CYBRIGHT

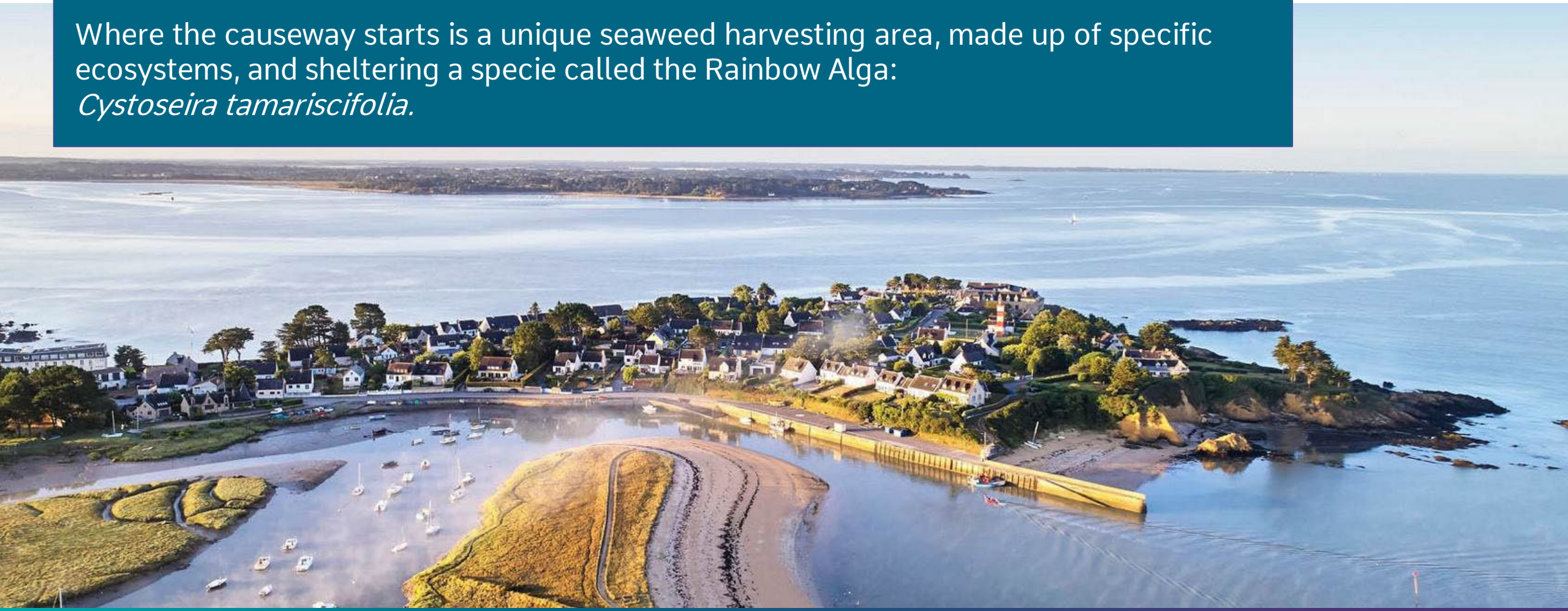
MELANOBREAKER / LIGHTENER

CODIF
Technologie naturelle

BETWEEN MAUDEZ ISLAND AND THE POINT OF PENN LANN.*

L'Armor-Pleubian: the “land” of marine agriculture. At low tide a causeway opens up carved into the rocks between Penn Lann and Maudez Island.

Where the causeway starts is a unique seaweed harvesting area, made up of specific ecosystems, and sheltering a specie called the Rainbow Alga:
Cystoseira tamariscifolia.

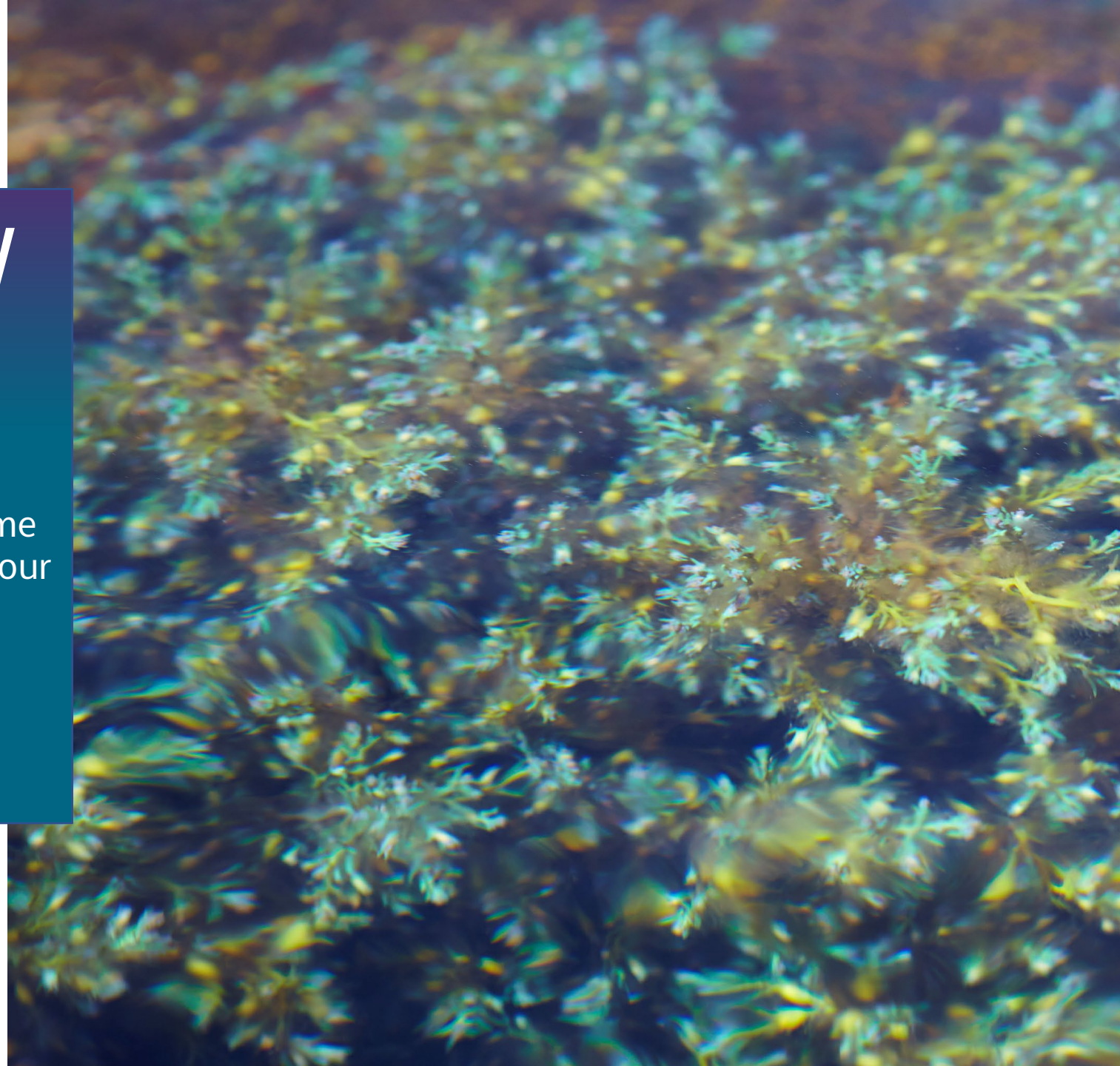


*Information given for illustrative purposes and does not constitute a guarantee of the origin of our sourcing.
In accordance with our UEBT commitment, we practice most of the time a dual fair sourcing; it is possible that other origins coexist.
For more details on our sourcing, please consult the corresponding technical and regulatory document available on request.

