

Vitamin A

*Revealing the Power
of Vitamins for Beauty Care*

06.2021

Vitamin A 維生素A

揭開維生素在保養中的力量

06.2021

Agenda

- 1 Vitamin A in Skincare
- 2 DSM in the Vitamin A Journey
- 3 Consumers & Customers Insights
- 4 Scientific Evidence on Retinol
- 5 Comparison Among Different Forms of Vitamin A
- 6 DSM INNOVATION: *"The Retinol Booster"*
- 7 Formulation Tips



Click on the number to get redirected to the chapter



Agenda

- 1 在保養中的維生素A
- 2 DSM在維生素A的發展中扮演的角色
- 3 洞悉消費者和顧客
- 4 Retinol功效的科學證據
- 5 比較各種不同形式的維生素A
- 6 DSM的創新:“增強Retinol”
- 7 配方技巧



Click on the number to get redirected to the chapter



Vitamin A in skincare



在保養中的維生素A



Retinol (Vitamin A)

The all-time anti-aging hero

PROVEN BENEFITS

- ✓ Reduces skin photo-damage effects
- ✓ Improves the appearance of fine lines & wrinkles
- ✓ Improves skin firmness & elasticity
- ✓ Improves skin smoothness
- ✓ Decreases skin roughness
- ✓ Reduces skin discoloration & mottled pigmentation
- ✓ Rebalances uneven skin tone



Retinol (Vitamin A) (維生素A)

歷久不衰的抗老英雄

被證實的優勢

- ✓ 減少肌膚光損害的影響
- ✓ 改善細紋和皺紋的產生
- ✓ 改善肌膚的緊實和彈性
- ✓ 改善肌膚的光滑度
- ✓ 減少肌膚粗糙
- ✓ 減少膚色不均及色斑沈澱
- ✓ 重新平衡不均勻膚色



