



Hair Care from Scalp to Tip

April 2025

dsm-firmenich ●●●

Agenda

01 Market & Consumer Insights

02 dsm-firmenich Hair Care Solutions Map

03 ALPAFLOR® EDELWEISS CB

04 PENTAVITIN®

05 BeauPlex® VH

06 Other dsm-firmenich Solutions



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The Hair Care Market

2nd biggest segment within Personal Care, accounting for 15% of the whole market

61% of the sales is behind Shampoo, Conditioners & Treatments

Top 20 Global Companies account for 45% of the market

APAC is the biggest region, accounting for 31% of whole sales, followed by EMEA with 30% of the sales

Source: Euromonitor Global RSP MKT Val, FY 2020

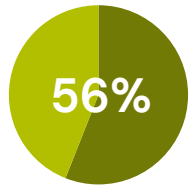


What's really trending now?

Hair Loss* Treatments, Conditioners and Treatments, are the fastest-growing segments

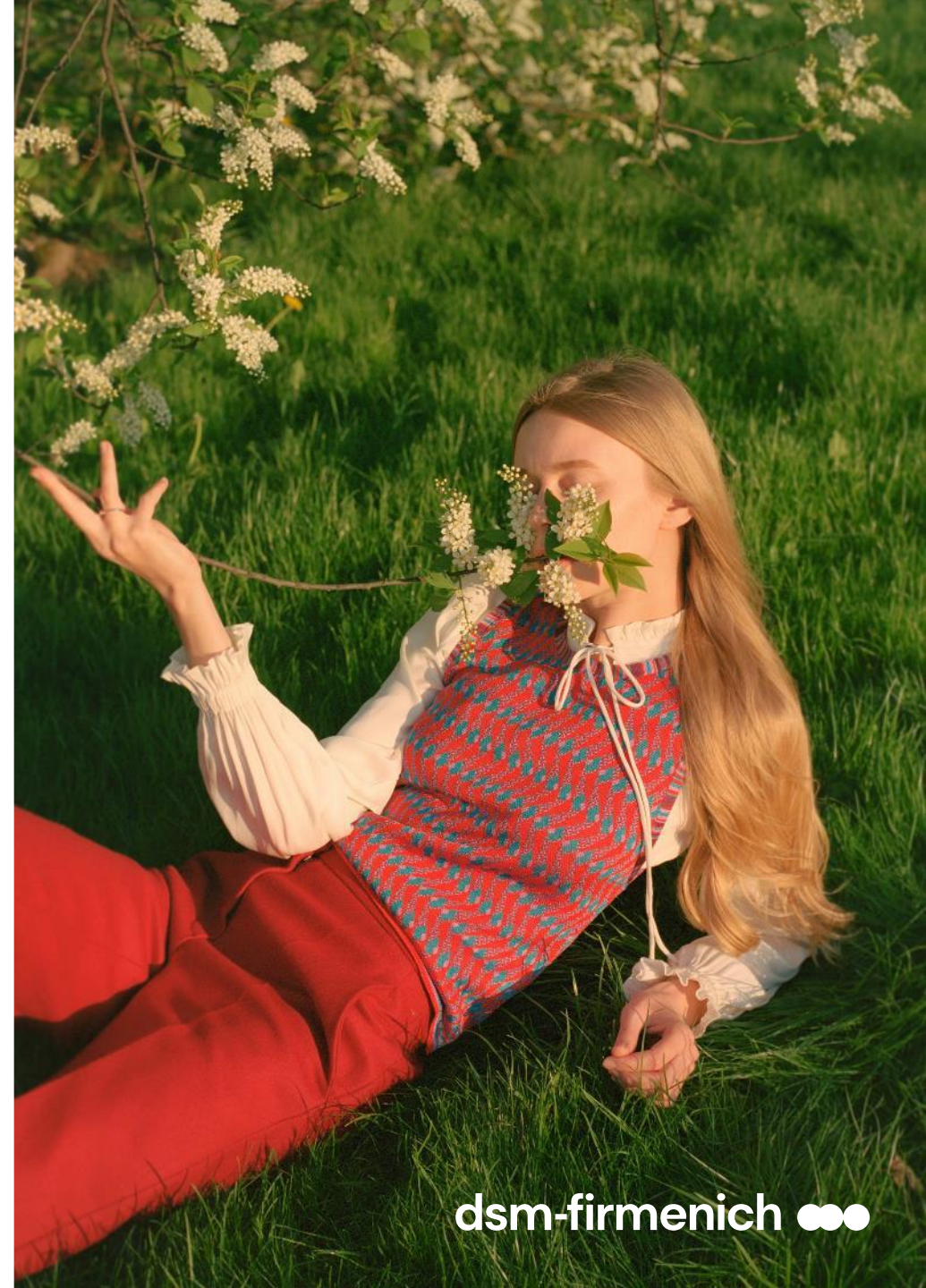
Premium segment is growing more than 3.5x above the Mass segment

Skinification continues to be a key trend: Consumers are interested in ingredients trending in facial skincare



Of Consumers, when it comes to purchasing decision, the active ingredient is more important than the brand, packaging and fragrance

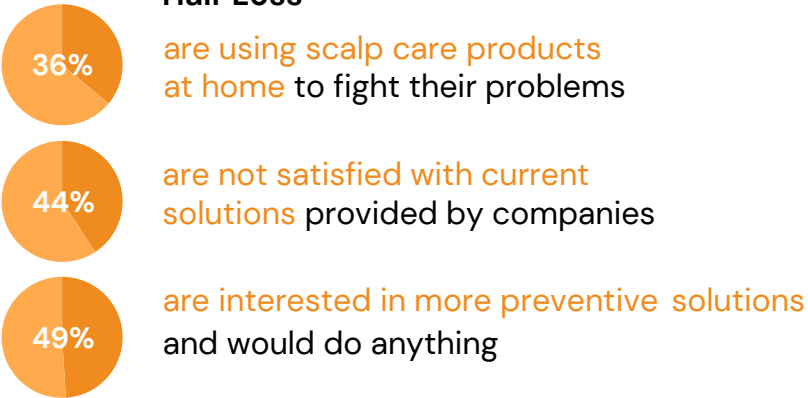
*Helps prevent hair loss / Drug claim in some regions
Source: Mintel, dsm-firmenich | Research 2021



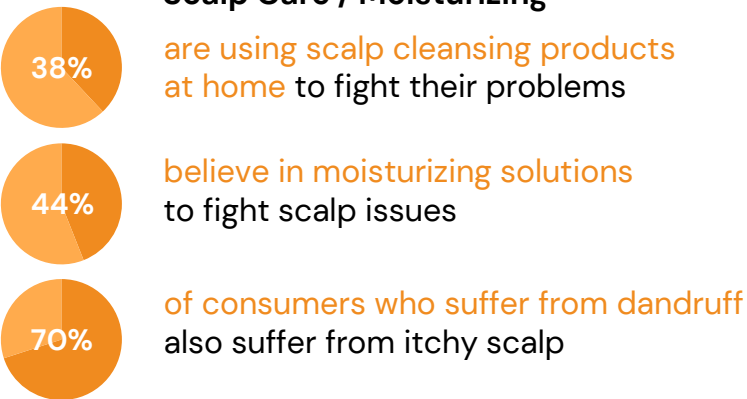
Fastest Growing Benefits & Consumer Intel

Scalp is a growing focus with moisturizing, sensitive scalp, damaged hair, and hair loss* as main claims

Hair Loss*



Scalp Care / Moisturizing

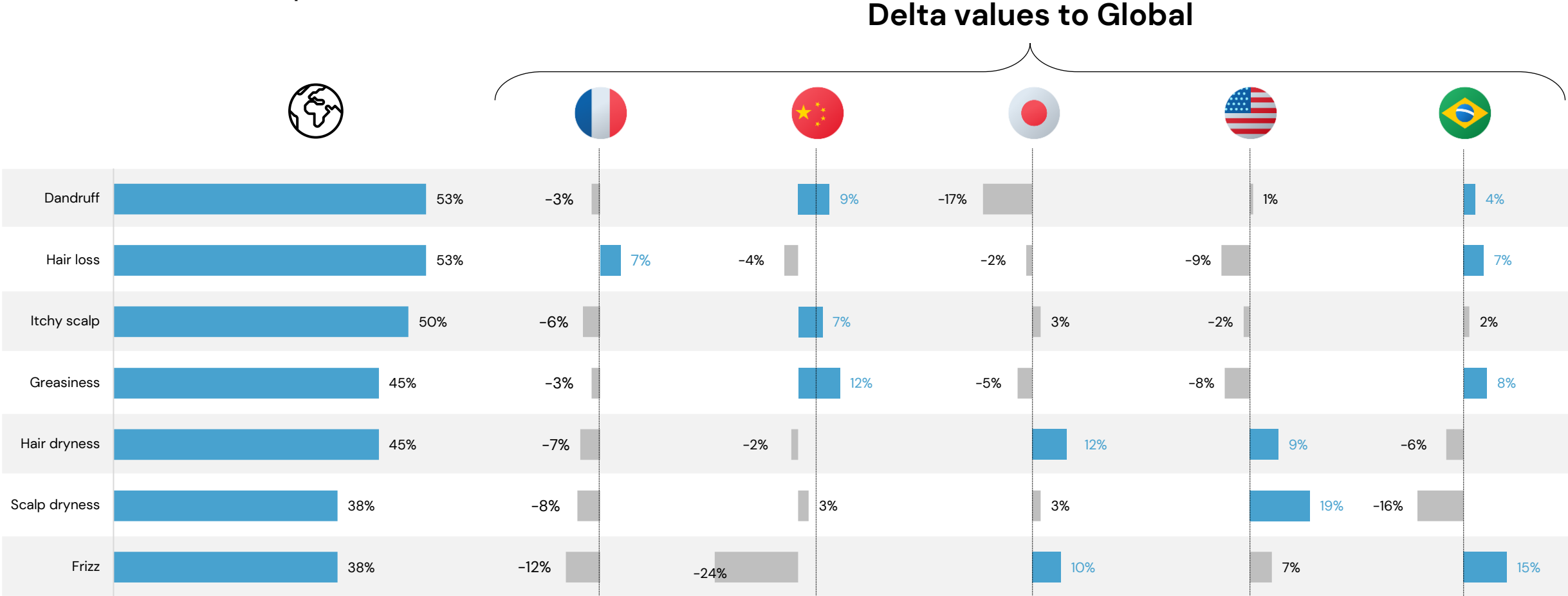


*Helps prevent hair loss / Drug claim in some regions
Source: Mintel, dsm-firmenich Research 2021



Top of mind concerns across the Globe

Quite differentiated picture across the countries



*Q2: Multiple choice. Total number of respondents: 2100. Countries weighted data
Consumers already suffering the issue

Skinification Messaging

Brands are educating consumers

Hair Care brands are messaging the connection between a **healthy scalp and hair loss*** with mentions on **social media increasing tenfold from 2019 to 2020.**

Brands are also trying to **educate consumers about managing health as a hair loss* strategy** but also suggesting multiple products as a possible solution to help combat the issue.

Act+
Acre



Skincare for your Scalp – The Essentials:

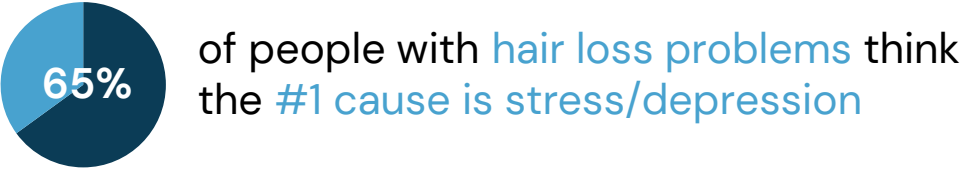
- Scalp Detox: A treatment that rebalances the moisture barrier to **support the scalp's** vital role in healthy hair
- Hair Cleanse: A nutrient-dense shampoo that **gently removes residue without irritation**
- Hair Conditioner: A silicone-free conditioner made of plant oils that instantly absorb to **deliver weightless, lasting hydration**

*Helps prevent hair loss / Drug claim in some regions
Source: Mintel



Hair Loss*

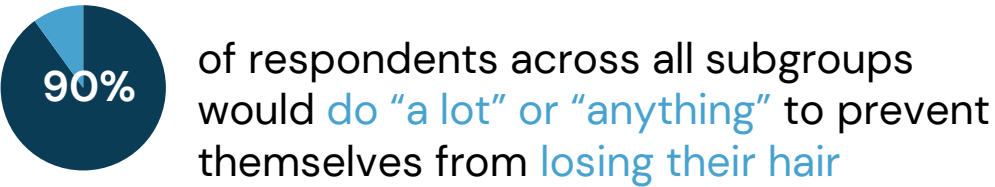
2020 Survey insights



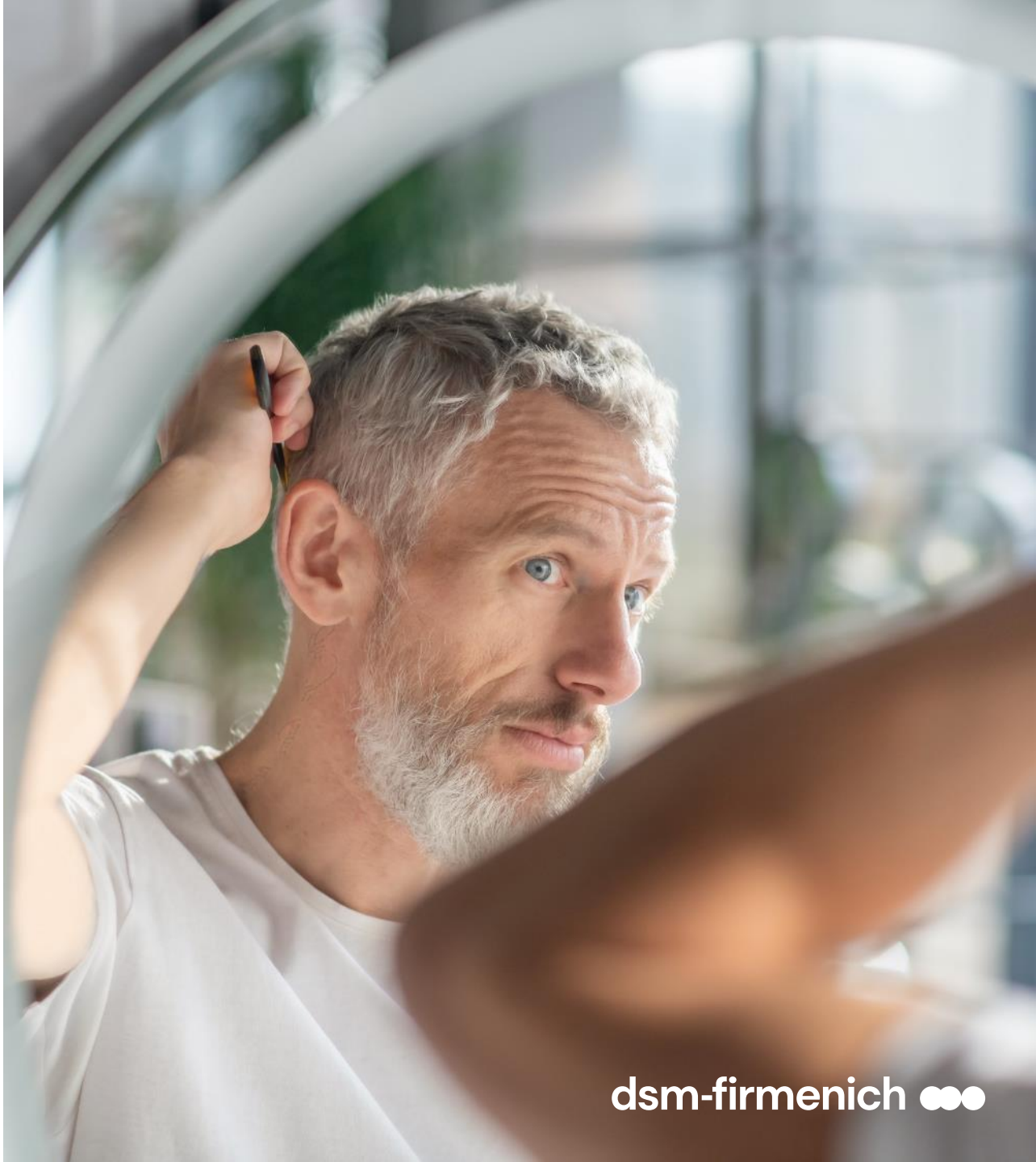
Biggest Symptoms for Hair Loss:



It was found that Gen Z and females blamed hair dyeing and usage of wrong haircare products for hair loss to a higher extent than other subgroups



*Helps prevent hair loss / Drug claim in some regions
Source: dsm-firmenich Research 2021



Consumers Express Their Greatest Challenges with Hair Loss*



"I feel really sad when my hair comes out. It's very thin, anyway and I haven't got a lot around the front. A lot came on after I had a child. Every time I wash it, more comes out. Every time I brush it, more comes out."

Kier, 35
Peterborough, UK

"I do personally take vitamins on top so I would like the product to be enriched in that in whatever form and absorbed into your scalp."

Jhunette, 35
Sydney, Australia

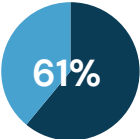
"The more natural the product is, the **more vitamins it has, the better it is for you.** I am all for products that offer additional vitamins to support the hair growth and anything like that to just take care of yourself."

Matt, 42
Corona, USA

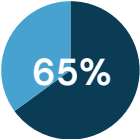
*Helps prevent hair loss / Drug claim in some regions
Source: dsm-firmenich Research, 2021, 45 respondents from US, UK, AU (15 per country)

Scalp Care

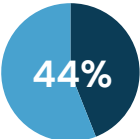
Survey Insights



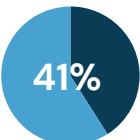
of respondents see stress/depression as the #1 cause for scalp issues, followed with some distance by unhealthy diet (48%)



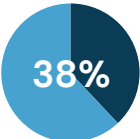
Itchy scalp is the #1 symptom for scalp problems



The claim that sufferers from scalp issues find most interesting is “moisturizes scalp and hair”

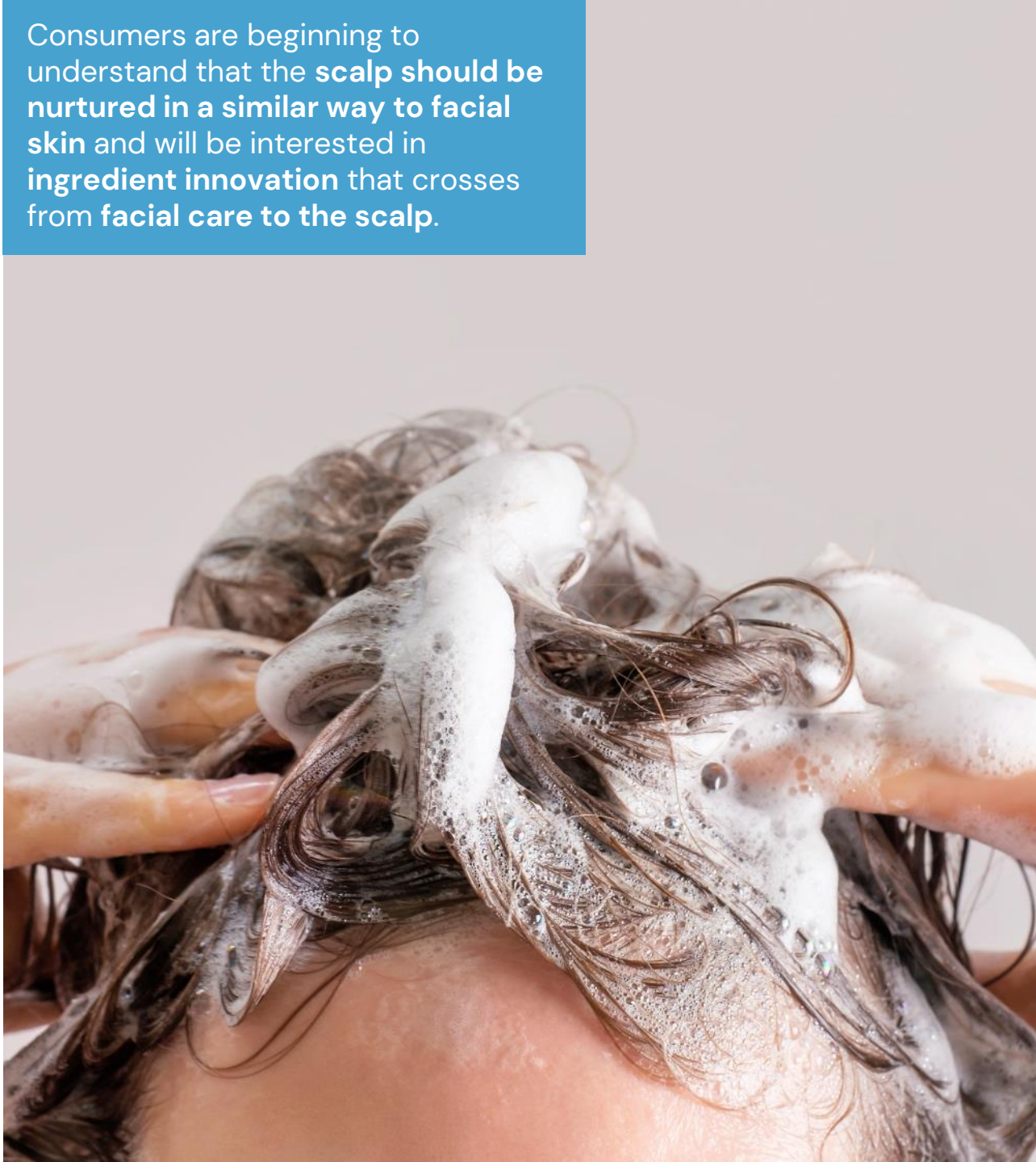


Followed with some distance by “soothes the scalp, reduces itchiness” – these claims especially resonate with Gen-Z consumers



Scalp cleansing products are considered as the first choice for preventing scalp issues

Consumers are beginning to understand that the scalp should be nurtured in a similar way to facial skin and will be interested in ingredient innovation that crosses from facial care to the scalp.



Source: dsm-firmenich Internal Research; Mintel

Consumers Express Their Greatest Challenges with Scalp Care



“When I have **dandruff** or an itchy head, I get really **frustrated** and **embarrassed** because it makes you feel less clean.”

Leah, 38

“My ideal solution would be something like a shampoo, or a cleanser, or something, some kind of **moisturizer that you could put on your scalp, that didn't weigh your hair down**, that cleansed your hair too, that would be perfect.”

Tabitha, 45

I'm a huge fan of **products with vitamins**. I believe they can help ease and heal lots of conditions in head or on the skin.

Samuel, 33

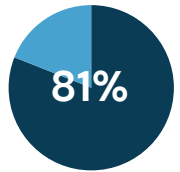
Source: dsm-firmenich Research, 2021, 45 respondents from US, UK, AU (15 per country)
Source: Voxpopme with CMI PC Analysis –2021

Anti-Grey

Consumers seek anti-greying solutions

Greying Hair is a primary hair concern among both men and women

2020 Survey Insights



of respondents were interested in products that claim to prevent / reverse grey hair

Key Performance Claims for Anti-Aging Hair Care:

- Shine
- Long-Lasting
- Moisturizing / Hydrating
- Damaged Hair
- UV Protection
- Protection Against Elements



Consumers Express Their Greatest Challenges with Grey Hair



"You're aging and you're **not as young as what you used to be** anymore..."

Zara, 30

"I **dye my hair to get rid of the gray** hair and I will do this as long as I'm able to"

Amy, 41

"They're **specifically for the roots**. I feel like the technology is a lot better actually to cover the roots."

Meagan, 36

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dsm-firmenich solutions for Hair Care

BENEFIT	INGREDIENT	Bioactives									Vitamins							Performance		UV Filters		
		ALPAFLOR® ALP-SEBUM CB	ALPAFLOR® EDELWEISS CB	ARGAN OIL	COLHIBIN CB	life'sGLA™ '10' n-6 Oil	PENTAVITIN®	PHYTALURONATE PF	Phytantriol	SETAKOL PF	STIMU-TEX® AS	BeauPlex® VH (Vitamins Blend)	Vitamin B3 (Niacinamide PC)	Pro-Vitamin B5 (Panthenol)	Vitamin B6 (Pyridoxine HCl)	Vitamin B7 (D-Biotin)	Vitamin C and STAY-C® 50	Vitamin E (Tocopherol forms)	TILAMAR® Quat 640	TILAMAR® Quat 2240	PARSOL® SLX	PARSOL® MCX
Anti-breakage				•	•	•		•	•	•								•	•			
Anti-frizz				•		•				•												
Helps reduce the appearance of greying hair			•								•											
Color protection																				•	•	
Conditioning / ease of combing				•	•	•		•	•	•								•	•	•	•	
Flaking reduction							•															
Helps prevent hair loss*		•	•								•			•	•	•	•					
Hair protection			•								•					•	•			•	•	
Hair strengthening											•		•									
Hair thickening											•	•	•	•								
Heat protection																						
Scalp care		•					•			•	•	•	•	•	•	•	•					
Sebum reduction		•					•							•								
Shine				•		•				•											•	
Split-ends reduction				•	•	•		•	•	•												
Volume											•	•										

*Drug claim in some regions

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ALPAFLOR® EDELWEISS CB

Beyond Natural



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ALPAFLOR® EDELWEISS CB

ID Card



Key benefit:	Helps prevent hair loss* (improves hair density) Helps reduce the appearance of greying hair Anti-aging (strong anti-oxidant properties)		
INCI name: (Active)	Leontopodium Alpinum Flower/Leaf Extract		
Description:	Plant extract organically cultivated		
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3.5 to 5.5	Preservative: Free Solubility: Water soluble	Target: Scalp Biodegradability: Readily biodegradable

Registration certification



*Drug claim in some regions

ALPAFLOR® EDELWEISS CB

Hair Loss*



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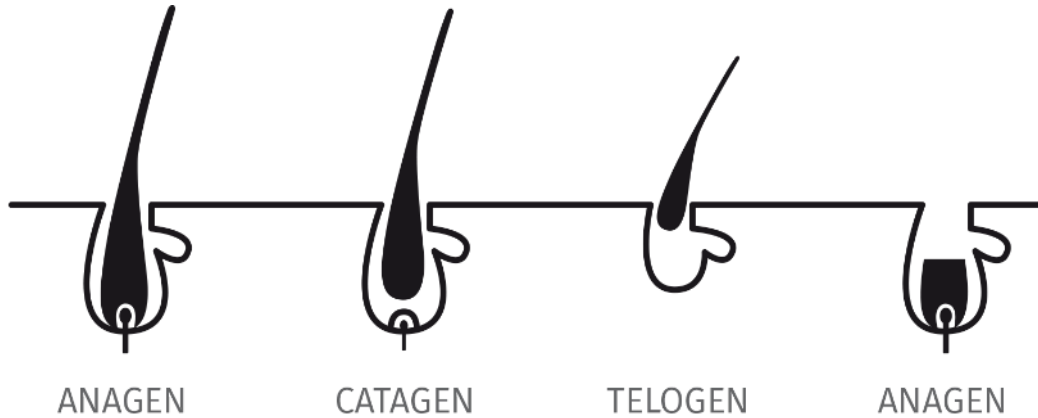
*Helps prevent hair loss / Drug claim in some regions

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ALPAFLOR® EDELWEISS CB

Ex vivo studies – Hair loss*

The hair growth cycle consists of 3 distinct stages: anagen, catagen and telogen**

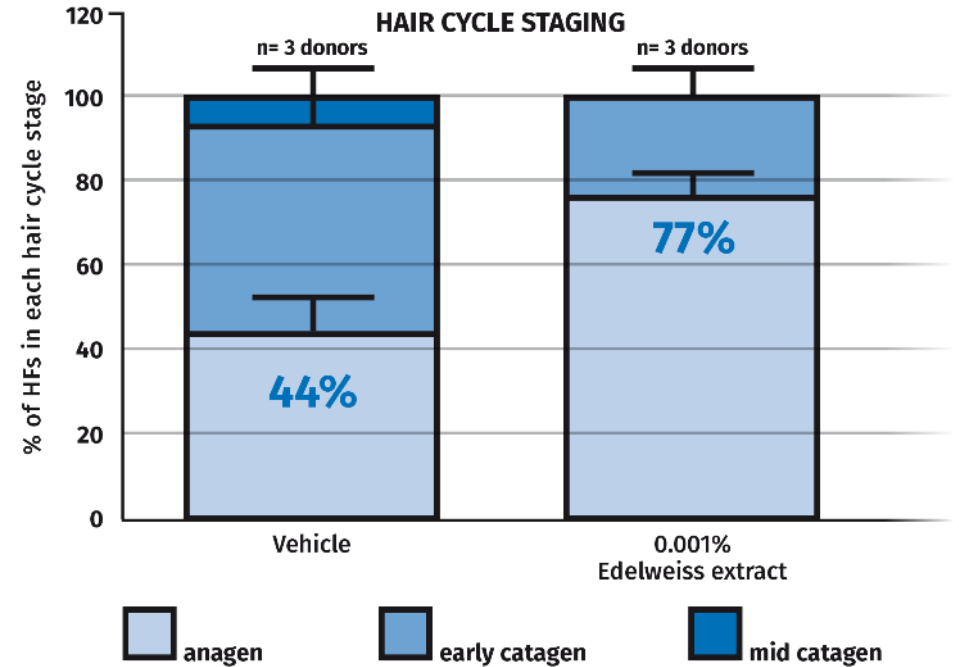


Anagen known as "growing" phase

Edelweiss extract prolongs anagen phase of hair follicles

*Helps prevent hair loss / Drug claim in some regions

**<https://www.philipkingsley.com>



1.8 x more hair follicles in the anagen phase with Edelweiss than placebo

Based on hair cycle score the difference between vehicle and Edelweiss is significant ($p < 0.05$)

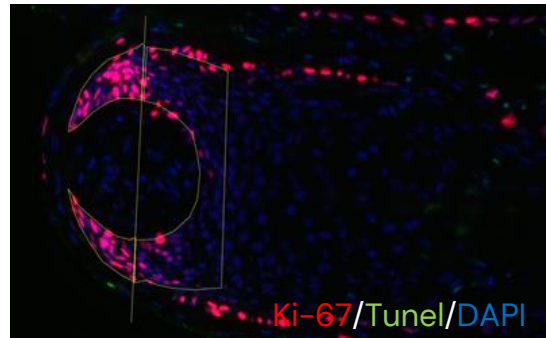
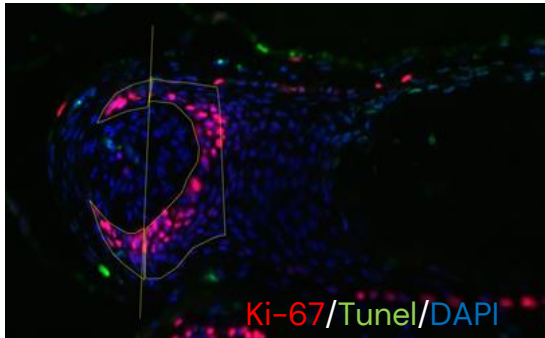
ALPAFLOR® EDELWEISS CB

Ex vivo studies – Hair loss*

Keratinocytes make up the hair shaft and need to proliferate in order to support the hair growth.

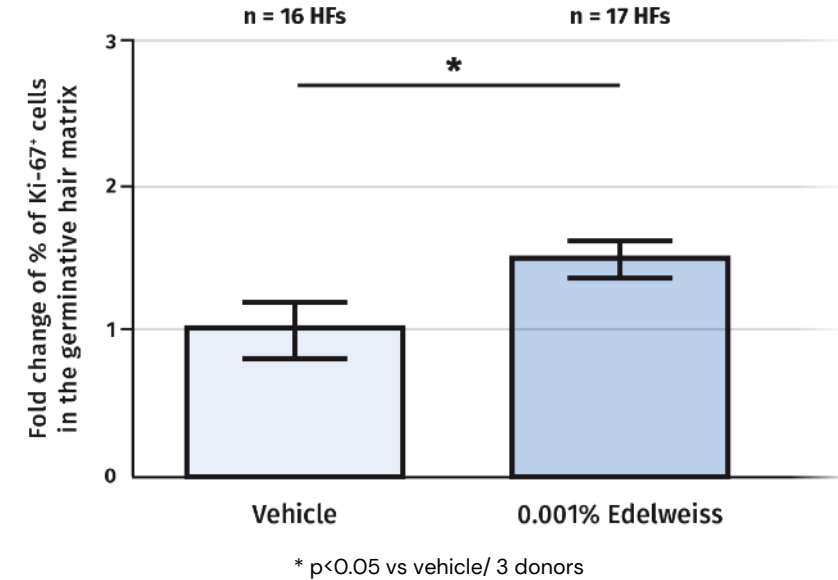
Vehicle

0.001% Edelweiss Extract



Increased Ki67–staining (red) in Edelweiss treated follicles compared to vehicle.

