lower

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hemorrhagic risk. Heparan sulphate has a highly related structure with heparin. It is widely distributed in animal tissues and its functions include cell adhesion and regulation of cell proliferation. It has a protective effect against the degradation of proteins, regulating their transport through the basement membrane and participating in their internalization. Keratan sulphate, a glycosaminoglycan related with hydration level maintenance, is mainly bound to proteins forming proteoglycans such as aggrecan. Moreover, it is also active in cell biology and cell recognition of protein ligands, axonal guidance, cell motility and in embryo implantation.

EFFICACY TESTING:

› 1% In-vitro efficacy testing has shown:

- Anti-oxidant protection
- High chemotactic ability, mobilizing surrounding cells
- Dermal proteins synthesis stimulation to the repair site

› 0,2% In-vivo efficacy testing, after 3 months of treatment has shown:

- 26.3% increase in epidermal thickness
- 50 % increase of elastic fibers
- 119 % increase of collagen III

Effects in Cosmetic Products

COBIOREPAIR WGC stimulates and restores the cells correct operation by increasing the density in the layers of the skin.

Acts against all levels of the skin **reducing the cell aging**.

- ✓ Provides new extracellular matrix (ECM) for tissue repair
- ✓ Regenerative & Antioxidant properties
- ✓ Nutrient
- ✓ Moisturizer
- ✓ Counteracts Skin aging

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Dosage – Solubility – Processing

A- DOSAGE:

From 0,2%-3%

B- SOLUBILITY:

Hydro-soluble.

C- PROCESSING:

COBIOREPAIR WGC is compatible with most of the raw materials normally used in cosmetics, with a pH range of 4 to 10. Nevertheless, it is the duty of the formulator to make sure of the stability of the formulae with the necessary tests.

It would be preferably incorporated into cosmetic preparations during the finishing process, at the cooling phase at around 40 °C

Analytical Data

- APPEARANCE:

Opalescent liquid

- pH: 5.50-7.50

- Glycosaminoglycans: 3,0 – 6,0%

- Uronic Acids: 0,60 – 1,60%

- PRESERVATIVES:

EC & USA approved

- MICROBIOLOGY:

Maximum 50 CFU/gram (not pathogenic)

- TOLERANCE:

Excellent

- STORAGE:

- Store at room temperature, dry and away from light. If original container is opened, to avoid secondary microbiological contamination handle with special care and keep refrigerated.