THE RAINBOW ALGA

Cystoseira tamariscifolia possesses branches covered in spines which become iridescent when put into water: their colour changes from green to violet passing through blue.

Hence the name, Rainbow Algae.



THE RAINBOW ALGA

Its iridescence properties

In 2018 Martin Lopez-Garcia and his team published a new study on the phenomenon of iridescence in algae (1).

The iridescence is due to the regular stacking of fat balls inside pockets localized in the epidermal cells of the algae. *"This effect had only been observed before in certain animals such as chameleons"*. Their function is to ensure optimum diffusion of light to the chloroplasts.

This adaptation seems to be a response to environmental factors. The algae is exposed to light of varying intensity which changes with the tide and depth of the water.

The iridescence enables the algae to improve diffusion of the ambient light.

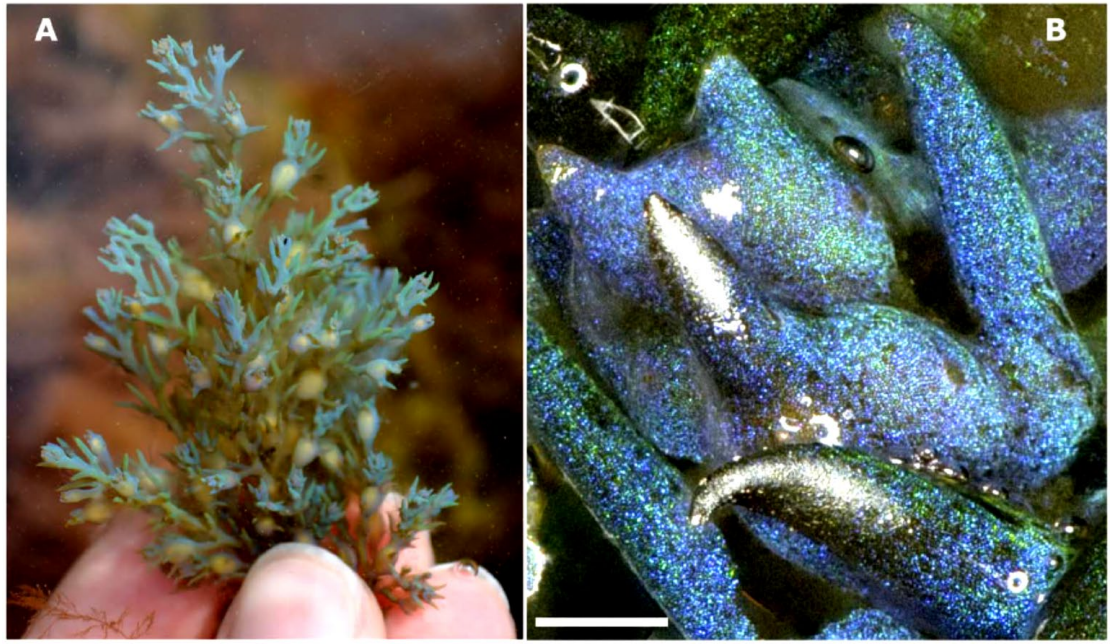


Fig. 1. Morphology and structural color of C. tamariscifolia. (A) C. tamariscifolia at collection site showing structural color. (B) Low-magnification (scale bar, 500 mm). image of a specimen with two different colors. Close-up of tips of blue

(1) Light-induced dynamic structural color by intracellular 3D photonic crystals in brown algae
By Martin Lopez-Garcia, et al. | Apr 4th, 2018

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ORIGIN AND HARVEST
Harvest site Ecocert/Cosmos approved
Seaweed of Organic grade

100% MANUAL HARVEST.

The biotopes where *Cystoseira tamariscifolia* is growing are specific to a few species which are not collected by other seaweed-collectors.

To minimise waste and promote regrowth, each year's shoots are cut with a knife. Cutting the young part of the algae with a knife and washing on site reduces waste later on.

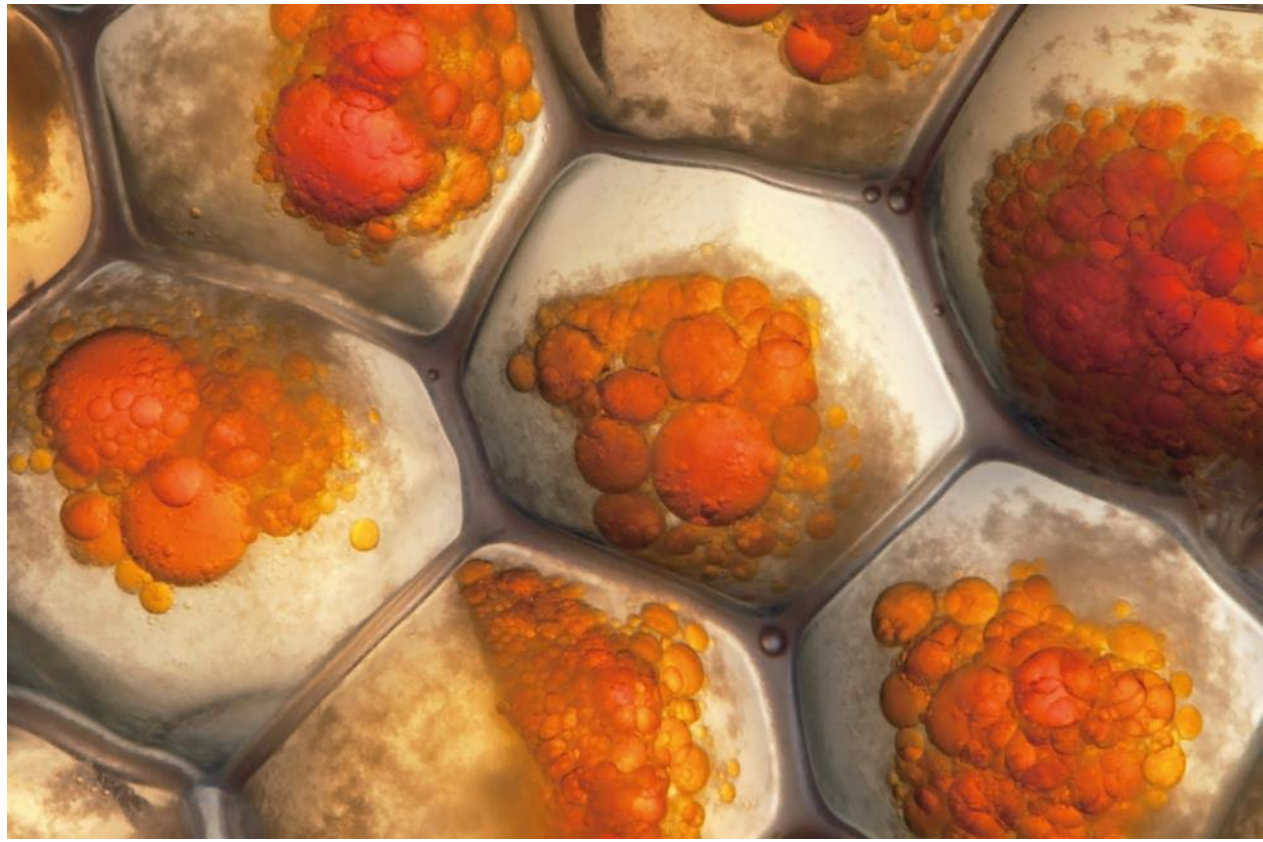
THE RAINBOW ALGA

A lightening ingredient

From this rainbow alga, Codif extracts a cellular concentrate with lightening properties: CYBRIGHT.

Extraction is processed using a patented enzymatic cocktail* specific to sugars and proteins.

CYBRIGHT acts on melanin production, melanosomes maturation, and also their destruction for benefits on the basal pigmentation of the skin and the homogeneity of the complexion.