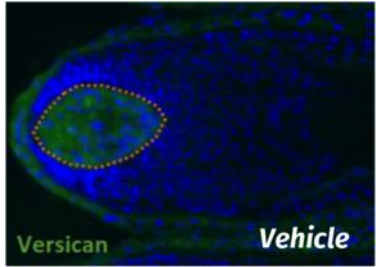
*Helps prevent hair loss / Drug claim in some regions



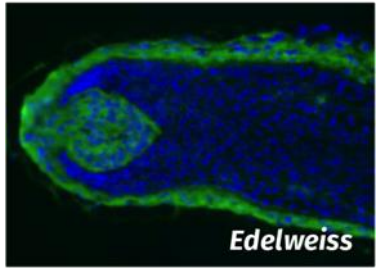
+50% increase of hair matrix keratinocytes proliferation with Edelweiss extract

ALPAFLOR® EDELWEISS CB

Ex vivo studies – Hair Loss*

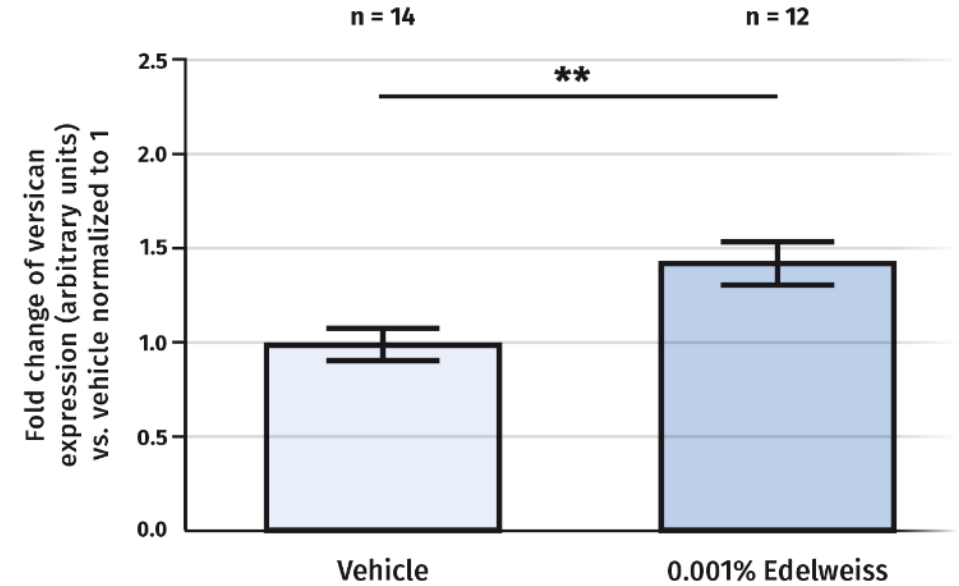


Versican, a large extracellular matrix proteoglycan, in the dermal papilla of the hair follicles.



Versican was shown to be highly associated with growing hair follicles and is a marker for hair growth inductivity

The orange dotted line highlights the dermal papilla where measurement was done.



** p<0.01 vs vehicle / 3 donor

+43% increase of Versican in the dermal papilla thanks to Edelweiss extract.

*Helps prevent hair loss / Drug claim in some regions

ALPAFLOR® EDELWEISS CB

Study Design / Hair Loss*

Target group

18–65 y.o. (mean 45 y.o.)

30 Volunteers per formulation

Placebo

ALPAFLOR® EDELWEISS CB 3%

**Application: 5 months
daily, scalp, leave-on**

Double-blind, randomized

*Helps prevent hair loss / Drug claim in some regions



ALPAFLOR® EDELWEISS CB

In vivo studies – Hair density

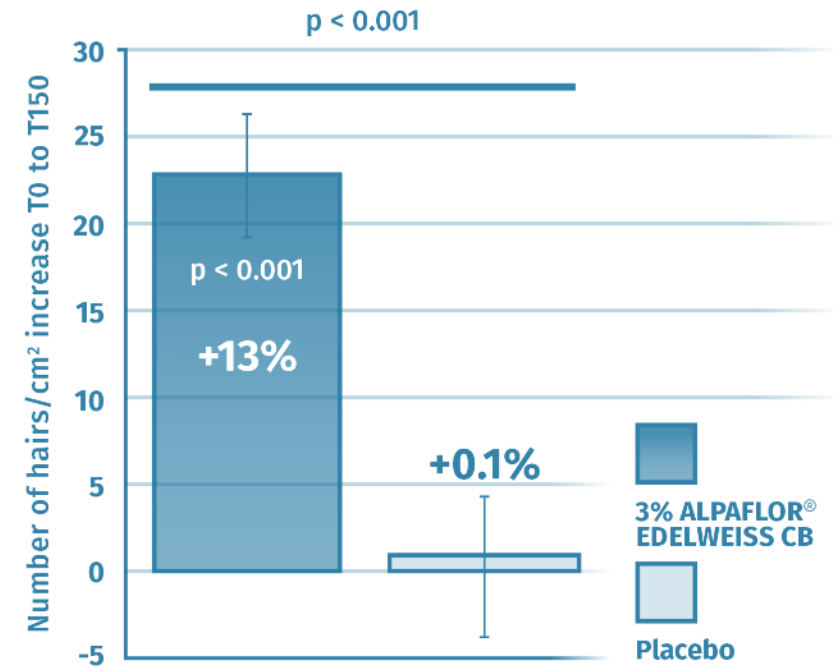


13% increase in hair density versus T0 with the Edelweiss extract

Significant better performance than Placebo after 5 months

90% of volunteers treated with ALPAFLOR® EDELWEISS CB measured an increase in hair density, while 57% of volunteers using Placebo

Hair Density after 5 months (number of hairs / cm²)



ALPAFLOR® EDELWEISS CB

In vivo studies – Hair density / micro-images

Visible increase of hair density **+49%** of hair
(example #76)

TO



Volunteer # 76

T150



From 142 to 211 hairs/cm2 (+49%)



dsm-firmenich own study

NEW INNOVATION

dsm-firmenich

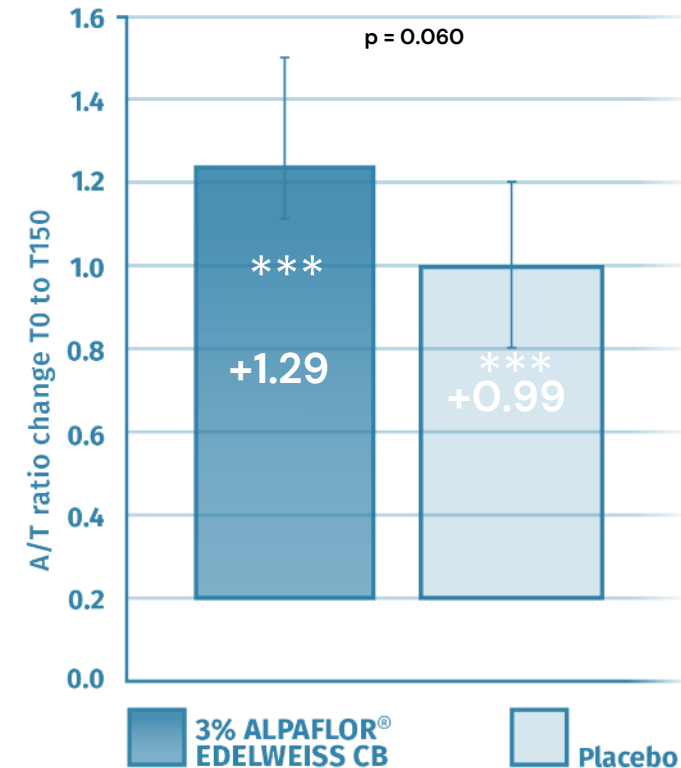
ALPAFLOR® EDELWEISS CB

In vivo anagen / telogen – Hair loss*



Higher proportion of hair in anagen phase using a serum with ALPAFLOR® EDELWEISS CB after 5 months.

20% more hair in the anagen phase with ALPAFLOR® EDELWEISS CB than placebo.



*Helps prevent hair loss / Drug claim in some regions
n= 30 – SEM error bars ***p < 0.001 vs T0
15 to 25 hairs collected per volunteer for trichogram

Consumers confirm efficacy

Participants feedback after treatment with ALPAFLOR® EDELWEISS CB



100% liked the product



90% noticed increased speed of hair growth

Self assessment
Clinical study, 30 volunteers, 18 – 65 years old



ALPAFLOR® EDELWEISS CB

Publication

International Journal of
Cosmetic Science

SOCIÉTÉ FRANÇAISE DE
COSMÉTOLOGIE



ORIGINAL ARTICLE |  Open Access |   

An extract of *Leontopodium alpinum* inhibits catagen development ex vivo and increases hair density in vivo

Remo Campiche , Alizée Le Riche, Janin Edelkamp, Alfonso Fernandez Botello, Emmanuel Martin, Mathias Gempeler, Marta Bertolini

First published: 06 May 2022 | <https://doi.org/10.1111/ics.12783>

<https://onlinelibrary.wiley.com/doi/10.1111/ics.12783>



ALPAFLOR® EDELWEISS CB

Hair pigmentation*



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*Helps reduce the appearance of greying hair

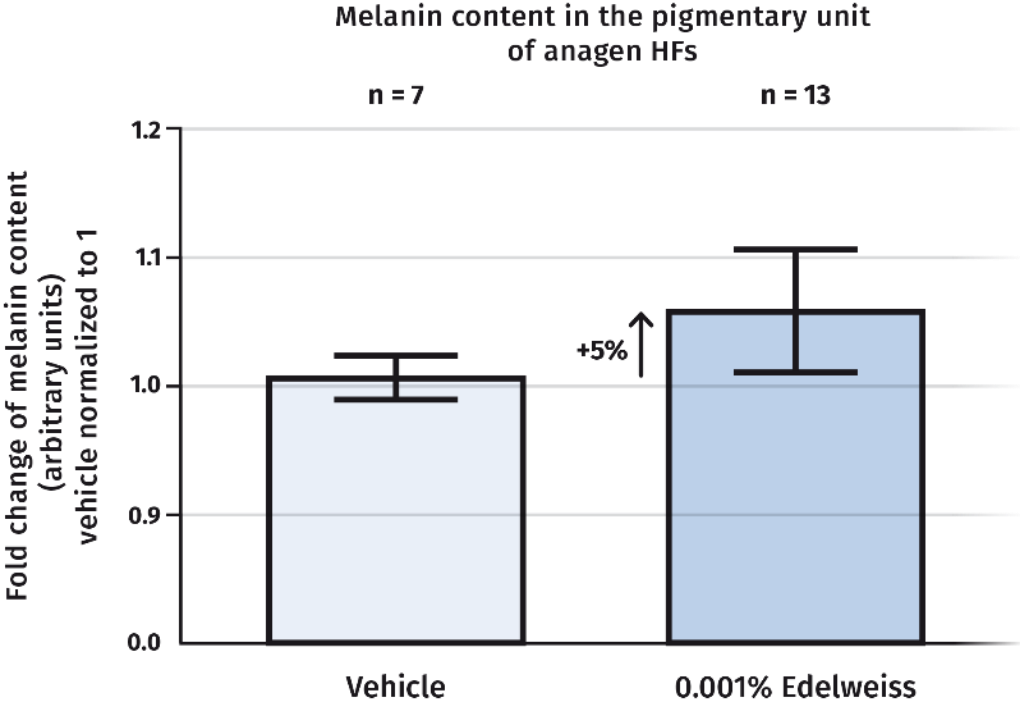
dsm-firmenich 

ALPAFLOR® EDELWEISS CB

Ex vivo studies – Hair pigmentation*/
Hair darkening



5% melanin content increase in Edelweiss treated hair follicles compared to vehicle treated follicles



*Helps reduce the appearance of greying hair

ALPAFLOR® EDELWEISS CB

Study Design / Hair Pigmentation*

Target group

- 18–45 y.o. (mean 39 y.o.)

30 Volunteers per formulation

- Placebo
- ALPAFLOR® EDELWEISS CB 3%

**Application: 4 months
daily, scalp, leave-on**

Double-blind, randomized

*Helps reduce the appearance of greying hair



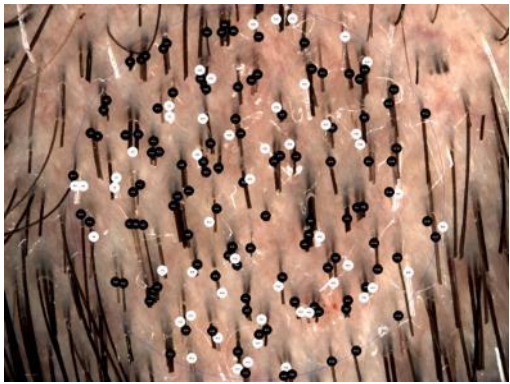
ALPAFLOR® EDELWEISS CB

In vivo studies – Hair pigmentation* / Hair darkening



Results after 4 months – leave-on treatment – 3% ALPAFLOR® EDELWEISS

T0



Volunteer # 29

T120



+ 13% more pigmented hair after 4 months versus T0 ($p=0.002$)
Significant less grey hair vs. Placebo ($p=0.026$) after 4 months
63% of volunteers showed improvement in hair pigmentation using ALPAFLOR® EDELWEISS CB, while 47% of the volunteers using placebo.

Evaluation of ratio of non-white hair vs. white hair on micro-images taken at T0 and T120

*Helps reduce the appearance of greying hair

ALPAFLOR® EDELWEISS CB

In vivo studies – Hair pigmentation* / Hair darkening



Results after 4 months – leave-on treatment – 3% ALPAFLOR® EDELWEISS

T0



Example: Volunteer #24

T120



Evaluation of grey shade of hairs after 4 months

Image of entire head analyzed by software:
Grey scale of pixels from 0 (black) to 255 (white)

Darker hair appearance after 4 months
50% less grey hair versus Placebo

Evaluation of ratio of non-white hair vs. white hair on micro-images taken at T0 and T120

*Helps reduce the appearance of greying hair

Consumers confirm efficacy

Participants feedback after treatment with ALPAFLOR® EDELWEISS CB



83% perceived a decrease
in the number of grey hairs



87% thought the color of their
hair was more uniform



83% thought their hair looked darker

ALPAFLOR® EDELWEISS CB

Takeaways

Key Features

Sustainably and organically cultivated according to Bio Suisse organic standards and fair-trade principles

Use level 3%

Helps prevent hair loss* (improves hair density)

- Prolongs anagen growing phase of hair. 1.8 x more than placebo – ex vivo
- 50% increase of hair follicles keratinocytes proliferation – ex vivo
- Increase by 43% versican expression & alkaline phosphatase activity – ex vivo
- 13% increase in hair density after 5 months – in vivo
- Increase Anagen/Telogen ratio – in vivo

Helps reduce the appearance of greying hair

- 5% increase in melanin content – ex vivo
- 13% darker hair after 4 months – in vivo
- 50% less grey hair versus Placebo – in vivo

*Drug claim in some regions



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PENTAVITIN®

Visibly reduces scalp
oiliness and flaking



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PENTAVITIN®
ID Card



Key benefit:	Moisturizes dry scalp / Strong scalp barrier Provides visible reduction of scalp flaking Reduces Sebum		
INCI name: (Active)	Saccharide Isomerate		
Description:	100% natural and biodegradable edible maize kernels derived. It binds to scalp like a magnet.		
Technical:	Form: Liquid Use level: 0.2 – 1% pH of use: 4 to 9	Preservative: Free Solubility: Water soluble	Target: Scalp and hair fiber Biodegradability: Estimated to be biodegradable

Registration certification



The Science behind the moisturizer – PENTAVITIN®

- Biomimetic ingredient that reproduces the effects of the skin/scalp's own natural moisturizing factor (NMF).
- Unique skin binding action
- Contributes significantly to skin/scalp's moisturization.
- It is only removed from scalp/skin by desquamation, providing a long term moisturization and effects under rinse-off conditions



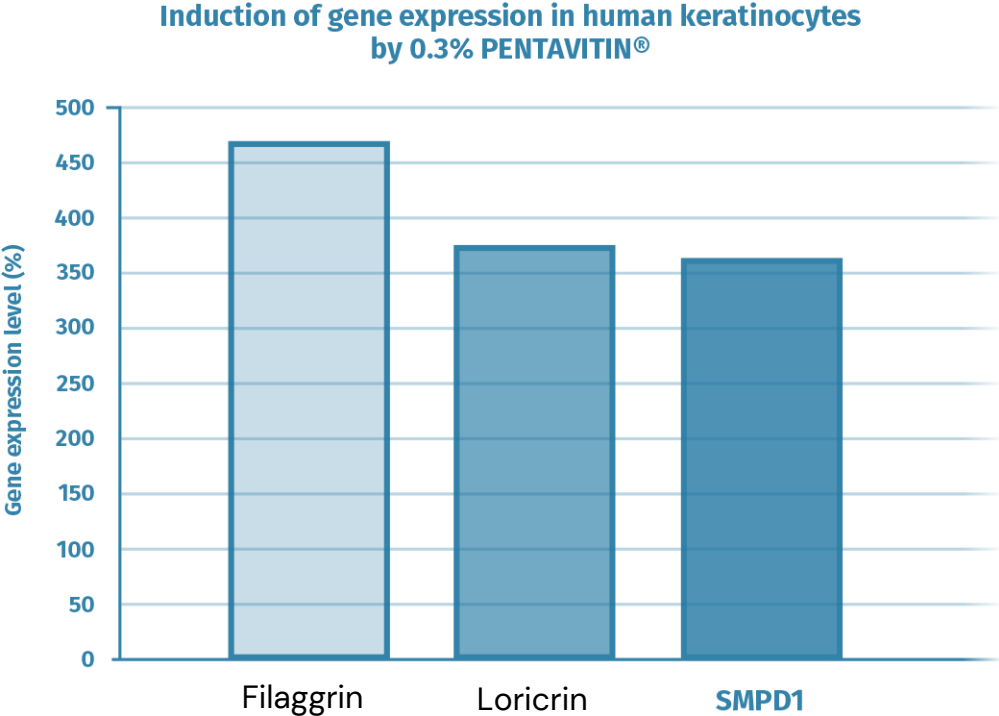
PENTAVITIN®



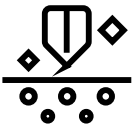
NMF



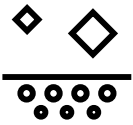
PENTAVITIN® – Moisturizing, protection and strengthening



Moisturizes dry scalp
by boosting filaggrin



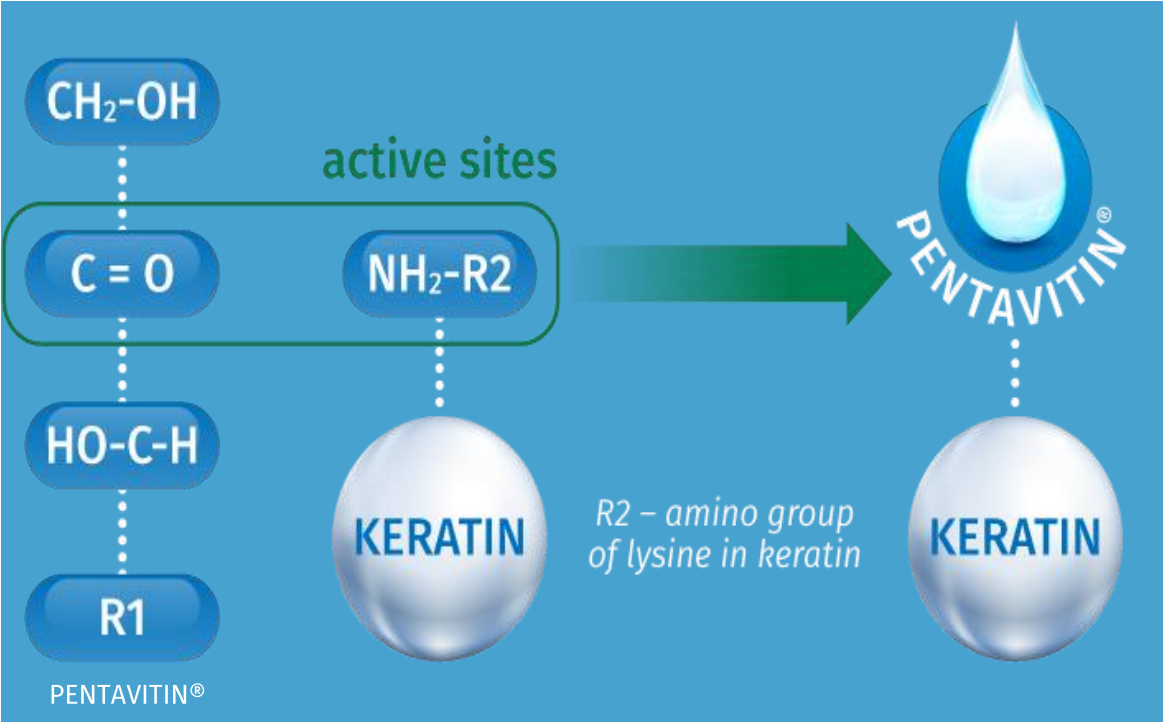
Protects scalp barrier
by boosting loricrin



Strong scalp barrier
by boosting SMPD1*

*SMPD1: Sphingomyelin phosphodiesterase 1 converts sphingomyelin to ceramide known to strengthen scalp barrier

Binds to keratin as magnet power!



Mode of action



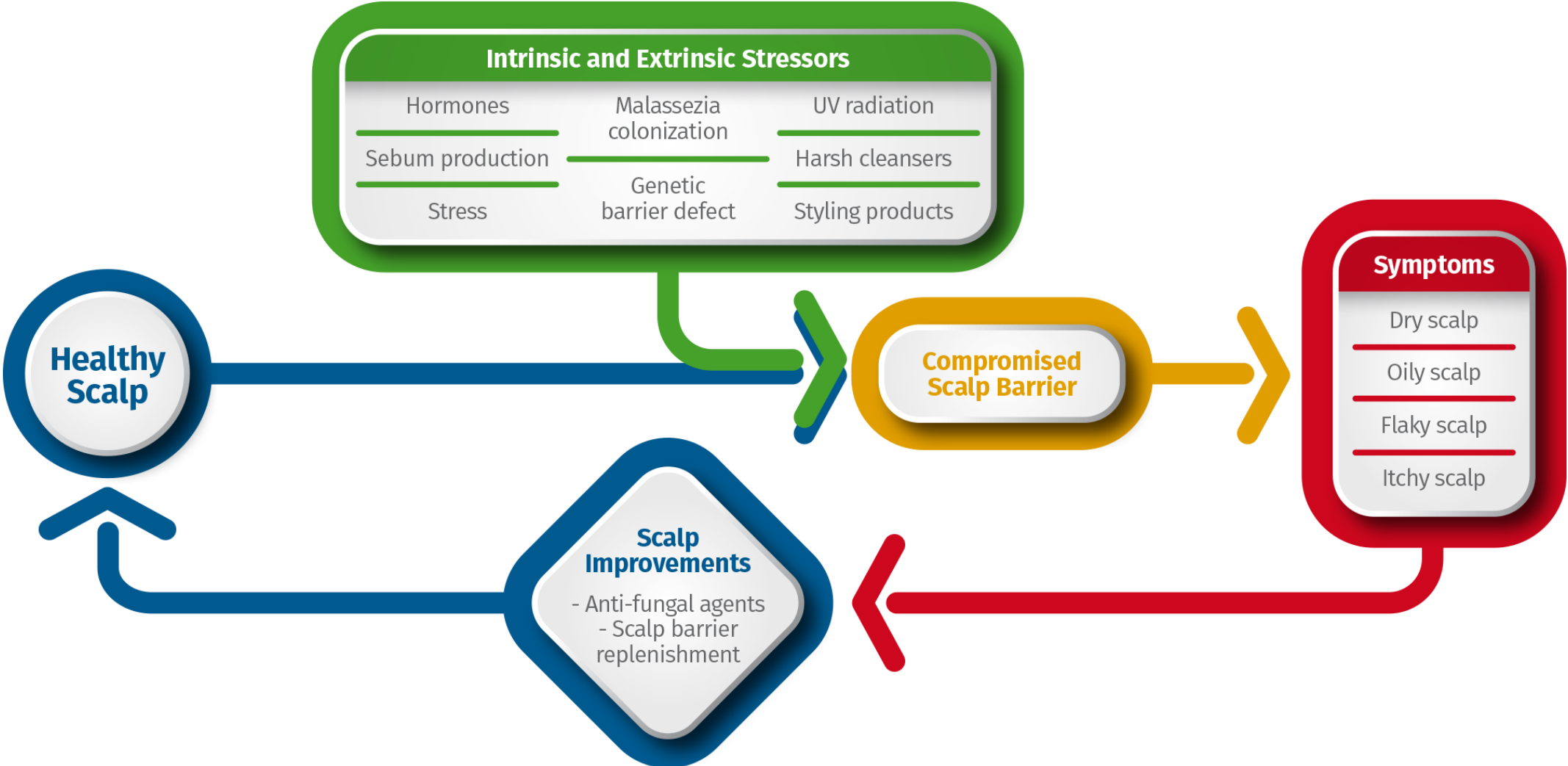
Binds to keratin
as magnet power*

Perfectly connects
with the skin's top layers*

Not washed off

*In vitro

How to get a healthy scalp?



Turner et al. Stratum corneum dysfunction in dandruff. Int J Cosmet Sci 34:298, (2012)

PENTAVITIN®

Study Design / Scalp Care

Target group

- 18–50 y.o. (mean 39 y.o.) + ASF Score 24–40

30 Volunteers per formulation

- Placebo
- PENTAVITIN® 0.2% and 0.5%

**Application: 28 days
rinse-off , shampoo applied
every 2 days**

Single-blind, randomized



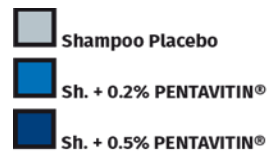
PENTAVITIN® – Reinforced scalp barrier

24 hour after one single application and frequent showering

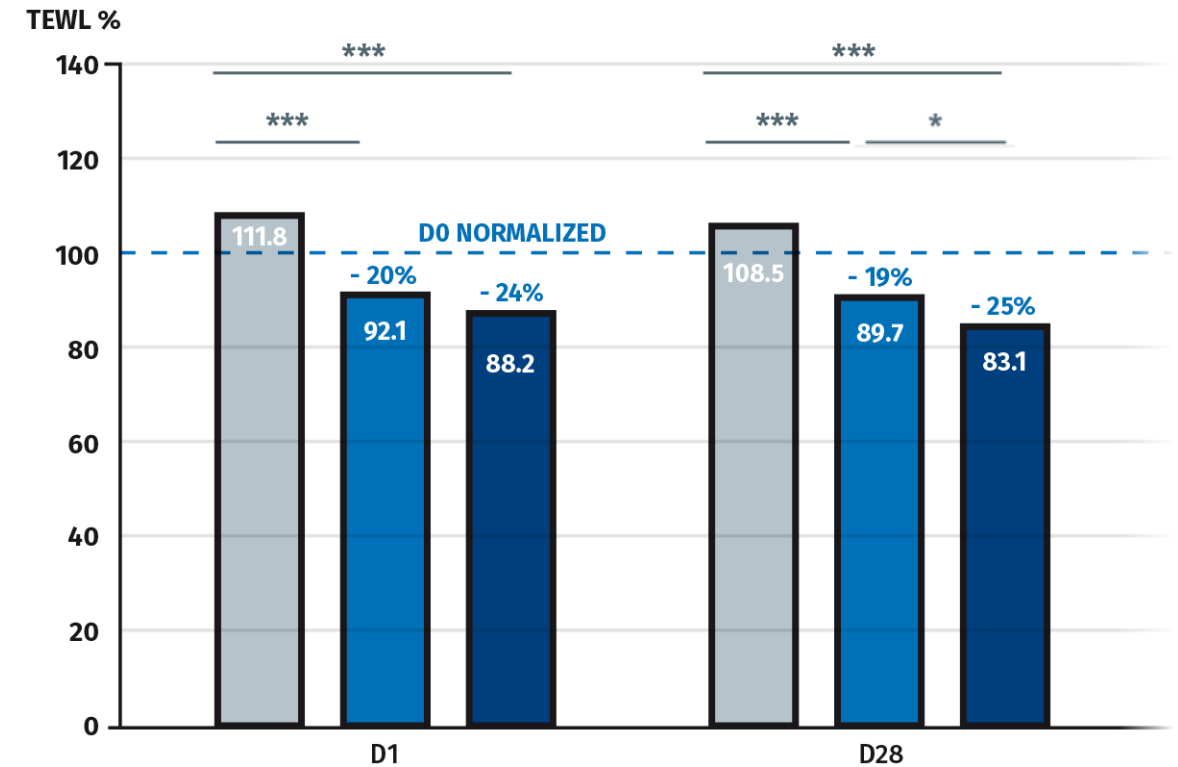
Use of the **shampoo placebo** damages the **scalp barrier** after showering and it is not recovered even after 28 days.

24 hour (D1) after **one single application** and even after 28 days of frequent showering, shampoos with 0.2% and 0.5% **PENTAVITIN®** reinforce the **scalp barrier**.