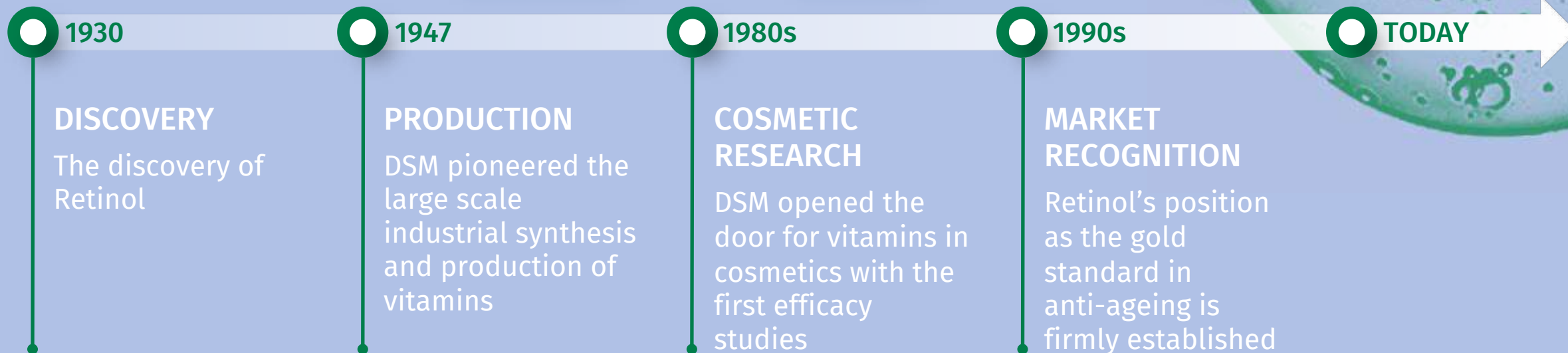
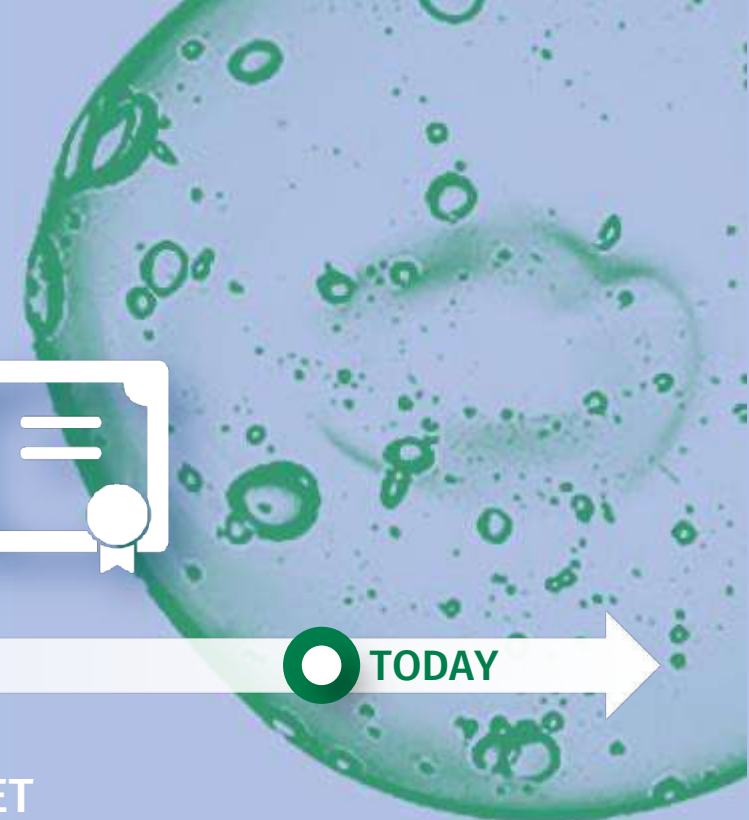
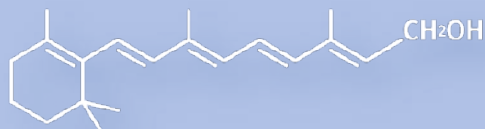
