

Care
Creations™

Shadownyl™

by Beauty Creations

The eye contour luminizer

 **BASF**

The Chemical Company

What makes you look older and tired?

Surprisingly, it might not be your wrinkles or grey hair, but dark circles beneath your eyes, that make you look older and tired. Crow's feet wrinkles and dark circles can be reduced to restore a youthful look.

Why do dark circles and wrinkles appear around the eye area?

The skin under the eyes is very thin and highly vascular and susceptible to discoloration. Despite general opinions, dark circles beneath the eyes are not primarily due to tiredness and stress.

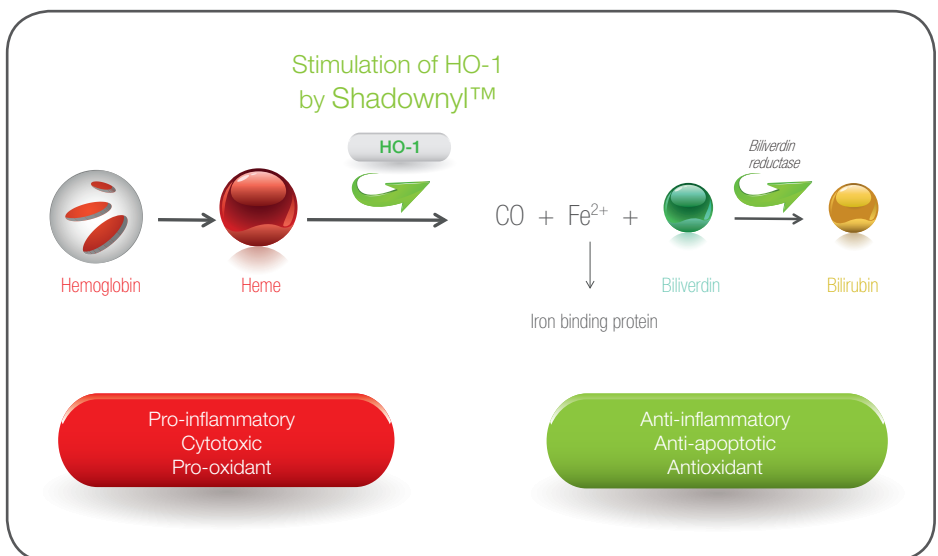
One of the causes is fragile vessels under the eyes that leak hemoglobin¹. As hemoglobin breaks down, pigmented degradation product such as heme accumulates in the dermis and epidermis. The purple tinge that shows through the skin betrays its presence and leads to the formation of the dark circles around the eyes.

Additional consequences of the free heme released within the skin are the production of free radicals and the skin's inflammatory response. As a result, fine lines appear.

Scavenging and disposal of free heme is critical.

Therefore we have focused on inducing the heme alteration by targeting a specific enzyme called Heme Oxygenase type 1 (HO-1).

Indeed, HO-1 catabolizes heme (red pigment) degradation into catabolites known to have anti-inflammatory, anti-oxidation and cytoprotective characteristics (see figure hereafter). These catabolites are expected to help simultaneously reduce the appearance of dark circles, fine lines and wrinkles.



¹ Eberlin S, Pereda MCV, Dieamant GC, Nogueira C, Werka RM, and Queiroz MLS; Effect of a Brazilian herbal compound as a cosmetic eyecare for periorbital hyperchromia ("Dark circles") J Cosmet Dermatol. 2009 Jun;8(2):127-35

Shadownyl™



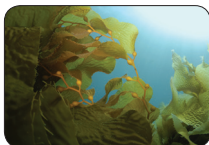
Our scientists have succeeded in developing **Shadownyl™**, a sea vegetal extract, which stimulates HO-1 in skin and removes free heme. Consequently, the appearance of dark circles around the eyes is minimized.

In addition, **Shadownyl™** shows good anti-inflammatory and antioxidant activities as well as very good collagen I stimulation efficacy. Wrinkles are reduced, and the appearance around the eye area is improved.