PENTAVITIN®'s improvements over the placebo are highly statistically significant.



n = 30 – SEM error bars
****p* < 0.001



dsm-firmenich
own study



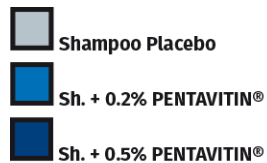
PENTAVITIN® – Sebum Reduction

24 hour after one single application and frequent showering

15% sebum reduction 24 hour (D1) after one single application with a shampoo containing PENTAVITIN® (0.5%)

37% sebum reduction after frequent showering with a shampoo containing PENTAVITIN® (0.5%)

PENTAVITIN®'s (0.2% and 0.5%) improvements over the placebo are highly statistically significant

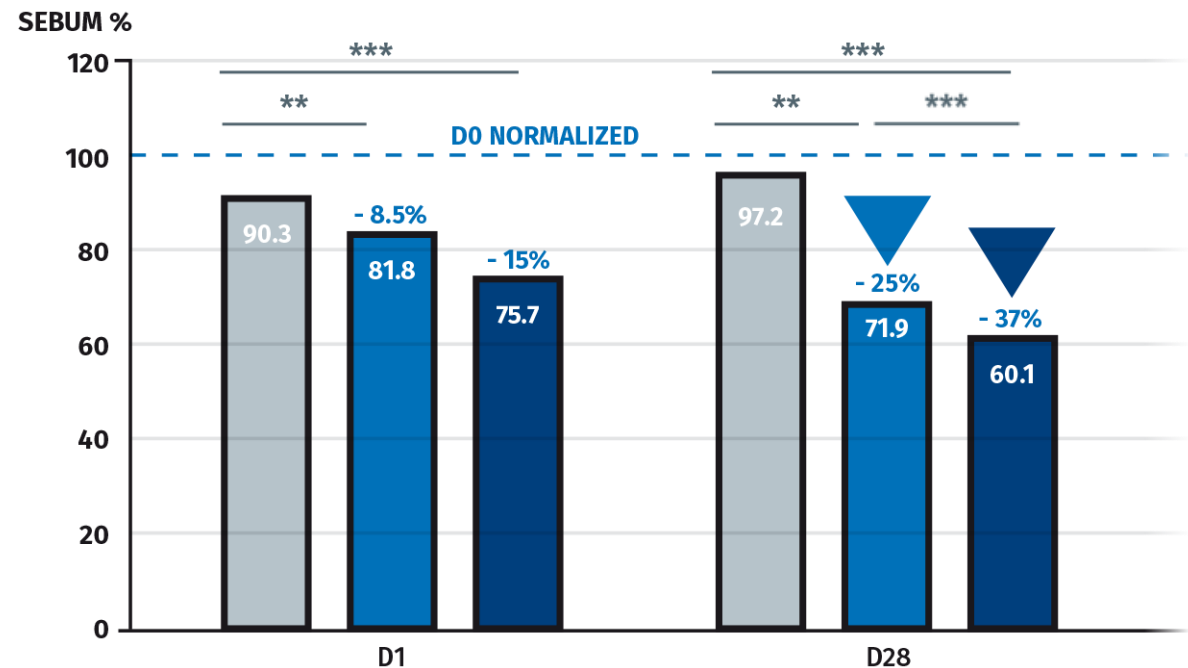


$n = 30$ – SEM error bars
*** $p < 0.001$ ** $p < 0.01$

Meibometer, MB560– Dandruff site
Reduction versus placebo



dsm-firmenich
own study



PENTAVITIN® – Anti-Flaking

24 hour after one single application and frequent showering

14% reduction of scalp flaking 24 hour (D1) after one single application with shampoos containing PENTAVITIN® (0.2% and 0.5%)

Up to 55% reduction of scalp flaking after frequent showering with shampoos containing PENTAVITIN® (0.5%)

PENTAVITIN®'s (0.2% and 0.5%) improvements over the placebo are highly statistically significant



$n=30$ – SEM error bars
*** $p < 0.001$ * $p < 0.05$

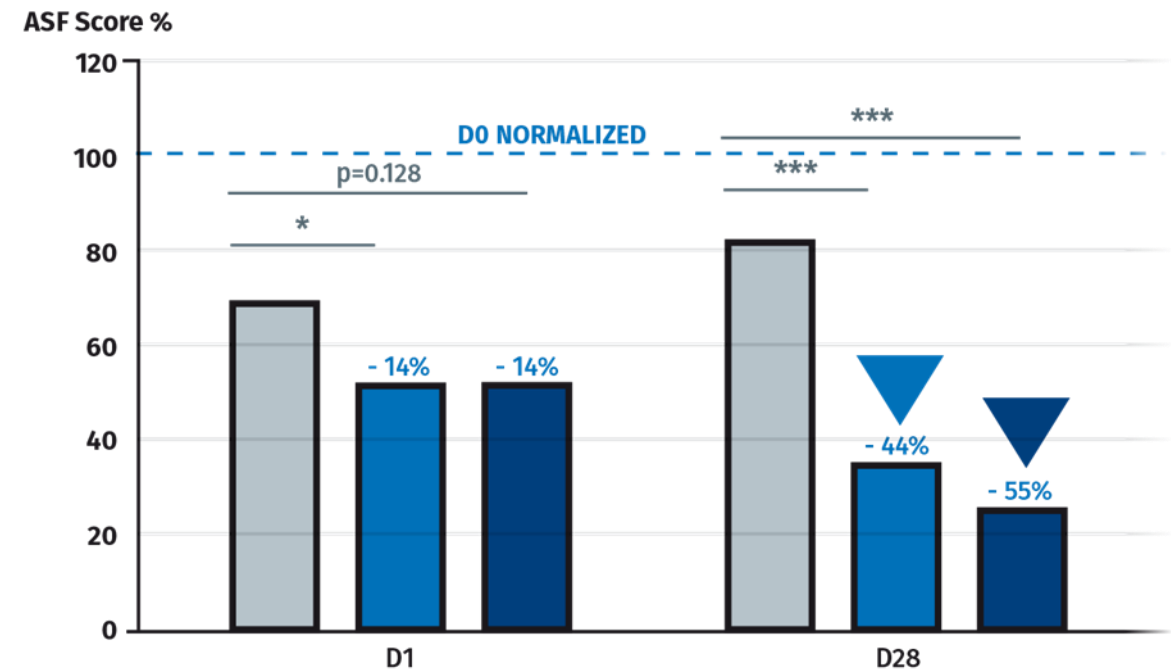
Grade of ASFS dandruff – Dermatologist
Reduction versus placebo



dsm-firmenich
own study



After 28 days of treatment, the placebo increases flaking while PENTAVITIN® reduces it



PENTAVITIN® – Flaking Reduction

Visible reduction of scalp flaking



DO – Before treatment



D1 – 24 hours, after just one use of a shampoo with PENTAVITIN® (0.2%)



D28 – 28 days, after frequent showering with a shampoo containing PENTAVITIN® (0.2%)



DO – Before treatment



D1 – 24 hours, after just one use of a shampoo with PENTAVITIN® (0.5%)



D28 – 28 days, after frequent showering with a shampoo containing PENTAVITIN® (0.5%)

Consumers confirm efficacy

Scalp & hair improvements after 28 days

dsm-firmenich ●●●
own study

PENTAVITIN® 0.2%



67% stated "my scalp feels itchy-free, soothed"



80% stated "my scalp feels fresh"



80% stated "my scalp feels hydrated"

PENTAVITIN® 0.5%



70% stated "my scalp feels protected from external aggressions."



77% stated "my scalp looks healthy"



60% stated "my hair feels strong"

Received: 21 December 2021 | Revised: 21 February 2022 | Accepted: 1 March 2022

DOI: 10.1111/jocd.14913

ORIGINAL ARTICLE



WILEY

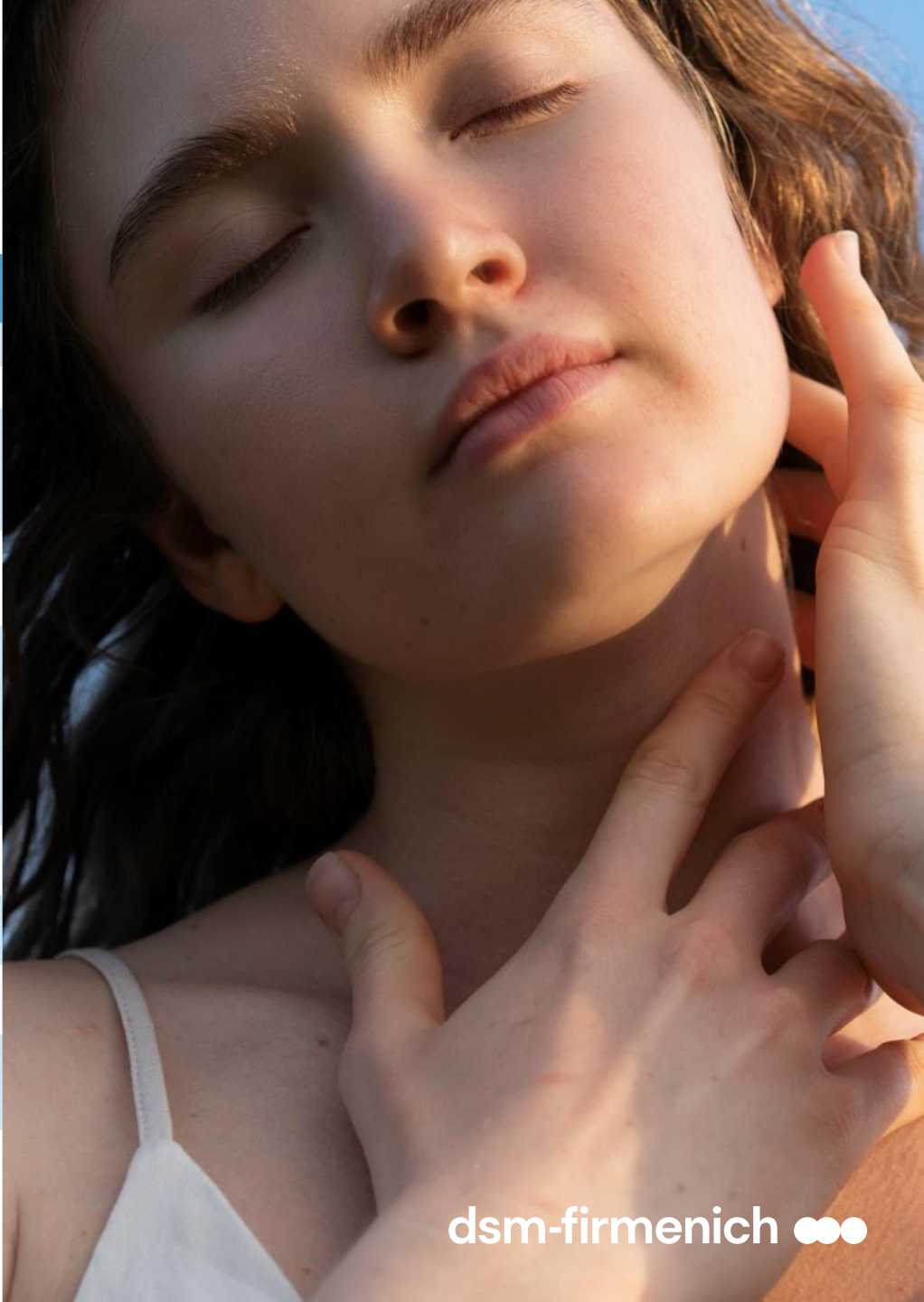
Saccharide isomerate ameliorates cosmetic scalp conditions in
a Chinese study population

Emmanuel Martin MS¹ | Anson Zhang MS² | Remo Campiche PhD¹ 

PENTAVITIN®

New discoveries

Study Design	
Test Institute	TRI Princeton (USA) – Proof of concept scalp hydration and sebum study on two volunteers.
Data collection	Jan. 2022.
Test products	Shampoo placebo vs. Shampoo with 0.5% PENTAVITIN®: Aqua, Sodium laureth sulfate, Glycerin, Coco-betaine, Sodium cocoamphoacetate, Sodium chloride, Sodium lauryl glucose carboxylate, Lauryl glucoside, Sodium cocoyl glutamate, Lactic acid, PENTAVITIN®, Phenoxyethanol, Benzyl alcohol, Potassium sorbate, Tocopherol.
Skin characteristics of the selected volunteers	Scalp hydration study: one healthy female volunteer (Caucasian, 27 years old). Scalp sebum study: one healthy female volunteer (Caucasian, 24 years old, scalp has dandruff and tends to be on the oilier side).
Study duration	• 1 week wash out with shampoo Placebo (Baseline'). • Daily application of Shampoo Placebo for 7 days (day 7'). • 10 days break (personal hair routine). • 1 week wash out phase with shampoo Placebo (Baseline'). • Daily application of Shampoo with PENTAVITIN® for 7 days (day 7'). • 'After each wash out phase and day 7 application, FTIR measurements are performed on 12 predefined sites on scalp.
Rinse-off test procedure	Test products were applied by gentle massage on scalp for 2–3 minutes. Rinse gently and thoroughly the hair and scalp with warm water and drying with a towel.
Measuring sites Time points	• Hemi scalp, 12 predefined sites. • Baseline and after 7 days.
Evaluation	ATR–FTIR (Fourier–Transform infrared) spectroscopy measurements with REMSpec optical fiber From the IR spectrum, calculation of water and sebum content.
Colour scales & test parameters	Scalp hydration and sebum are visualized with color scales, resp. from white to blue and white to brown, based on FTIR spectrum intensity. Calculation of difference between Baseline and Day 7 results.



Innovative Scalp Color 3D Mapping Technology

The method...

ATR-FTIR (Fourier-transform infrared) spectroscopy in combination with specific algorithms generates 3D color scalp hydration & sebum mappings

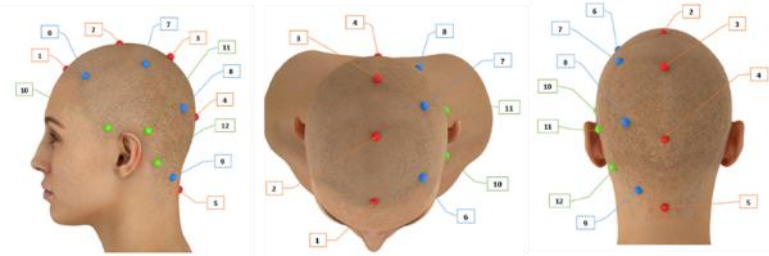
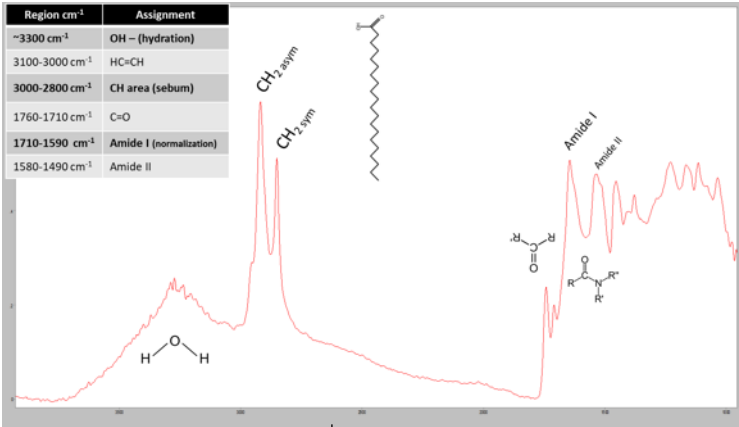


Scalp Analysis

- 12 ATR-FTIR spectra are collected at the same specific location on the scalp to evaluate the level of sebum and water
- These measurements are used to generate specific scalp 3D mapping.

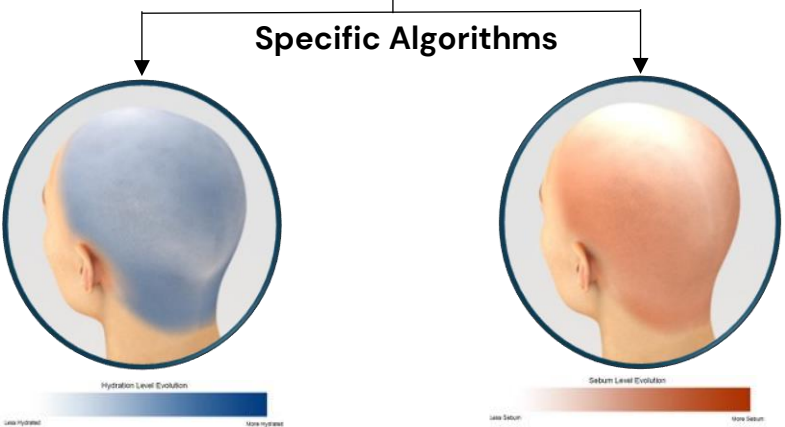
Test Instrument

- FTIR spectrometer with REMSpec optical fiber



Test Sites

- 12 predefined sites on the hemi scalp are selected



Scalp Hydration

Scalp Sebum

Fully hydrated scalp after frequent use**



FTIR scalp hydration color 3D mapping
Shampoo placebo / 7 days vs baseline
Less hydrated



FTIR scalp hydration color 3D mapping
Shampoo with 0.5% PENTAVITIN® / 7 days vs baseline
More hydrated

Visible hydration power after 7 days frequent use of PENTAVITIN® (0.5%) in a shampoo compared to placebo.

**In vivo tested

Visible sebum reduction after frequent use**



FTIR scalp sebum color 3D mapping Shampoo placebo / 7 days vs baseline
More sebum



FTIR scalp sebum color 3D mapping Shampoo placebo / 7 days vs baseline
Less sebum

After 7-days frequent use of PENTAVITIN® (0.5%) in a shampoo, visible reduction in sebum observed on scalp.

***In vivo* tested

PENTAVITIN®

Takeaways

Key features:

100% natural and biodegradable edible maize kernels derived. It binds to scalp like a magnet.

Use level: 0.2%–0.5%

Key Benefits:

Moisturization (Reinforced scalp barrier)

- 24 hour (D1) after one single application and even after 28 days of frequent showering, shampoos with 0.2% and 0.5% PENTAVITIN® reinforce the scalp barrier – *in vivo*

Sebum and Flaking Reduction

- Significant reduces sebum and flaking after one single application and after frequent showering with a shampoo containing PENTAVITIN® (0.2% –0.5%) – *in vivo*



05

Agenda

01 Market & Consumer Insights

02 dsm-firmenich Hair Care Solutions Map

03 ALPAFLOR® EDELWEISS CB

04 PENTAVITIN®

05 BeauPlex® VH

06 Other dsm-firmenich Solutions



Click on the number to get
redirected to the chapter

BeauPlex® VH

Vitamin Blend



[Click to return
to homepage](#)

dsm-firmenich 

BeauPlex® VH

ID Card



Key benefit:	Helps prevent hair loss* (improves hair density and thickness)	Anti-aging (anti-oxidant properties)	
	Helps reduce the appearance of greying hair	Scalp Care (improves scalp barrier and moisturization)	
INCI name:	Tocopheryl Acetate, Niacinamide, Sodium Ascorbyl Phosphate, Pyridoxine HCl, Sodium Starch Octenylsuccinate, Silica, Calcium Pantothenate, Maltodextrin		
Description:	Vitamin blend (B3, B5, B6, C and E)		
Technical:	Form: Powder	Preservative: Free	Target: Scalp and hair fiber
	Use level: Up to 2%	Solubility: Dispersible in water	Biodegradability: Not expected to be persistent, bioaccumulative nor toxic.
	pH of use: 5 to 9		

Registration certification



*Drug claim in some regions
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

BeauPlex® VH

Hair Loss*



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to homepage](#)

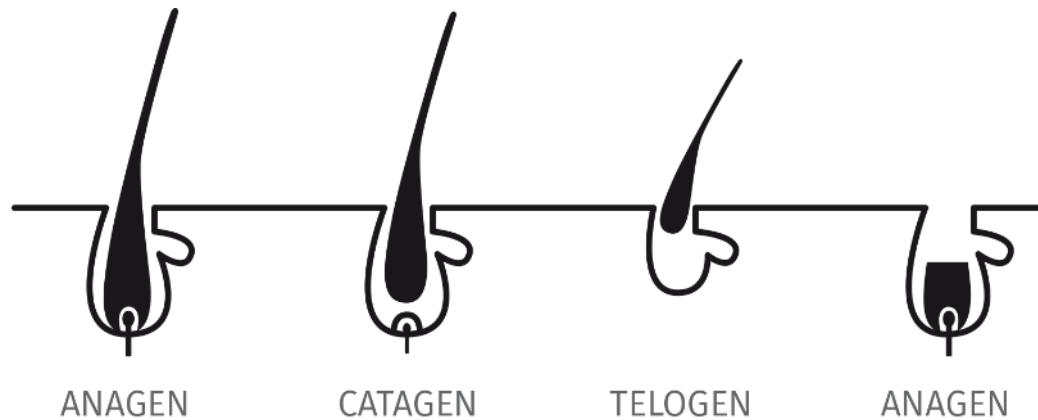
*Helps prevent hair loss / Drug claim in some regions

dsm-firmenich 

BeauPlex® VH

Hair Loss*

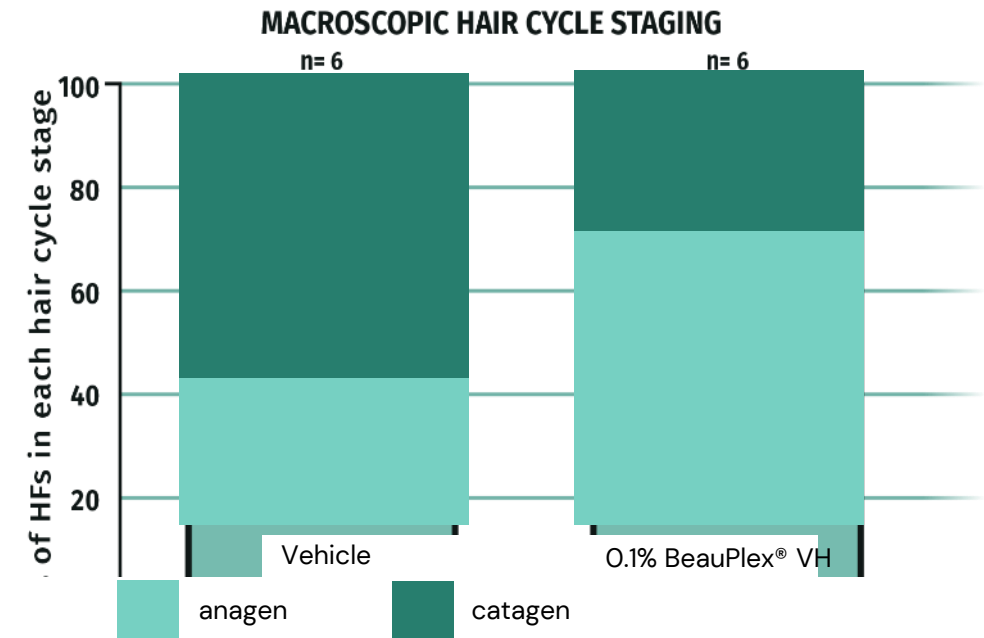
The hair growth cycle consists of 3 distinct stages:



BeauPlex® VH 0.1% prolongs anagen phase of hair follicles

*Helps prevent hair loss / Drug claim in some regions

dsm-firmenich
own study



2x more hair follicles in the anagen phase with BeauPlex® VH than placebo

BeauPlex® VH

Hair Loss*

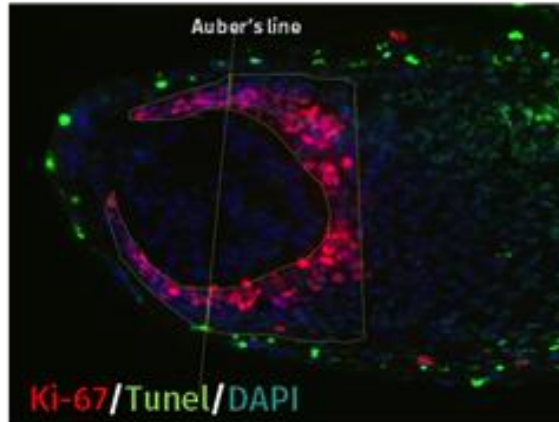
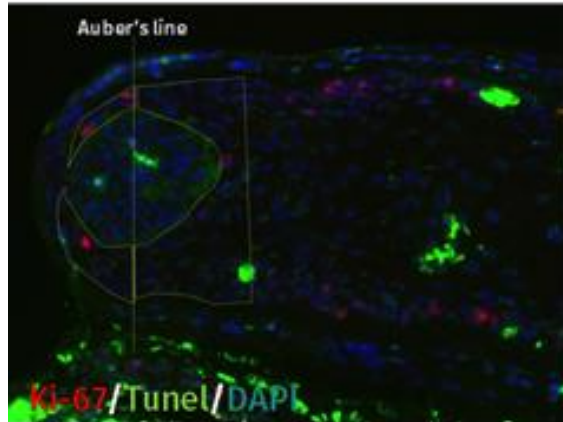
dsm-firmenich
own study



Keratinocytes make up the hair shaft and need to proliferate in order to support the hair growth.

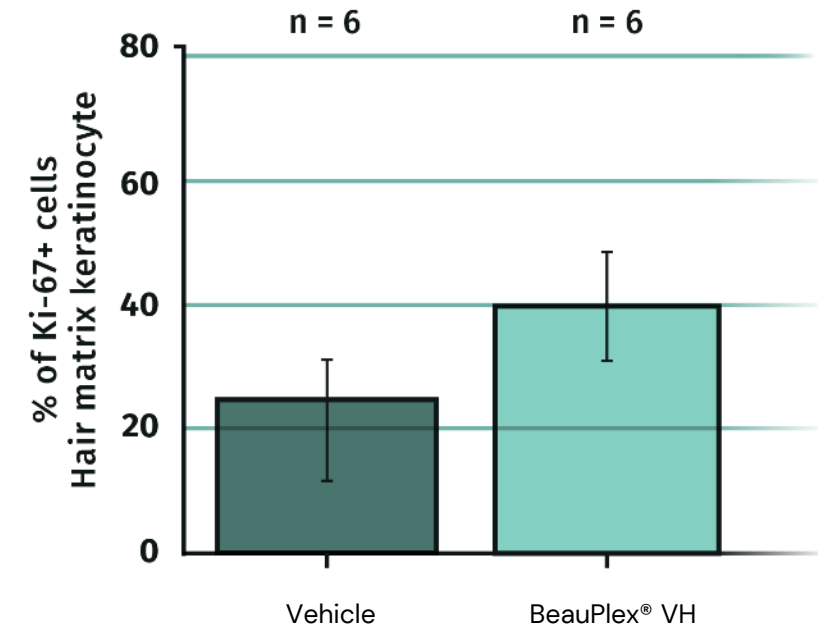
Vehicle

0.1% BeauPlex® VH



Increased Ki67-staining (red) in BeauPlex® VH treated follicles compared to vehicle.

Hair matrix keratinocytes proliferation



76% increase of hair matrix keratinocytes proliferation with 0.1% BeauPlex® VH

*Helps prevent hair loss / Drug claim in some regions

BeauPlex® VH

Study Design / Hair Loss*

Target group

- 18–65 y.o. (mean 45 y.o.)

30 Volunteers per formulation

- Placebo
- BeauPlex® VH 1.5%

**Application: 5 months
daily, scalp, leave-on**

**Randomized single centre
Study
Double blind**

*Helps prevent hair loss / Drug claim in some regions



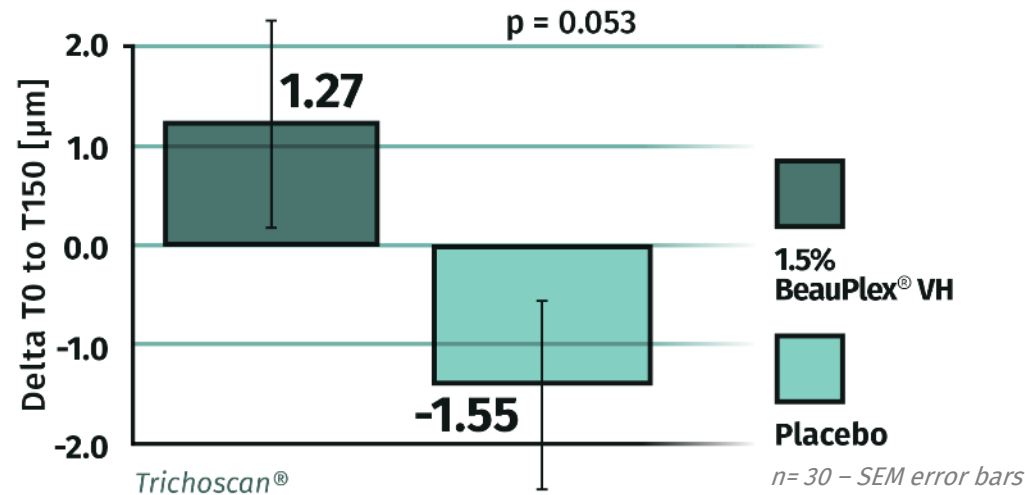
BeauPlex® VH

Increases hair thickness and density

dsm-firmenich 
own study

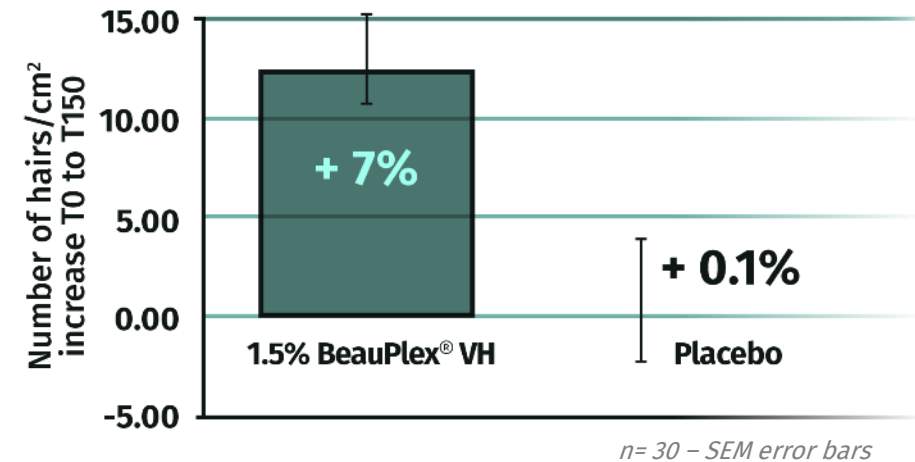


Hair Thickness



4% Increase of hair diameter using Vitamin blend BeauPlex® VH, while hair thinning is observed with the Placebo Leave-on after 5 months treatment

Hair Density

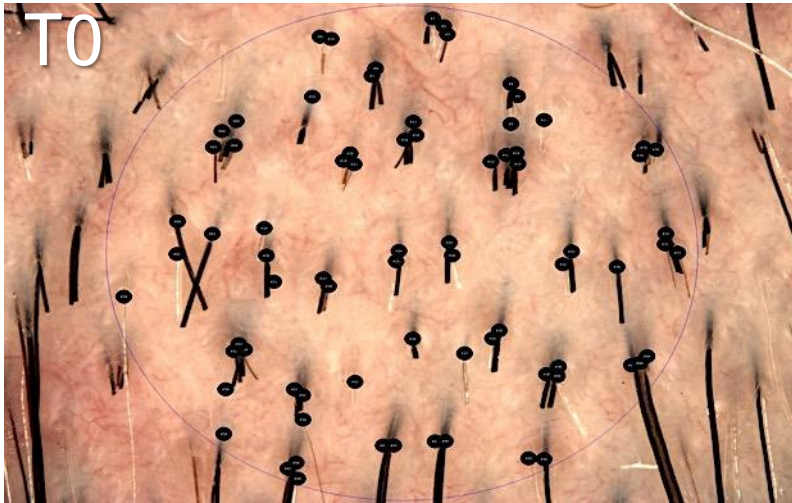


7% increase in hair density versus T0 using BeauPlex® VH

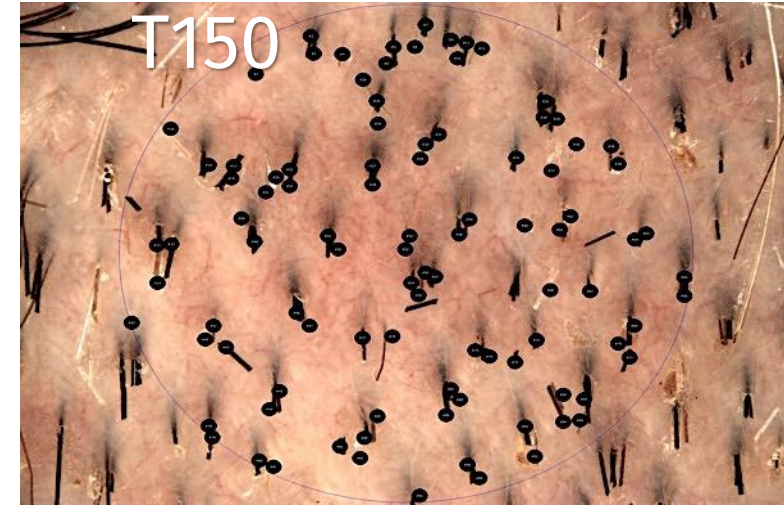
Better performance than Placebo after 5 months

BeauPlex® VH – Hair Density

Increases density after 5 months/ micro-images

dsm-firmenich 
own study

Example : Volunteer #49

t0 = 128 hairs/cm² and at t150 = 164 hairs/cm²

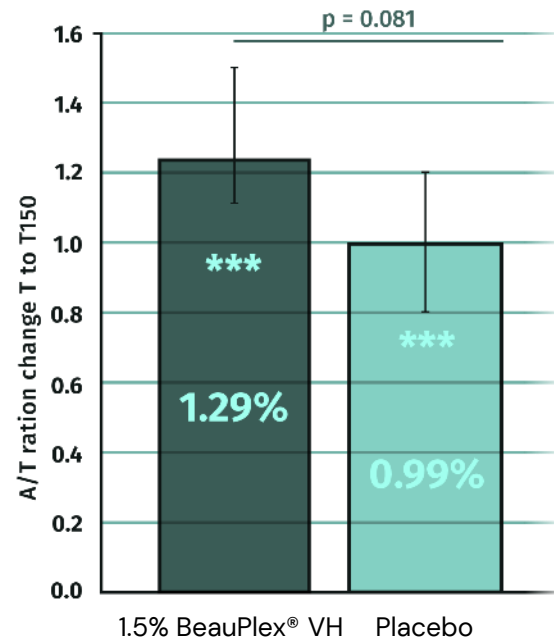
28% increase on hair density after 5-months treatment with BeauPlex® VH (example #49)

BeauPlex® VH

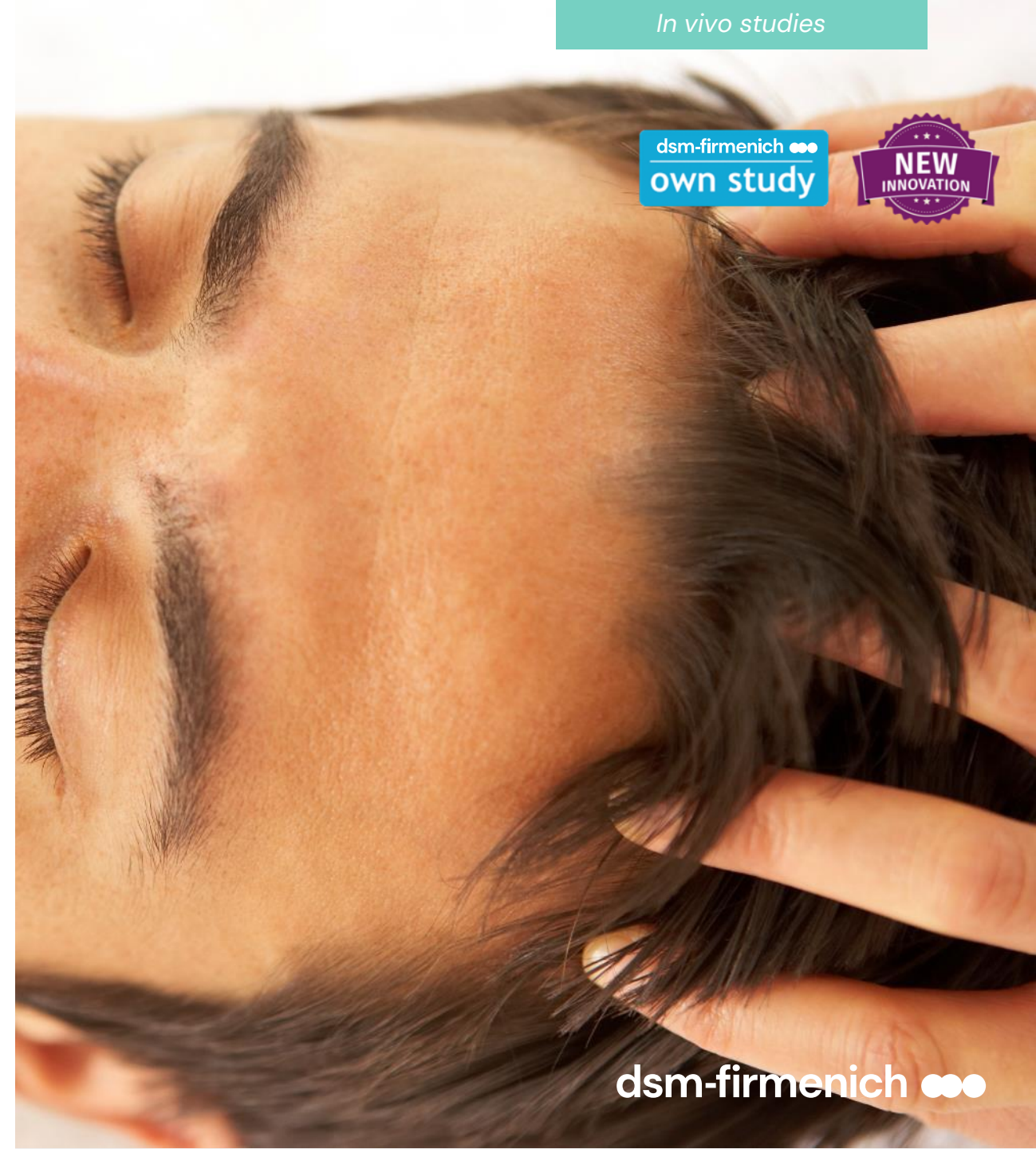
Prolongates anagen phase of hair follicles

Anagen to Telogen ratio (A/T) – Trichogram

Trend for higher proportion of hair in anagen phase using a serum with BeauPlex® VH after 5 months



n= 30 – SEM error bars***p < 0.001 vs T0
15 to 25 hairs collected per volunteer for trichogram



dsm-firmenich
own study



Consumers confirm efficacy

Participants feedback after treatment with BeauPlex® VH

dsm-firmenich
own study



97% like the product



52% agree that the hair roots and scalp is not oily



93% noticed increased speed of hair growth



83% agree that they don't have dandruff on hair or scalp

BeauPlex® VH

Hair pigmentation*



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to homepage](#)

*Helps reduce the appearance of greying hair

dsm-firmenich 

BeauPlex® VH

Study Design / Hair pigmentation*

Target group

- 18–45 y.o. (mean 39 y.O.)