DSM in the Vitamin A journey



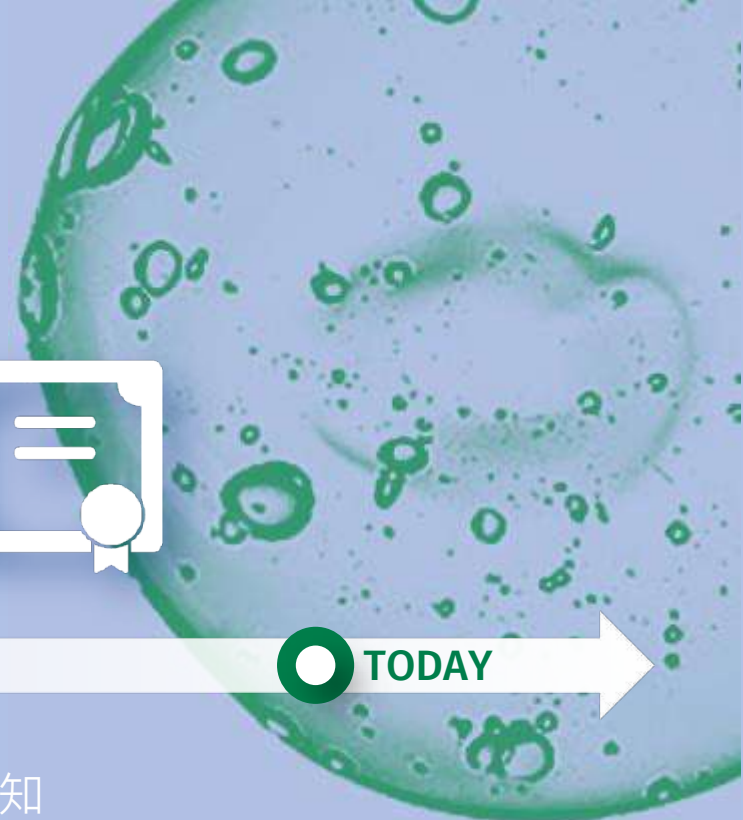
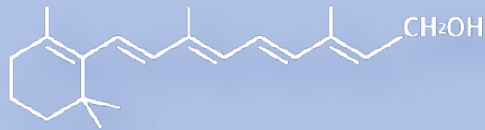
DSM在維生素A的發展中扮演的角色



