

**SEPPIC**

# Adipoless

**Dark Circles Eraser**



An affiliate of  **AIR LIQUIDE**

# Tiredness

*Aging skin*

**Stress**

**OVERWORK**

Smoking  
& drinking

Ethnic origin

Dehydration

Poor diet

**H e r e d i t y**

Exposure  
to UV rays

*Busy lifestyle*



*... shadows under the eyes ... sad face ... drawn features ...  
... lack of vitality ... dull complexion ...  
... crumpled appearance ... heavy eyelids ...*

## The eye contour is a particularly fragile area that easily shows signs of tiredness or aging

- **Zone bordered** on the top by the lower eyelid and on the bottom by the cheekbone.
- **Very fine skin**, around 0.5 mm thick (3 times finer than the rest of the skin on the face)
- **An extensive vascular network** that appears through the fine skin of the eye contour
- **This part of the face is very sensitive** to environmental attacks and is more rapidly marked

### 3 types of dark circle

- can co-exist and thus have a greater impact on the vitality of the eyes
- are aggravated as tissues become distended with age (ptosis)

#### Hollow dark circles:

due to the shifting position of the muscles and fatty zones of the face

#### Brown or pigmented dark circles:

caused by deposits of melanin in the dermis and/or hyperpigmentation of the epidermis on the eye contour

#### Blue dark circles:

the consequence of defective microcirculation and the permeability of vessels, leading to the accumulation of blood pigments responsible for the purplish-blue shade



## Less toned and more permeable capillaries

- The blood stagnates in vessels and is less well oxygenated: haemoglobin contained in the red blood cells is altered and takes a purplish colour, pigmenting the eye contour
- The red blood cells diffuse into the extracellular matrix where they are disintegrated. Haemoglobin accumulates in the dermis where it is altered.

## Development of the capillary network

- The formation of new vessels makes the colour of dark circles more intense.

## Less elastic, finer and more transparent skin

- The fine skin on the eye contour reveals the vascular network and blood pigments
- On the face, distension of tissues caused by aging (ptosis) reinforces the appearance of blue dark circles.

### Population affected: A *UNIVERSAL* problem

All eyes are affected by blue dark circles caused by tiredness, overwork, a busy lifestyle, excessive stress, etc.

- men and women
- regardless of their ethnic origin
- all ages





**All eyes are affected by signs of tiredness.**

**The gaze is often dimmed by the presence of purplish-blue circles**

**Fading dark circles is a universal problem**

- For young people with busy lifestyles
- For active, overworked and stressed people
- For older people with distended tissues

**The eye contour care is a key product in the range.**

**The anti-dark circles active ingredient is essential in eye care.**

**ADIPOLESS is an excellent active ingredient against dark circles**

**A holy grain**, going back more than 5,000 years, part of the **chenopodiacea family** also called Peruvian rice.

Grown at the heart of the Andes plateaux, in South America.

**A key part of Inca diet.**

This holy plant was worshipped each year by the Emperor of the Incas who would sow the first seeds with a golden spade.



Quinoa

**The ultimate nourishing grain**, Quinoa was commonly called "mother of all grains" in Quechua.

Recognised benefits of Quinoa in the diet:

**Gluten free, rich in bioavailable minerals (iron, magnesium, zinc, manganese), trace elements, vitamins, unsaturated fatty acids and above all 8 essential amino acids.**

**Its benefits** are increasingly exploited in the cosmetic field:

**ADIPOLESS: Butylene Glycol and Chenopodium Quinoa Seed Extract**

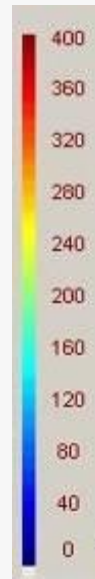
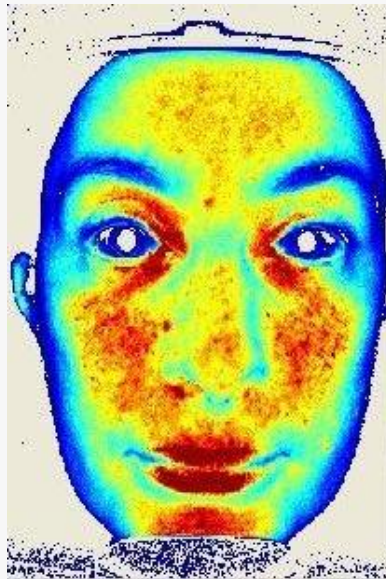
Taken from Biological Canadian-grown QUINOA (international norms)

=> Grown without herbicides, pesticides or fertilisers

## Quantification of red blood cells in dark circles

### TiVi® 600: *In vivo* imagery method

- This technique is used to assess, using spectroscopy in polarised light, **the red blood cells concentration** in the dermis
    - located in capillaries (circulating or stagnating)
    - which have diffused into the dermis because of the permeability of vessels.
- Red blood cells that contain haemoglobin diffuse and refract light specifically according to wavelengths.