* Enzymes from non-GMO and non-animal origine; denaturation at the end of the process by heating up to 80°C.

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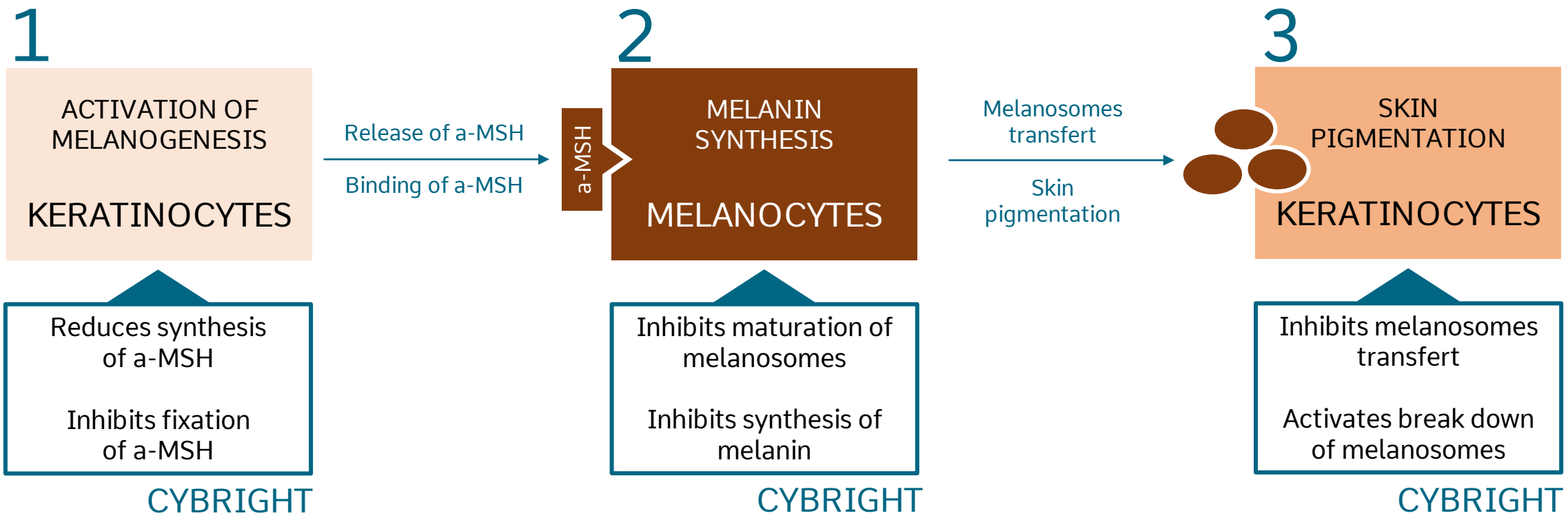
CYBRIGHT

ACTION MECHANISM



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1-DECREASING a-MSH SYNTHESIS

CYBRIGHT decreases the synthesis of a-MSH precursor: POMC

1%
TOPIC
IN-VITRO

PROTOCOL

Melanized reconstituted human epidermis.

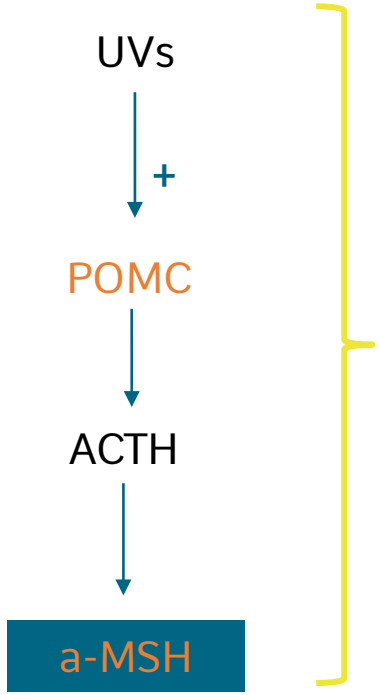
Topical application of 1% CYBRIGHT for 16 days. Analysis of genes expression by PCR array.

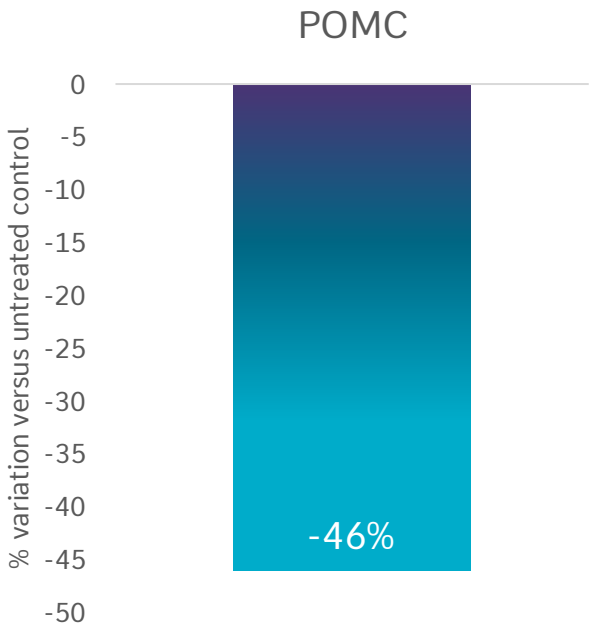
POMC synthesis is triggered by UVs exposure.

Then, a succession of several maturation steps leads to the synthesis of a-MSH.

CYBRIGHT decreases the synthesis of a-MSH precursor:

-46% POMC





POMC = Pro-Opio-MelanoCortine

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Technologie naturelle

1- INHIBITING THE BINDING OF a-MSH

CYBRIGHT stimulates the synthesis of a competitor of a-MSH.

1%
TOPIC
IN-VITRO

PROTOCOL

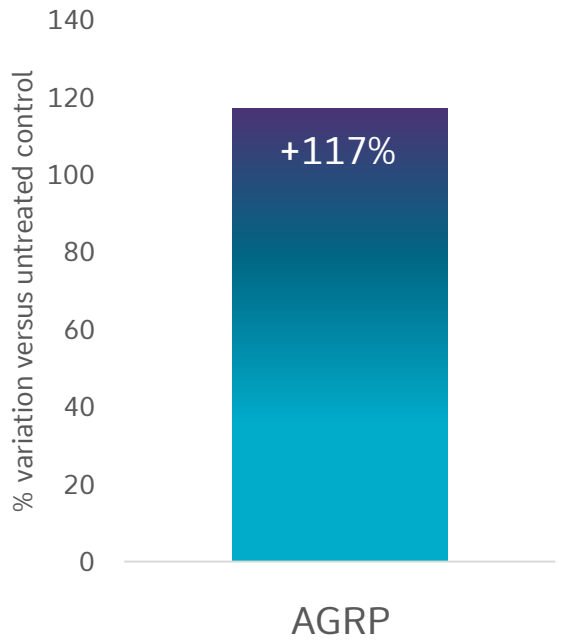
Melanized reconstituted human epidermis.

Topical application of 1% CYBRIGHT for 16 days. Analysis of genes expression by PCR array.

The gene AGRP codes for a molecule which acts as an antagonist of a-MSH: ASP. ASP is able to bind a-MSH receptors, preventing its binding and thus melanogenesis activation.

CYBRIGHT stimulates the expression of AGRP gene:

+117% AGRP



AGRP = AGouti Related neuroPeptide
ASP = Agouti Signaling Protein

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2- INHIBITING MELANOSOMES MATURATION

CYBRIGHT decreases melanosomes maturation

1%
TOPIC
IN-VITRO

PROTOCOL

Melanized reconstituted human epidermis.