In vitro and *in vivo* studies demonstrate the ability of **Shadownyl™** to:

- enhance the skin's own capacity to eliminate heme, the red pigment complex present in hemoglobin,
- increase the collagen I fiber synthesis which may redensify the eye contour area and result in a wrinkle smoothing effect,
- reduce inflammation which can lead to vessel fragility.

The plant



The ocean is a magnificent and endless source of biodiversity. From the wealth of the Atlantic ocean, our scientists have discovered the properties of *Fucus vesiculosus*, a brown seaweed.

In Japan and China, *Fucus vesiculosus* is often used in traditional dishes.

Today, it has many medicinal uses such as treating cancer, diabetes and thyroid conditions². It is also known for its antioxidant, antibacterial, antifungal and anticoagulant properties as well as for promoting weight loss.

Why is *Fucus vesiculosus* so unique?

Its origin



Growing on the rocky marine shores, *Fucus vesiculosus* has the particularity of being subjected to stresses similar to those endured by the skin, but often of greater severity: regular dehydration (tides), UV aggressions from sun radiation, thermal stress (air/water), oxidation, bacterial attacks (moist environment), the change in seasons, and rough smashing against rocks (mechanical stress).

Shadownyl™ is obtained from the highest quality of renewable *Fucus vesiculosus*, which is harvested by hand in the vicinity of the Gulf of Maine. This large area on the east coast of Canada is best known for the highest tides in the world and represents one of the most productive known ecosystems. As a result, each authorized harvester must collect the algae sustainably, in accord with the Organic Crop Improvement Association (OCIA) certification for wild sea vegetables³.

Properties

Stimulates the expression of Heme Oxygenase type 1 (HO-1) – novel pathway.

Boosts the elimination of pigments due to blood leakage such as heme responsible for dark circle colour and local inflammation.

Rejuvenates the eye contour area: enhances skin firmness and reduces the appearance of dark circles.

Applications



Illuminating eye care treatment.

Intense, multi-benefit eye area cream.

Brightening eye contour area serum.

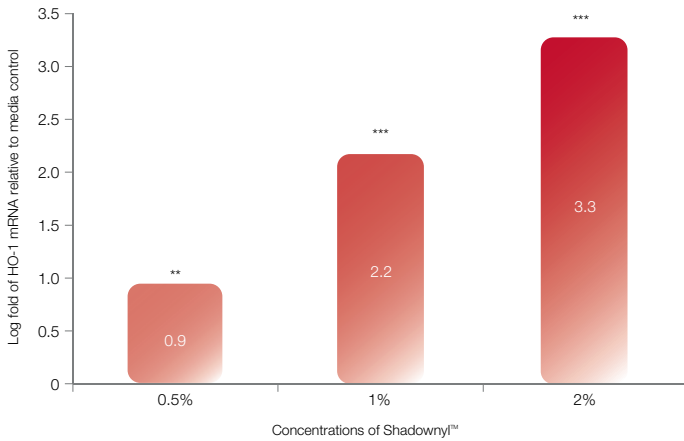
Refreshing eye contour area roll-on.

² Shadownyl™ is not intended to diagnose, treat, cure or prevent any disease.

³ The Organic Standards developed by OCIA address all these areas where unacceptable practices may lead to resource depletion, product contamination, or inferior quality. These standards give clear and uniform direction for harvesting and handling the wild algae.

Proof of concept

Shadownyl™ stimulates heme oxygenase-1 gene expression in keratinocytes

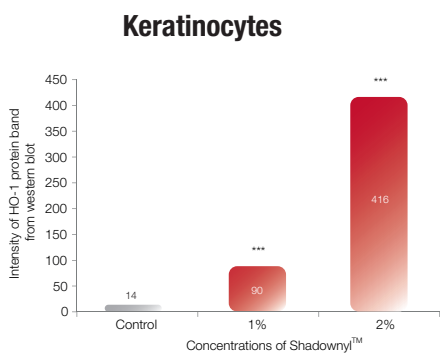


Mean \pm SD on 3 assays – Paired Student's *t* test - ***p* < 0.01, ****p* < 0.001

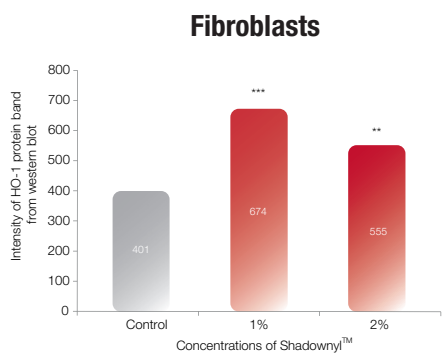
In vitro study.