A high concentration of red blood cells in the eye contour area (red zone) is characteristic of marked dark circles.

*Mapping of red blood cells present in the dermis.*

## Quantification of red blood cells in dark circles

**Protocol: TiVi® 600 analysis of variations in the concentration of red blood cells between D0 and D28:**

- 2 mixed panels of 20 volunteers. Average age: 45 years (minimum: 30 years (maximum: 60 years).
- Determination of the concentration of red blood cells in the dermis by spectroscopy in polarised light (TiVi® 600: Data in arbitrary units).
- Analysis of individual variations (D28-D0), 1 month of treatment
- Tests conducted double blind versus placebo (outside provider)
- 2 applications per day under both eyes

	Aqueous gel EU07214A	Placebo formula
<b>Water</b> <i>Water</i>	90.5%	92.5%
<b>Sepinov EMT 10</b> <i>Hydroxyethyl Acrylate/ Sodium Acryloyldimethyl Taurate Copolymer</i>	1.5%	1.5%
<b>Butylene Glycol</b> <i>Butylene Glycol</i>	2%	2%
<b>Glycerin</b> <i>Glycerin</i>	3%	3%
<b>Adipoless</b> <i>Chenopodium Quinoa Seed Extract and Butylene Glycol</i>	2%	0%
<b>Euxyl PE9010</b> <i>Phenoxyethanol and Ethylhexyl Glycerin</i>	1%	1%
<b>Adjust to pH 6,3</b>		



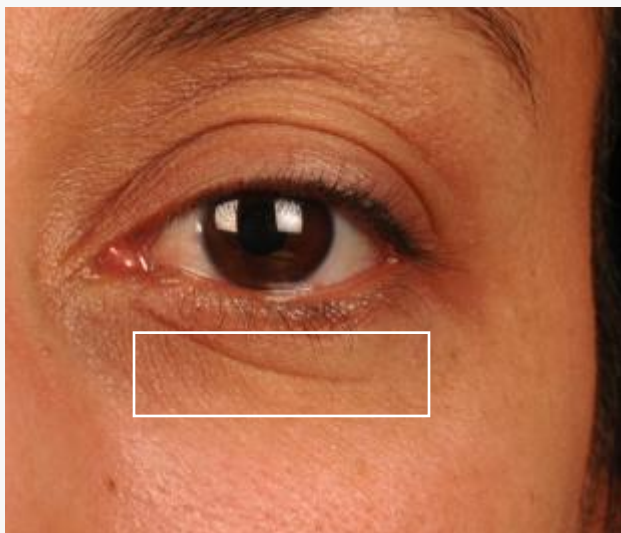
2% formulated Adipoless  
(commercial product)



**ADIPOLESS 2%: Anti-dark circles action visible as from 28 days**

Move from shadow to light with ADIPOLESS 2%

**D0**



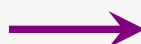
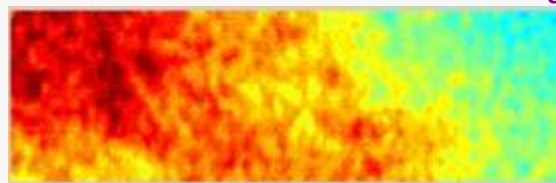
**D28**



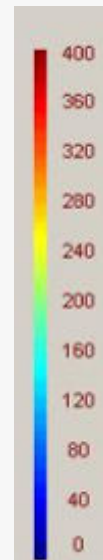
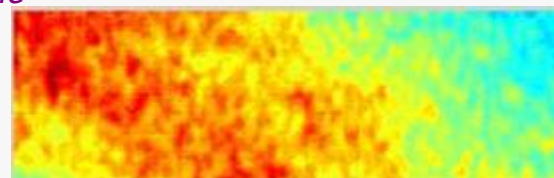
Volunteer 38

*Close-up  
on the dark circle*

$\Delta(D28 - D0 \text{ [red blood cells]}) = -22 \text{ a.u.}$



*TiVi® analysis*



ADIPOLESS visibly reduces the red blood cell concentration to tone down purple coloring of the dark circles, for a more luminous gaze, less tired gaze.