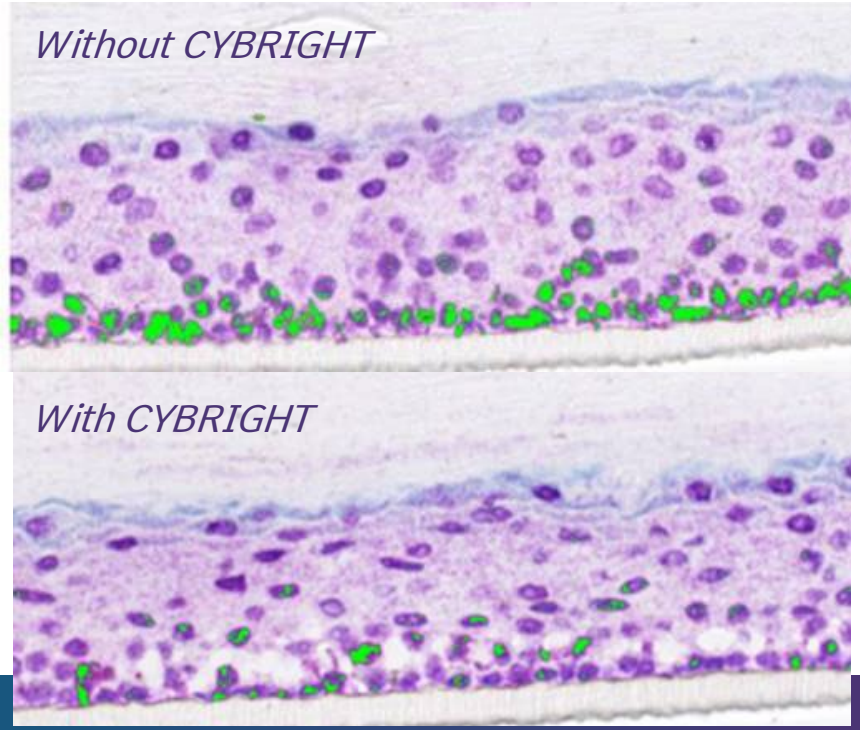
Topical application of 1% CYBRIGHT for 16 days. Analysis of protein expression by immuno-labelling.

It is only after having undergone a maturation phase that melanosomes are able to synthesize melanin.

CYBRIGHT decreases the expression of the molecule responsible for their maturation:

- 25% PMEL 17

Below : PMEL17 in green fluorescence



PMEL17 = PreMELanosome protein

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2- INHIBITING MELANIN SYNTHESIS

CYBRIGHT stimulates the expression of tyrosinase inhibitor

1%
TOPIC
IN-VITRO

PROTOCOL

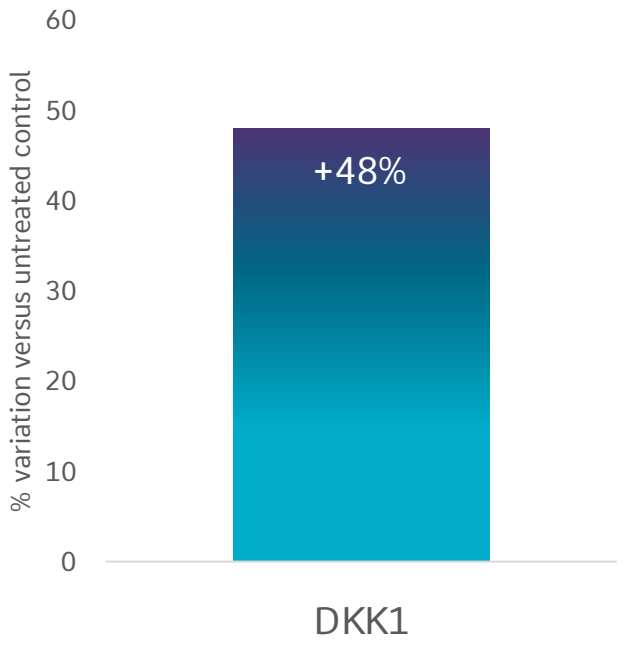
Melanized reconstituted human epidermis.

Topical application of 1% CYBRIGHT for 16 days. Analysis of genes expression by PCR array.

Tyrosinase is the enzyme that synthesizes melanin. Its expression is modulated by different genes.

CYBRIGHT stimulates the expression of the DKK1 gene whose role is to limit the activity of tyrosinase.

+48% DKK1



DKK1 = DicKKopf WNT signaling pathway inhibitor 1

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3- INHIBITING MELANOSOMES TRANSFERT

CYBRIGHT slows the transfert of melanosomes to keratinocytes.

1%
TOPIC
IN-VITRO

PROTOCOL

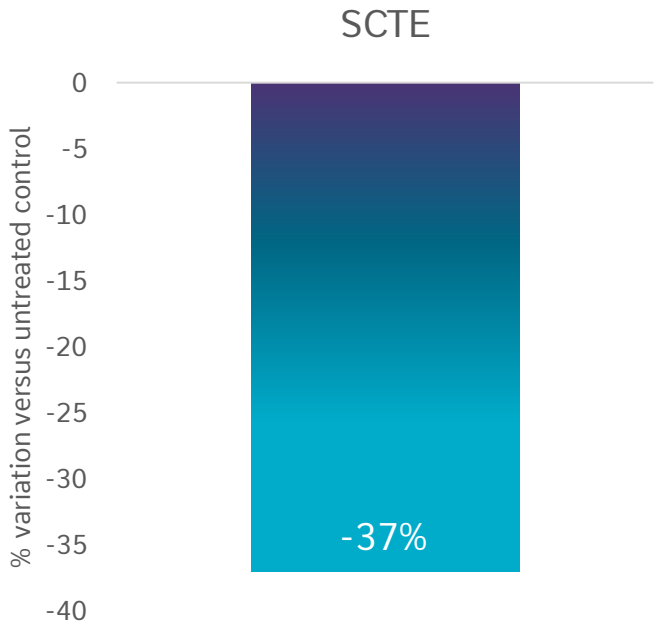
Melanized reconstituted human epidermis.

Topical application of 1% CYBRIGHT for 16 days. Analysis of genes expression by PCR array.

SCTE is a tryptase strongly expressed in keratinocytes.
It is known to activate the PAR-2 factor involved in phagocytosis (absorption) of melanosomes by keratinocytes (2).

CYBRIGHT limits the transfer of melanosomes via a decrease in the enzyme SCTE.

- 37% SCTE



SCTE = *Stratum Corneum Trypsine like Enzyme*

(2) Saaya Koike, Kenshi Yamasaki*, Takeshi Yamauchi, Mai Inoue, Ryoko Shimada-Ohmori, Kenichiro Tsuchiyama, Setsuya Aiba. Toll-like receptor 2 and 3 enhance melanogenesis and melanosome transport in human melanocytes. Department of Dermatology, Tohoku University Graduate School of Medicine

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3- DEGRADING MELANOSOMES

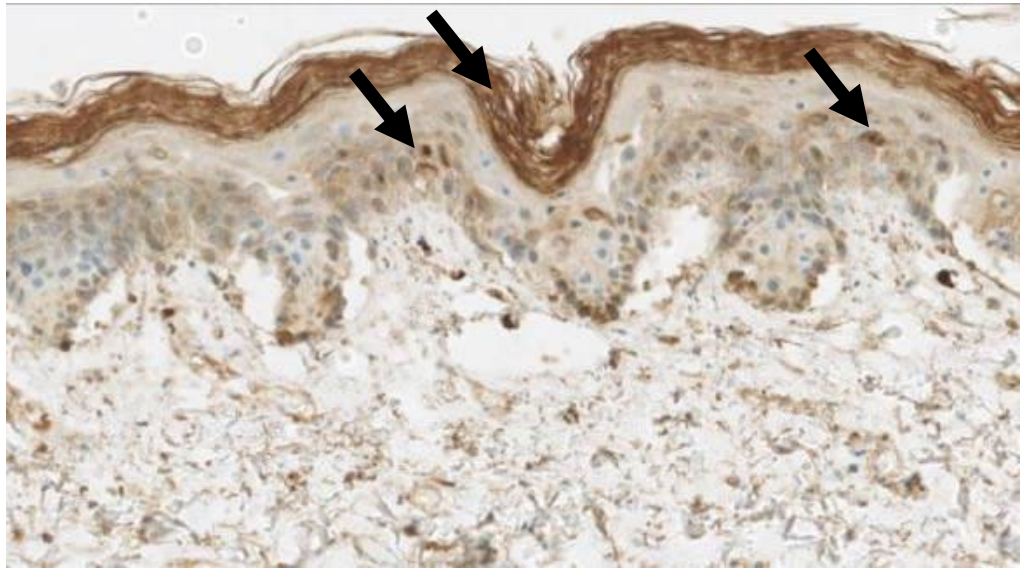
New lightening targets : Cathepsins

The role of cathepsins in the degradation of melanosomes is more and more studied, particularly those of cathepsin L2 (CTSL2).