Heme oxygenase-1 gene expression was evaluated in keratinocytes after treatment with Shadownyl™ at different concentrations.

Shadownyl™ induces HO-1 protein content



Mean \pm SD on 3 assays – Paired Student's *t* test - ****p* < 0.001

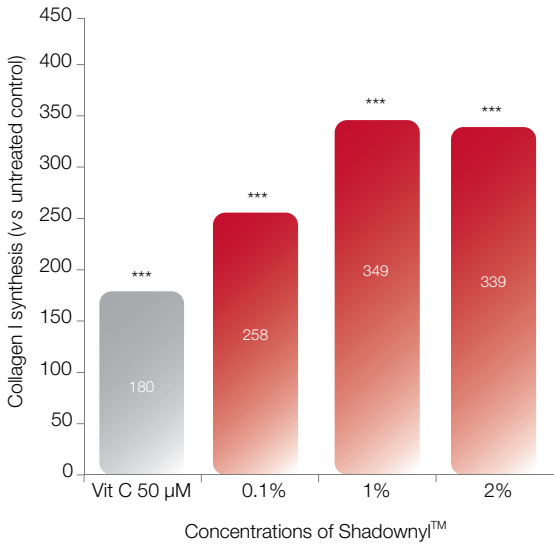


Mean \pm SD on 3 assays – Paired Student's *t* test - ***p* < 0.01 - ****p* < 0.001

In vitro study

Measurement of the increase in HO-1 by treatment of fibroblasts and keratinocytes followed by a Western Blot experiment. Quantitative densitometric analysis of protein band intensities.

Shadownyl™ significantly stimulates collagen type I synthesis in a dose-dependent way

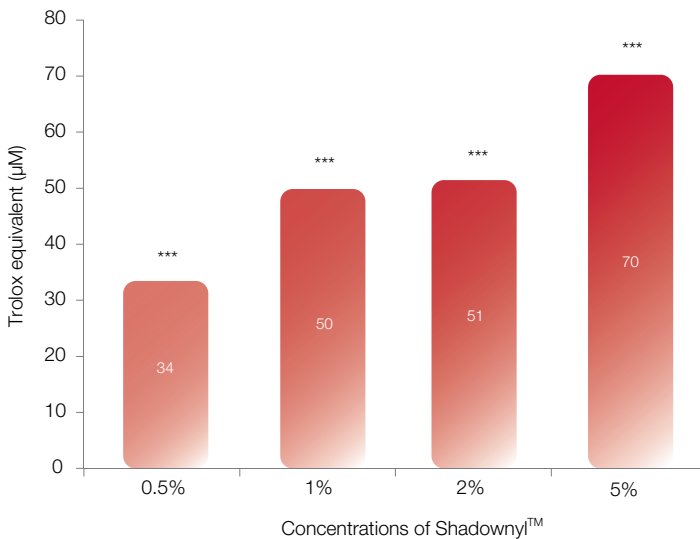


Mean ± SD on 3 assays in triplicate – Student's t test - *: $p < 0.05$ - ***: $p < 0.001$.

In vitro study

Dosage of deposited collagen I quantified by using our patent pending method (DELFA®).