# ADIPOLESS 2%: Anti-dark circles action visible as from 28 days

Volunteer 41:

$\Delta(D28 - D0 \text{ [red blood cells]}) = 0 \text{ a.u.}$

**PLACEBO**



**D0**

**D28**

**ADIPOLESS 2%**



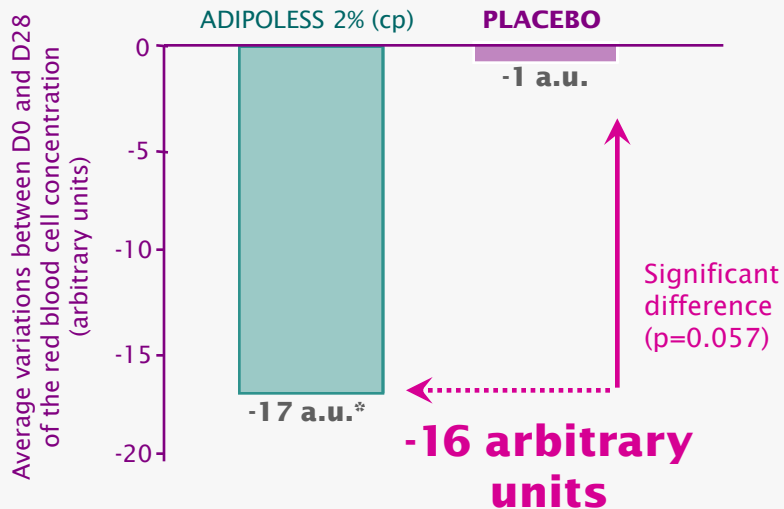
Volunteer 38:

$\Delta(D28 - D0 \text{ [red blood cells]}) = -22 \text{ a.u.}$

**ADIPOLESS dissipates signs of tiredness and enhances the gaze!**

**ADIPOLESS 2%: Anti-dark circle action visible as from 28 days**

In 28 days, significant reduction of 16 arbitrary units of the red blood cell concentration with respect to the placebo!



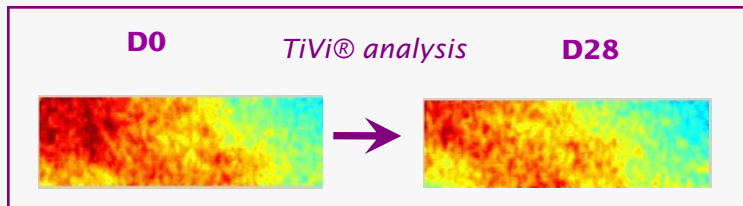
A smaller quantity of pigments means dark circles that are less blue.

**ADIPOLESS refreshes for a sparkling gaze!**

cp: commercial product  
\*p<0.05

Effect observed for **90% of subjects**

among whom **61% of volunteers** had a variation in the concentration of red blood vessels **higher than the average results** (17 a.u.)



## ① Resistant blood vessels - Protection against stress (tiredness, aggressive factors, pollution...)

- Protection of ATP content in endothelial cells exposed to oxidative stress
- Helps to prevent the release of red blood vessels and their stagnation in the vessels.

## ② Controls the formation of the capillary network

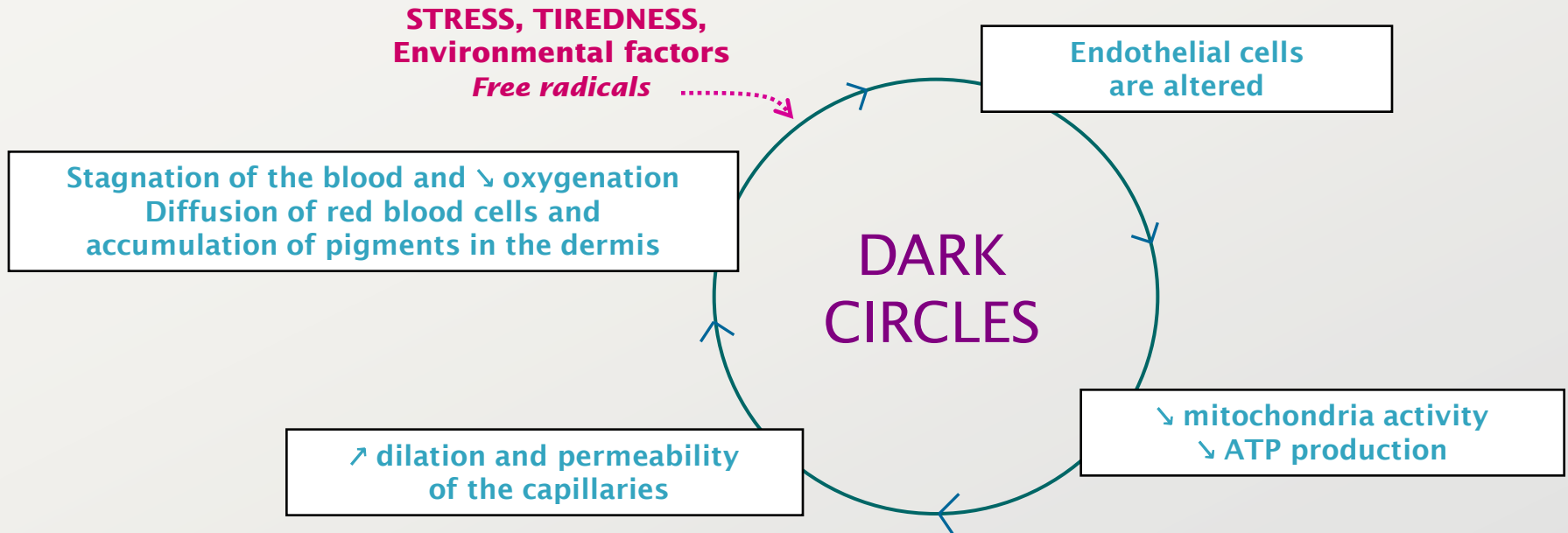
- Decreased quantity of new blood vessels
- Inhibited MMP-9 activity for anti-angiogenic action
- Limits the multiplicity of vessels responsible for the intensity of the color of the dark circles.

## ③ Maintains skin elasticity

- Protection of skin's elastic fibres
- Skin remains elastic, it is less thin, less transparent and dark circles are faded!

① **ADIPOLESS strengthens the capillaries**

**EFFECTS OF TIREDNESS AND STRESS**



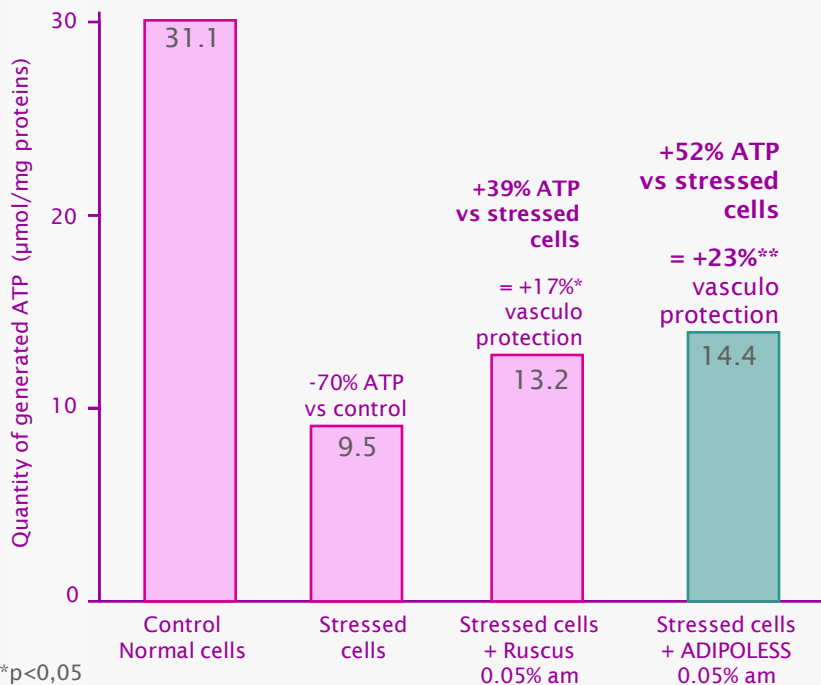
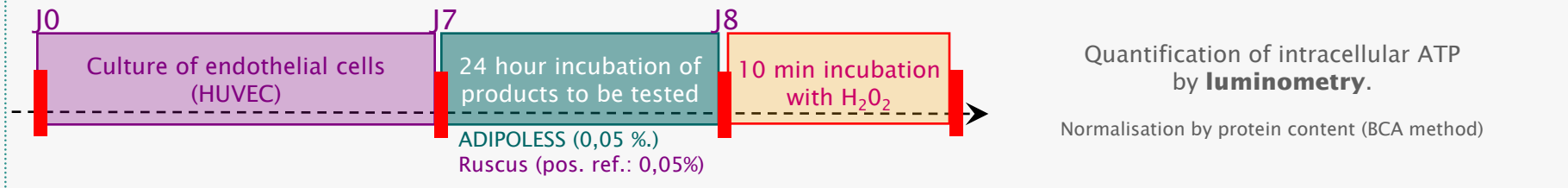
Janssens *et al.*, British Journal of Pharmacology, 2000  
Hu *et al.*, Circulation Research, 1998

**Amplification of the phenomenon:**

Dark circles appear more rapidly and more intensely when they are not treated

# ① ADIPOLESS strengthens the capillaries

**Protocol:** Evaluation of the protective vascular effect by measuring ATP content in endothelial cells subjected to oxidative stress (H<sub>2</sub>O<sub>2</sub>).