They are hydrolytic enzymes involved in epidermal differentiation. The expression of CTSL2 is very clearly increased in light skins whose melanosome degradation activity is greater than in dark skins (3).

Many publications suggest the primary role of cathepsin L2 in the process of melanosome degradation.

Labelling in human skin explants allows detection of CTSL2 (dark brown) in the supra-basal layers, and in the stratum corneum.
Codif TN Laboratories



(3) https://etd.ohiolink.edu/pg_10?::NO:10:P10_ETD_SUBID:83741

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3- DEGRADING MELANOSOMES

New lightening targets : Cathepsins

1%
TOPIC
IN-VITRO

PROTOCOL

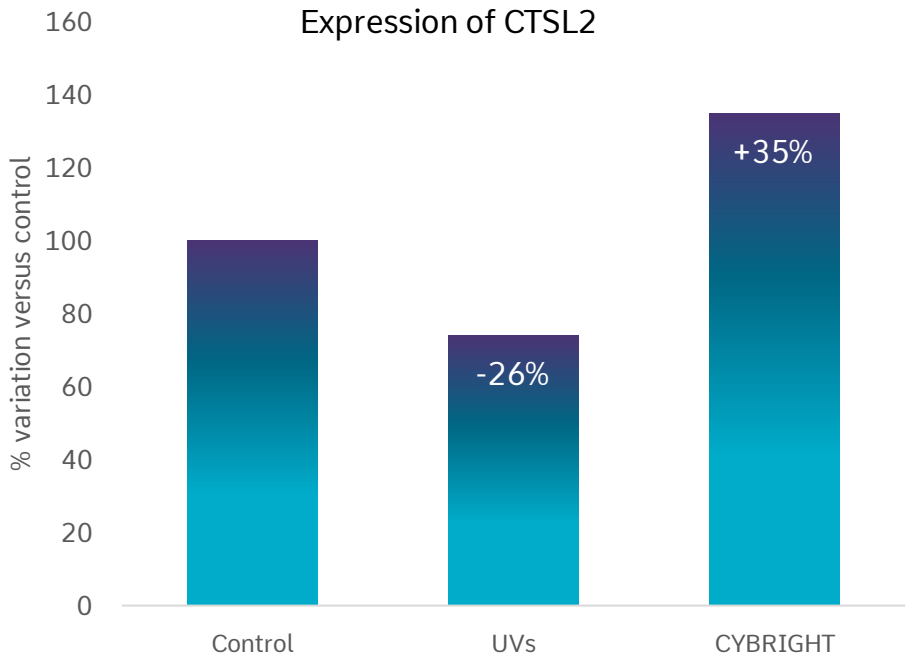
Melanized reconstituted human epidermis.

Topical application of 1% CYBRIGHT for 16 days. Analysis of genes expression by PCR array.

Research conducted by our laboratories has shown that UV exposure results in a -26% decrease in CTSL2.

CYBRIGHT stimulates the expression of Cathepsin L2:

+35% CTSL2



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INHIBITING MELANIN SYNTHESIS

CYBRIGHT decreases the amount of melanin in the epidermis

1%
TOPIC
IN-VITRO

PROTOCOL

Melanized reconstituted human epidermis.

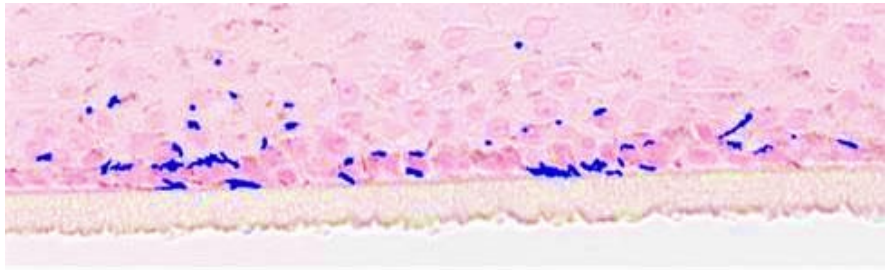
Topical application of 1% CYBRIGHT for 16 days. Analysis of protein expression by immuno-labelling.

By acting on the key points of melanin activation and synthesis; but also on the degradation of melanosomes; CYBRIGHT has a lightening action.

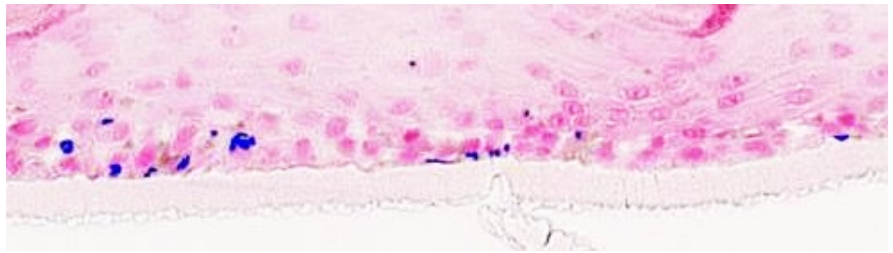
After 16 days of topical application, there is a decrease in the amount of melanin in the epidermis.

-90%*** melanin

Untreated - *Melanin in blue*



Treated with CYBRIGHT - *Melanin in blue*



**** p<0.001 Student test*

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NEW DATA

CYBRIGHT VERSUS KOJIC ACID

CYBRIGHT melanin synthesis inhibition versus Kojic acid

1.5%
TOPIC
IN-VITRO

PROTOCOL

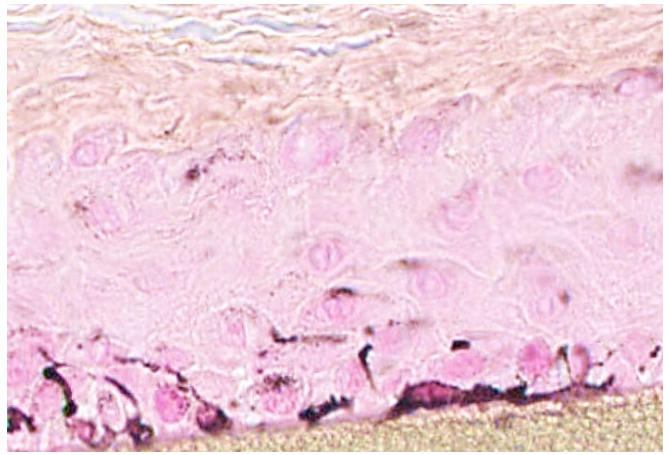
Human Reconstructed Pigmented Epidermis (HRPE)

TopicaL application of 1.5% CYBRIGHT for 16 days.