Proud to be part of the remarkable journey of Retinol in cosmetics



DSM很榮幸可以參與Retinol在美妝中的卓越發展



發現
Retinol的發現

生產
DSM在大規模的合成和生產維他命中扮演領導者的角色

彩妝保養研究
DSM用第一個證實有效的研究開啟維他命在美妝保養界的大門

市場認知
Retinol的角色在市場抗老功效產品中建立黃金標準

Vitamin A Cosmetic grades



	PACK SIZE	PRODUCT CODE	
Retinol GS 50 • Stabilized with BHT and BHA • Based on Polysorbate 20 • 428 to 495 mg Retinol Equivalents/g		50 15117	• Vitamin A alcohol- In its purest form • 50% blend of retinol and polysorbate 20
Vitamin A Acetate 1.5 MIU/g • Stabilized with tocopherol • Based on peanut oil • 450 mg Retinol Equivalents/g	5	04 18846.294	• Vitamin A acetate, adjusted to 1.5 MIU/g by adding peanut oil. • Contains dl- α -tocopherol as an antioxidant
Vitamin A Palmitate 1.7 MIU/g • Stabilized with tocopherol • 510 mg Retinol Equivalents/g	5 20 190	04 18579.294 04 18579.336 04 18579.422	• Pure vitamin A palmitate • Contains dl- α -tocopherol as an antioxidant
Vitamin A Palmitate 1.7 MIU/g • Without stabilizers • 510 mg Retinol Equivalents/g	5 20 190	04 24005.294 04 24005.336 04 24005.420	• Pure vitamin A palmitate, no formulation aid
Vitamin A Palmitate 1.7 MIU/g • Stabilized with BHA/BHT • 510 mg Retinol Equivalents/g	5 20	04 24013.294 04 24013.336	• Pure vitamin A palmitate
Vitamin A Palmitate 1.0 MIU/g • Stabilized with tocopherol. • Based on peanut oil. • 300 mg Retinol Equivalents/g	5	04 31400.294	• Vitamin A palmitate, adjusted to 1.0 MIU/g by adding peanut oil • Contains dl- α -tocopherol as an antioxidant
Vitamin A Palmitate/M 1.0 MIU/g • Stabilized with tocopherol. • Based on medium chain triglycerides. • 300 mg Retinol Equivalents/g	5	50 08530.294	• Vitamin A palmitate, adjusted to 1.0 MIU/g by medium chain triglycerides (INCI: caprylic/Capric Triglyceride) • Contains dl- α -tocopherol as an antioxidant
Vitamin A Palmitate 1.0 MIU/g • Stabilized with BHA/BHT. • Based on peanut oil. • 300 mg Retinol Equivalents/g	• 5	• 04 20603.294	• Vitamin A palmitate, adjusted to 1.0 MIU/g by adding peanut oil