The increase in ATP in endothelial cells exposed to oxidative stress reflects the activity of cell's mitochondria and the quality of blood vessels

## 23% protective vascular efficacy with 0,05% d'ADIPOLESS

*% expressed with respect to control without ADIPOLESS, non stressed and stressed by H<sub>2</sub>O<sub>2</sub>*

### Higher resistance for the capillaries:

- Helps to reduce the slowing down of the microcirculation (stagnation of red blood cells)
- Helps to prevent the permeability of blood vessels (release of red blood cells into the dermis).

External factors, stress and tiredness will have a lesser impact on the eye contour.

$$\% \text{ vasculo-potection} = \frac{(\text{tested product} - \text{stressed cells})}{(\text{control} - \text{stressed cells})} \times 100$$

\*p<0,05  
\*\*p<0.001

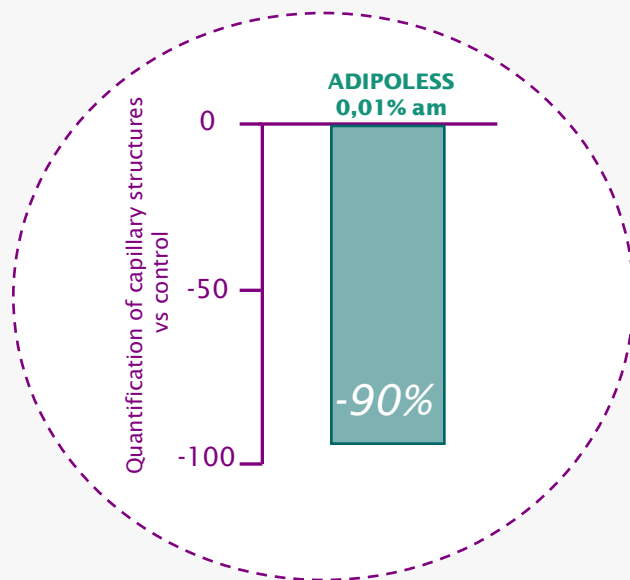
## ② ADIPOLESS limits the formation of new blood vessels

### NEOVASCULARISATION

Neovascularisation : formation of new blood vessels.

→ The visibility of dark circles depends on the density of the capillary network.

**Protocol:** Quantification of capillary structures (pseudo-vascular tubes)  
on a 3D culture model of HUVEC endothelial cells taken from an umbilical cord (capable of forming vessels).



As from 0.01%, ADIPOLESS limits the development of the capillary network (new vessels)

*% expressed with respect to the control without ADIPOLESS*

Tested against a positive reference:  
Fumagillin: -50% efficacy at 0.0015% am

a.m. : active matter

## ② ADIPOLESS limits the formation of new blood vessels

### METALLOPROTEINASE-9

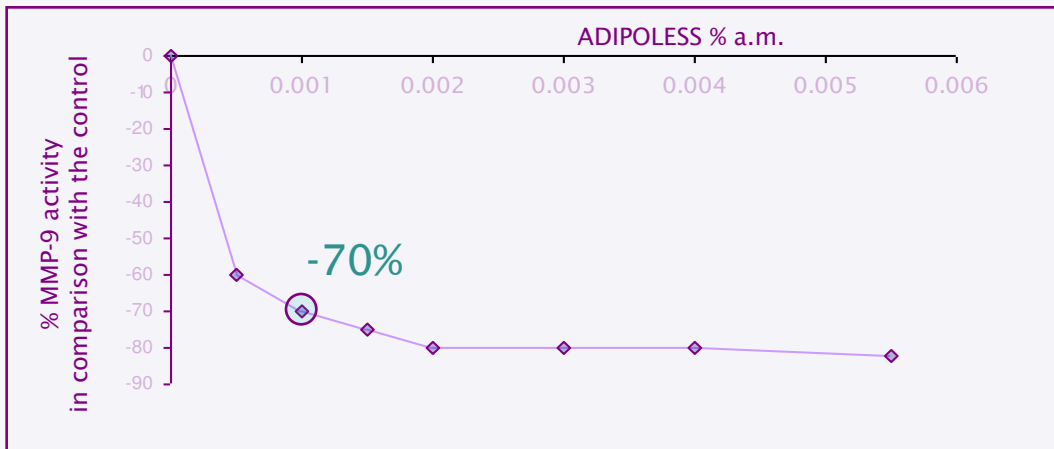
MMP-9 is an enzyme responsible for the **creation of new blood vessels**:

- by increasing the bioavailability of pro-angiogenic molecules such as VEGF (vascular endothelial growth factor)
- by degrading the extra-cellular matrix necessary for the formation of capillaries.