30 Volunteers per formulation

- Placebo
- BeauPlex® VH 1.5%

**Application: 4 months
daily, leave-on, scalp**

**Randomized single centre
Study
Double blind**

*Helps reduce the appearance of greying hair



BeauPlex® VH – Hair Pigmentation*

Hair pigmentation / Hair darkening

dsm-firmenich
own study



Results after 4 months treatment Leave-on BeauPlex® VH (1.5%)

TO



T120



Example : Volunteer #60

Darker hair appearance after 4 months

7% reduction of grey hair versus T0

60% of volunteers showed improvement in hair pigmentation* with BeauPlex® VH

*Helps reduce the appearance of greying hair

BeauPlex® VH

Vitamin Blend – Takeaways

Key features:

Blend of Vitamins for Hair & Scalp
(Vitamin B3, B5, B6, C and E)

Use level: 1.5%

Key Benefits:

Helps prevent hair loss* (improves hair density and thickness)

- 76% Proliferation of hair follicle keratinocytes– *ex vivo*
- Prolongation of anagen phase of hair follicles.
2x more than placebo– *ex vivo*
- Increases hair thickness (4%) and density (+7%) – *in vivo*
- Increase Anagen to Telogen ratio –*in vivo*

*Drug claim in some regions
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.



Quali-B
Quali-C
Quali-E



Helps prevent the appearance of greying hair (helps recover hair pigmentation)

- 7% hair greying reduction after 4 months– *in vivo*
- 60% of volunteers showed improvement in hair pigmentation with BeauPlex® VH

Other benefits: base on individual vitamins results

- Hydration and scalp barrier improvement
- Strong anti-oxidant properties

06

Agenda

01 Market & Consumer Insights

02 dsm-firmenich Hair Care Solutions Map

03 ALPAFLOR® EDELWEISS CB

04 PENTAVITIN®

05 BeauPlex® VH

06 Other dsm-firmenich Solutions



Click on the number to get
redirected to the chapter

ALPAFLOR® ALP-SEBUM CB

ID Card



Key benefit:	Sebum Reduction (strong 5-α-reductase inhibitor) Helps prevent hair loss* (based on literature) Scalp Care (anti-irritation and soothing properties)		
INCI name: (Active)	Epilobium Fleischeri Flower/Leaf/Stem Extract		
Description:	Plant extract organically cultivated		
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3.5 to 5.5	Preservative: Free Solubility: Water soluble	Target: Scalp Biodegradability: Readily biodegradable

Registration certification



*Drug claim in some regions

ALPAFLOR® ALP-SEBUM CB

Organic and sustainable alpine flower

dsm-firmenich own study

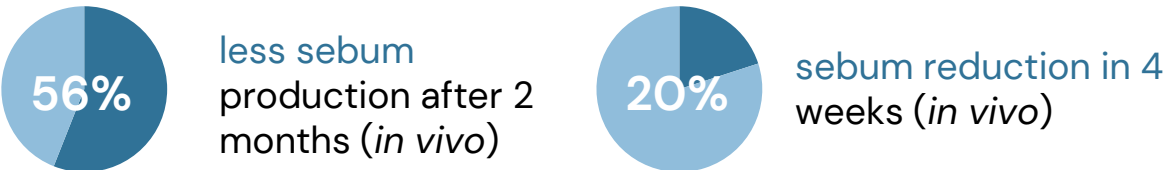


Key Features

Unique glacier willowherb species, *Epilobium fleischeri*, sustainably, fairly and organically cultivated

Benefits

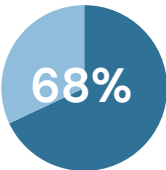
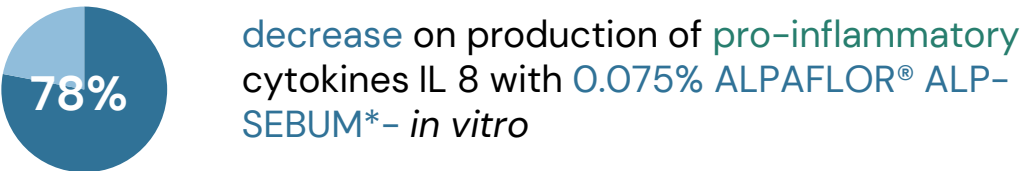
Sebum Reduction extrapolation from skin Inhibits formation of DHT via 5- α -reductase (*ex vivo*)



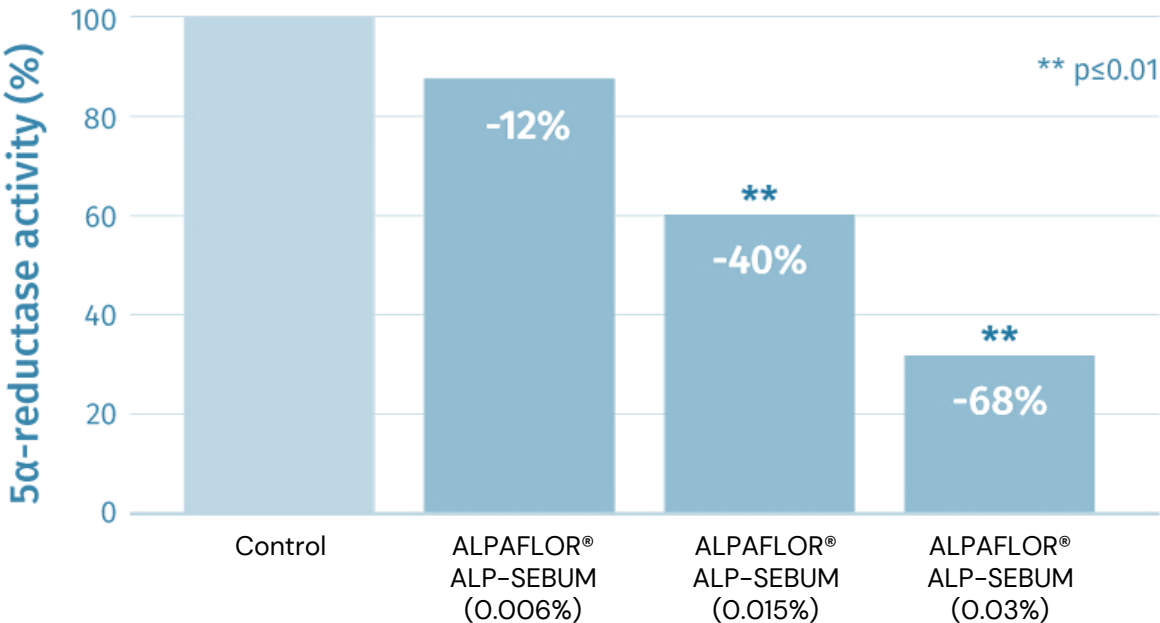
Helps prevent hair loss* based on literature

- Inhibits formation of DHT via 5- α -reductase
- DHT is also known to promote hair Loss

Scalp Care



Significant dose-dependent inhibition of 5- α -reductase activity up to 68% versus control with 0.03% ALPAFLOR® ALP-SEBUM* in human skin fibroblast



Measuring the levels of 5- α -dihydrotestosterone (5 α -DHT) produced by human skin fibroblasts incubated with testosterone

*Drug claim in some regions
DHT= Dihydrotestosterone.
* = commercial form

ARGAN OIL

ID Card



Key benefit:	Anti-breakage Anti-Frizz Conditioning / Ease of Combing	Split-ends Reduction Shine
INCI name:	Argania Spinosa Kernel Oil	
Description:	Organically cultivated and cold extracted without the use of solvents	
Technical:	Form: Liquid Use level: Up to 0.5% pH of use: 5 to 9	Preservative: Free Solubility: Oil soluble Target: Hair fiber Biodegradability: Expected to be Biodegradable

Registration certification

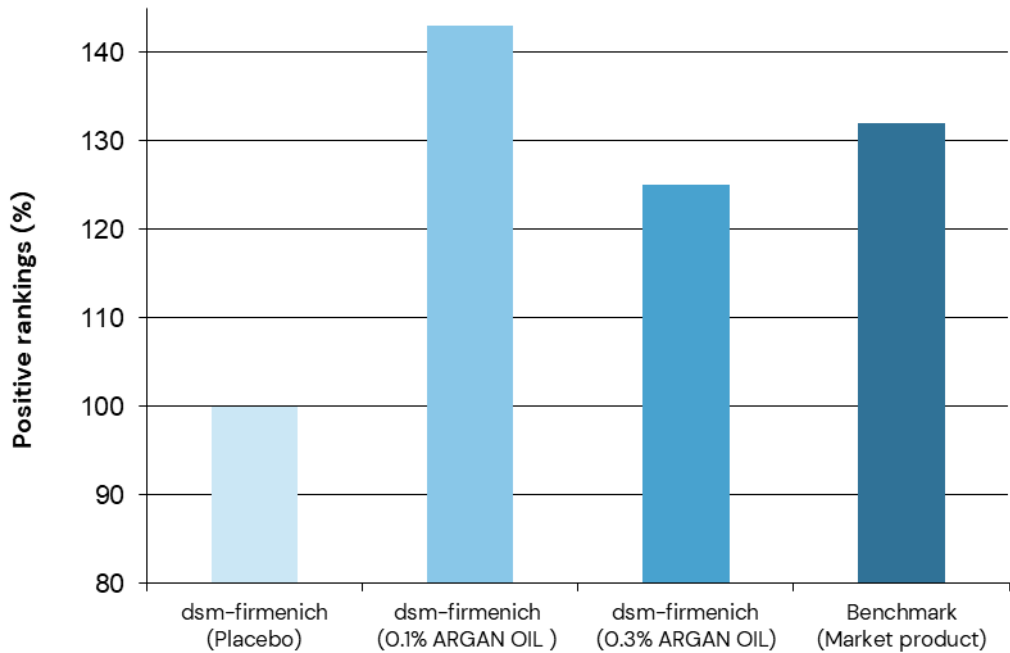


ARGAN OIL

Enhances Shine

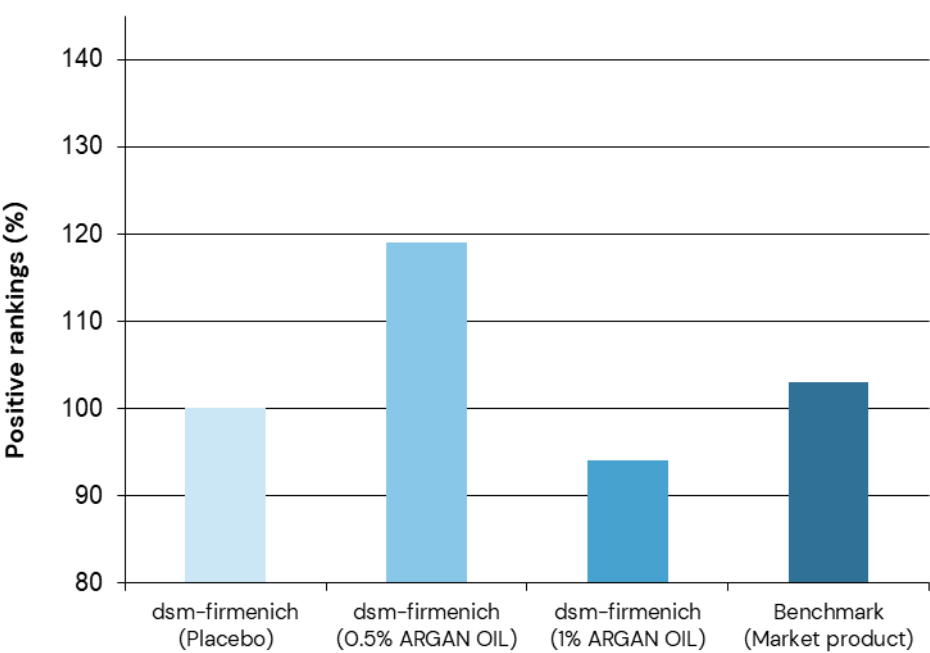


Shampoo Ranking of paired comparison test



Shampoo formulation containing 0.1% ARGAN OIL shows best shine enhancement beating the leading market brand.

Conditioner Ranking of paired comparison test



Conditioner formulation containing 0.5% ARGAN OIL shows best shine enhancement beating the leading market brand.

COLHIBIN CB

ID Card



Key benefit:	Anti-breakage Conditioning / Ease of Combing Split-ends reduction		
INCI name: (Active)	Hydrolyzed Rice Protein		
Description:	COLHIBIN CB is a highly concentrated mixture of natural peptides with low molecular weights, extracted from edible rice protein		
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3 to 9	Preservative: Phenoxyethanol-free Solubility: Water soluble	Target: Hair fiber Biodegradability: Expected to be Biodegradable

Registration certification



COLHIBIN CB

Plant derived peptide

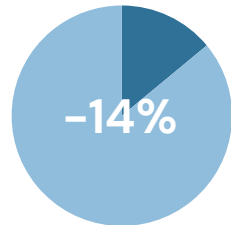
dsm-firmenich 
own study



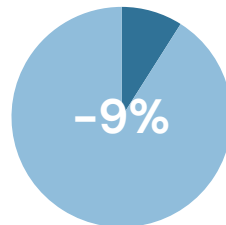
Shampoo

Reduction in Combing Force

Wet

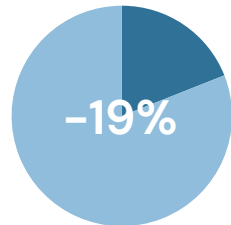


1 Cycle

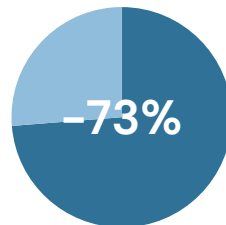


3 Cycles

Dry



1 Cycle

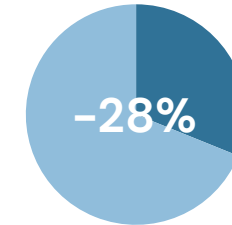


3 Cycles

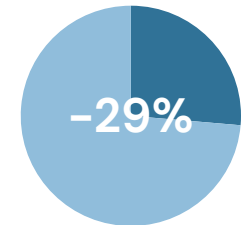
Hair Fibers vs Placebo

Leave-on single application

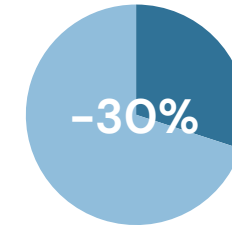
Hair Breakage Reduction



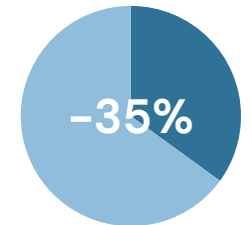
Split Ends Reduction
(dry combing force at tips)



Reduction in Combing Force



Wet



Dry

Instron Bleached Caucasian hair Breakage: repeated combing test COLHIBIN CB at 3% as supplied

life'sGLA™ '10' n-6 Oil

ID Card



Key benefit:	Anti-breakage Anti-Frizz Conditioning / Ease of Combing	Split-ends Reduction Shine
INCI name: (Active)	Oenothera Biennis (Evening Primrose) Seed Extract	
Description:	Prepared by extraction of oil from seeds of Oenothera plant or Evening primrose (9% GLA)	
Technical:	Form: Liquid Use level: up to 8% pH of use: 3 to 9	Preservative: Free Solubility: Oil soluble Target: Hair fiber Biodegradability: Readily biodegradable

Registration certification



life'sGLA™ '10' n-6 Oil (Omega-6 flower oil)

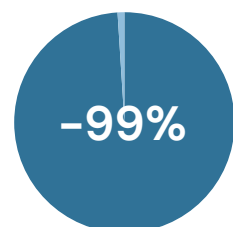
Prepared by extraction of oil from seeds of *Oenothera* plant or Evening Primrose (9% GLA)

dsm-firmenich
own study



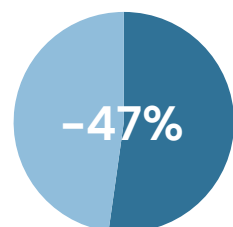
Hair Fibers vs Placebo Leave-on

Hair **Breakage**
Reduction



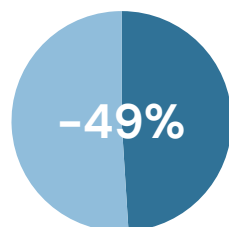
1 Cycle

Reduction in **Combing Force**

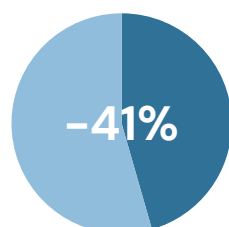


Wet

Split Ends Reduction
(dry combing force at tips)



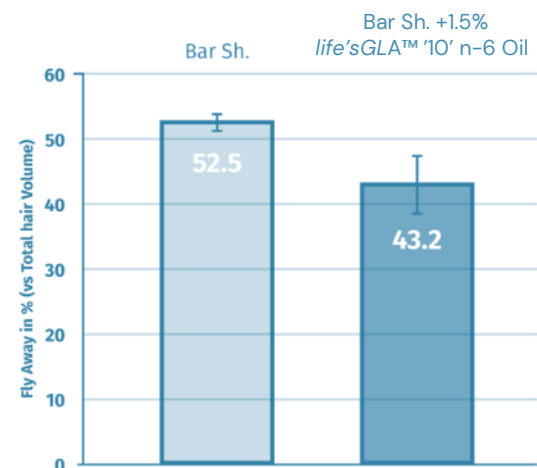
3 Cycles



Dry

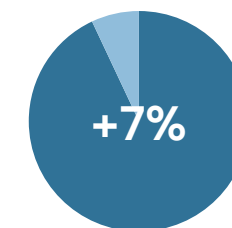
Instron-Bleached Caucasian/ Breakage: repeated combing test *life'sGLA*™ '10' n-6 Oil at 1%

Anti-Frizz Solid Shampoo



Bleached Caucasian *life'sGLA*™ '10' n-6 Oil at 1.5%

Shine Shampoo



Increase of **Shine**

Bossa Nova -Virgin Asian hair *life'sGLA*™ '10' n-6 Oil at 0.5%

PHYTALURONATE® PF

ID Card



Key benefit:	Anti-breakage Conditioning / Ease of Combing Split-ends reduction		
INCI name: (Active)	Ceratonia Siliqua (Carob) Gum		
Description:	Derived from the seeds of Carob tree.		
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3 to 10	Preservative: Phenoxyethanol and Ethyhexylglycerin Solubility: Water soluble	Target: Hair fiber Biodegradability: Biodegradable

Registration
certification



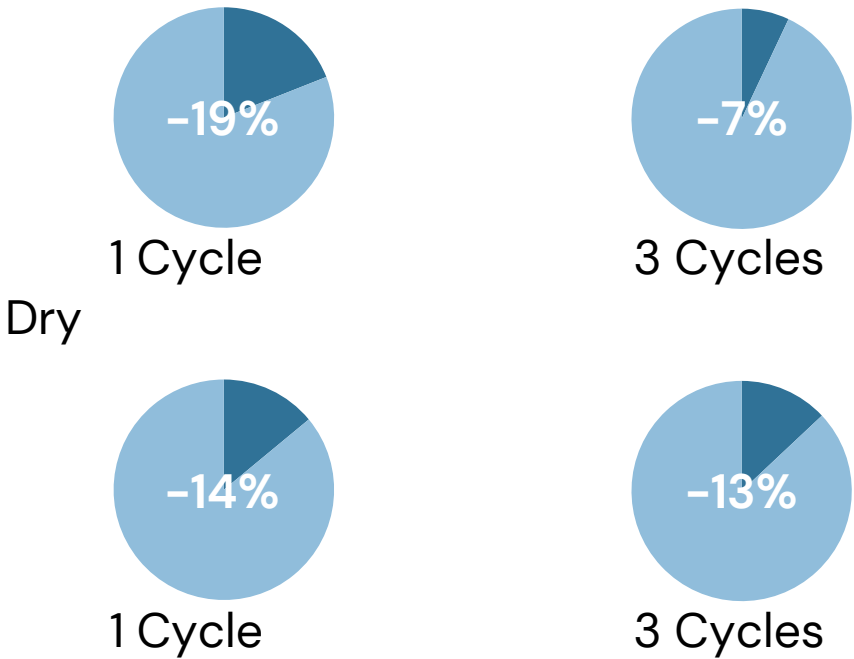
PHYTALURONATE® PF

Plant derived from the seeds of Carob tree



Shampoo

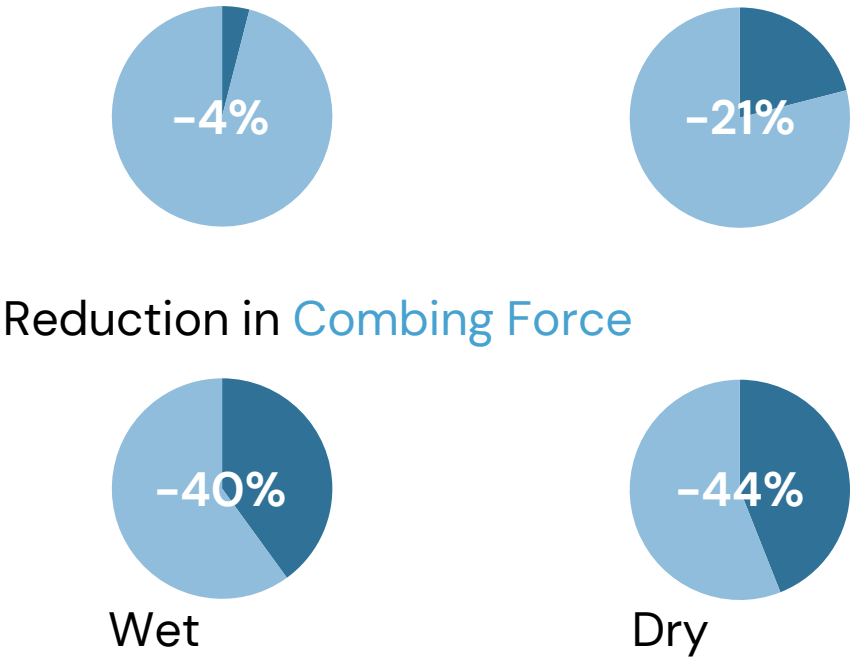
Reduction in **Combing Force**
Wet



Hair Fibers vs Placebo

Leave-on single application

Hair **Breakage** Reduction **Split Ends** Reduction
(dry combing force at tips)



Instron/Bleached Caucasian hair Breakage: repeated combing test PHYTALURONATE® PF at 3% as supplied

Phytantriol

ID Card



Key benefit:	Color Protection Hair Protection	Heat Protection Deposition (Panthenol, Ethyl-Panthenol and Keratin amino acids)	
INCI name:	Phytantriol	Product code: 0429082	
Description:	Prepared from Isophytol, one of the central building blocks of vitamin E		
Technical:	Form: Viscous Liquid Use level: 0.1% to 1%	Preservative: Free Solubility: Oil soluble	Target: Hair fiber Biodegradability: Biodegradable
Registration certification	     		

Phytantriol

biodegradable and biomimetic to hair layer

Key Features:

Consist of an anchoring groups for an excellent substantivity to hair ("Glycerin like" head) and a tail that is similar to the 18-MEA layer, a primary lipid of the hair surface

Benefits:

Deposition -0.1%

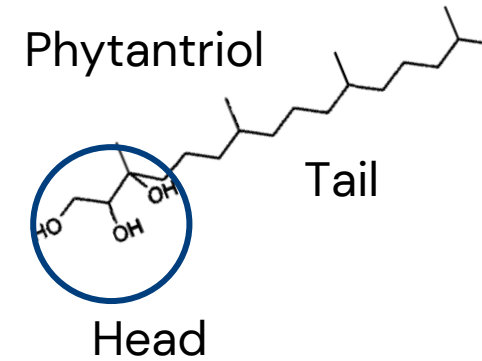
Boosts effects of Panthenol, Ethyl-Panthenol and keratin amino acids

Heat Protection- 0.1%-0.5%

Protection against heat damage (shampoos and conditioners)

Color Protection -0.2%

Visible prevention of wash-out from various color shades



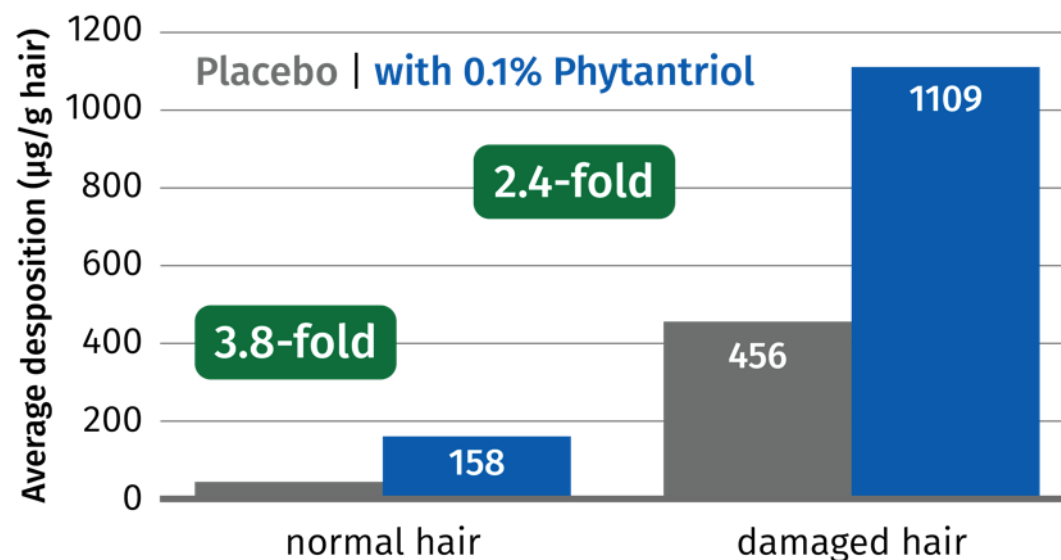


Phytantriol

Increases the deposition of Panthenol and Keratin amino acids (Shampoo)

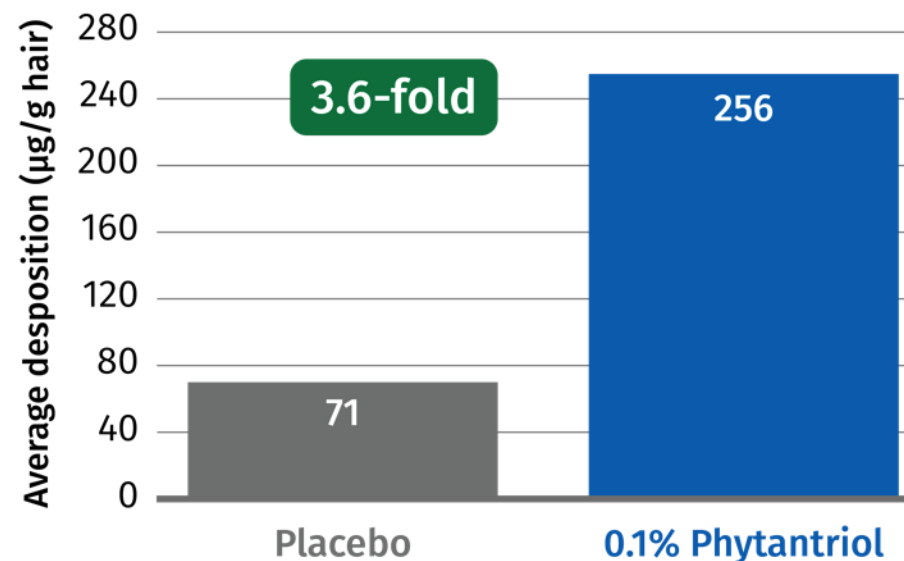
Panthenol

Virgin and damage hair swatches soaked for 10 minutes in a 50% shampoo solution with **0.5% Panthenol**. Rinsed 3 times with water (50°C) and air dried. Hair was dissolved, analyzed with a scintillation counter and amounts calculated.