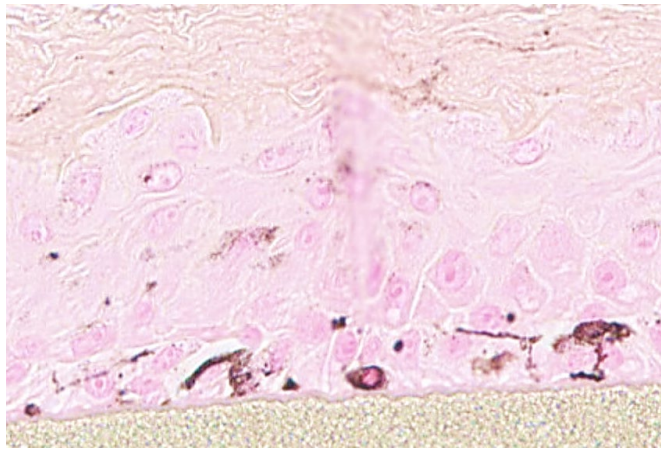
Fontana Masson Coloration

Black staining of melanin & melanocytes

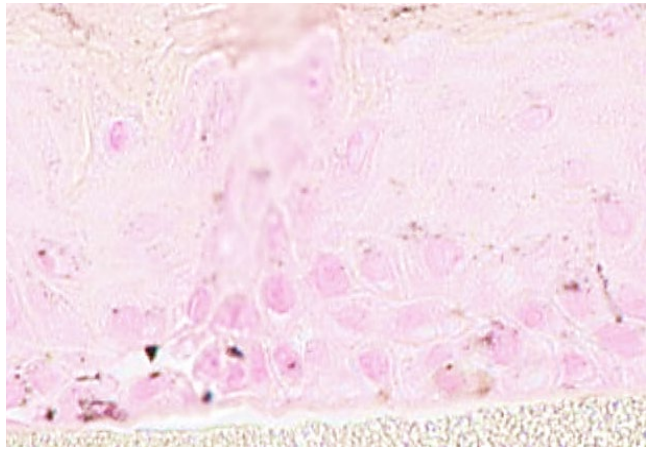
Untreated



Treated with Kojic Acid at 2%



Treated with CYBRIGHT G at 1.5%



EPIDERMAL PIGMENTATION -33%** -45%***

CYBRIGHT has been compared with the well-known kojic acid for its powerful lightening properties. After 16 days of topical application, there is a higher decrease in the amount of melanin with CYBRIGHT than Kojic acid.

***p<0.01 *** p<0.001 Student test*

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NEW RESULTS

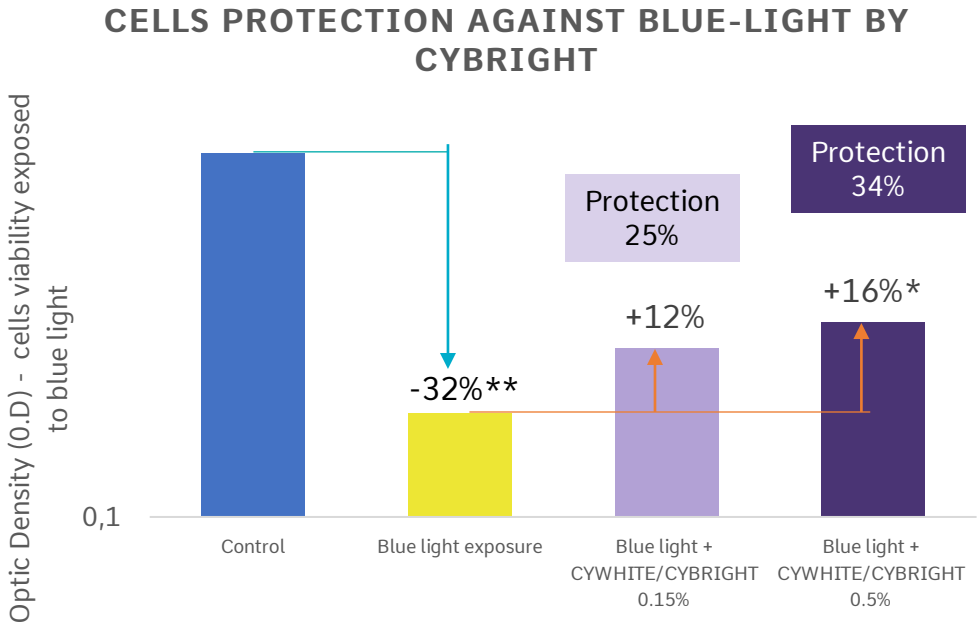
CYBRIGHT

Cells viability protection against blue light effect

0.15% - 0.5%
IN-VITRO

Under blue light damages, CYBRIGHT G increases the cells viability. CYBRIGHT is protecting cells by up to +34% at 0.5%.

CYBRIGHT has protective effect against damages caused by blue light.



PROTOCOL

Normal Human Fibroblasts cultivated for 3 days. Pre-treated with CYBRIGHT or not (control) for 24 hours.

MTT assay

Cells exposed to blue light (450nm) or control light (570-600nm) for 4 hours, corresponding to 5.76J/cm2 per day for blue light.

**p<0.05 ** p<0.01 Student test*

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NEW RESULTS

CYBRIGHT

Protection against inflammation induced by blue-light

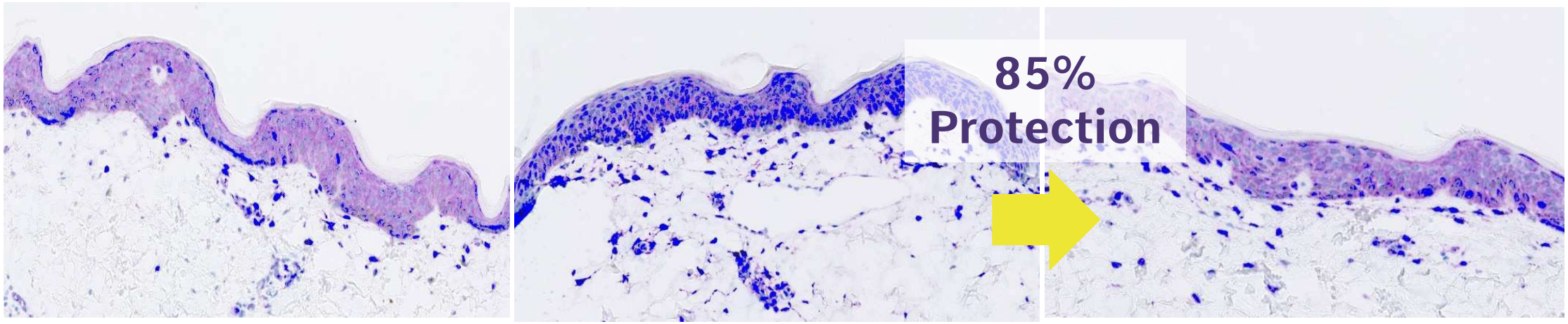
1.5%
EX-VIVO

Blue staining of COX-2

Untreated

Untreated + Blue Light

Blue Light + treated with CYBRIGHT at 1.5%



COX-2

+153%** COX2

-51%* COX2

PROTOCOL

Human skin explants from Caucasian woman 43 years old.

Treated or not for 30 min. Explant exposed to blue light (450nm) or control light (570-600nm) for 2 hours and during 3 days., corresponding to 5.76J/cm2 per day for blue light.

COX2 is a pro-inflammatory mediator involved in prostaglandin activation.
CYBRIGHT G protects cells from inflammation induced by blue-light.

COX2: Cyclooxygenase-2
**p<0.05 ** p<0.01 Student test*

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ACTION ON PIGMENTATION HOMOGENEITY

IN-VIVO
1%

IN-VIVO BENEFITS

PROTOCOL
2 groups of 23 asiatic volunteers (Bangkok – Thailande)
Twice daily applications on the whole face for 8 weeks.
Application of a cream containing 1% CYBRIGHT or a placebo.