Consumers' insights



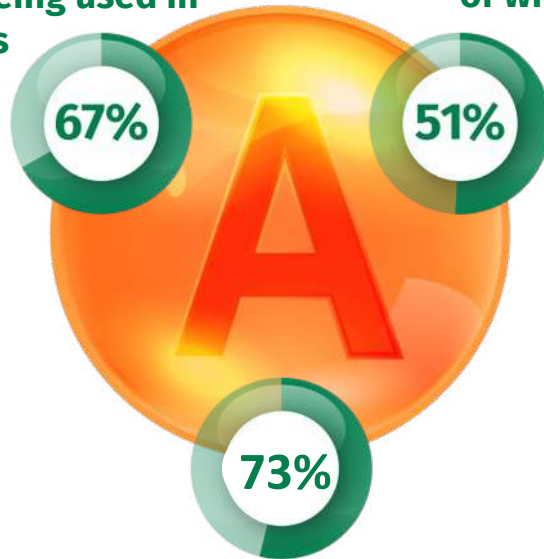
洞察消費者



A good case of ingredient recognition

High awareness & credibility

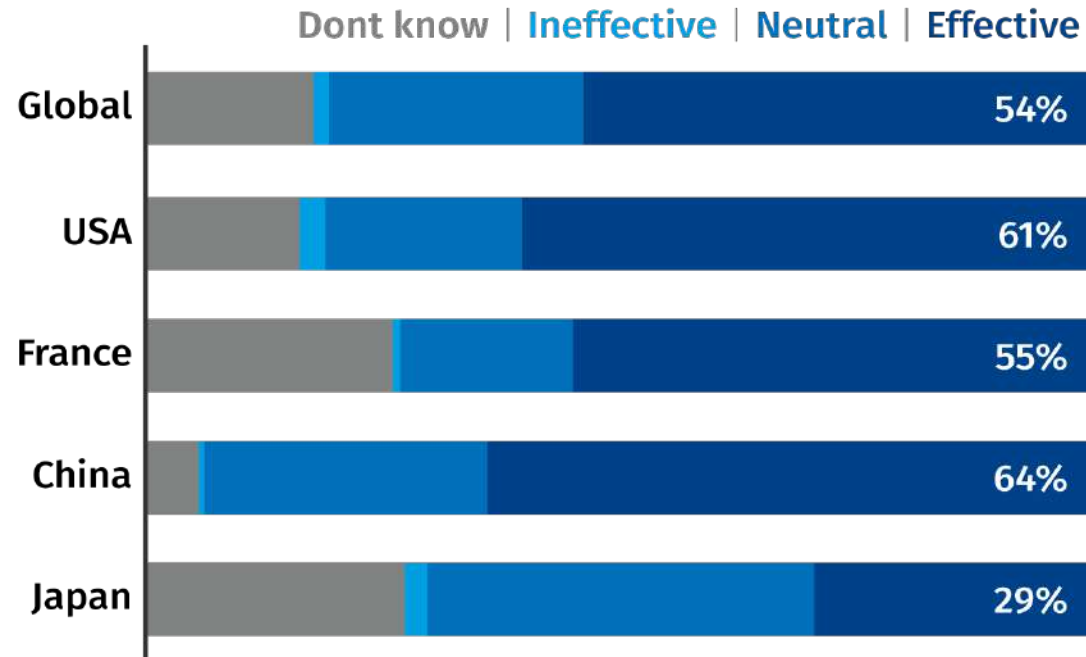
In the US and France, **67%** of women are aware of Vitamin A/Retinol being used in cosmetics



Of US women link it to **anti-aging/ removal of wrinkles**

Of women aware of it as an ingredient sees it to be **effective in cosmetics**

Q. How effective do you think Retinol is in cosmetic products?



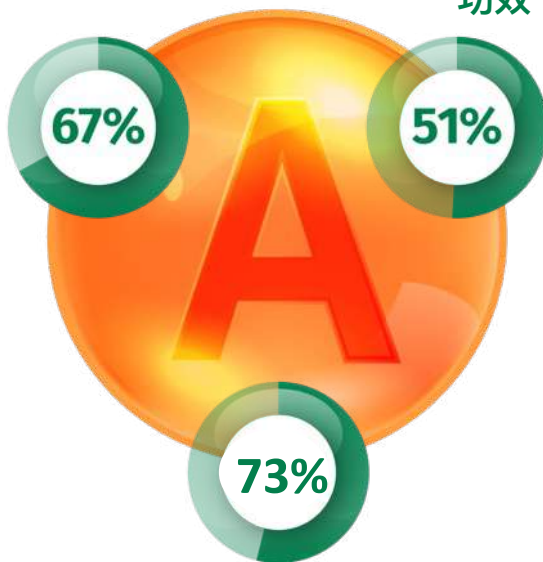
DSM PCA Vits study, Jan 2016. Global- N=1171, USA- N=323, France- N=260, China- N=342, Japan- N=246- All females