Keratin amino acids

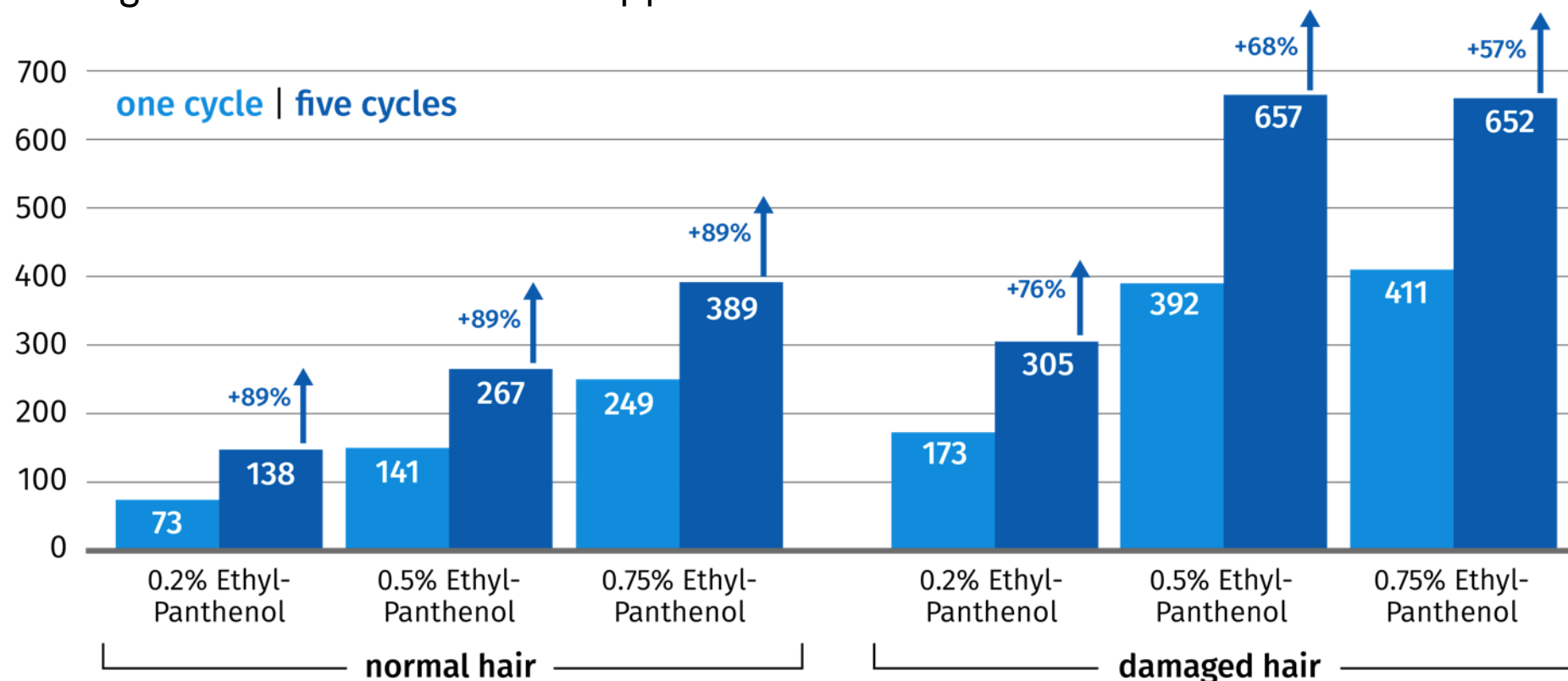
Virgin hair swatches soaked for 10 minutes in a 50% shampoo solution with **0.5% labeled keratin amino acids**. Rinsed 3 times with warm water (50°C) and air dried. Hair was dissolved, analyzed with a scintillation counter and amounts calculated.



Phytantriol

Increases the deposition of Ethyl-Panthenol on normal and damage hair (Shampoo)

Phytantriol strongly increases the deposition of Ethyl-Panthenol on both normal and damaged hair after cumulative application.

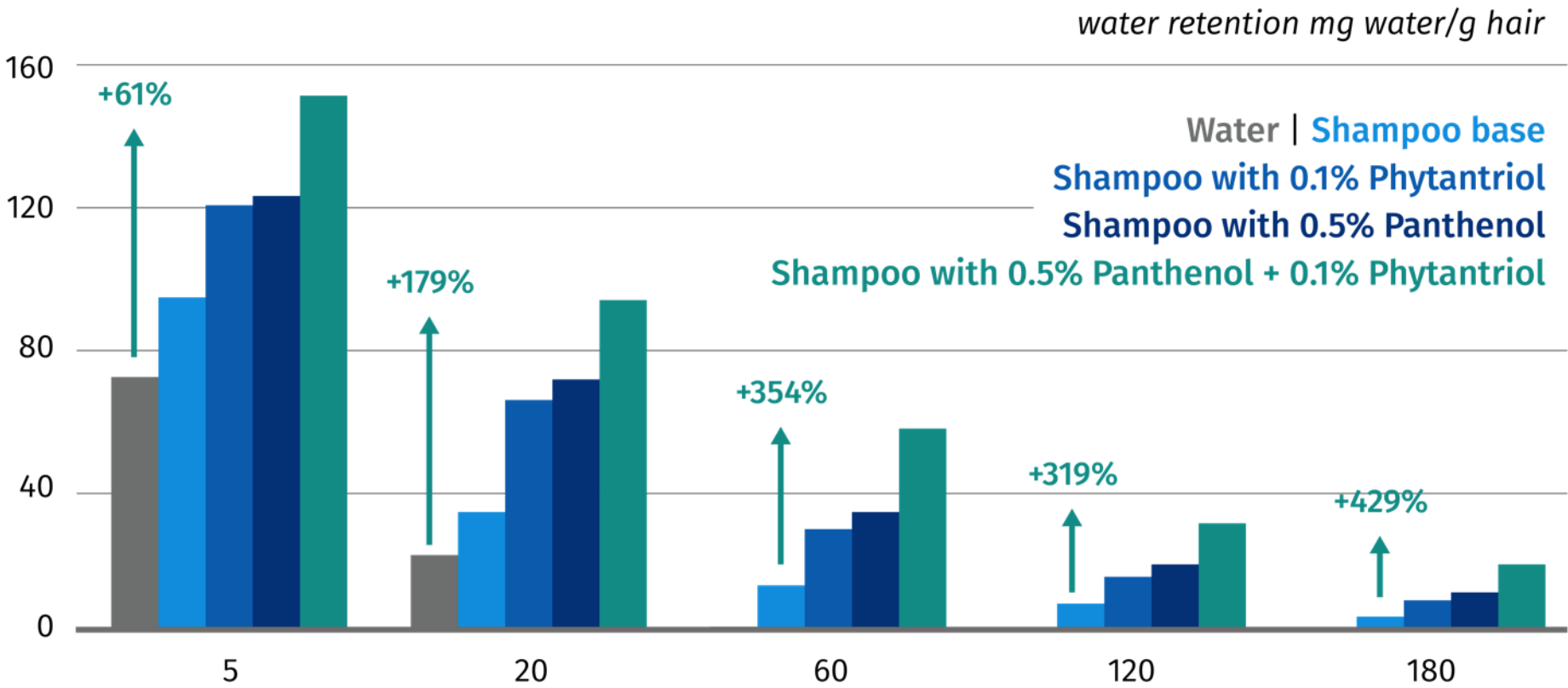


Phytantriol

Improves water content in the hair (Shampoo)



Dilution of shampoo with water at 1:10. Hair soaked in solution, rinsed twice with water and blotted with tissue paper. Analysis of water loss gravimetrically.





Phytantriol

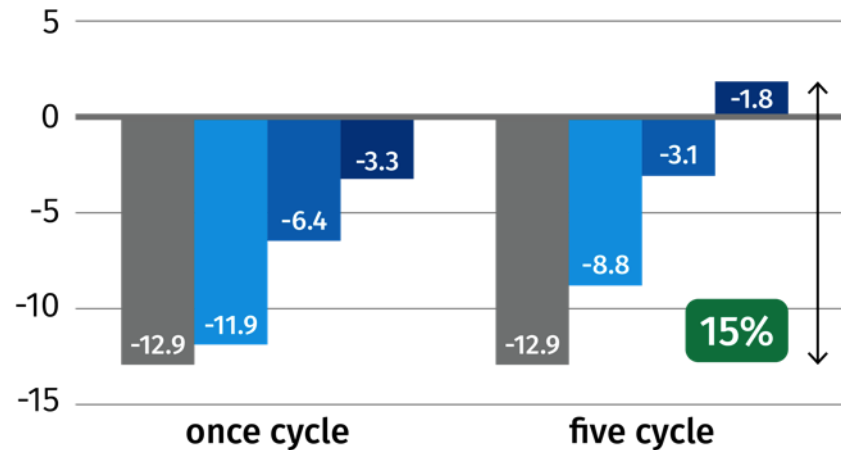
Protects hair from damage caused by blow drying (Shampoo)

Normal Hair

Virgin brown hair swatches (5/group) were pre-treated and hot blow dried for 2min. Assessment of tensile strength (yield slope) with a force of 20gm load setting at a speed of 100mm/min.

% change vs. no treatment

No treatment | Placebo shampoo
0.3% Phytantriol | 0.5% Phytantriol

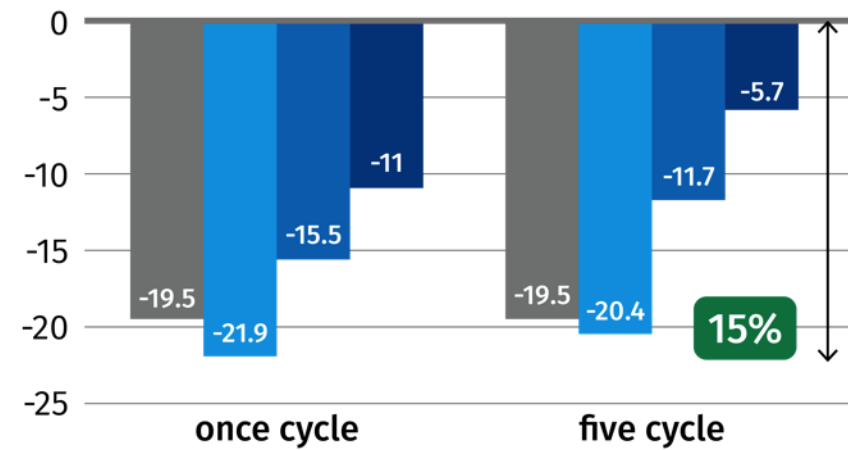


Damaged Hair

Bleached brown hair swatches (5/group) were pre-treated and hot blow dried for 2min. Assessment of tensile strength (yield slope) with a force of 20gm load setting at a speed of 100mm/min.

% change vs. no treatment

No treatment | Placebo shampoo
0.3% Phytantriol | 0.5% Phytantriol





Phytantriol

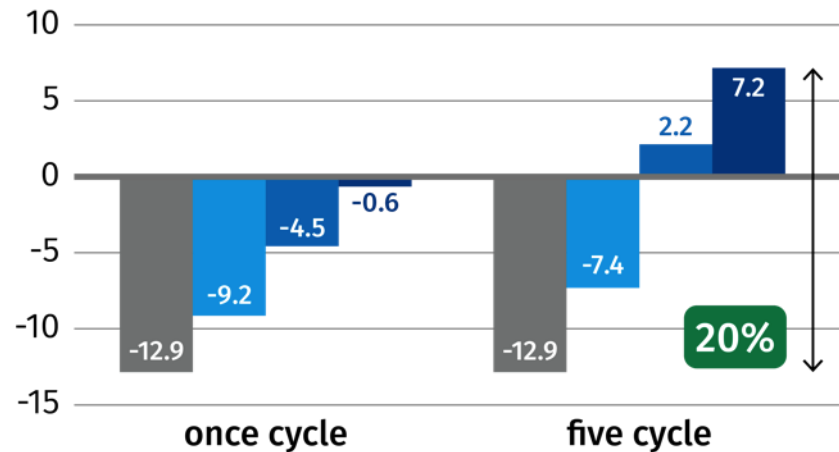
Protects hair from damage caused by blow drying (Conditioner)

Normal Hair

Virgin brown hair swatches (5/group) were pre-treated and hot blow dried for 2min. Assessment of tensile strength (yield slope) with a force of 20gm load setting at a speed of 100mm/min.

% change vs. no treatment

No treatment | Placebo conditioner
0.3% Phytantriol | 0.5% Phytantriol

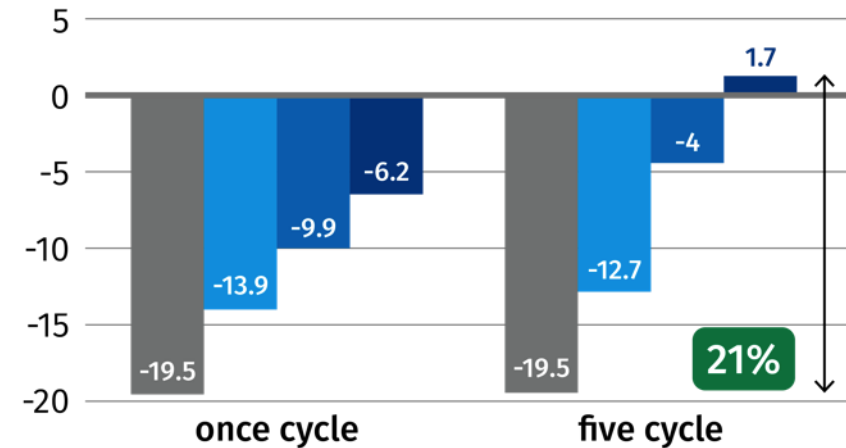


Damaged Hair

Bleached brown hair swatches (5/group) were pre-treated and hot blow dried for 2min. Assessment of tensile strength (yield slope) with a force of 20gm load setting at a speed of 100mm/min.

% change vs. no treatment

No treatment | Placebo conditioner
0.3% Phytantriol | 0.5% Phytantriol



Phytantriol

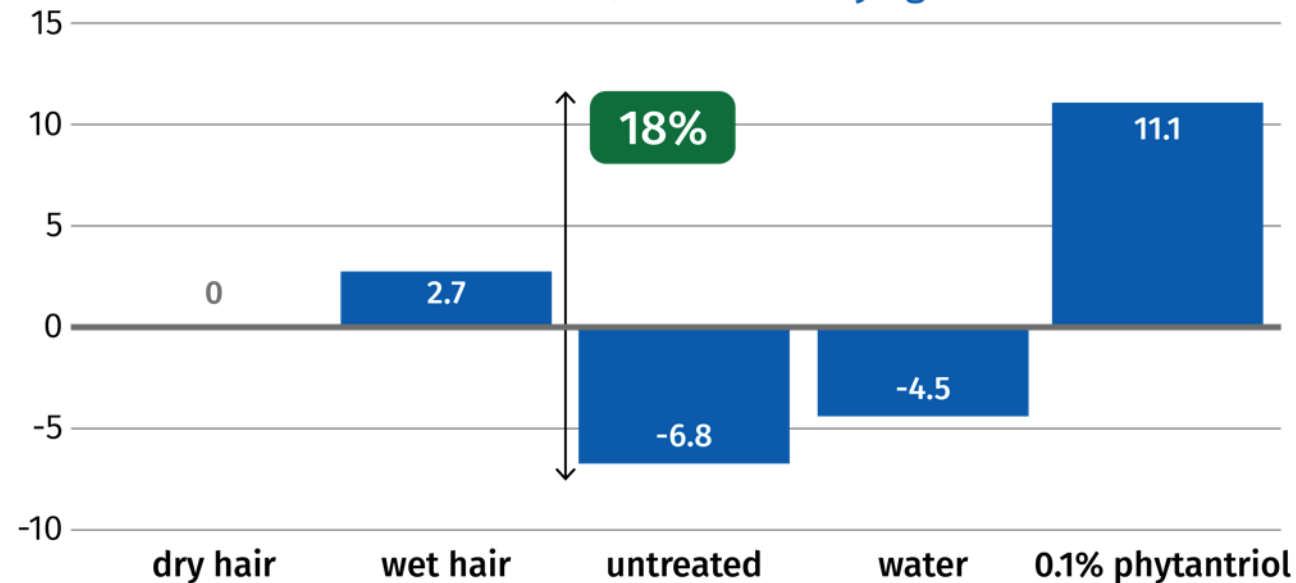
Protects hair from damage caused by blow drying (Leave on)

Normal Hair

Virgin brown hair swatches (5/group) were pre-treated and hot blow dried for 2min. Assessment of tensile strength (yield slope) with a force of 20gm load setting at a speed of 100mm/min.

% change vs. no treatment

Untreated | After blow drying

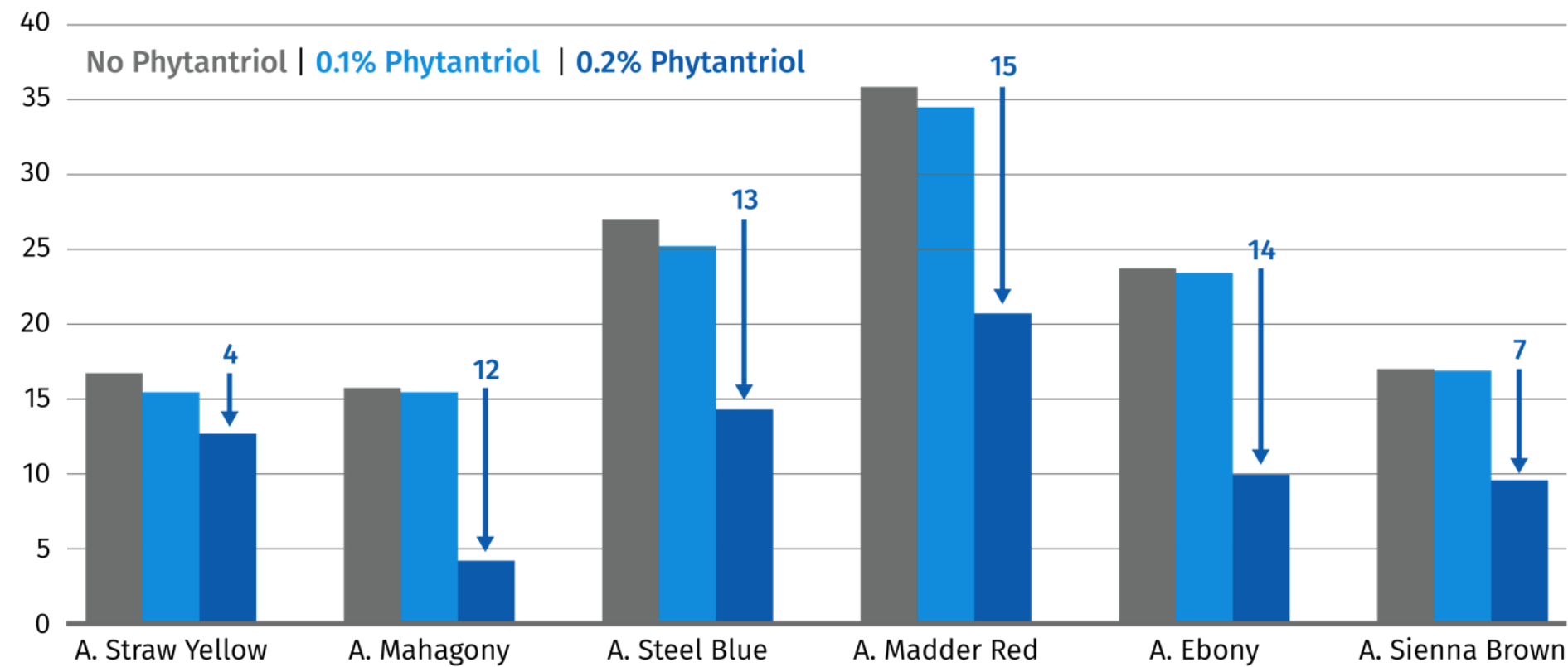


Phytantriol

Protects different hair colors from wash-out



Direct dyes commonly used in non-oxidative colorations and color mousses. Differences in ΔE greater than 2 are visible by eye.



SETAKOL® PF

ID Card



Key benefit:	Anti-breakage Conditioning / Ease of Combing Split-ends reduction		
INCI name: (Active)	Hydrolyzed Sericin		
Description:	Hydrolyzed silk glycoprotein sericin		
Technical:	Form: Viscous Liquid Use level: Up to 3% pH of use: 5 to 9	Preservative: Phenoxyethanol and Ethyhexylglycerin Solubility: Water soluble	Target: Hair fiber Biodegradability: No data available

Registration certification



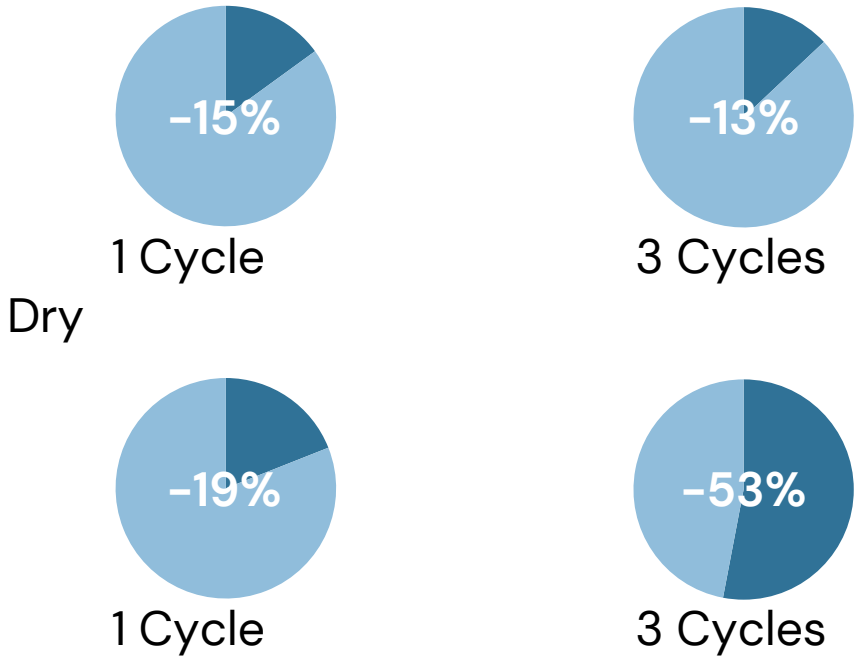
SETAKOL® PF

Hydrolyzed silk glycoprotein sericin



Shampoo

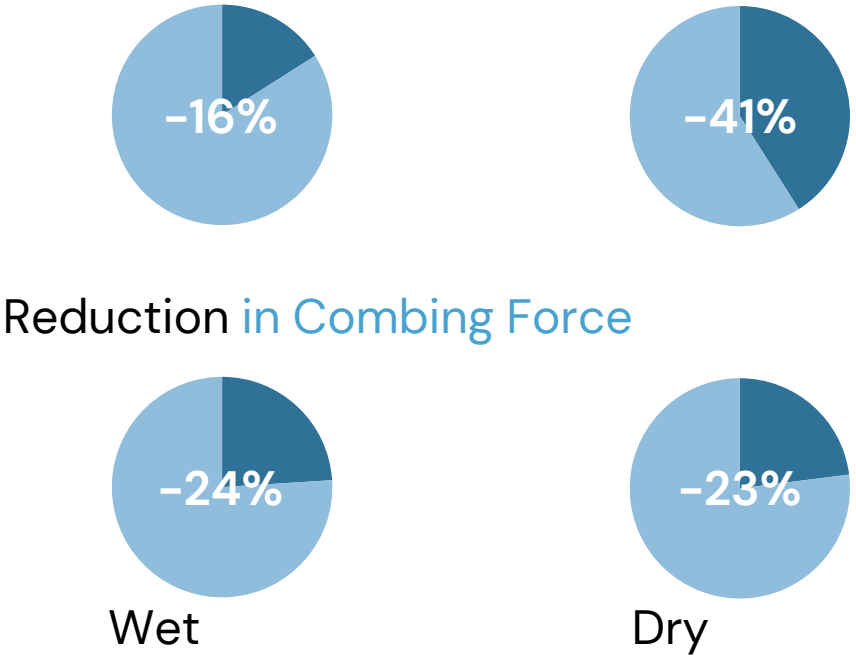
Reduction in **Combing Force**
Wet



Hair Fibers vs Placebo

Leave-on single application

Hair **Breakage** Reduction **Split Ends** Reduction
(dry combing force at tips)



Instron Breakage: repeated combing test Bleached Caucasian hair SETAKOL® PF at 3% as supplied

STIMU-TEX® AS

ID Card



Key benefit:	Anti-breakage Anti- frizz Conditioning / Ease of combing	Split-ends reduction Scalp Care (reduces itchiness and irritation) – extrapolation from skin results
INCI name:	Tocopherol, Argania Spinosa Kernel Oil, Spent Grain Wax, Butyrospermum Parkii Butter Extract	
Description:	A unique mixture of high-quality, upcycled spent grain wax, cold-processed argan oil, and shea butter. With upcycled spent grain wax, a by-product of the beer production	
Technical:	Form: Off white to yellow lipidic mas Use level: Up to 3%	Preservative: Free Solubility: Oil soluble Target: Hair fiber and scalp

Registration certification

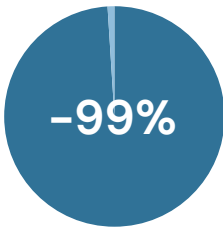
STIMU-TEX® AS

Blend of spent grain wax from upcycling process with argan oil and shea butter

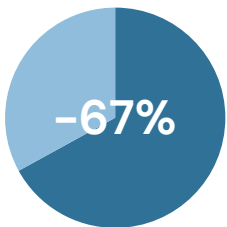


Leave-on single application

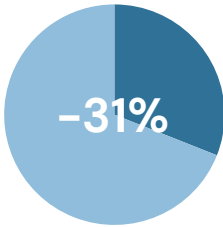
Hair Breakage Reduction



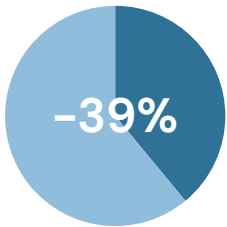
Split Ends Reduction (dry combing force at tips)



Reduction in Combing Force

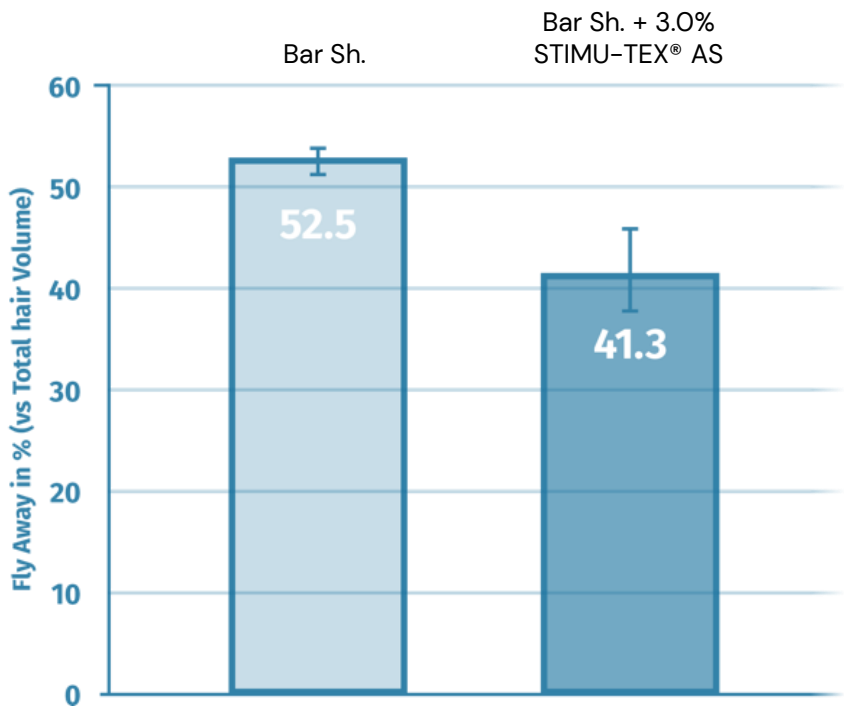


Wet



Dry

Anti-frizz Solid Shampoo



Instron/ Breakage: repeated combing test Bleached Caucasian hair/ STIMU-TEX® AS at 1% as supplied
Bleached Caucasian hair STIMU-TEX® AS at 3% as supplied

Quali-B Vitamin B3 (Niacinamide PC)

ID Card



Key benefit:	Scalp Care (strengthens scalp barrier / moisturization) Hair Thickening (helps increase hair diameter)		
INCI name:	Niacinamide		
Description:	Niacinamide PC has a low guaranteed level of residual nicotinic acid to address any concerns about unpleasant scalp sensations		
Technical:	Form: Powder Use level: Up to 7% pH of use: 4 to 8	Preservative: Free Solubility: Water soluble	Target: Scalp and hair fiber Biodegradability: Readily biodegradable

Registration
certification

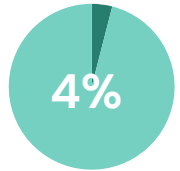


Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

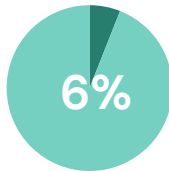
Quali-B[®] Vitamin B3 (Niacinamide PC)

Penetrates the hair and contributes to thicken & strength the fiber

Significantly increases fibre diameter*

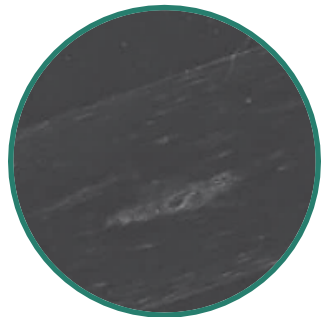


Virgin & Fine textured hair

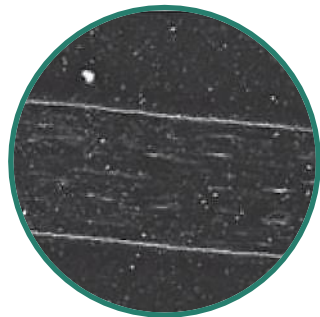


Bleached Hair & Coarse hair

White represents Niacinamide penetrated and deposited on the surface of the hair fiber



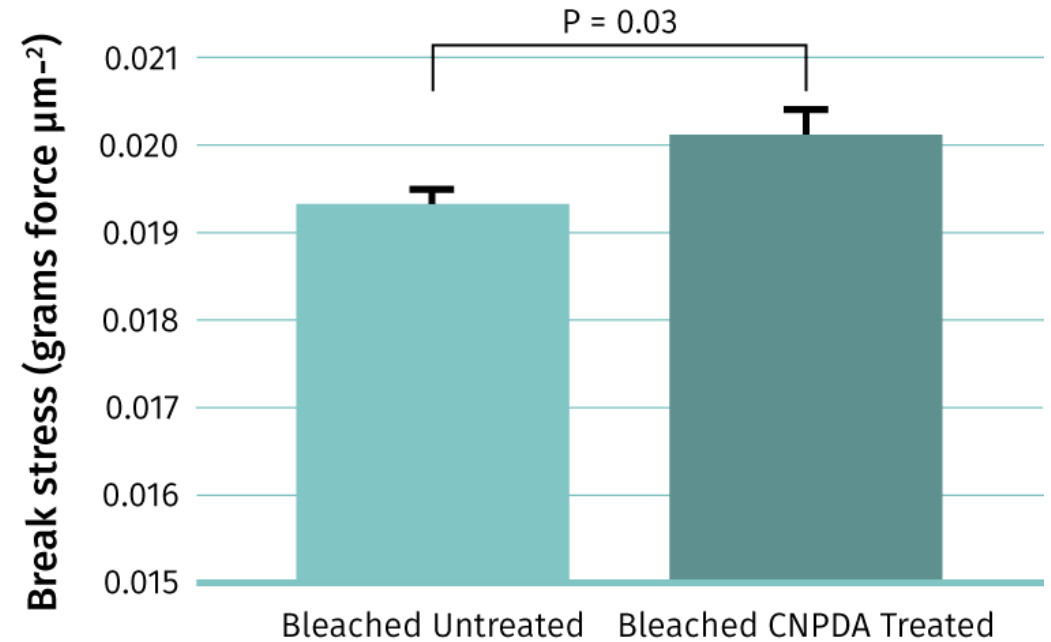
Blank



Niacinamide

Autoradiographic image with Caucasian, bleached hair.

Improves fiber resistance to breakage by ~4%*



Fiber break stress for CNPDA Treated hair fibers at 60% relative humidity.

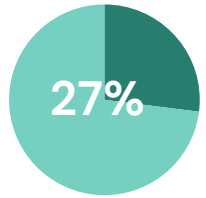
Data reported as mean + SEM.