→ **The denser the capillary network, the more visible it will be in the hollow of the dark circle**

#### Protocol: Determination of anti-MMP-9 activity of ADIPOLESS for anti-angiogenic action

→ Inhibition of **MMP-9 activity** determined *in tubo* by fluoro-enzymatic dosage



a.m.: active matter

**As from 0.001%, ADIPOLESS  
inhibits by 70% the action of MMP-9**

**By inhibiting the action of MMP-9,  
ADIPOLESS limits the development of the vascular network.**



## ③ ADIPOLESS maintains skin elasticity

### ELASTIN:

The main molecule making up the elastic fibers present in the dermis

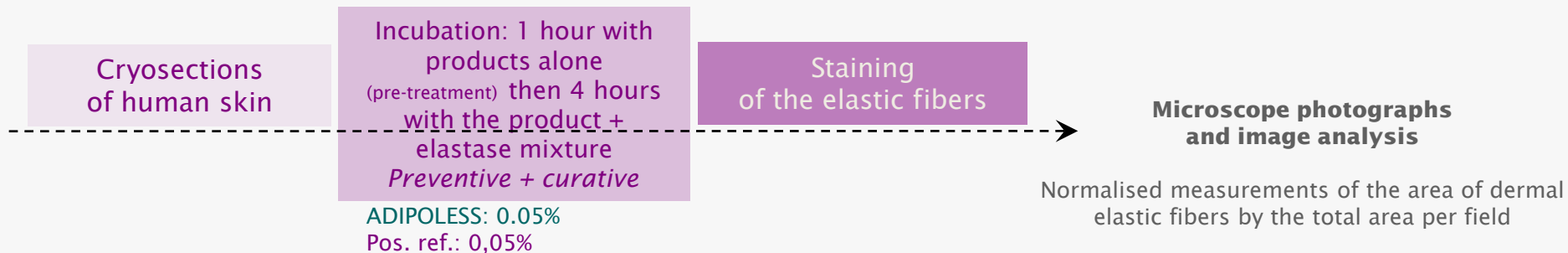
With aging or inflammatory processes,

- o Reduced elastin synthesis and production of elastic fibers (replaced by non-extendible collagen)
- o Breakdown of elastin by elastases. The dermis then loses its elasticity and tone and becomes distended.

→ **The skin on the eye contour becomes distended, is finer: the underlying vascular system can be seen.**

### Protocol: Determination of ADIPOLESS' potential to protect the elastic fibers

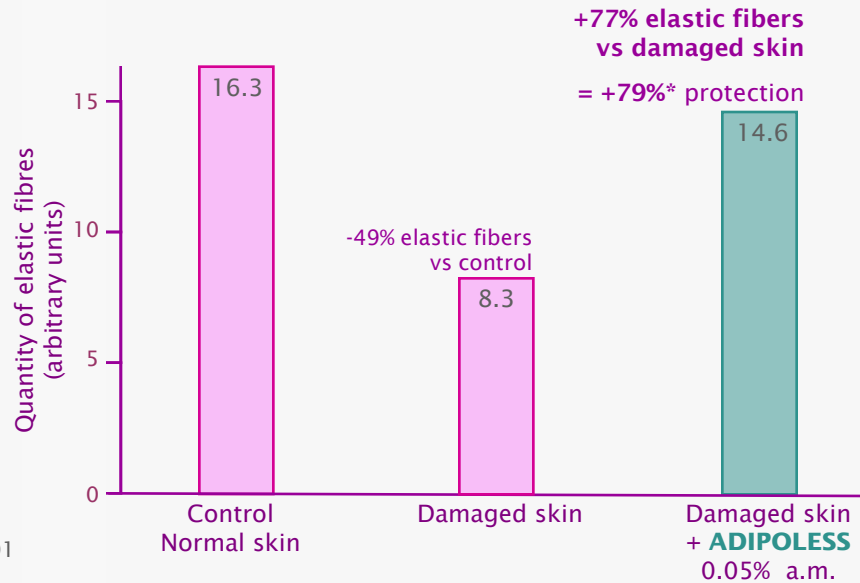
Histological assessment of the proportion of elastic fibers present on cryosections of human skin (surgical plasty) following treatment with human elastase (modelling of aging). Topical application.



