Desmosomes are protein complexes assembled at the plasma membrane that play a key role in the attachment of cells to each other. Desmoglein (Dsg 1) as one of the key components of desmosomes is a transmembrane protein that bridges the external space between adjacent cells and is linked to the intracellular keratin microfilaments. In this way, it provides stability and cohesion to the epidermal “brick wall” that resists mechanical stresses and also contributes to the water barrier function of the epidermis. In the stratum corneum, the uppermost layer of the epidermis, desmosomes are enzymatically degraded towards the skin surface to facilitate the normal process of desquamation.

In aged skin, desmosomal proteins have been shown to be downregulated or prematurely degraded\(^2\), \(^3\). On the other hand, reduced desquamation and an elevated level of desmosomal proteins in the superficial layers has also been reported due to the inhibition of enzymes necessary for the desmosome metabolism by insufficient hydration\(^4\), \(^5\). To reach the optimal balance between the epidermal cohesion forces and the process of desquamation we introduced our new product Cellcon, a mixture containing the hexapeptide for the desmosome structure improvement and 1% hyaluronic acid as a hydrating agent.

**TEWL improvement due to better cohesion**

*In vivo* randomized placebo controlled study in a group of healthy volunteers treated daily with a cream containing 1% Cellcon (10 µg/ml hexapeptide, 0.01% hyaluronic acid) revealed its contribution to the improvement of the water holding capacity of the skin in comparison to placebo or a cream with 0.01% hyaluronic acid only.

**Mechanism of action**

Cellcon contains a hexapeptide synthesized to mimic a fragment of desmoglein 1.

Epidermal cells detect this peptide as a signal of degrading desmosomes and react by stimulating the transcription activity of DSG1, gene encoding this protein. To confirm this hypothesis we determined the mRNA level of the DSG1 gene and observed its upregulation in a concentration dependent manner.

Besides the mRNA of the DSG1 gene, we also demonstrated an increase in desmoglein 1 at the protein level in human keratinocytes.

All data were obtained in the relevant *in vivo* and *in vitro* measurements and, subject to registration, can be accessed at www.contipro.com/anti-aging
SPECIFICATION: Cellcon®, solution

<table>
<thead>
<tr>
<th>Appearance</th>
<th>clear, colourless or slightly opalescent solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kinematic viscosity (0.05% solution) (cSt)</td>
<td>≥ 1.75</td>
</tr>
<tr>
<td>pH</td>
<td>5.0 - 8.0</td>
</tr>
<tr>
<td>Microbial contamination (CFU/g)</td>
<td>≤ 100</td>
</tr>
<tr>
<td>Content of active ingredient (mg/ml)</td>
<td>≥ 0.90</td>
</tr>
</tbody>
</table>

SOURCE

- solid phase peptide synthesis
- non-GMO used during the manufacturing process
- non-animal materials used during the manufacturing process

COMPATIBILITY AND PROCESSING

- sensitive to heat
- sensitive to low and high pH
- incompatible with cationic substances, e.g. surfactants or polymers (polyquarternium-4, polyquarternium-10, etc.)

SOLUBILITY

- soluble in water
- soluble in a mixture of ethylalcohol, isopropylalcohol, propylene glycol and butylene glycol with water up to ratio 1:1
- insoluble in non-water miscible solvents

TOXICOLOGY

- non-irritating
- non-cytotoxic
- non-phototoxic

Literature: