

Antarctic
Ocean



antarcticine®

marine ingredient

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 Antartica NF₃* with cryoprotective properties and a restructuring effect that protects the skin against dryness. Promoting cohesion and skin regeneration by stimulation of dermal protein synthesis, **antarcticine® marine ingredient** reduces wrinkle depth.

Appearance

Translucent solution containing 25% of Pseudoalteromonas Ferment Extract.

INCI

Water (Aqua), Pseudoalteromonas Ferment Extract, Caprylyl Glycol.

Preservative free.

Properties

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

Applications

antarcticine® marine ingredient can be incorporated into 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 Antartica 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® marine ingredient** is a cosmetic active with several benefits for the skin. Its natural bioprotective properties prevent cutaneous dryness under extreme cold conditions. Furthermore, **antarcticine® marine ingredient** promotes the formation of a group of essential proteins that help skin rejuvenation.

Dosage 3-5%

Solubility

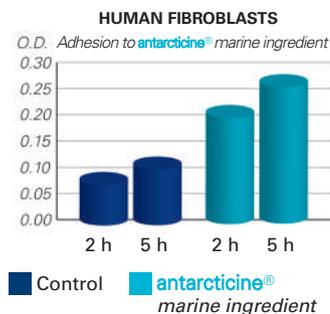
Water soluble.



In vitro efficacy

1. CRYOPROTECTIVE EFFECT

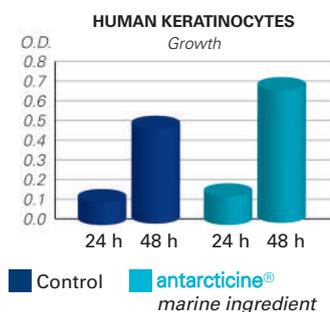
During freezing, the intracellular water molecules form crystals that can damage cellular membranes. To test the cryoprotective activity of antarcticine® marine ingredient, the release of fluorescence by liposomes CF (containing carboxyfluorescein) treated with 100 µL of a solution with 1% of the active, 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® marine ingredient substrate and washed. Bioadhesion was measured by the determination of remaining cells on the substrate, using the CVDE technique (crystal violet dye elution). A type I collagen 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 epidermal keratinocytes (HEK) was performed by CVDE method using 1 ng/mL antarcticine® marine ingredient.

3. PROTEIN SYNTHESIS INDUCTION

• Type I collagen

Collagen I induction after 48 h incubation with antarcticine® marine ingredient was evaluated by an ELISA assay on human dermal fibroblasts. Absorbance readings were processed and type I collagen concentrations were obtained using a standard curve. The percentage of induction with respect to control was calculated.

• Type IV collagen

Type IV collagen was detected by immunochemistry using a specific monoclonal antibody, in HEK on a feeder layer of 3T3 fibroblasts treated with 1 mg/mL of a cream* containing 5% antarcticine® marine ingredient. The results were analysed and evaluated by densitometry.

• Elastin

In HEK on a feeder layer of 3T3 fibroblasts, 1 mg/mL of a cream* containing 5% antarcticine® marine ingredient induced elastin production, detected by immunochemistry using a specific monoclonal antibody. The results were analysed and evaluated by densitometry.

Cryoprotection of bilayer lipid membranes

antarcticine® marine ingredient showed a protective activity at a concentration of 1%.

antarcticine® marine ingredient helps to restructure the skin

The fibroblasts adhesion increased by 125% in 5 hours and the keratinocytes growth by 36% after 48 hours.

34% increase of collagen I synthesis with antarcticine® marine ingredient at 0.1 mg/mL

Type IV collagen is induced when cells are treated with antarcticine® marine ingredient

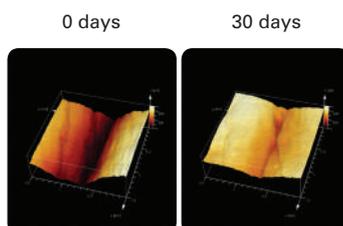
antarcticine® marine ingredient also enhances elastin synthesis

In vivo efficacy

ANTI-WRINKLE EFFECT

A cream* containing 5% antarcticine® marine ingredient was applied around the eyes of a group of 10 female volunteers, twice daily for 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%

*Test performed with a customer's formulation.

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