Shadownyl™ has potent antioxidation activity

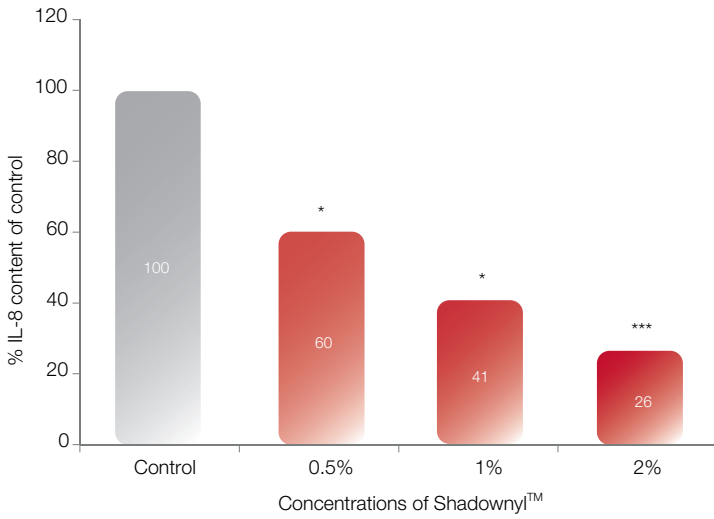


Mean + SD of triplicate assays - Paired Student's t test - *** $p < 0.001$

In vitro study

Evaluation of the free radical scavenging properties using DPPH method. Trolox = water soluble vitamin E from Roche.

Shadownyl™ provides anti-inflammatory protection to the skin by dose dependant inhibition of the chemokine IL-8



Mean \pm SEM on 3 assays in triplicate - Student's t test - *: $p < 0.05$ - ***: $p < 0.001$.

In vitro study

Measurement of the decrease in IL-8 levels by the treatment of keratinocytes with Shadownyl™ while being stimulated by IL-1 β .

Clinical studies

Instrumental assessment

Visible decrease of dark circle color after ONLY 2 week-treatment with 2% Shadownyl™

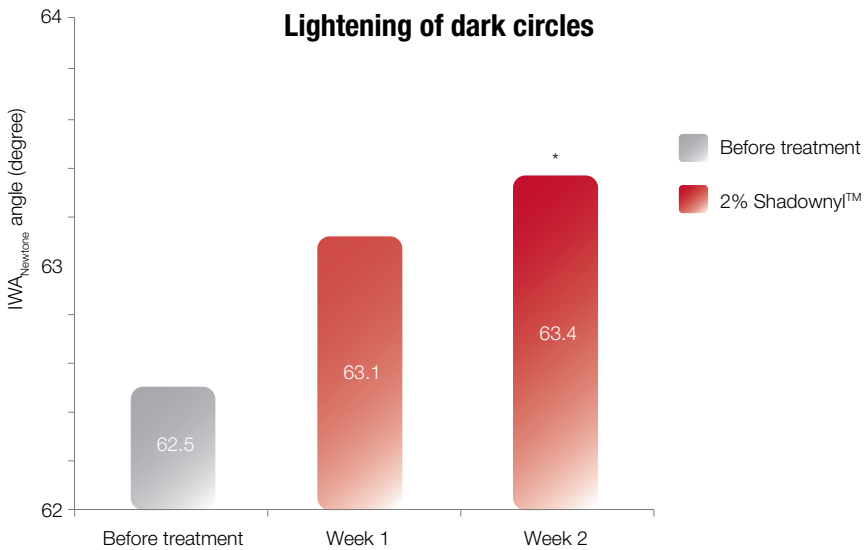


Before treatment



2 weeks

Within 2 weeks, Shadownyl™ at 2% significantly lightens dark circles



* $p < 0.05$ vs baseline

In vivo study.

Tested on 27 Caucasian female panelists, between 18 and 65 years old having with dark circles.

Each panelist applied, twice a day, a cream containing 2% Shadownyl™ using fingertips to gently smooth the product over the eye area.

Measurement of lightening and surface of dark circles based on analysis of images captured by Canfield VISIA-CR®. These images were obtained at baseline, 1 week and 2 weeks. Image analysis was performed to assess both the area occupied by the dark circle, as well as the severity of the dark circle. Severity of the dark circle was analyzed by calculating the IWA_{Newtone}.