ANALYZED PARAMETERS
Pigmentation degree – ITA angle (chromameter)
Pigmentation homogeneity (skin color contrast)

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PIGMENTATION HOMOGENEITY

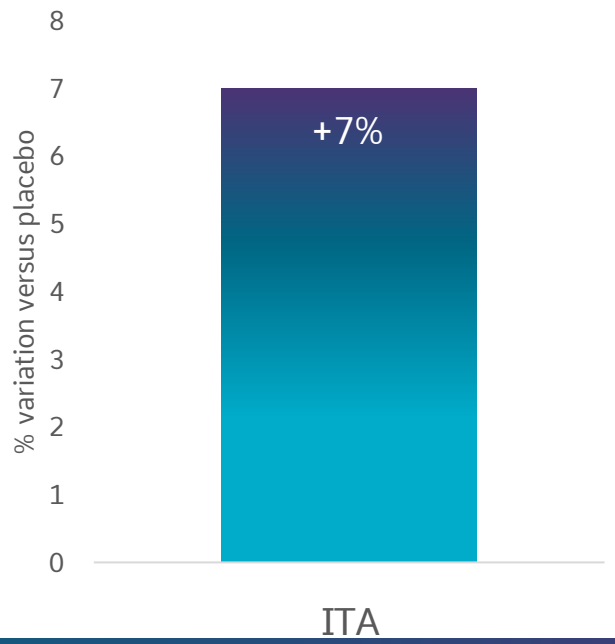
CYBRIGHT lightens pigmentary imperfections

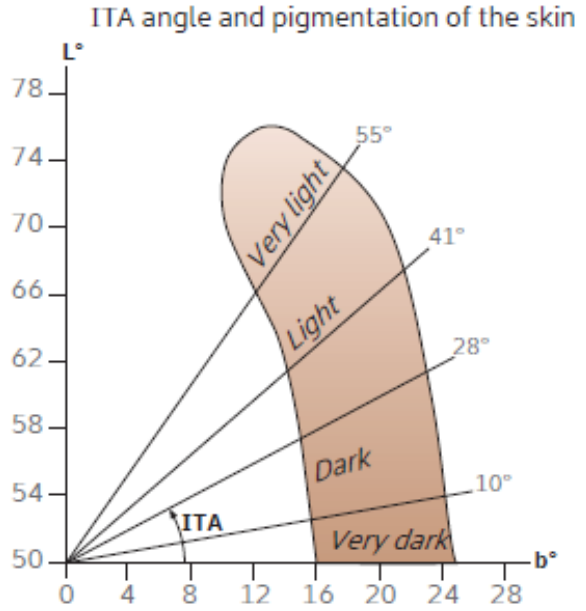
IN-VIVO
1%

Chromametric measurement of the ITA angle makes it possible to measure the degree of pigmentation. The ITA angle increases as the pigmentation becomes lighter.

After 8 weeks of treatment, there is an average increase of:

+7% in ITA angle versus placebo





ITA = Individual Typological Angle

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PIGMENTATION HOMOGENEITY

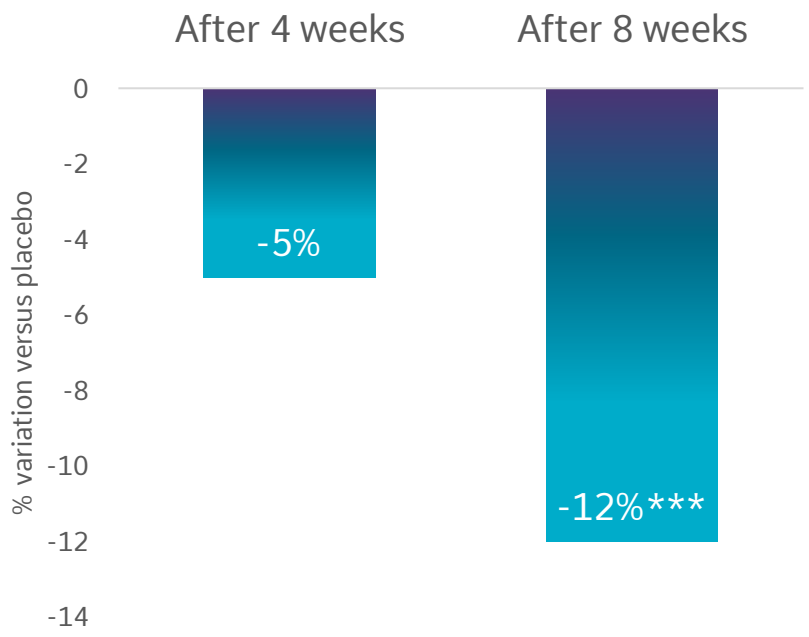
IN-VIVO
1%

CYBRIGHT decreases complexion heterogeneity

Measure of the visibility of pigmentary disorders (contrast spot/skin)

After 4 weeks and versus placebo
-5% on average

After 8 weeks and versus placebo
-12%*** on average



*** p<0.001 student t test

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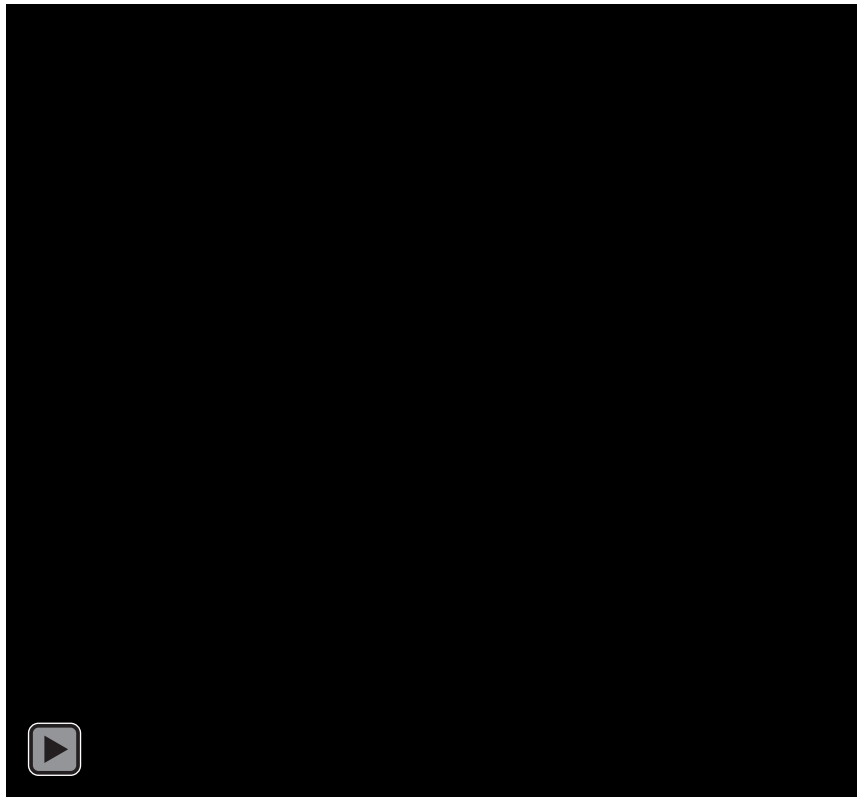
PIGMENTATION HOMOGENEITY