*Results based in the combination of Caffeine, Niacinamide, Panthenol, Dimethicone and Acrylate polymer (CNPDA)

J.H. Thomas et al., A novel cosmetic approach to treat thinning hair, British Association of Dermatologists, 2011 165 (Suppl. 3), pp24–30

Quali-B Vitamin B3 (Niacinamide PC)

Improves resilience for a healthier scalp



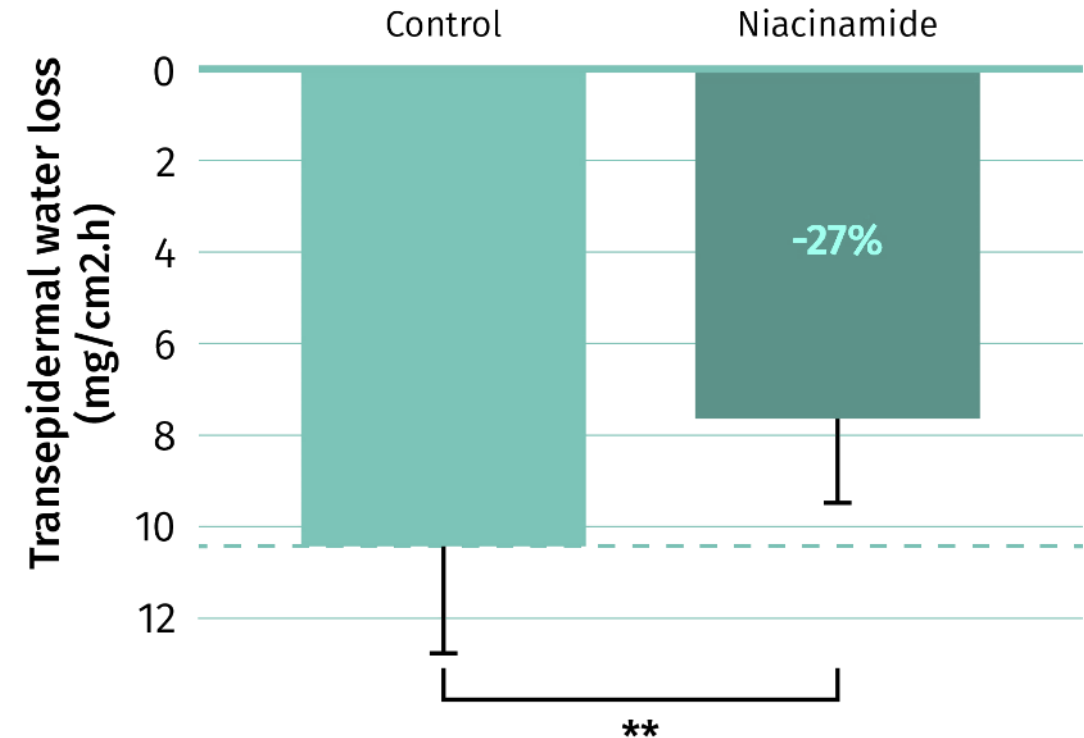
TEWL was **reduced by 27%** when skin was treated twice daily with **Niacinamide** for 4 weeks



Niacinamide PC helps to keep the scalp **hydrated**
2% Niacinamide PC

Strengthens Scalp Barrier:

-27% water loss reduction improving scalp **hydration**



S. Inoue, Nicotinamide increases biosynthesis of ceramides as well as other stratum corneum lipids to improve the epidermal permeability barrier, British Journal of Dermatology, 2000; 143: 524-531

Quali-B Pro-Vitamin B5 (Panthenol)

ID Card



Key benefit:	Scalp Care (strengthens scalp barrier / moisturization) Deposition – see Phytantriol Hair Thickening (helps increase hair diameter)		
INCI name:	Panthenol Ethyl Panthenol		
Description:	D-Panthenol D-Panthenol 75L min 75% and water	DL-Panthenol 50L min 50% and water/racemic mixture D- and L- Ethyl Panthenol	
Technical:	Form: Liquid Use level: Up to 5% pH of use: 4 to 7.5	Preservative: Free Solubility: Water soluble	Target: Scalp and hair fiber Biodegradability: Readily biodegradable

Registration certification*

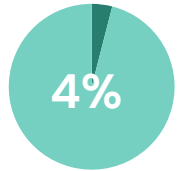


*D-Panthenol 75L
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

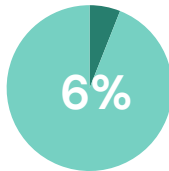
Quali-B® Pro-Vitamin B5 (Panthenol)

Penetrates the hair and contributes to thicken & strengthen the fiber

Significantly increases fiber diameter*

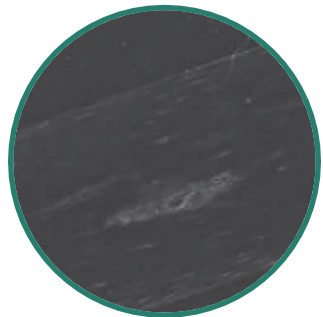


Virgin & Fine textured hair

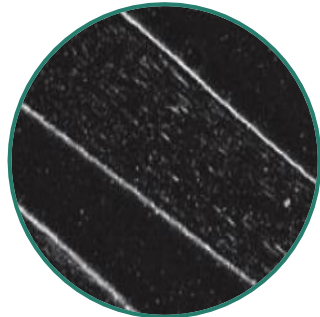


Bleached Hair & Coarse hair

White represents Panthenol penetrated and deposited on the surface of the hair fiber



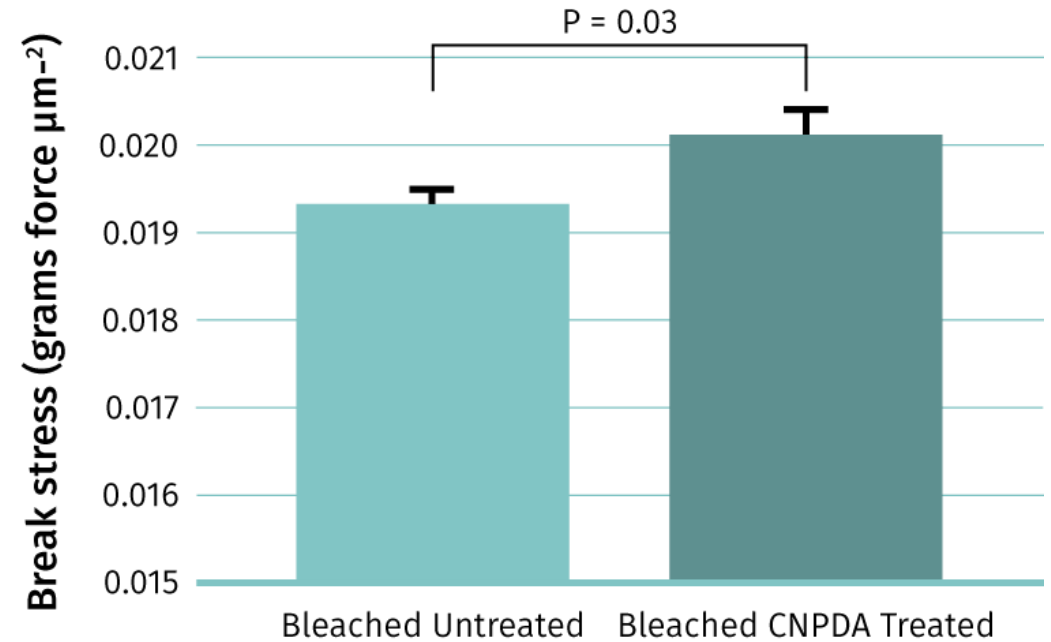
Blank



Panthenol

Autoradiographic image with Caucasian, bleached hair.

Improves fiber resistance to breakage by ~4%*

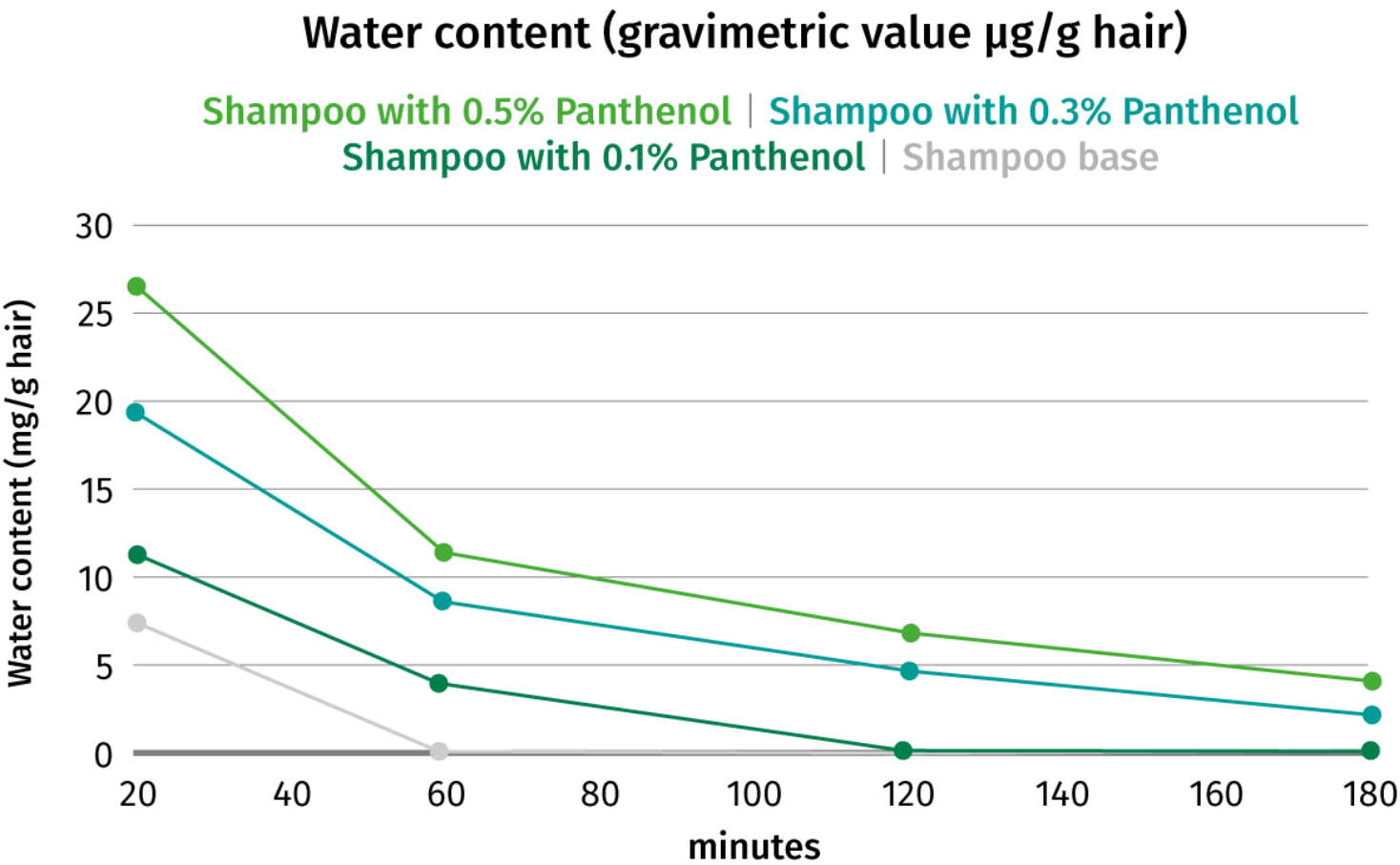


Fiber break stress for CNPDA Treated hair fibers at 60% relative humidity.

Data reported as mean + SEM.

*Results based in the combination of Niacinamide, caffeine, Vitamin B5, dimethicone and acrylate polymer
J.H. Thomas et al., A novel cosmetic approach to treat thinning hair,
British Association of Dermatologists, 2011 165 (Suppl. 3), pp24–30

Quali-B® Pro-Vitamin B5 (Panthenol)
Improves, dose dependently, long lasting hydration in hair

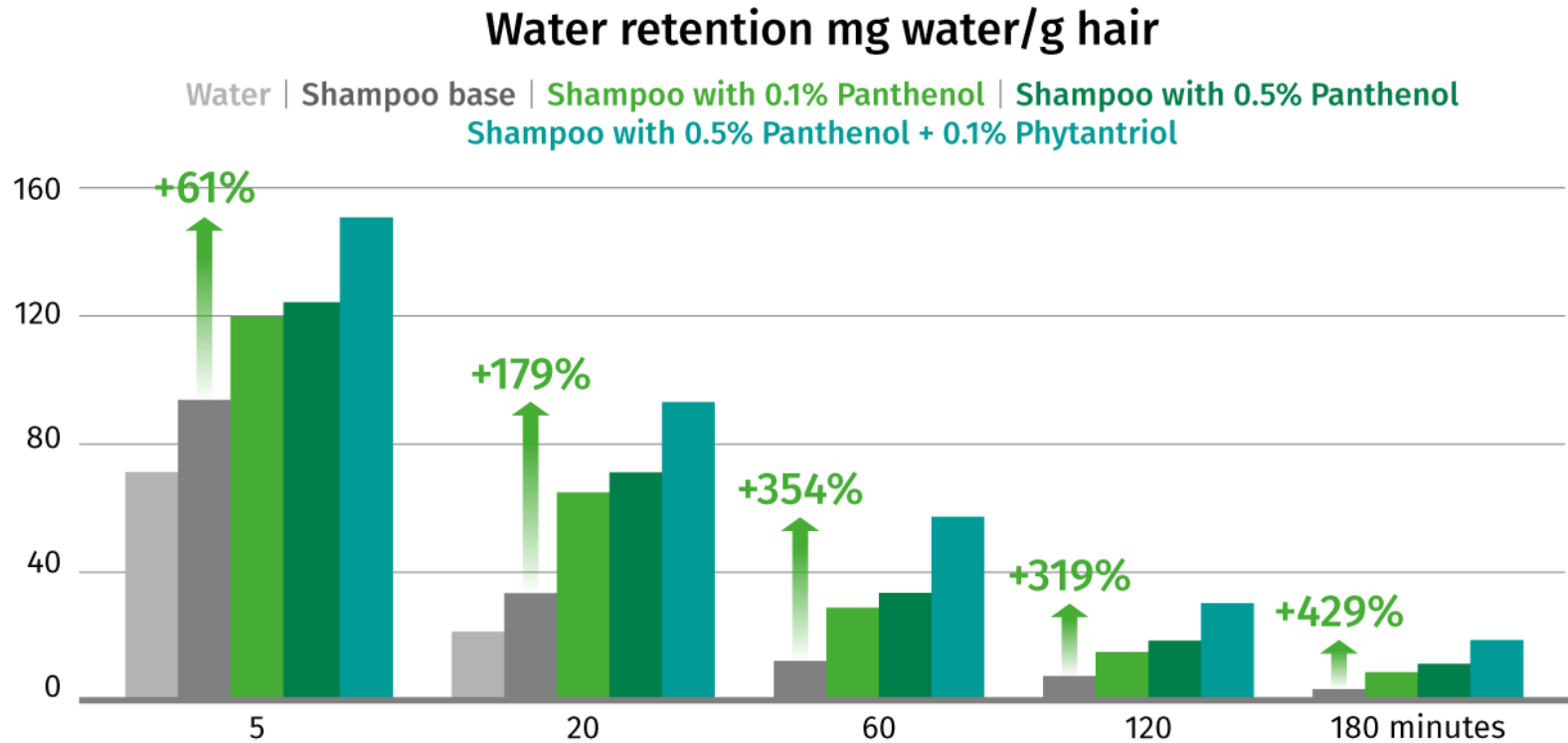


Improves water retention
Moisturization level is proportional to panthenol content in formulation

Hair soaked in a 10% shampoo solution, rinsed twice with water and blotted with tissue paper

Quali-B® Pro-Vitamin B5 (Panthenol)

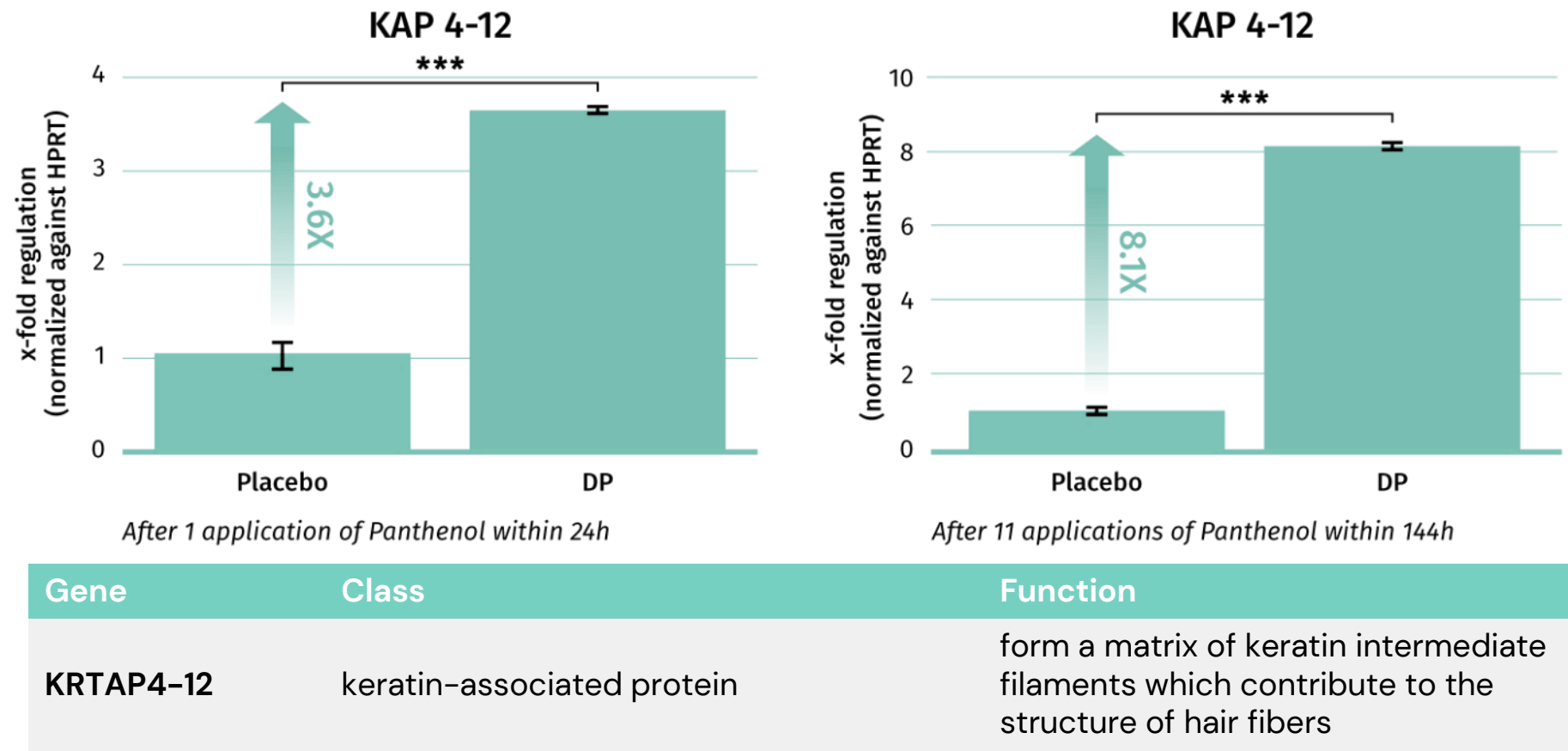
Hair Moisturization in synergy with Phytantriol



Dilution of shampoo with water at 1:10.
Hair soaked in solution, rinsed twice
with water and blotted with tissue
paper.
Analysis of water loss gravimetrically.

Quali-B Pro-Vitamin B5 (Panthenol)

Upregulates expression of keratin 4-12 by 4-fold, strengthens hair shaft

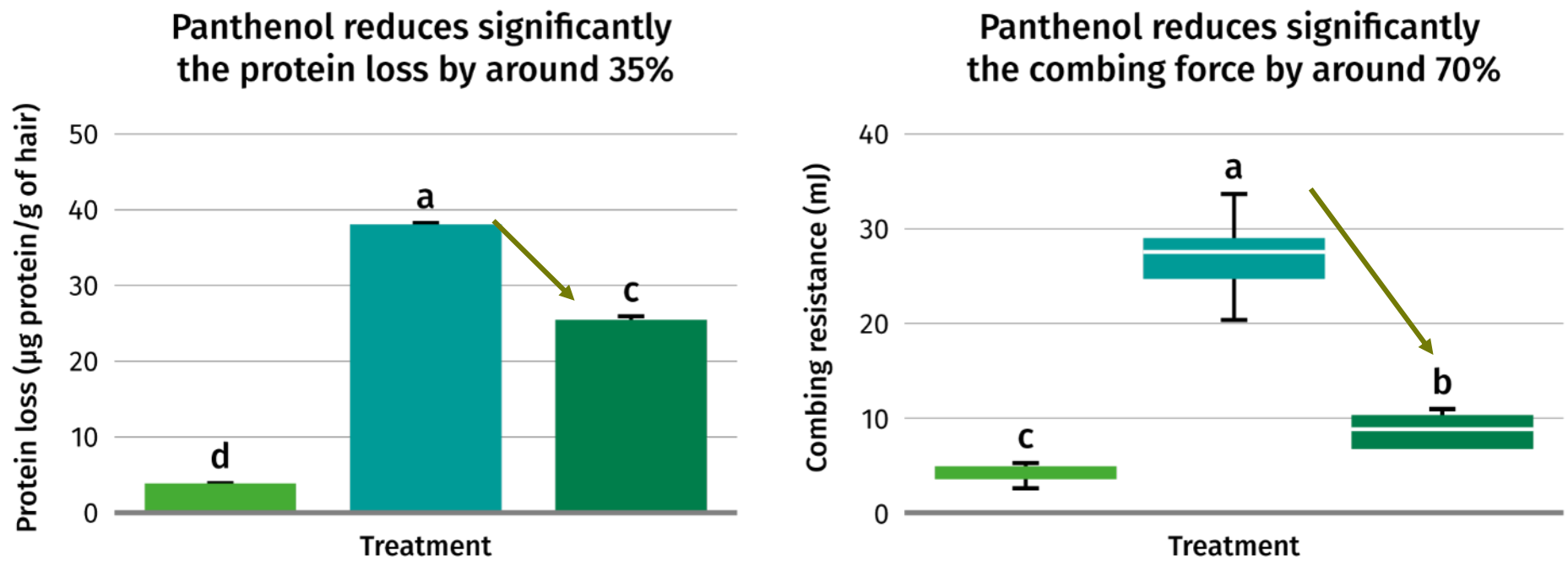


Heise R. C. et al., Dexpanthenol Modulates Gene Expression in Skin Wound Healing in vivo. Skin Pharmacology and Physiology; 2012, 25: 241-248

Quali-B

Pro-Vitamin B5 (Panthenol)

Contributes to protein loss reduction & improves combing on hair treated with oxidative hair dye



hair untreated | treated with blond oxidative hair dye | II + 3% silanetriol and Panthenol
Caucasian light-brown hair tresses, each 20cm long, Panthenol 3% w/v added into oxidative hair dye just before use

Quali-B Vitamin B6

ID Card



Key benefit:	Sebum reduction Scalp Care (scaling, itch and flaking reduction) Hair Thickening (helps Increase hair diameter)		
INCI name:	Pyridoxine Hydrochloride		
Description:	Vitamin		
Technical:	Form: Powder Use level: Up to 0.2% pH of use: 4.5 to 7	Preservative: Free Solubility: Water soluble	Target: Hair fiber and Scalp Biodegradability: Readily biodegradable

Registration certification*

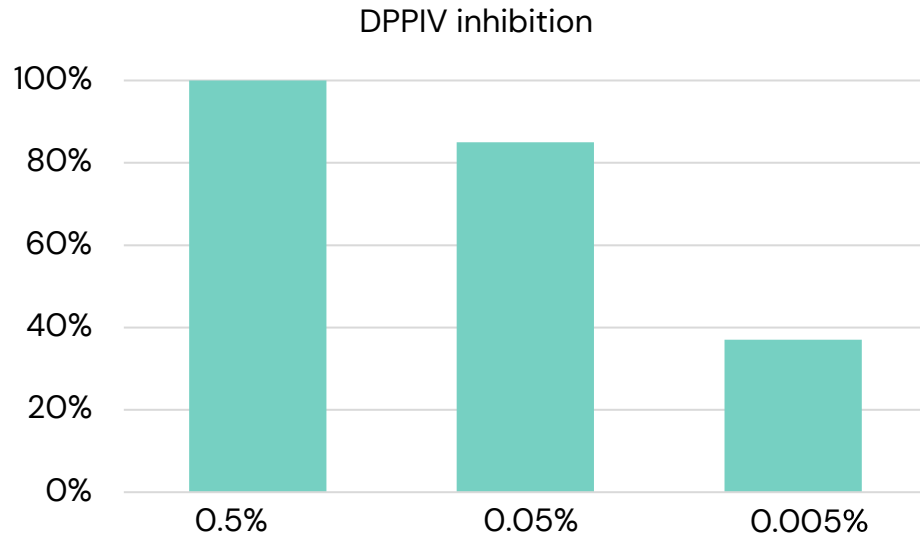


*Product Code: 5015818
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

Quali-B[®] Vitamin B6

Regulates lipid synthesis in sebaceous glands– Sebum reduction

dsm-firmenich
own study



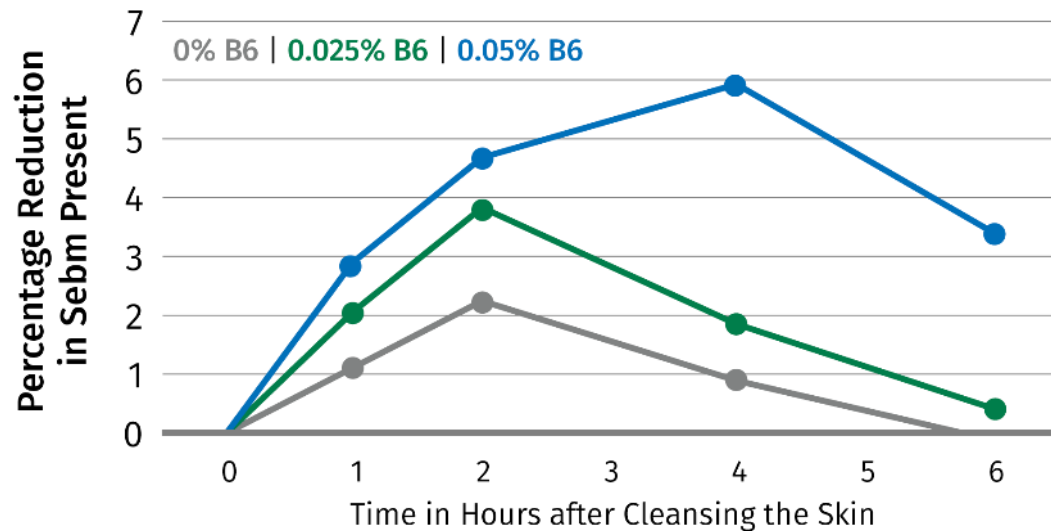
Vitamin B6 is able to inhibit the DPPIV enzyme activity in a dose **dependent** manner.

Inhibition of DPPIV decreases neutral lipids and saturated free fatty acids in a sebocyte cell line suggesting decreased sebum synthesis

Quali-B Vitamin B6

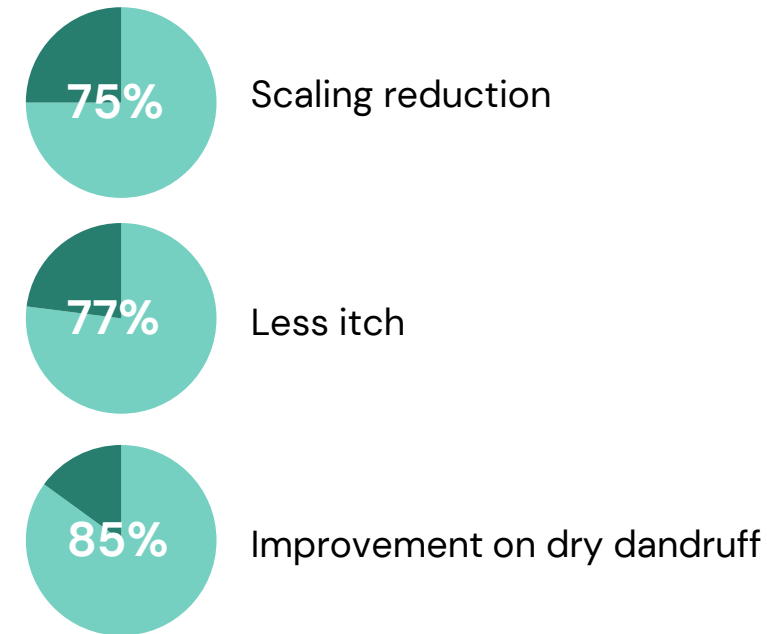
Promotes healthy scalp

Vitamin B6 at 0.05% **reduces sebum by 6%** in one single application after 4 hours



- Facial Cream – in vivo
- Half face: treated vs untreated
- Vitamin B6 at 0.025% and 0.05%
- One single application
- After rinsed-off
- Extrapolation to scalp

Vitamin B6 at 0.02% **improves scalp conditions**



- 162 volunteers with Seborrhea capitis
- 0.02% Vitamin B6 in a lotion

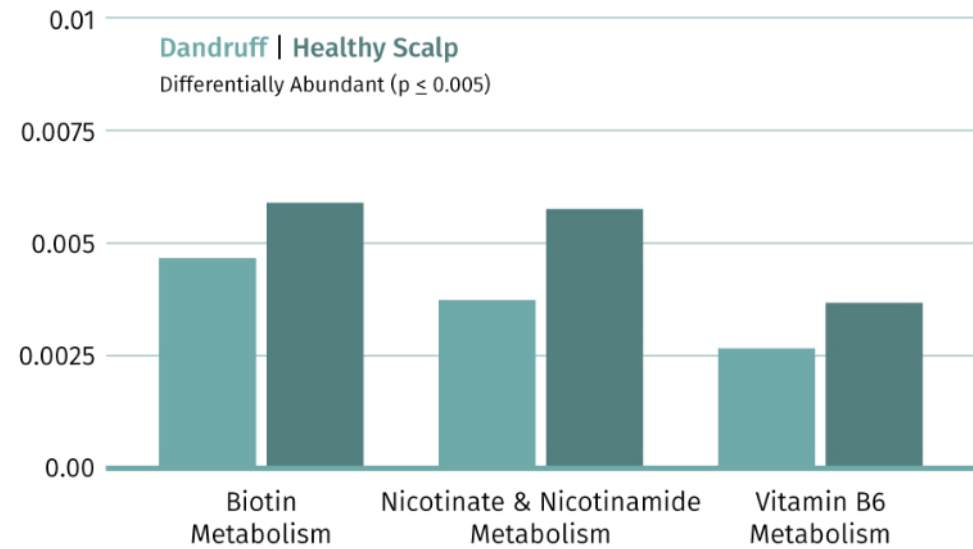
Patent: US2000/6403110. Vitamin B6 = Pyridoxin Hydrochloride.
Ohta H. J Soc Cosmetic Chemists, 1965, 16:349–358. Vitamin B6=Pyridoxine-3,4-dipalmitate.

Quali-B Vitamin B6

Scalp & Microbiome



Bacterial Metabolic Pathways enriched in a Healthy Scalp vs. a scalp with Dandruff



Reduction of biosynthesis and metabolism pathways of vitamins was observed in the bacterial microbiome of dandruff scalp (vs. healthy scalp). **Enrichment in vitamins via topical application could be a solution to compensate this deficiency.**

Vitamin B6		
Concentration	0.2%	1%
M. restricta	●	●
M globosa	●	●
C. acnes	↓	↓
S. capitis	=	●
S. epidermidis	=	●

incubated for 24 hours
● total antimicrobial activity
↓ decrease microbial population
= no variation

C. acnes : total antimicrobial activity at all concentrations

S. capitis and S. epidermidis : dose dependent antimicrobial performance

M. restricta and M globosa: same performance in different use levels.

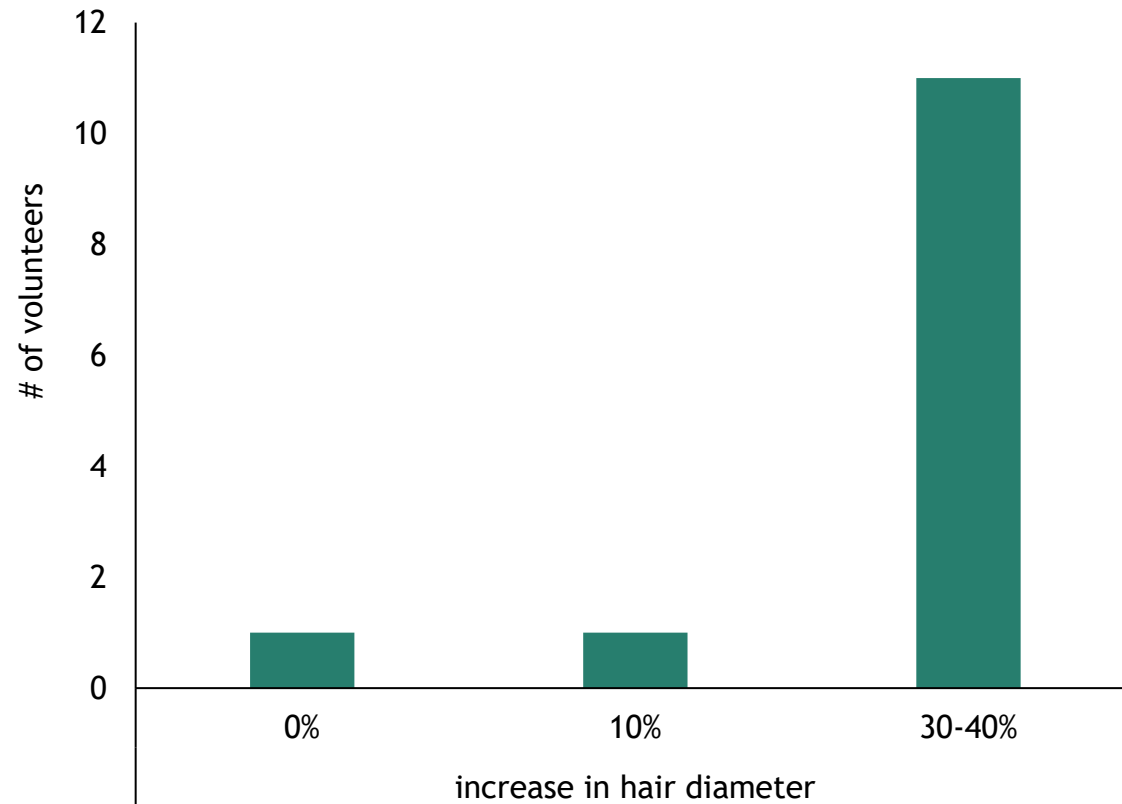
M. restricta is associated with dandruff.