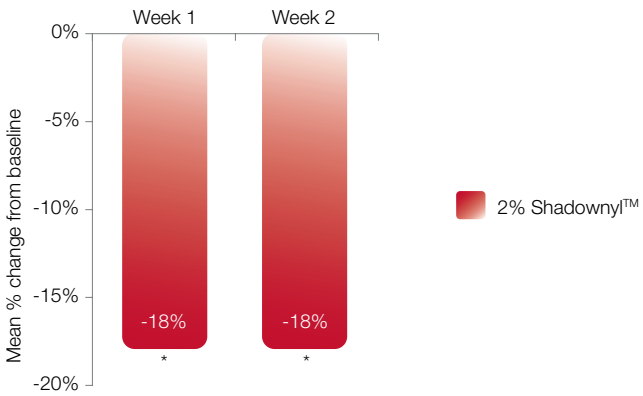
The IWA_{Newtone} (Individual Whiteness Angle) takes into account, in the same time, the concentration of melanin and hemoglobin. Thus, light skin means a skin less pigmented and/or a skin with less redness. The higher the IWA_{Newtone}, the lighter the skin.

As early as 1 week and up to 2 weeks, Shadownyl™ at 2% significantly reduces the area of dark circles



■ Area of dark circle before treatment ■ Area of dark circle after 2-week treatment

The area of dark circles

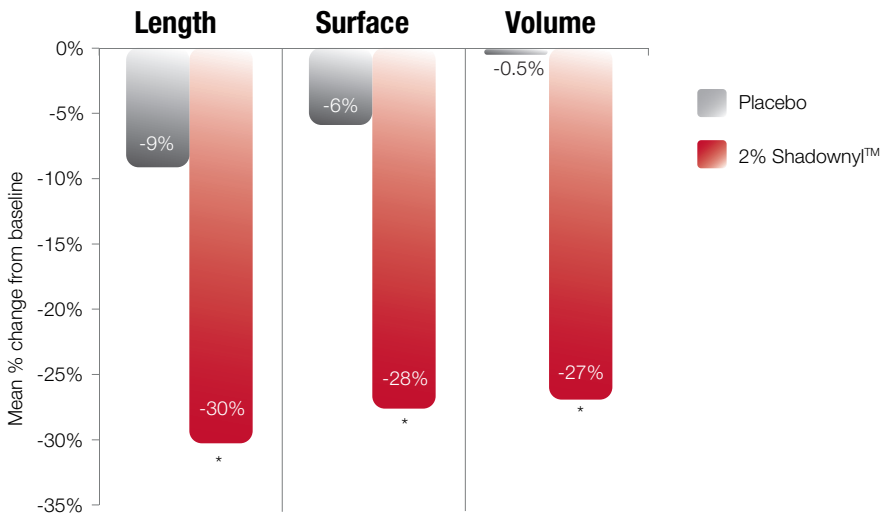


* $p < 0.05$ vs baseline

After only 1 week, Shadownyl™ at 2% significantly decreases crow's feet wrinkles compared to the placebo cream



After 1-week treatment, Shadownyl™ at 2% significantly provides a 3D anti-wrinkle effect



* $p \leq 0.05$ vs placebo

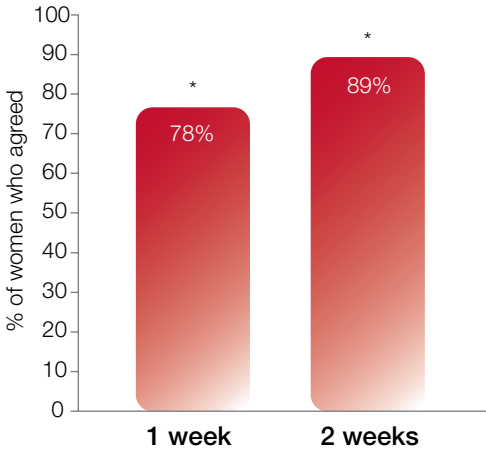
In vivo study.