**Positive reference:** antioxidant, brown alga extract

**③ ADIPOLESS maintains skin elasticity**

**Determination of the protection potential of elastic fibers**



**As from 0.05%, ADIPOLESS protects 79% of elastic fibers**

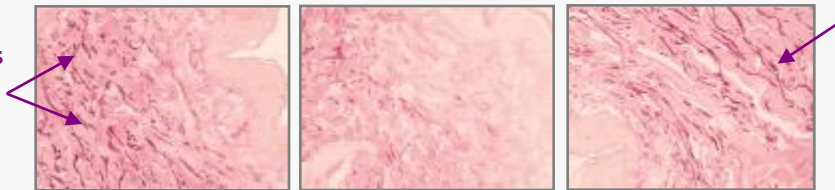
*Protective effect expressed with respect to normal skin and damaged skin controls.*

The dermis maintains its elastic properties.

Skin is less prone to distension in the hollow part of dark circles.

Tissue ptosis is limited.

**Elastic Fibers**  
Weigert stain (purple)



*Damaged skin : Normal skin + elastase*

The extracellular matrix of the vascular system also contains elastic fibers. ADIPOLESS also intervenes in the protection of the capillary walls.

**ADIPOLESS acts to keep the skin and vascular structures intact**

Less distended skin reduces the dark circles.

More toned and less permeable capillaries help to reduce the appearance of dark circles.

*In vitro*

### **Stronger capillary walls**

**Protects against environmental aggression  
and the consequences of stress and tiredness**

- The endothelial cells resist to the oxidative stress (↑ATP synthesis).

→ Less distended capillaries, less permeable to the release of pigments into the dermis (haemoglobin contained in the red blood cells).

### **Limits the development of the capillary network**

**Inhibition of neo-vascularisation**

- Decreased quantity of new capillary structures
- Inhibited MMP-9 activity known for its angiogenic action

→ Controls the formation of new vessels implicated in the density of the capillary network and its visibility in the dark circles area.

### **Maintains skin elasticity**

**Protection of skin's elastic fibers**

→ For less distended, less fine and transparent skin and faded dark circles!

**ADIPOLESS may be added at 2% in any type of topical-application formula.**

Hydrosoluble yellow liquid



Stable in color and odor in time

Insensitive to shear stress.

May be added before or after emulsification.

Introduction in the aqueous phase.

Does not generate electrolytes.

White emulsions or  
gel-creams

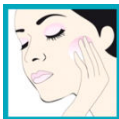
Transparent, colorless  
lotions

**SEPPIC**

EU07214A



Gel



- **Aqueous gel**
- **Packaging : Pump bottle**
- **Anti-dark circles efficacy validated by panelists.**
- **ADIPOLESS™ visibly erases under eye dark circles in 28 days. Eyes are revitalized and less affected by fatigue.**
- **Minimalist formula with high efficacy**
- **Good penetration without sticky effect**
- **Without paraben**

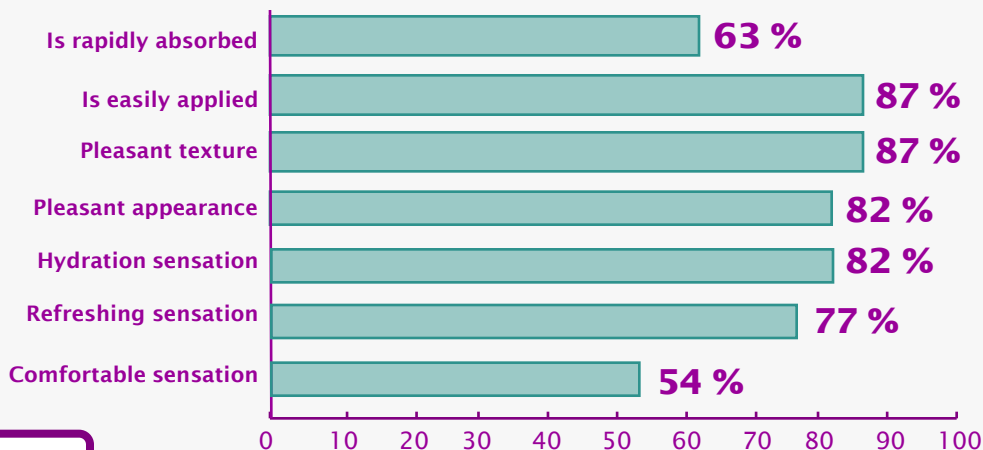


## BYE-BYE SHADOWS!

A	Aqua / Water <b>SEPINOV™ EMT 10</b>	Up to 100% <b>1.50%</b>
B	Butylene Glycol Glycerin <b>ADIPOLESS™</b> Phenoxyethanol & Ethylhexylglycerin Adjust pH up to 6.3	2.00% 3.00% <b>2.00%</b> 1.00%