Vitamin B6 =pyridoxin hydrochloride

R. Saxena et al., Comparison of Healthy and Dandruff Scalp Microbiome Reveals the Role of Commensals in Scalp Health, Frontiers in Cellular and Infection Microbiology, 2018, 8-346

Quali-B[®] Vitamin B6

Increases hair diameter



Vitamin B6 increases hair diameter around 40% in 5 weeks

- Assessed by a dermatologist on the basis of magnified hair photographs
- Topically applied on scalp
- Solution with 7.5 % of Vitamin B6
- 3-5 weeks, daily use

Quali-B® Vitamins B7

ID Card



Key benefit:	Scalp Care Helps prevent hair loss* (based on literature for oral use)		
INCI name:	Biotin		
Description:	Vitamin		
Technical:	Form: Powder Use level: Up to 0.5% pH of use: 5.5 to 8	Preservative: Free Solubility: Very slightly soluble in Water	Target: Scalp Biodegradability: Not readily biodegradable

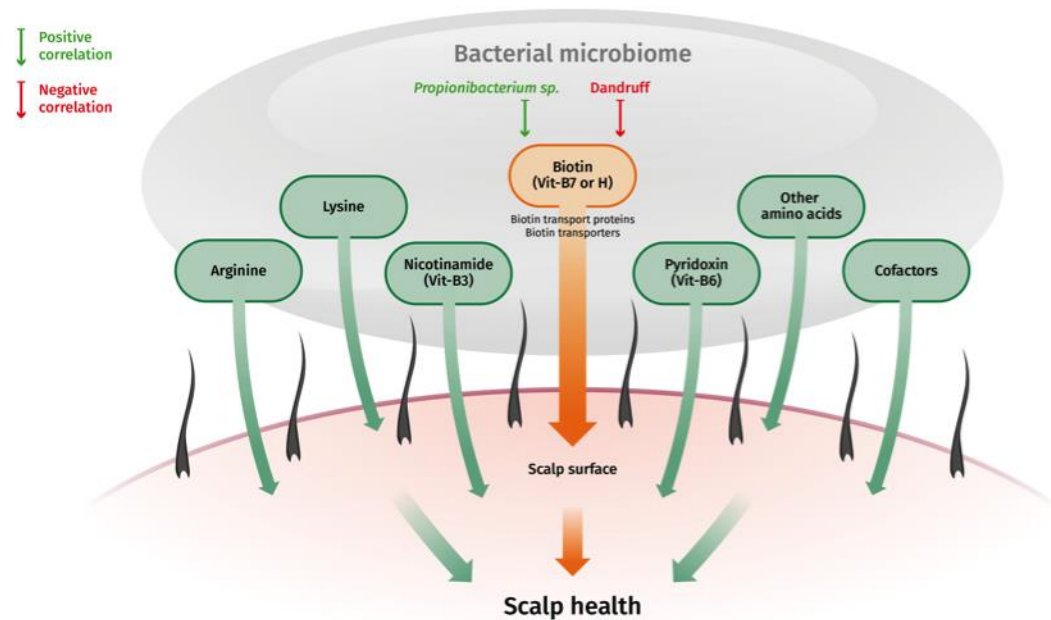
Registration certification



*Drug claim in some regions
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

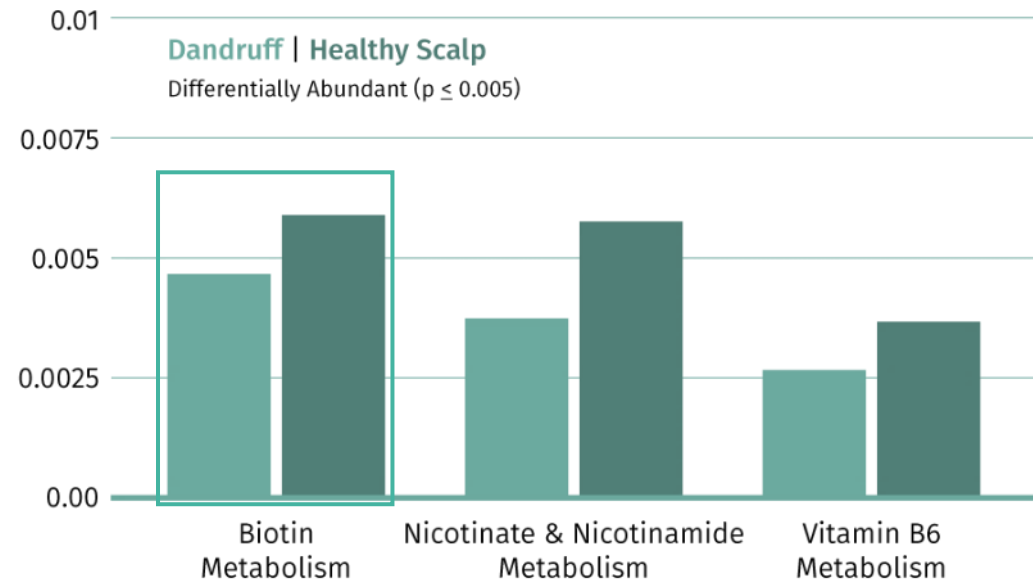
Increased in Healthy Scalp– source of nutrients for the scalp

Illustration of the mechanistic interplay observed between the scalp surface and the bacterial microbiome



The **vitamins** and amino acids synthesized by the microbiome were observed as a **useful source of nutrients for the scalp**. **Biotin** was observed to be majorly contributed by *Propionibacterium spp.* and **abundance of biotin** metabolism pathway significantly increase after oil-treatment and reduced with the increase in dandruff.

Bacterial Metabolic Pathways enriched in a Healthy Scalp vs. a scalp with Dandruff



Reduction of biosynthesis and metabolism pathways of vitamins was observed in the bacterial microbiome of dandruff scalp (vs. healthy scalp). **Enrichment in vitamins via topical application could be a solution to compensate this deficiency.**

R. Saxena et al., Comparison of Healthy and Dandruff Scalp Microbiome Reveals the Role of Commensals in Scalp Health, Frontiers in Cellular and Infection Microbiology, 2018, 8–346

Quali-C Vitamin C

ID Card



Key benefit:	Scalp Care (anti-oxidant properties) Blue light protection (hair fiber) Helps prevent hair loss*		
INCI name:	Ascorbic Acid		
Description:	Pure Vitamin C		
Technical:	Form: Liquid Use level: Up to 15% pH of use: 3.5 to 4	Preservative: Free Solubility: Water soluble	Target: Hair fiber and scalp Biodegradability: Well Inherently biodegradable

Registration certification



*Drug claim in some regions
Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.

STAY-C® 50

ID Card



Key benefit:	Scalp Care (anti-oxidant properties) Blue light protection (hair fiber) Helps prevent hair loss*		
INCI name:	Sodium Ascorbyl Phosphate		
Description:	Monophosphate ester of ascorbic acid (vitamin C derivative with superior stability in formulations compared to straight ascorbic acid)		
Technical:	Form: Liquid Use level: Up to 2% pH of use: ≥ 6	Preservative: Free Solubility: Water soluble	Target: Hair fiber and scalp Biodegradability: Well inherently biodegradable

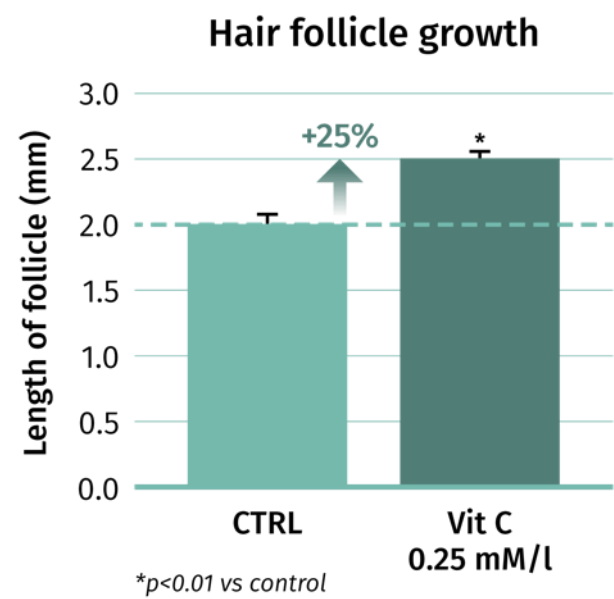
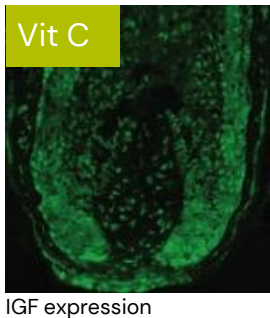
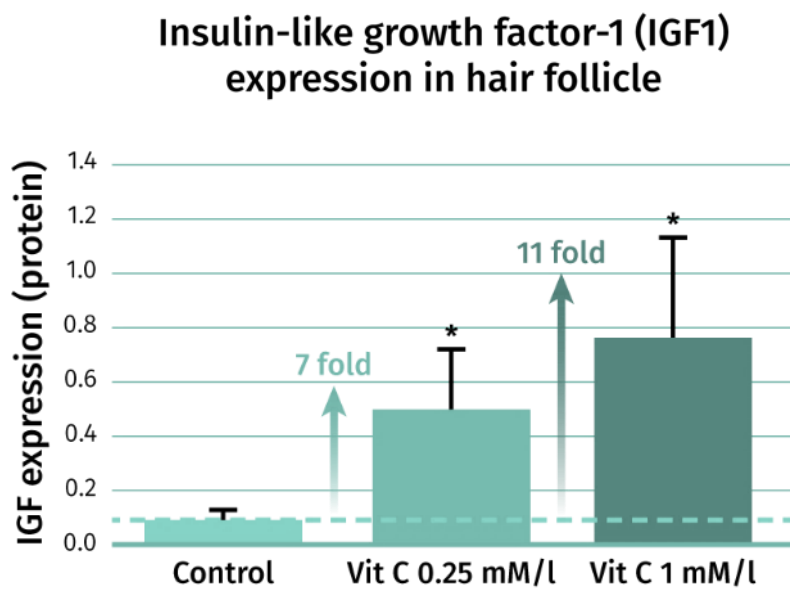
Registration certification**



*Drug claim in some regions
**Production site: France (product code 5000858)

Vitamin C

Induces hair follicle growth up to 25%



Vitamin C stimulated the growth of cultured human hair follicle by upregulating IGF-1 up to 11 fold.

- Human hair follicles obtained from scalp biopsies
- Vitamin C #,0.25 and 1 mM/l, 9 days

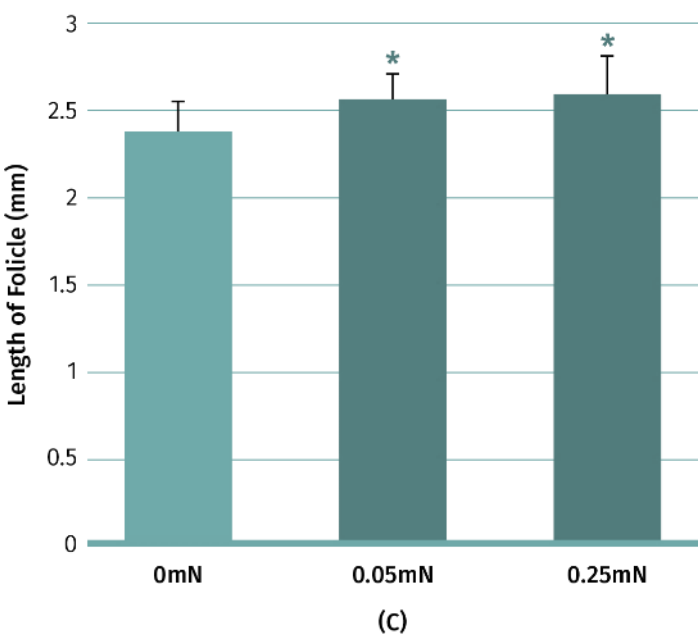
Kwack MH et al. Br J Dermatol. 2009 Jun;160(6):1157-62.
*L-Ascorbic acid 2-phosphate

Vitamin C

Induces hair follicle growth

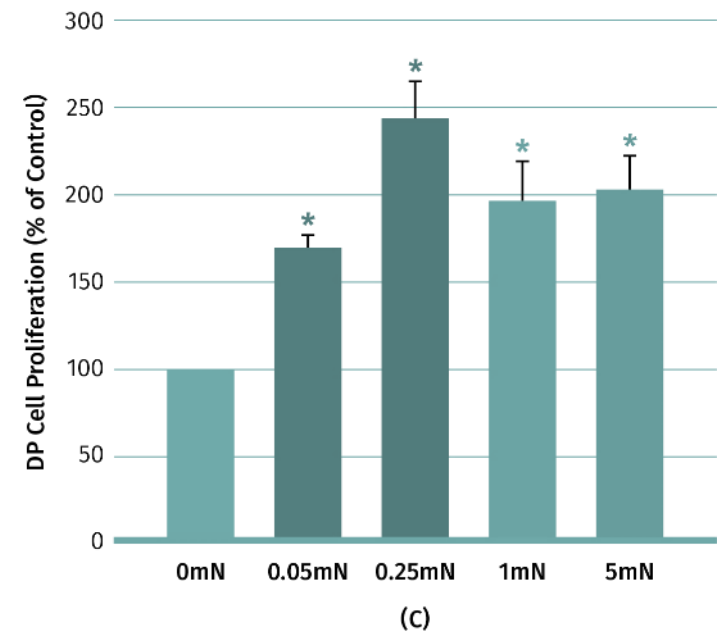
Human hair follicles were treated with Vitamin C for 9 days. Hair length increased significantly with Vitamin C.¹

*p<0.05 vs 0mM

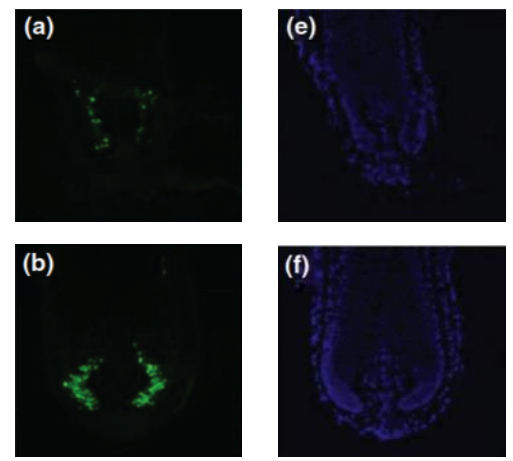


Human dermal papilla (DP) cells were incubated with Vitamin C for 5 days. Proliferation increased significantly with Asc 2-P.

*p<0.05 vs 0mM



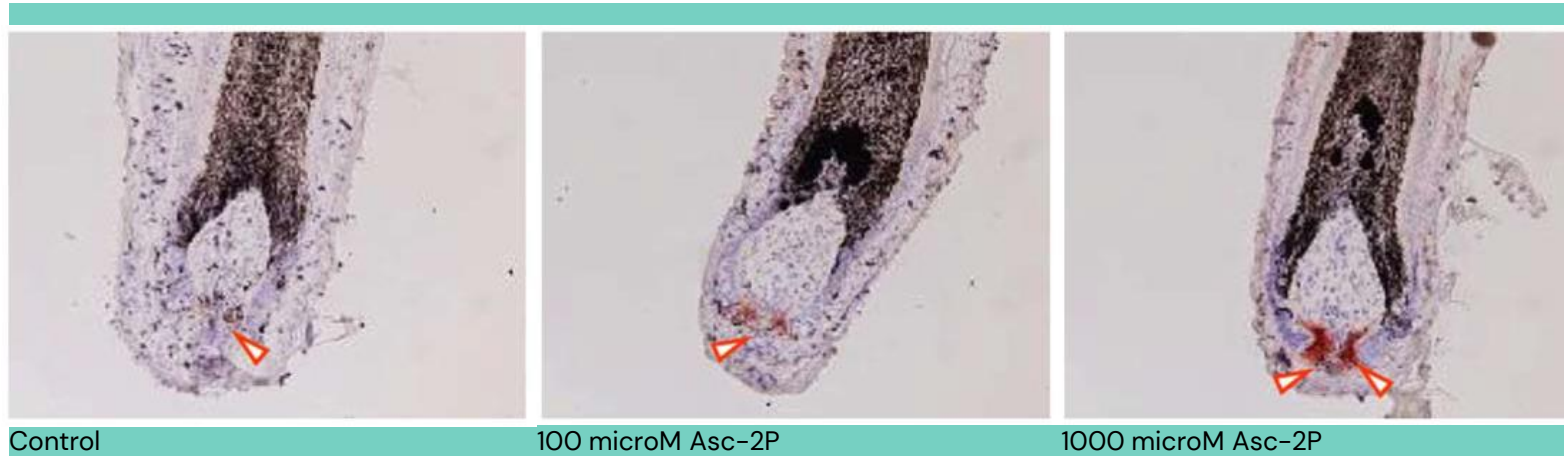
Asc 2-P induces proliferation in cultured human hair follicles as shown by Ki67 staining (green) (b) which is not seen in vehicle treated follicles (a). (e) and (f) are the respective follicles with DAPI staining (blue) to show all the cells.²



¹ Sung. et al. Journal of Dermatological Science (2006) 41, 150—152
² Kwack et al. British Journal of Dermatology 2009 160, pp1157–1162

Vitamin C

Induces hair follicle growth



Cultured hair follicles were treated with Asc 2-P for 3 days.

Versican expression was up regulated in the dermal papilla (red staining indicated by red arrow heads) by immunohistochemistry.

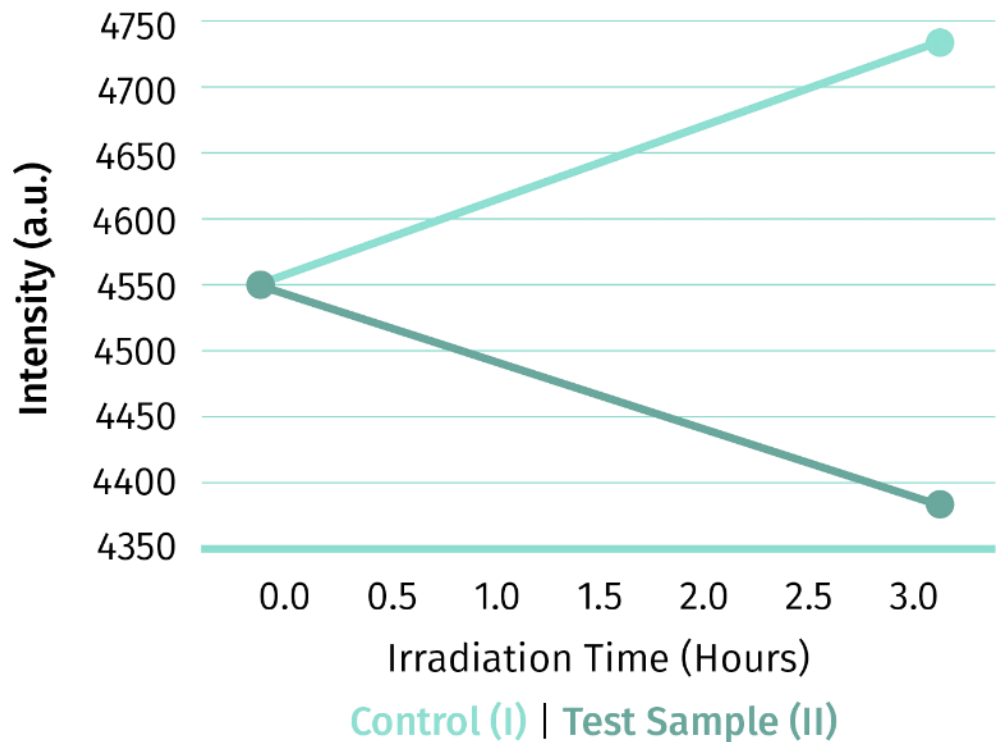
Versican is an inducer of hair growth in the dermal papilla.

*Asc- 2P: L-Ascorbic acid 2-phosphate
Kim et al. Journal of Dermatological Science (2006) 43, 60–62

Vitamin C

Protects from free radical formation in blue light irradiated black hair

Vitamin C (Ascorbic Acid) clearly decreases free radicals formation induced by blue light irradiation



Control increases free radicals by 4%, while Vitamin C treated hair decreases by 4%.

- Black hair was incubated with a solution containing 100 nM Ascorbic Acid (Test Sample II) and Control Solution (Control I)
- It was then irradiated with blue light (450 nm) and the ESR spectra was measured

Chikvaidze et al. International Journal of Cosmetic Science, 2011, 33, 322–327

LOWEST CO₂

COMPARED
TO MAIN
ALTERNATIVE
SOURCES³:



59%
lower greenhouse
gas emissions²

Buying
1,000 TONNES
of Quali-C

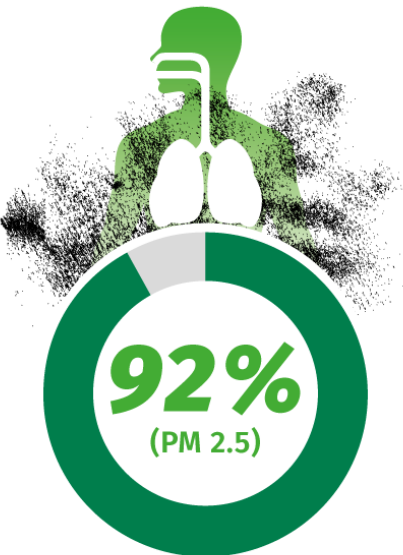
WOULD SAVE

14,000 TONNES⁴
CO₂ EQ.



Equivalent to entire carbon
sequestered by
210,000 TREE SEEDLINGS
grown for 10 years⁵

BETTER AIR QUALITY



Reduction in
dust and particle
matter²



Reduction in
photochemical ozone
formation²
(summer smog)

1. Amount of greenhouse gases in CO₂-equivalents released into the atmosphere as a result of an activity. 2. This statement is based on a DSM internal Life Cycle Assessment that was independently verified by Pré Consultants in December 2018, and updated in May 2019.
3. This statement is based on DSM internal business intelligence using latest market insights, permits and other publications. 4. Versus main alternative sources.
5. As per Greenhouse Gas Equivalencies Calculator developed by United States Environmental Protection Agency: <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>.



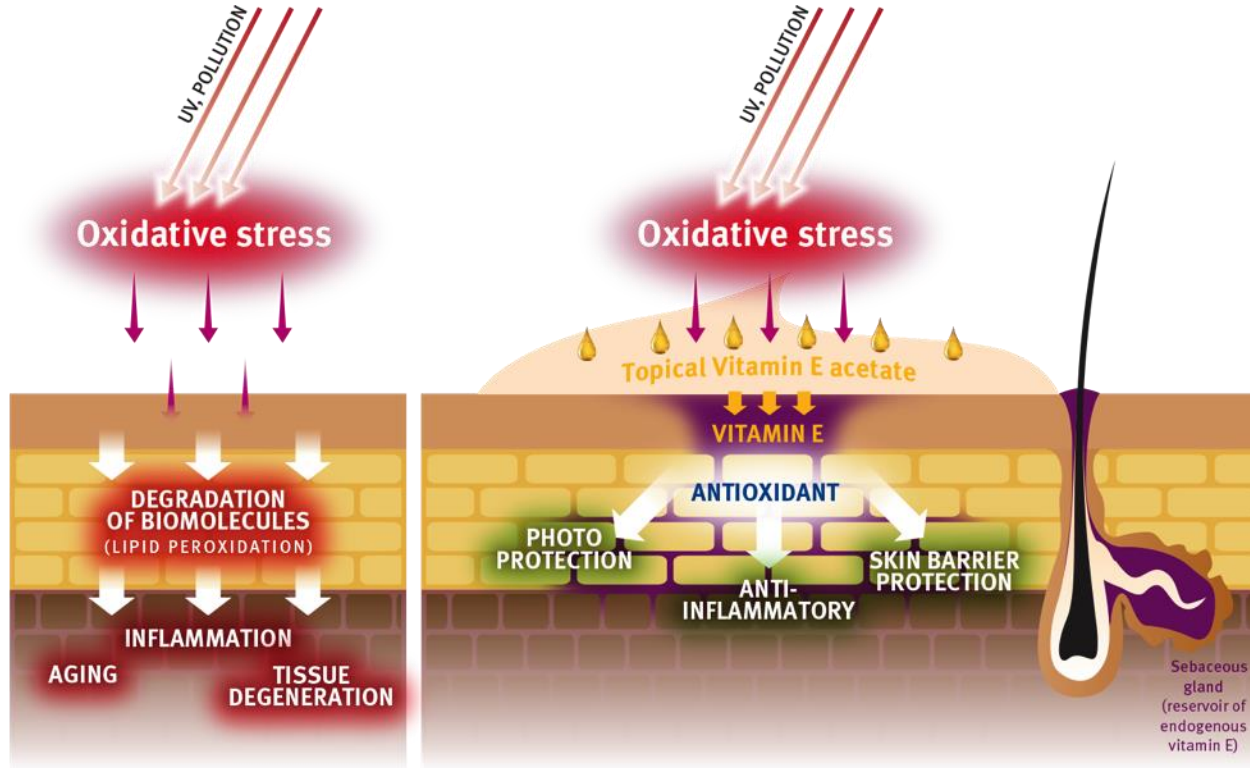
Key benefit:	Hair Protection (protein loss / discoloration) Scalp Care		
INCI name:	Tocopherol Tocopheryl Acetate		
Description:	Synthetic: (1) dl- α -Tocopherol and (2) dl- α -Tocopheryl Acetate Natural: (3) Mixed Tocopherols 95 and (4) d- α -Tocopheryl Acetate		
Technical:	Form: Liquid Use level: Up to 1% pH of use: 3.5 to 8	Preservative: Free Solubility: Oil soluble	Target: Hair fiber and scalp Biodegradability: Not readily biodegradable

Registration certification*



Quality for Life™ seal that guarantees the highest standards for Quality, Reliability, Traceability, and Sustainability.
* dl- α -Tocopheryl Acetate

Protects scalp against oxidative stress



Anti-aging

- Anti-oxidant properties
- Improves skin Barrier function
- Prevents peroxidation of lipids and oxidation of proteins

Anti-greying

- ROS neutralization (literature based)

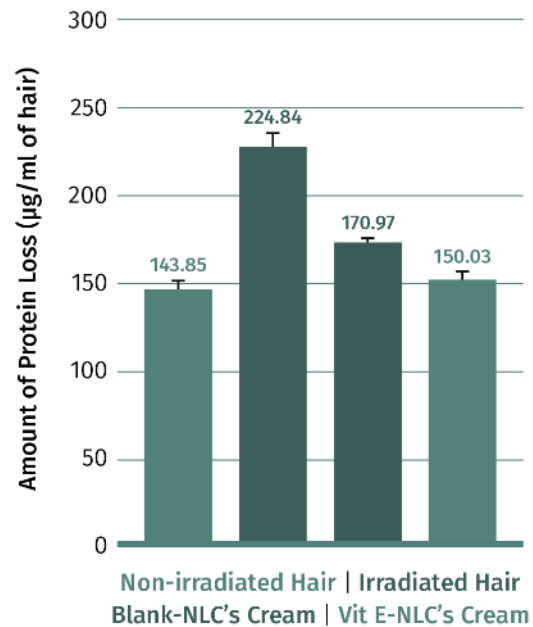
Quali-E Vitamin E

Protects hair from protein loss and discoloration caused by UV and heat

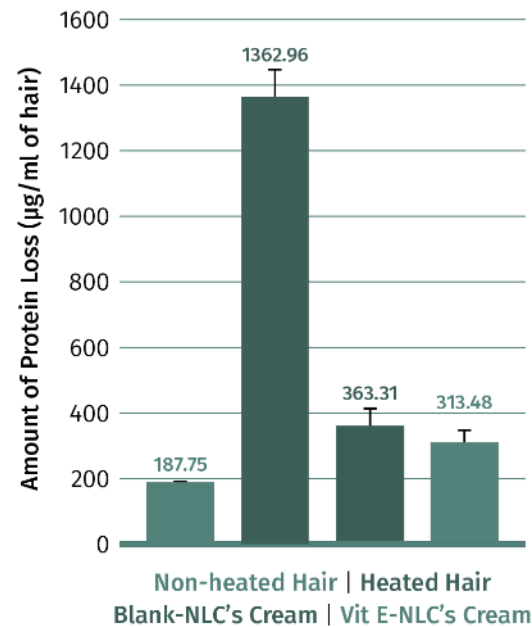
UV and heat-induced protein loss of hair tresses was reduced with Vitamin E-loaded NLCs.

*p<0.05 vs Blank NLC cream

Irradiation Test



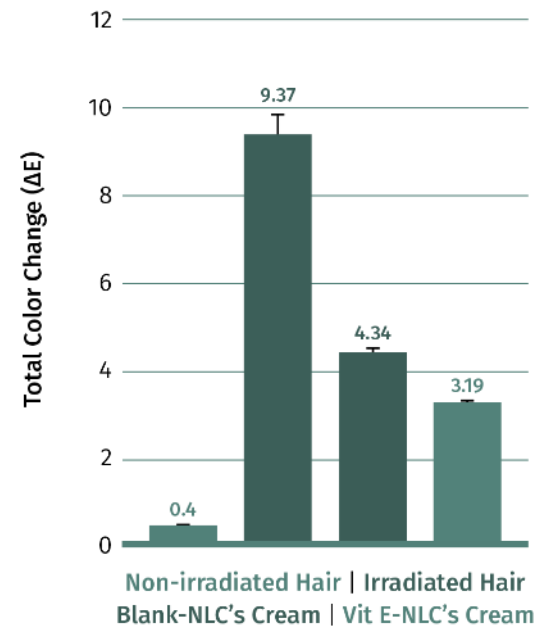
Heat Test



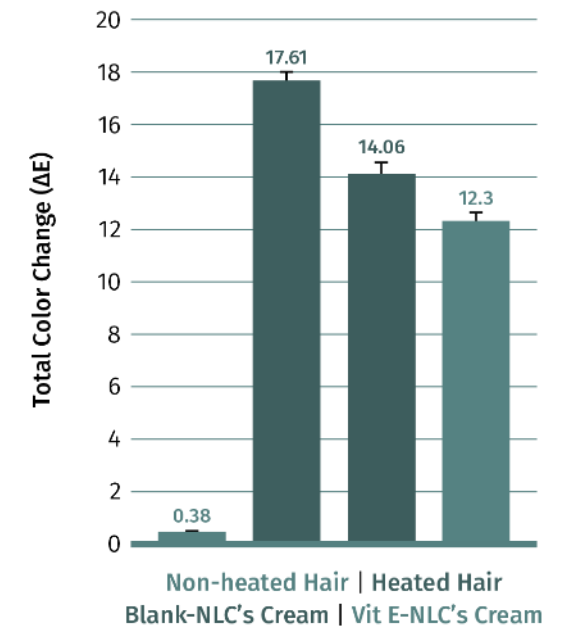
UV and heat-induced discoloration of hair tresses was reduced with Vitamin E-loaded NLCs.