IN-VIVO
1%

CYBRIGHT improves complexion homogeneity



Global view

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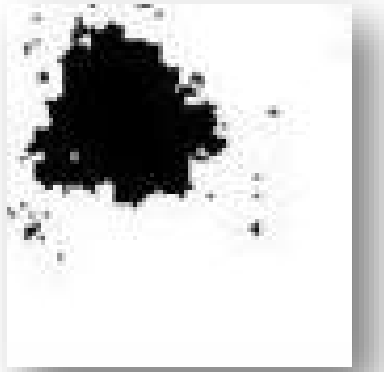
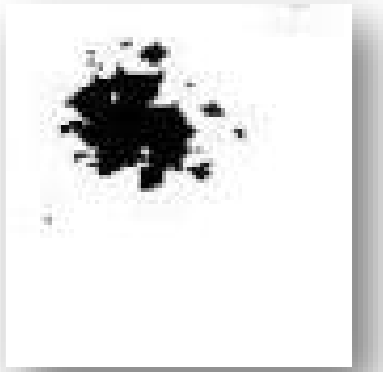
PIGMENTATION HOMOGENEITY

Example with a spot

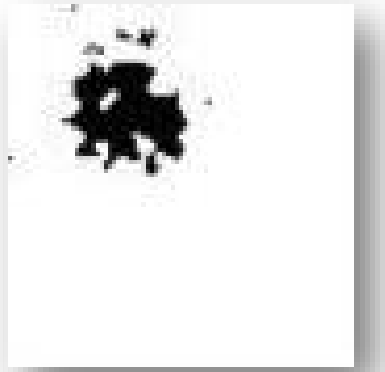
IN-VIVO
1%



Before
treatment



After
4 weeks



After
8 weeks

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PIGMENTATION HOMOGENEITY

Volunteers self-assessment after 4 weeks

IN-VIVO
1%

MORE TRANSPARENT COMPLEXION

LIGHTER COMPLEXION

BRIGHTER COMPLEXION

****p<0.001 Khi-2 test*

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IN-VIVO
1,5%

ACTION ON GLOBAL SKIN PIGMENTATION

IN-VIVO BENEFITS

PROTOCOL

1 group of 16 asiatic volunteers (Bangkok – Thailande)
Twice daily applications on the forearms for 1 week
Application of a cream containing 1,5% CYBRIGHT or a placebo.
Standardization of UV exposure by UVs exposure at D1, D2, D3 and D4

ANALYZED PARAMETERS

Skin pigmentation degree – ITA angle (chromameter)
Skin brightness (chromameter)

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GLOBAL SKIN PIGMENTATION

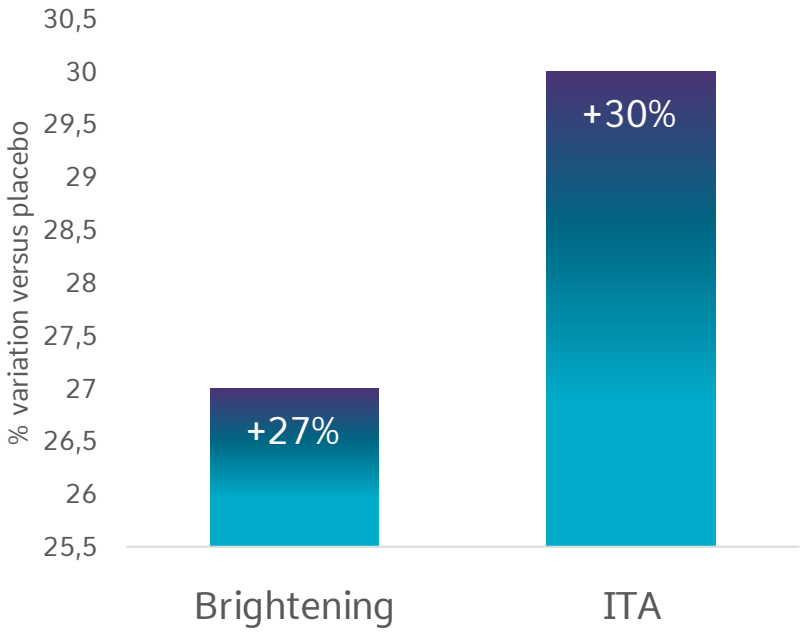
CYBRIGHT lightens skin's pigmentation

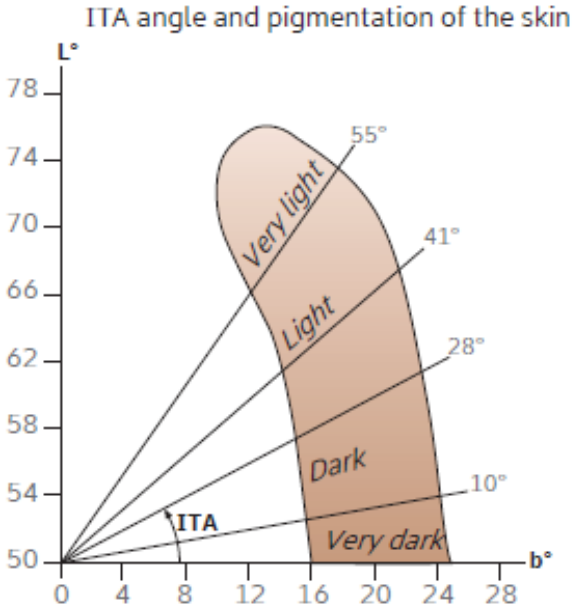
IN-VIVO
1,5%

After 1 week treatment:

+27% of skin brightening on average, versus placebo.

+30% ITA angle (lightening action) on average, versus placebo.





ITA = Individual Typological Angle

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CYBRIGHT – HOW TO USE

TO DECREASE THE GLOBAL PIGMENTATION OF THE SKIN

Decrease in the factors involved in the activation of melanogenesis
Decrease in the factors involved in the maturation of melanosomes
Degradation of melanosomes
Decrease in the synthesis of melanin
Lightening of the skin and improvement of its luminosity

TO DECREASE PIGMENTARY DISORDERS

Lightening of pigmentary disorders
Decrease in the heterogeneity of the complexion
Decrease in the visibility of pigment spots

FORMULATION ADVICE

Water-soluble ingredient. To formulate up to 50 °C maximum.
Whole formulation guide available on request.

USE

INCI

CYBRIGHT GP
Glycerin (and) Water (and) Cystoseira tamariscifolia extract (and) Phenoxyethanol

CYBRIGHT G
Glycerin (and) Water (and) Cystoseira tamariscifolia extract

% OF USE

1 to 1.5%
For both versions

G VERSION COSMOS APPROVED

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INDICATIVE FORMULATION
Snow White Serum

Phase	Raw Material	INCI	%
A	PHENOXYETHANOL	Phenoxyethanol	0,80
	CETIOL LC	Coco-caprylate/caprate	3,00
	SILICONE (DIMETHICONE (100CS))	Dimethicone	2,00
B	EAU DEMINERALISEE	Aqua	87,63
	ELESTAB CPN	Chlorphenesin	0,27
C	DIPROPYLENE GLYCOL	Dipropylene glycol	2,00
	KELTROL CGSFT	Xanthan gum	0,20
D	SEPINOV EMT 10	Hydroxyethyl acrylate/sodium acryloyldimethyl taurate copolymer & Sorbitan isostearate & Polysorbate 60 & Aqua	1,50
E	SEPIPLUS 400	Polyacrylate-13 & Polyisobutene & Polysorbate 20 & Sorbitan isostearate & Aqua	1,00
F	PARFUM	Parfum	0,10
	CYBRIGHT G	**Glycerin & Aqua & Cystoseira tamariscifolia extract**	**1,50**
			100

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CYBRIGHT

Lightening - Homogeneity of the complexion

Rainbow Algae Extract

Extracted from the Rainbow alga, whose iridescence makes it possible to improve the diffusion of the luminosity.
Harvest Site approved by Ecocert/Cosmos – Organic grade.
Harvest 100% manual and respectful of the environment.
Origin Brittany - France.

TO USE IN ASSOCIATION WITH:

NEUROLIGHT: for a complete lightening action + pigment spots

SKINPERF LWG: for a resurfacing and brightening action

RAYKAMI: for a brightening and protective action against radiations

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