Appearance	Opalescent aqueous gel
pH	6.3
Viscosity 1M at RT	96 100 mPa.s, Brookfield S7S5
Viscosity 1M at 45°C	95 600 mPa.s, Brookfield S7S5
Viscosity recovery at RT (after 1M at 45°C)	99 600 mPa.s, Brookfield S7S5
Stability*	1M at RT, 45°C, cycles -5°C/+40°C Stable after 20' of centrifugation at RT & 3000rpm

### General assessment of the sensory features of the ADIPOLESS 2% formula



### *In vivo* efficacy:

- Reduction of dark circles: 54%
- Smoothed features: 54%
- Softer skin: 64%



### Combinations with other Seppic active ingredients for complementary actions:

- **SEPILIFT DPHP:**  
Anti-aging action, dermal protection, favours the synthesis of matrix elements.  
Wrinkle correction, moisturising and triple action firming. (tested *in vivo* on the crow's foot - 1,5 month's treatment)
- **SESAFLASH:**  
Instant "5 minutes flat" tightening action, wrinkle smoothing and long-lasting moisturising effect (tested *in vivo* on the crow's foot)
- **SEPITONIC M3:**  
Cell chrono-energizer, boosts the efficacy of active ingredients by activating the energy metabolism of skin cells (well tolerated in Het-Cam).
- **SEPICALM VG WP:**  
Fights hyperpigmentation (well tolerated in Het-Cam).
- **AQUAXYL:**  
Harmonises moisture flows and boosts production of hyaluronic acid (well tolerated in Het-Cam)

Recommended dosage: 2% for cosmetic anti-dark circles application

Ocular tolerance  
HET-CAM test in use dosage

***non-irritant***

Skin tolerance  
48 hour patch test in use dosage  
In conditions of use (2%)  
on the eye contour, for 28 days  
2 applications per day.

***non-irritant***

Sensitization  
Marzulli-Maibach at 5%

***non-sensitizing***

Mutagenicity  
AMES OCDE 471, tested pure

***non-mutagenic***

- Europe

- Cosmetic

- USA

- Cosmetic
- OTC

- Canada

- Cosmetic

- Australia

- Cosmetic

- Japan

- Cosmetic

- China

- *Butylene glycol*: MoH 2003 & IECIC part I
- *Chenopodium Quinoa Seed Extract*: SFDA 2007 & 2010



# ADIPOLESS Anti-dark circles: strenghts

**INCI name: *Butylene Glycol and Chenopodium Quinoa Seed Extract***

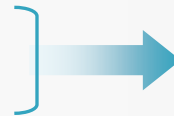
Taken from Biological Canadian-grown QUINOA (international norms) => Grown without herbicides, pesticides or fertiliser – paraben-free – PATENTED

## In VIVO

**Fades dark circles in 28 days as from 2% of ADIPOLESS (40 volunteers)**

- **Significant reduction of the red blood cell concentration of 16 arbitrary units vs placebo**

Reflects the reduced blue color of the dark circles.

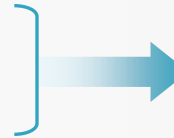


Dark circles are **less dark**, the gaze is refreshed and sparkles with vitality!

## In VITRO

**Protects the capillaries against environmental aggression and the consequences of stress and tiredness**

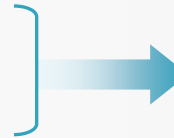
- **23% of protective vascular efficacy with 0.05% ADIPOLESS**



The capillaries are stronger  
Limits stagnation of red blood cells and their release into the dermis.

**Limits the formation of new blood vessels**

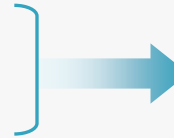
- **Inhibition of neo-vascularisation by 90% with 0.01% ADIPOLESS**
- **Anti-MMP-9 action as from 0.001% for an anti-angiogenic activity**



ADIPOLESS prevents development of the capillary network, therefore limiting the **intensity of the color** of dark circles!

**Keep skin and vascular structures intact**

- **Protective action of elastin: 79% with 0.05% ADIPOLESS**



ADIPOLESS limits the action of the dermis breaking down enzymes, for a skin that is **less prone to being distended, less fine and therefore less transparent. For faded dark circles!**

- Excellent TOLERANCE for cosmetic applications
- Perfect cosmetic STABILITY

- Very easy to FORMULATE (hydrosoluble extract) in ALL cosmetic projects including transparent lotions and hygiene products.  
May be used to make colorless formulas (use at 2%)

## Nota

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*Activate unique synergies*