良好的原料認知

高度意識 & 可信度

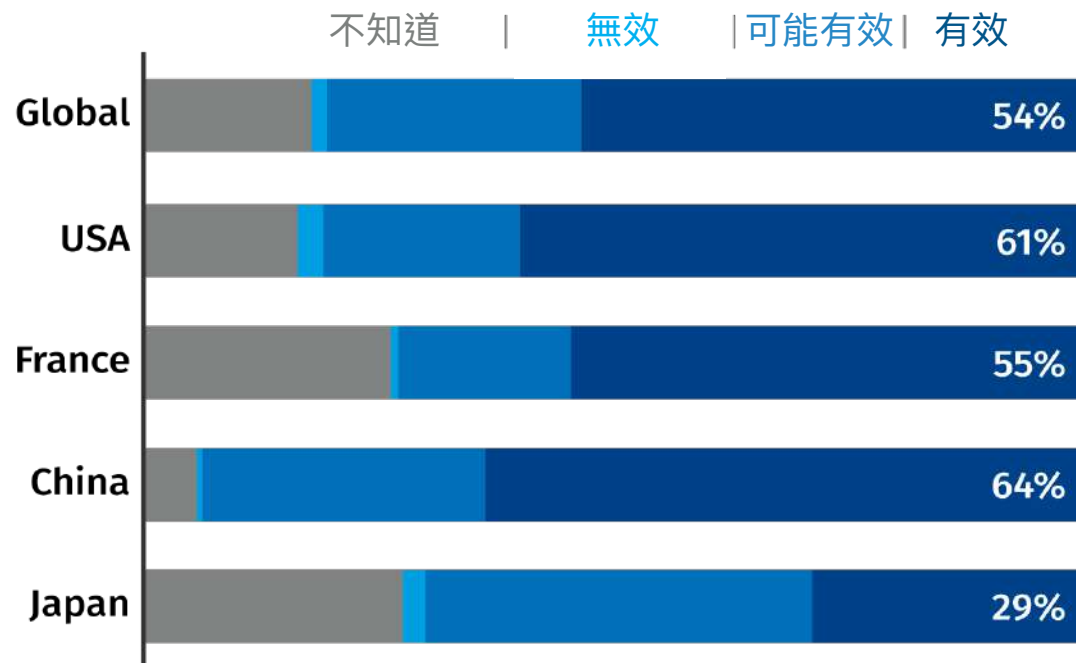
在美國和法國，67%
的女人知道維生素A/
視黃醇被用在保養上

其中51%的美國
女人將其聯想到
抗老/去除皺紋的
功效



73%的女人意識到這個原料在保養中是有效的

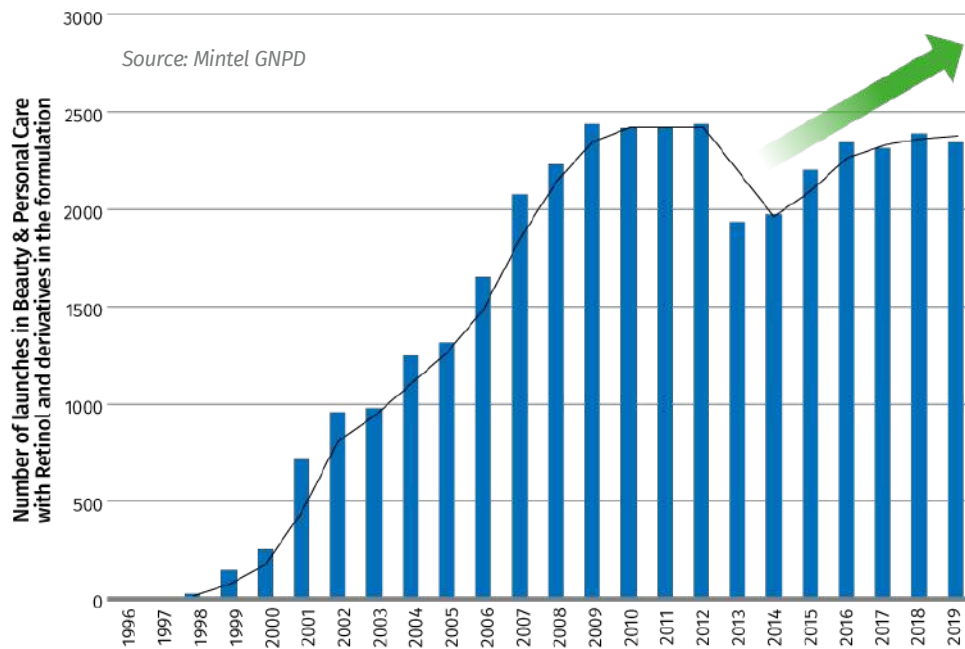
問題：您覺得Retinol在保養品中多有效？



DSM PCA Vits study, Jan 2016. Global- N=1171, USA- N=323, France- N=260, China- N=342, Japan- N=246- All females

B2C companies leverage Retinol to drive innovation & sales

- **~40k** Beauty & personal Care products **feat. Retinol** (and/or derivatives) have been launched in in last 20yrs (mostly facial)
- Retinol back on trend in last 5Yrs: **+20% avg NPIs/year vs 2013**