*p<0.05 vs Blank NLC cream

Irradiation Test



Heat Test



Prasertpol et al. J Photochem Photobiol B (2010) 21(2), 91–99 – NLCs = nanostructured lipid carriers
Vitamin E Acetate at 0.2% – Irradiation: UVB and UVA

TILAMAR® Quat 640

ID Card



Key benefit:	Ultimate conditioning and weightless feel Confers excellent wet and dry combability Imparts excellent lubricity and feel on dry tips	Conditioning / Ease of Combing
INCI name: (Polymer)	Polyquaternium-6	
Description:	Polymer	
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3 to 12	Preservative: Free Solubility: Water soluble Target: Hair fiber Biodegradability: Not inherently biodegradable

Registration certification



For more information, access the master presentation

TILAMAR® Quat 2240

ID Card



Key benefit:	Deep conditioning and weightless feel for clear shampoos Conditioning / Ease of Combing Delivers superior detangling properties		Gives clear and transparent formulations
INCI name: (Polymer)	Polyquaternium-22		
Description:	Polymer		
Technical:	Form: Liquid Use level: Up to 3% pH of use: 3 to 12 Clear shampoo: pH: 4.9 to 5.4	Preservative: Sodium Benzoate Solubility: Water soluble	Target: Hair fiber Biodegradability: Not readily biodegradable
Registration certification			

For more information, access the master presentation

PARSOL® SLX

ID Card for hair care



Key benefits:	UV Protection Color Protection	Shine Conditioning / Ease of Combing	
INCI name:	Polysilicone-15	Product code: Old code: 50 1043 8 New code: 50 1825 6	
Description:	Polymeric UVB filter consisting of chromophores attached to a silicone backbone		
Technical:	Form: Liquid Use level: Up to 5% pH of use: 3 to 9	Preservative: Free Solubility: Oil soluble	Target: Hair fiber Biodegradability: Not readily biodegradable
Registration certification	  		

For more information, access the master presentation

PARSOL® MCX

ID Card



Key benefit:	UV Protection Color Protection		
INCI name:	Ethylhexyl Methoxycinnamate, Bht		
Description:	Strong UVB absorber		
Technical:	Form: Liquid Use level: Up to 10% pH of use: 3 to 9	Preservative: Free Solubility: Oil soluble	Target: Hair fiber Biodegradability: Readily biodegradable

Registration certification





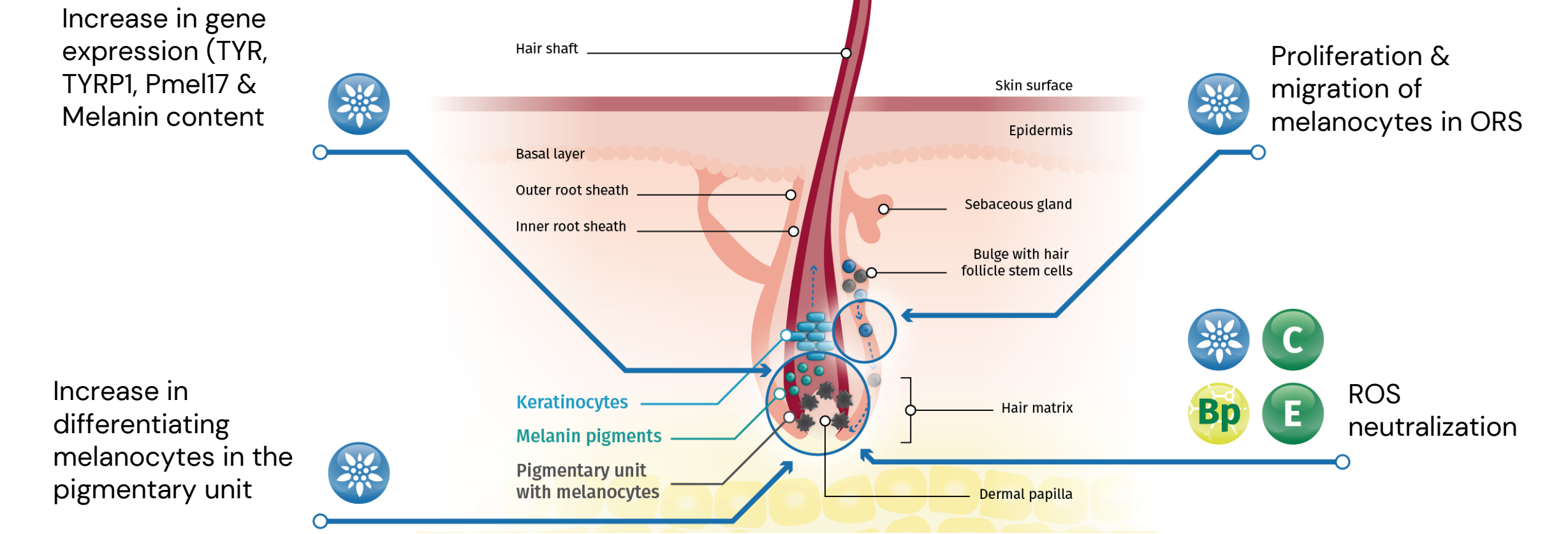
Hair Care from Scalp to Tip

dsm-firmenich
targeted solutions

dsm-firmenich Solutions

Hair pigmentation*

- ALPAFLOR® EDELWEISS CB
- BeauPlex® VH
- Vitamin C
- Vitamin E



*Helps reduce the appearance of greying hair

dsm-firmenich Solutions for Hair Loss*

Multitargeted solutions to help prevent hair loss



ALPAFLOR® EDELWEISS CB:

Increases hair density

- Promotes keratinocytes Ki-67+ proliferation
- Prolongs anagen phase
- Increases Versican expression
- Increases Alkaline phosphatase activity
- Increases FGF7 expression in Dermal Papilla
- Increases IGF1 expression in outer root sheath
- Increases Anagen to Telogen (A/T) ratio



Vitamin C:

Increases hair length

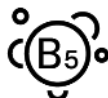
- Promotes keratinocytes Ki-67+ proliferation
- Increases Versican activity
- Increases Alkaline phosphatase activity
- Up-regulates IGF1
- Down-regulates TGFβ2



Niacinamide PC:

Increases hair thickness

- Promotes hair diameter increase



Panthenol:

Increases hair strength

- Upregulates KAP 4-12



Biotin:

Promotes hair growth

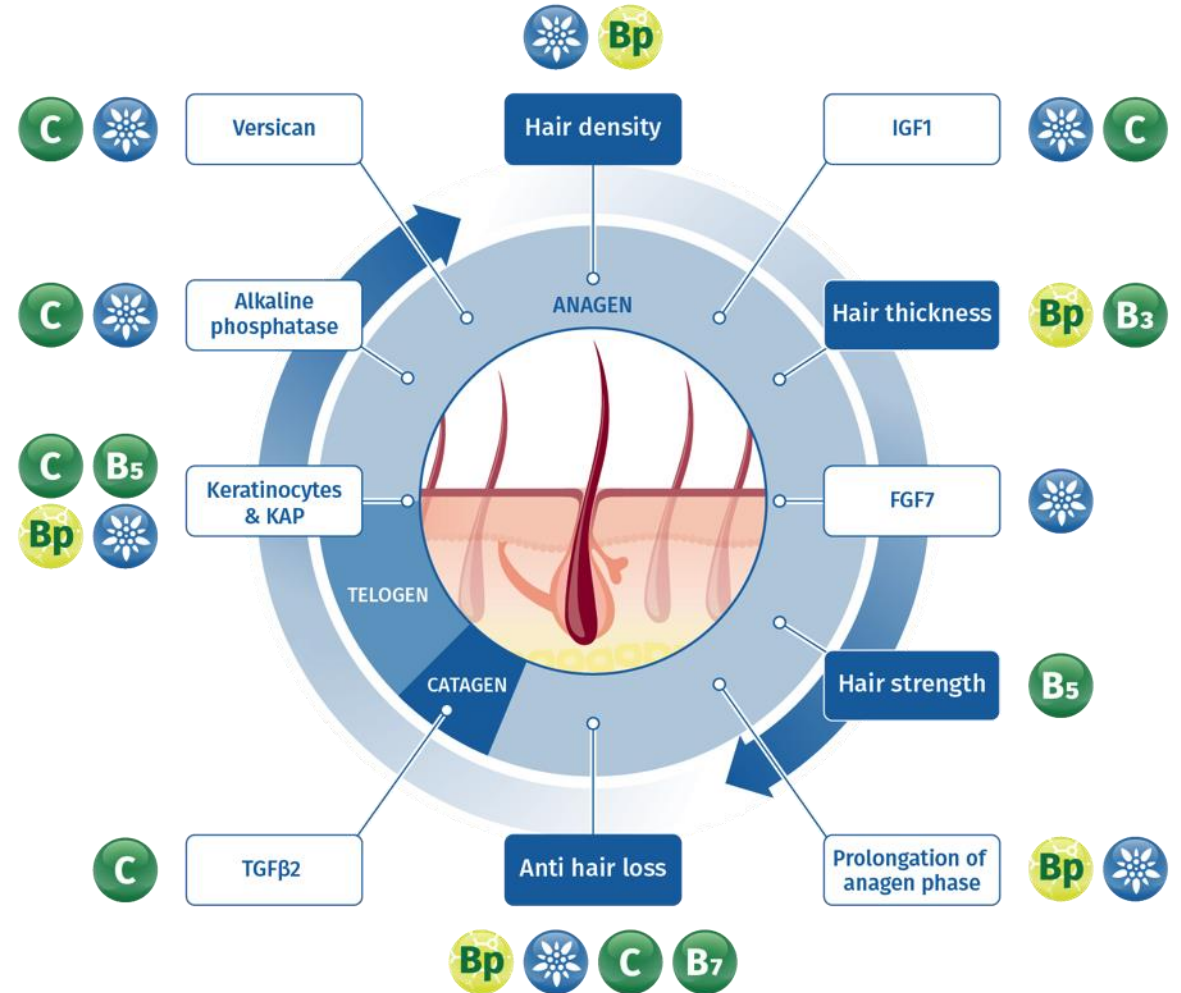
- Promotion in case of Biotin deficiency (oral)



BeauPlex® VH:

Increases hair thickness

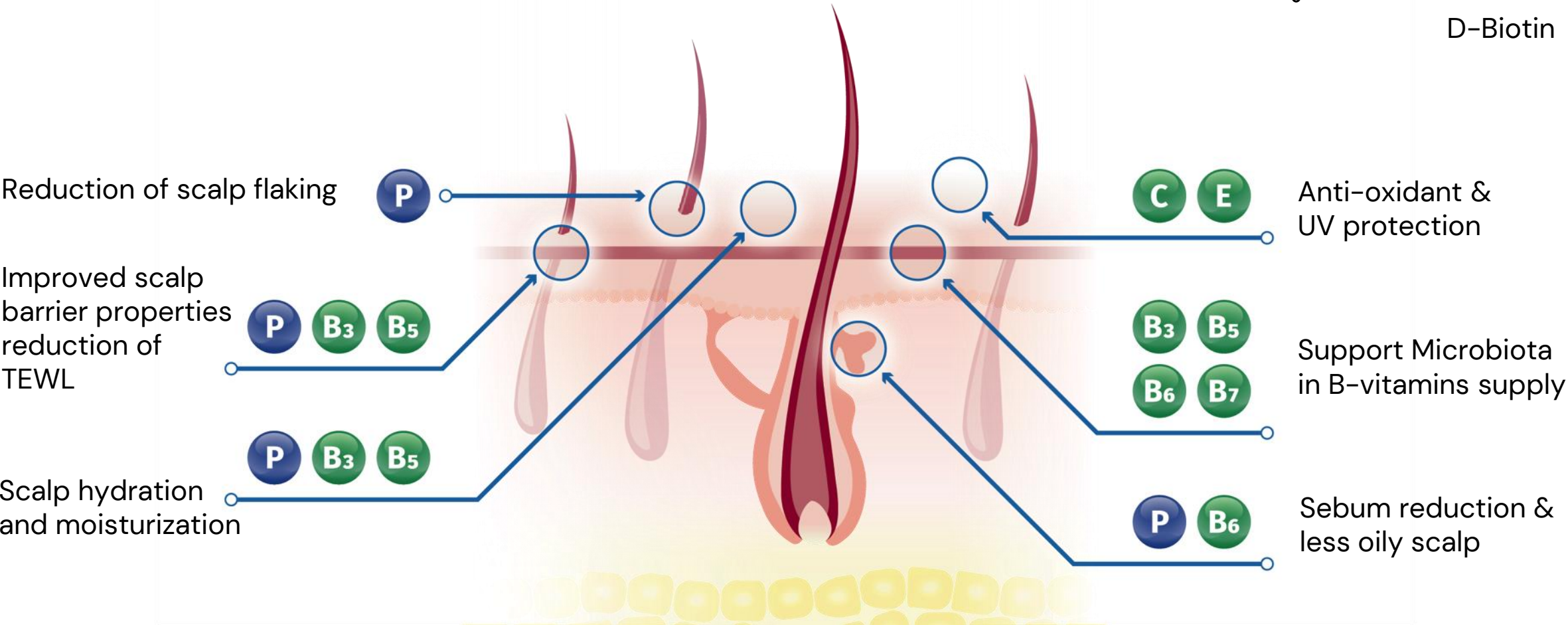
- Promotes keratinocytes Ki-67+ proliferation
- Prolongs anagen phase
- increases Anagen to Telogen (A/T) ratio



*Helps prevent hair loss / Drug claim in some regions

dsm-firmenich Solutions for Scalp Care

- PENTAVITIN® 
- Vitamin C 
- Vitamin E 
- Vitamin B3 
- Pro-Vitamin B5 
- Vitamin B6 
- D-Biotin 



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We bring progress to life



Back-up

ALPAFLOR® EDELWEISS CB

Study Design

- Double-blind, randomized, placebo controlled *in-vivo* study (Europe)
- Data collection from Sept 2020 to March 2021
- Two groups of 30 volunteers per group, 18 – 65 years old (mean 45 y.) – 5 months study
- Standard shampoo formulation (SLES based) used by all volunteers of both groups

Test product: Leave-on Formulation Placebo vs Leave-on + 3w/w% ALPAFLOR® EDELWEISS CB

- Apply the product daily (4 mL) in the evening on the scalp (gentle massage, no rinse)
- Parameters at Day 0 & Day 150:
- General photograph of the hair
- Cosmetic Trichogram
- Trichoscan®: hair density & hair thickness



ALPAFLOR® EDELWEISS CB

In vivo studies / Hair Pigmentation*

- Double-blind, randomized, placebo controlled *in-vivo* study (Europe)
- Data collection from July to Dec. 2020
- Two groups of 30 volunteers per group, 18 – 45 years old (mean 39 y.) – 4 months study
- Standard shampoo formulation (SLES based) used by all volunteers of both groups

Test product: Leave-on Formulation Placebo vs Leave-on + 3w/w% ALPAFLOR® EDELWEISS CB

Ingredient	INCI Name	% w/w
Water Dem	AQUA	To 100
Cosphaderm Pentiol natural	PENTYLENE GLYCOL	5.00
Cosmedia Ultragel 300	POLYQUATERNIUM-37	0.30
ALPAFLOR® EDELWEISS CB	LEONTOPODIUM ALPINUM FLOWER/LEAF EXTRACT, GLYCERIN, AQUA, CITRIC ACID	3.00
Ethanol abs	ALCOHOL	30.00

- Apply the product daily (4 mL) in the evening on the scalp (gentle massage, no rinse)
- Parameters at Day 0 & Day 120:
 - General photography (grey scale)
 - Hair images with micro-camera (Trichoscan®: ratio white/non-white hairs)

Shampoo: Aqua (Water), Sodium Laureth Sulfate, Laureth-2, PEG-7 Glyceryl Cocoate, Cocamidopropyl Betaine, Decyl Glucoside, Glycerin, Disodium Cocoamphodiacetate, Phenoxyethanol, Sodium Chloride, Sodium Benzoate, Disodium EDTA, Ethylhexylglycerin, Parfum (Fragrance), Citric Acid, Avena Sativa (Oat) Kernel Extract, Potassium Sorbate

*Helps reduce the appearance of greying hair



PENTAVITIN®

In vivo studies

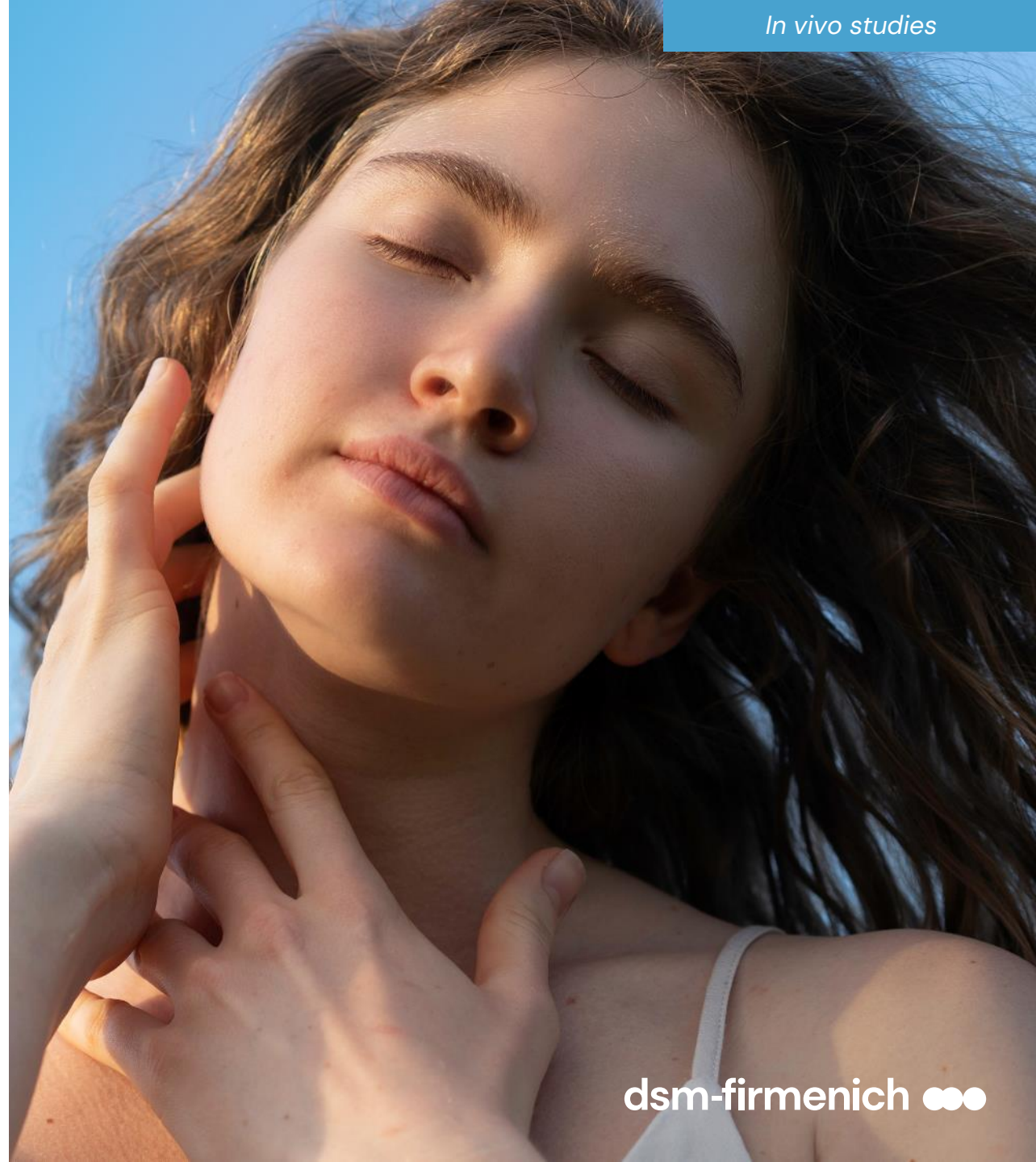
- Single-blind, randomized, placebo controlled *in-vivo* study (China)
- Data collection from December 2020 to February 2021
- Three groups of 30 volunteers per group, 18 – 50 years old (mean 39 y.)
- Main inclusion criterion: ASFS* score between 24 and 40 (scalp flaking)
- Formulations: Shampoo placebo, Shampoo + 0.2% & 0.5% PENTAVITIN®
- 2 weeks wash-out + 28 days study (shampoo applied every 2 days)

Parameters evaluated at starting point (D0), 24 h (D1) and 28 days (D28)

- Skin TEWL – Tewameter TM Nano (on top of head)
- Skin sebum – Meibometer MB560 (on top of head)
- Grade of ASFS dandruff – Dermatologist (on 8 areas)
- Scalp image by dermatoscope – VEOS HD2 Canfield
- Self questionnaire – Subjects enrolled in this study

Ingredient	INCI Name	% w/w
Water Dem	AQUA	To 100
Texapon NSO – BZ	SODIUM LAURETH SULFATE	38.00
Dehyton AB-30	COCO-BETAINE	4.00
PLANTAPON SF	SODIUM COCOAMPHOACETATE, LAURYL GLUCOSIDE, GLYCERIN, SODIUM COCOYL GLUTAMATE, SODIUM LAURYL GLUCOSE CARBOXYLATE	5.00
PENTAVITIN®	SACCHARIDE ISOMERATE, AQUA, CITRIC ACID, SODIUM CITRATE	0.20 to 0.50
L(+) Lactic Acid 90%	LACTIC ACID, AQUA	0.40
Euxyl K 700	PHENOXYETHANOL, BENZYL ALCOHOL, POTASSIUM SORBATE, TOCOPHEROL, AQUA	0.80
Sodium Chloride	SODIUM CHLORIDE	0.70

*ASFS: Adherent Scalp Flaking Score, Journal of Dermatological Treatment, 25:3, 232–236



BeauPlex® VH

In vivo studies / Hair growth

- Mono-center, Double-blind, randomized, placebo controlled in-vivo study (Europe)
- Data collection from Sept 2020 to March 2021
- Two groups of 30 volunteers per group, 18 – 65 years old (mean 45 y.) – 5 months study
- Standard shampoo formulation (SLES based) used by all volunteers of both groups

Test product: Leave-on Formulation Placebo vs Leave-on + 1.5w/w% BeauPlex® VH

Ingredient	INCI Name	% w/w
Water Dem	AQUA	To 100
Cosphaderm Pentiol natural	PENTYLENE GLYCOL	5.00
Cosmedia Ultragel 300	POLYQUATERNIUM-37	0.90
BeauPlex® VH	NIACINAMIDE, CALCIUM PANTOTHENATE, SODIUM ASCORBYL PHOSPHATE, TOCOPHERYL ACETATE, PYRIDOXINE HCL, MALTODEXTRIN, SODIUM STARCH OCTENYLSUCCINATE, SILICA	1.50
Ethanol abs	ALCOHOL	30.00

- Apply the product daily (4 mL) in the evening on the scalp (gentle massage, no rinse)
- Parameters at Day 0 & Day 150:
 - General photography of the hair
 - Cosmetic Trichogram
 - Trichoscan®: hair density & hair thickness



BeauPlex® VH

In vivo studies / Hair pigmentation*

- Mono-center, Double-blind, randomized, placebo controlled *in-vivo* study (Europe)
- Data collection from July to Dec. 2020
- Two groups of 30 volunteers per group, 18 – 45 years old (mean 39 y.) – **4 months study**
- Standard shampoo formulation (SLES based) used by all volunteers of both groups

Test product: Leave-on Formulation Placebo vs Leave-on + 1.5w/w% BeauPlex® VH

Ingredient	INCI Name	% w/w
Water Dem	AQUA	To 100
Cosphaderm Pentiol natural	PENTYLENE GLYCOL	5.00
Cosmedia Ultragel 300	POLYQUATERNIUM-37	0.90
BeauPlex® VH	NIACINAMIDE, CALCIUM PANTOTHENATE, SODIUM ASCORBYL PHOSPHATE, TOCOPHERYL ACETATE, PYRIDOXINE HCL, MALTODEXTRIN, SODIUM STARCH OCTENYLSUCCINATE, SILICA	1.50
Ethanol abs	ALCOHOL	30.00

- Apply the product daily (4 mL) in the evening on the scalp (gentle massage, no rinse)
- Parameters at Day 0 & Day 120:
General photography (grey scale)

*Helps reduce the appearance of greying hair



Vitamin B3 (Niacinamide)

References

Penetration of Niacinamide in Hair & mechanical properties (thickening, break resistance, suppleness)

- J.H. Thomas et al., A novel cosmetic approach to treat thinning hair, British Association of Dermatologists, 2011 165 (Suppl. 3), pp24–30

Skin & Scalp Barrier improvement – Reduction of TEWL

- Z.D. Draelos, Male skin and ingredients relevant to male skin care, British Association of Dermatologists, 2012 166 (Suppl. 1), pp13–16
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Pro-Vitamin B5

References

Biological effect on Keratinocytes

- R. Heise et al., Dexpanthenol Modulates Gene Expression in Skin Wound Healing in vivo, 2012, Skin Pharmacol Physiol; 25: 241–248

Penetration of Panthenol in Hair & mechanical properties (thickening, break resistance, suppleness)

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Vitamin B6

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Hair Pigmentation* & Hair thickening

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- D'Agostini et al. Chemoprevention of smoke-induced alopecia in mice by oral administration of L-cystine and vitamin B6. J Dermatol Sci (2007) 46, 189-198
- D'Agostini et al. Chemoprevention of doxorubicin-induced alopecia in mice by dietary administration of L-cystine and vitamin B6. Arch Dermatol Res (2013) 305, 25-34
- US3826834: Reiches et al., filed 1974 in USA. Use of vitamin B6 for enlarging sub-normal hair bulbs and enhancing hair growth therefrom
- Brzezinska-Wcislo L., Evaluation of Vitamin B6 and Calcium Pantothenate Effectiveness on Hair Growth From Clinical and Trichographic Aspects for Treatment of Diffuse Alopecia in Women. Wiad Lek. (2001) 54(1-2):11-18 (only abstract, article in Polish)

*Helps reduce the appearance of greying hair

Vitamin B7

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- R. Saxena et al., Comparison of Healthy and Dandruff Scalp Microbiome Reveals the Role of Commensals in Scalp Health, *Frontiers in Cellular and Infection Microbiology*, 2018, 8–346.
- C-H Chiu, A Review: Hair Health, Concerns of Shampoo Ingredients and Scalp Nourishing Treatments, *Current Pharmaceutical Biotechnology*, 2015, 16, 1045–1052

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- RM. Trüeb, Serum biotin levels in women complaining of hair loss, *Int J Trichol* 2016; 8: 73–77
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*Helps prevent hair loss / Drug claim in some regions

Vitamin C

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Hair growth

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- Kim et al. Induction of versican by ascorbic acid 2-phosphate in dermal papilla cells Journal of Dermatological Science (2006) 43, 60–62
- Sung et al. Transcriptional activation of CCN1 and CCN2, targets of canonical Wnt signal, by ascorbic acid 2-phosphate in human dermal papilla cells Journal of Dermatological Science (2008) 49, 256–259
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Sebum reduction for scalp (and skin) 5- α -Reductase-Inhibition

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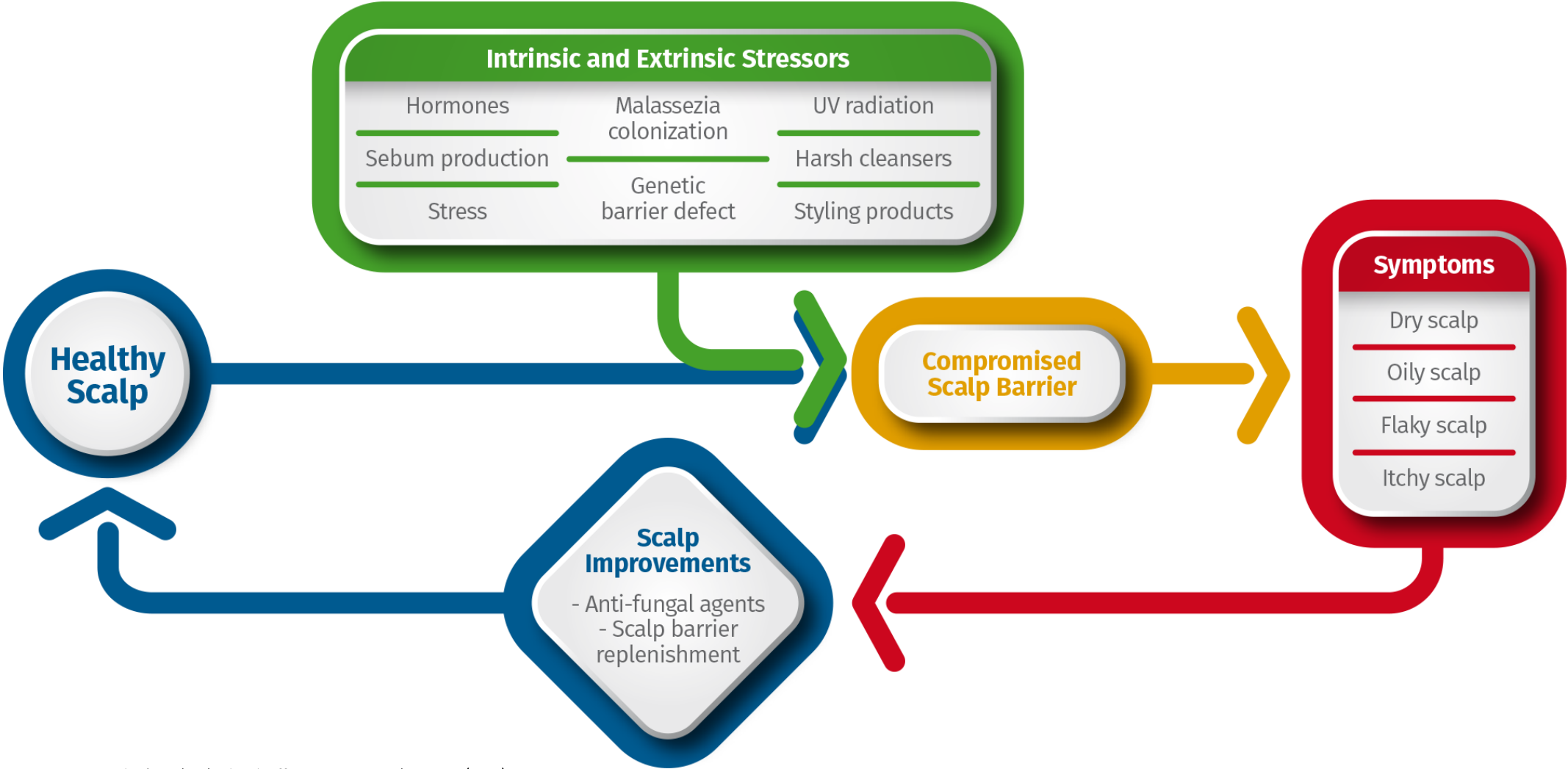
Hair Loss*

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DHT= Dihydrotestosterone. * = commercial form

*Helps prevent hair loss / Drug claim in some regions

How to get a healthy scalp?



Turner et al. Stratum corneum dysfunction in dandruff. Int J Cosmet Sci 34:298, (2012)

North America: acceptable and unacceptable Cosmetic Claims*

Acceptable (Cosmetic) –subject to substantiation

- Removes loose dandruff flakes from the hair
- Makes hair stronger
- Fortifies the hair
- Looks thicker
- Thickens hair
- Adds body
- Thickens hair shaft
- Repairs split ends/dry/damaged hair
- Revitalizes hair/hair's beauty
- Nourishes hair/hair nutrient (must qualify in cosmetic sense – moisturize, shine, texture, softness, beauty)
- Healthy hair (in the context of appearance)
- Root penetrating (i.e. thoroughness, root to tip)
- Contains sunscreen

Unacceptable (Drug)

- Controls dandruff
- Eliminates dandruff
- Dandruff shampoo
- Anti-dandruff shampoo
- Stimulates hair follicles
- Alopecia
- Prevents/treats alopecia
- Prevents hair loss/hair thinning
- Replaces thinning hair
- Restores hair cells
- Stimulates hair follicles
- Stimulates hair growth
- Deeply root penetrating (i.e. any action under the scalp)
- SPF

*subject to substantiation

Top 15 of mind concerns across the Globe

Quite differentiated picture across the countries

Top Concerns	Total	France	China	Japan	US	Brazil
Dandruff	53.00%	50%	62.00%	36.00%	54.00%	57.00%
Hair loss	53.00%	60.0%	49.00%	51.00%	44.00%	60.0%
Itchy scalp	50.00%	44.00%	57.00%	53.00%	48.00%	52.00%
Greasiness	45.00%	42.00%	57.00%	40.0%	37.00%	53.00%
Difficult to style	45.00%	39.00%	33.00%	54.00%	51.00%	45%
Hair dryness	45.00%	38.00%	43.00%	57.00%	54.00%	39.00%
Split ends	41.00%	37%	38.00%	34.00%	46.00%	45.00%
Scalp dryness	38.00%	30.0%	41.00%	41%	57.00%	22.00%
Frizz	38.00%	26.00%	14.00%	48.00%	45.00%	53.00%
Dull hair	37.00%	29.00%	42.00%	48.00%	40.0%	31.00%
Lack of volume	37.00%	38.00%	40.0%	38.00%	39.00%	32.00%
Hair graying	35.00%	32.00%	25.00%	40.0%	37.00%	38.00%
Hair thinning	33.00%	22%	33%	41.00%	40.0%	33%
Damage f. environ.	28.00%	21.00%	25.00%	30.0%	35.00%	31.00%
Damage f. phys./ chem.	26.00%	12.00%	23.00%	29.00%	33.00%	30.0%

Source: dsm-firmenich Internal Research 2021