Tested on 22 Caucasian female panelists, between 36 and 65 years old presenting with fine lines and wrinkles around the eyes (crow's feet). Each panelist applied a cream containing 2% Shadownyl™ on the eye area. Images from the Canfield VISIA-CR® were obtained at baseline and D7 (1 week). Image analysis was performed to assess wrinkle length, surface and volume.

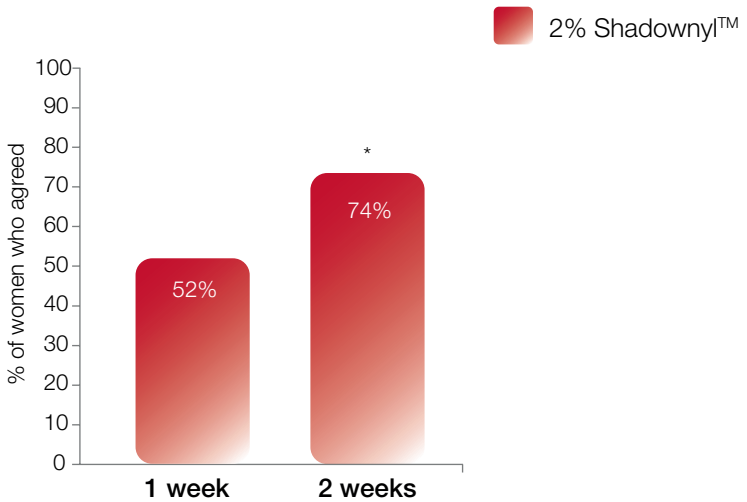
Panelists' self-assessment

Volunteers report that their eye area...

... has a smoother texture



... is visibly refreshed



*= $p \leq 0.05$.

In vivo study.

Tested on 27 Caucasian female panelists, between 18 and 65 years old with dark circles and who perceived themselves as having facial skin imperfections in the eye area. Each panelist applied a cream containing 2% Shadownyl™ using fingertips to gently smooth the product over the eye area.

Subjects completed self-administered consumer perception questionnaires to assess their opinion of product performance and skin benefits. Perception questionnaires were completed at the testing facility after 1 week, 2 weeks of product use.

Summary

REFERENCE R11026 Shadownyl™

DESCRIPTION Aqueous extraction of a marine algae (*Fucus vesiculosus*).

DOSE OF USE 1 - 2%

REGULATORY DATA

INCI (US) Water, Algae Extract, Hexylene Glycol, Capryl Glycol, Xanthan Gum

CAS 7732-18-5, 92128-82-0, 107-41-5, 1117-86-8, 11138-66-

EINECS 231-791-2, 295-780-4, 203-489-0, 214-254-7, 234-394-2

China Each component listed in IECSC and in International Cosmetic ingredient standard Chinese name (2007 & 2010 versions) as well as IECIC 2012

Japanese Cosmetic Denomination Mizu, Aruge ekisu, Hekishiren gurikohru, Kapuririrugurikoru, Kisantangamu

Preservative None

Solvent None

PRELIMINARY SPECIFICATIONS

Dry weight (15 hours, 105°C) 1 - 3%

Total Inorganic Matter Content (15 hours, 600°C) < 2%

Color Reddish-Brown to Brown

Odeur Characteristic

Total aerobic bacteria (30°C) <or = 100/g

Pathogens (*S. Aureus*, *E. Coli*, *P. aeruginosa*, *C. albicans*; *A. Niger*) Absent

FORMULATION

Add at the end of formulation at 30°C with warmed stirring. Recommended pH of the formula between 4 and 7. Formulation guidance sheet available upon request.

TOXICOLOGY

Available data upon request.

PATENT APPLICATION

Filed.

CUSTOMS CODE 3824909290

STORAGE

Keep sealed at a temperature of 15°C - 30°C. Protect from moisture. Do not freeze. Avoid heat exposure.

SHELF LIFE 12 months

MANUFACTURER

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East Setauket, NY 11733 (US)



Commercial sample of Shadownyl™ and one example of cream formulation with Shadownyl™ 2%.

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