

antarcticine®

Perfect skin comes
from the Antarctic



**A natural cryoprotector
against extreme cold**

**For a firm and youthful
complexion**

**Suitable for
sensitive skin**



Description

Glycoprotein produced by the bacterial strain *Pseudoalteromonas Antarctica* NF₃ with cryoprotective properties and a restructuring effect, that protects the skin against dryness and promotes its cohesion and regeneration, reducing wrinkle depth and enhancing the healing process.

Appearance

Translucent solution containing 25% of Pseudoalteromonas Ferment Extract.

INCI

Water (Aqua), Pseudoalteromonas Ferment Extract.

Paraben free version available. Please contact us for further information on the preservative system.

Properties

antarcticine® main effects are to protect and regenerate the skin, as well as to reduce wrinkles formed during the aging process.

Applications

antarcticine® can be incorporated in cosmetic formulations where, besides attenuation of wrinkles, protection of the skin dryness under extreme cold is desired. Appropriate for sensitive skin products.

Science

The bacterial strain *Pseudoalteromonas Antarctica* NF₃ was isolated for the first time from mud samples collected at the bottom of a glacier (Inlet Admiralty, King George Island) by a Spanish scientific expedition in 1988. During cell growth, the bacteria produced an exopolymer of glycoproteins believed to help the bacteria retain water, adhere to surfaces and withstand cold temperatures. The cryoprotective effect is shown in the morphology change of ice crystals bound to the glycoprotein, in the same unique way as the fish antifreeze proteins.

antarcticine® is a cosmetic active with several benefits for the skin. Its natural bioprotective properties prevent cutaneous dryness under extreme cold conditions. Furthermore, **antarcticine®** promotes the formation of a group of essential proteins that help wound healing and skin rejuvenation.

Dosage 3-5%

Solubility

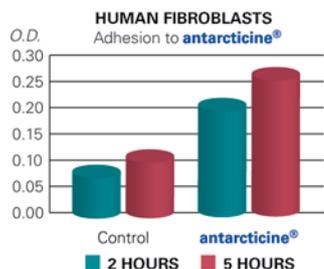
Water soluble.

In vitro efficacy

1. CRYOPROTECTIVE EFFECT

During freezing, the intracellular water molecules form crystals that can damage cellular membranes.

To test the cryoprotective activity of antarcticine®, the release of fluorescence by liposomes CF (containing carboxyfluorescein) treated with 100 µl of a solution with 1% of the active, was measured, after they were frozen and defrosted.

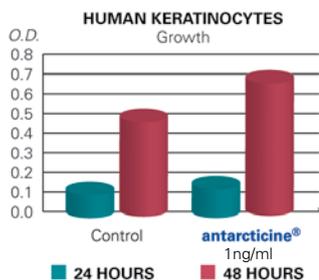


2. RESTRUCTURANT EFFECT

• Adhesion to dermal fibroblasts

Cells were added on a 1 mg/ml coated antarcticine® substrate and a wash was performed. Bioadhesion was measured by the determination of remaining cells on the substrate, using the CVDE technique (Crystal Violet Dye Elution).

A Collagen type I coating was used as a positive control, which is a natural substrate for fibroblasts.



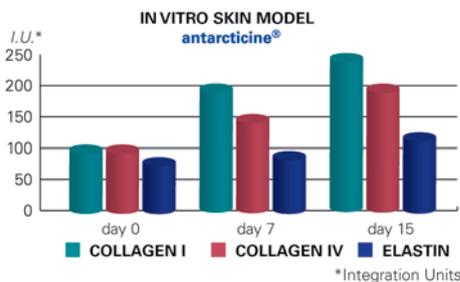
• Growth of epidermal keratinocytes

On a culture medium, cell growth of human epidermic keratinocytes was performed by CVDE method.

3. DERMAL PROTEIN SYNTHESIS

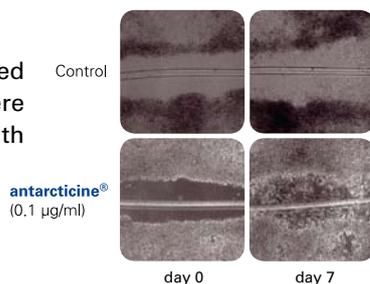
Collagen type I, IV and Elastin formation

Assays were performed on reconstituted human skin using 1 mg/ml of a cream containing 5% antarcticine®, to determine the levels of Collagen I and Collagen IV (Dot Blot method) and Elastin (Western Blot method).



4. REGENERATIVE EFFECT

Proliferation of keratinocytes was evaluated on co-cultures of such epidermal cells, where a linear wound was induced and treated with antarcticine®.



Cryoprotection of bilayer lipid membranes
antarcticine® showed a protective activity at a concentration of 1%.

antarcticine® helps to restructure the skin
The fibroblasts adhesion increased by 125% in 5 hours and the keratinocytes growth by 36% after 48 hours.

Increase of protein synthesis from the dermal tissue
Collagen I formation raised to 128%, Collagen IV to 81% and Elastin to 31%, in 15 days.

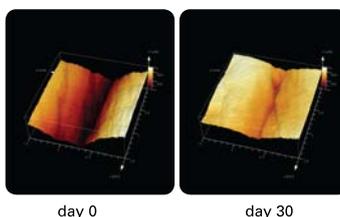
antarcticine® induces an enhanced wound healing effect
After 7 days, the wound treated with the glycoprotein showed an improved cicatrization compared to the control culture.

In vivo efficacy

ANTI-WRINKLE EFFECT

A cream containing 5% antarcticine® was applied around the eyes of a group of 10 female volunteers, twice daily during 30 days.

Evaluation of the micro surface of the skin before and after the treatment was performed through silicon imprints measured by confocal laser scanning microscopy.



The depth of wrinkles decreased an average of 44%, with maximum values up to 50%.

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