2019 WINNER

CEW COSMETIC EXECUTIVE WOMEN



RECORD ON-LINE 2020 PRE-SALE

100k consumers on waiting list at launch



BEST SELLER

SEPHORA



BEST SELLER

amazon

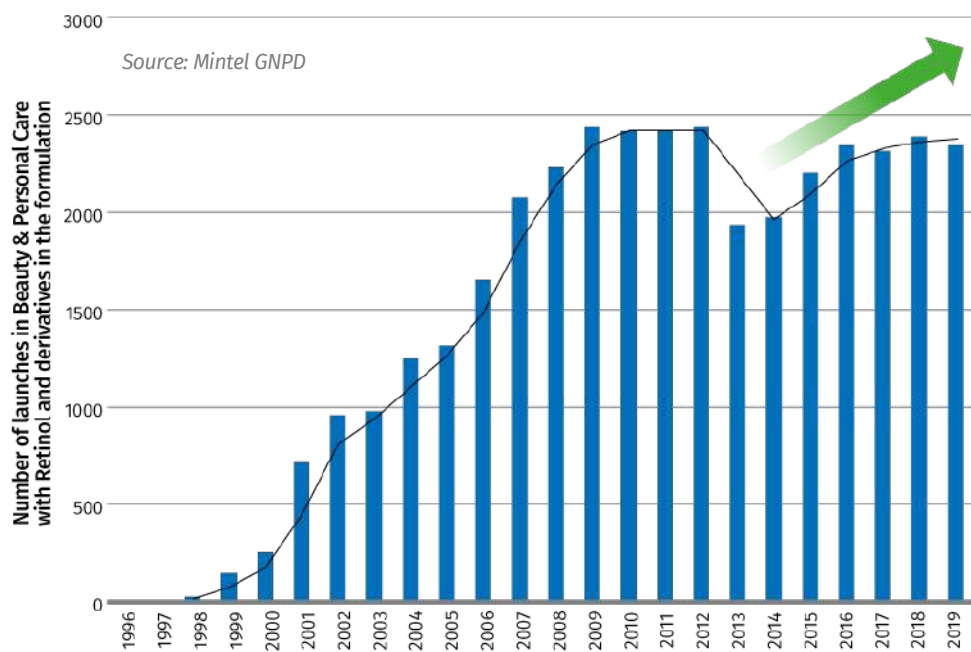


AUTUMN 2020 INNOVATION



B2C的公司利用Retinol來達成 創新和更好的銷售額

- 大約4萬有添加Retinol(或其衍生物)美妝保養產品在最近20年間上市 (多數為臉部產品)
- Retinol在最近5年之間重新成為熱門: **+20% avg NPIs/year vs 2013**



2019 WINNER

CEW COSMETIC EXECUTIVE WOMEN



BEST SELLER

SEPHORA



BEST SELLER

amazon



RECORD ON-LINE
2020 PRE-SALE

100k
consumers
on waiting list
at launch



AUTUMN 2020
INNOVATION

Retinol Scientific evidence

Learn more...



Request a sample



Retinol 在科學中的證據

Learn more...



Request a sample



Retinol Efficacy



WRINKLES REDUCTION

Consumer Benefits

- Reduces appearance of fine lines & wrinkles
- Improves skin firmness & elasticity

Molecular & Gene Level

- Increases synthesis of Collagen & Elastin
- Inhibits MMPs, reducing Collagen & Elastin degradation

Structural & Functional Level

- Improves organization of Collagen and Elastin fibres in papillary dermis
- Improves structure of Dermal-Epidermal Junction (DEJ)



EPIDERMAL THICKENING

Consumer Benefits

- Improves skin smoothness
- Decreases skin roughness

Molecular & Gene Level

- Stimulates Ki-67 expression
- Increases deposition of Glycosaminoglycan in the epidermis

Structural & Functional Level

- Increases epidermal proliferation
- Thickens the epidermis
- Compacts the stratum corneum



EVEN SKIN TONE

Consumer Benefits

- Reduces discoloration, mottled pigmentation
- Rebalances uneven tone

Molecular & Gene Level

- Downregulates Tyrosinase activity
- Decreases Melanin content

Structural & Functional Level

- Inhibits Melanosome transfer

Retinol 功效



減少皺紋

消費者層面優勢

- 減少皺紋和細紋的產生
- 改善皮膚緊實和彈性

分子和基因層面

- 增加膠原蛋白和彈性蛋白的合成
- 抑制基質金屬蛋白酶，減少膠原蛋白和彈性蛋白的降解

結構和功效層面

- 改善膠原蛋白和彈性蛋白纖維在真皮乳頭層中的結構組織
- 改善真皮與表皮接合處(DEJ)的結構



表皮增厚

消費者層面優勢

- 改善肌膚平滑度
- 減少肌膚粗糙

分子和基因層面

- 刺激Ki-67蛋白質的表現
- 增加醣胺聚醣(GAGs)在表皮層中的沉積

結構和功效層面

- 表皮增生
- 使表皮增厚
- 使角質層更緊實



均勻膚色

消費者層面優勢

- 減少膚色不均及色斑沈澱
- 重新平衡不均勻膚色

分子和基因層面

- 下調酪氨酸酶活性
- 減少黑色素含量

結構和功效層面

- 抑制黑色素小體轉移

New DSM *In vivo* Study

New
Clinical
Study

STUDY SET-UP

One target group

- 50-65 y.o.

25 Volunteers per formulation

- Placebo
- Retinol GS50 0.2%

Application: 4 weeks,
2x per day, full face

Randomized single centre Study
Double blind



新DSM In vivo研究

新臨床
研究

研究設置

一個目標族群

- 50–65歲

每個配方都有25個志願者

- 安慰劑
- Retinol GS50 0.2%

塗抹: 4週, 整臉一天塗2次

隨機單一中心雙盲研究



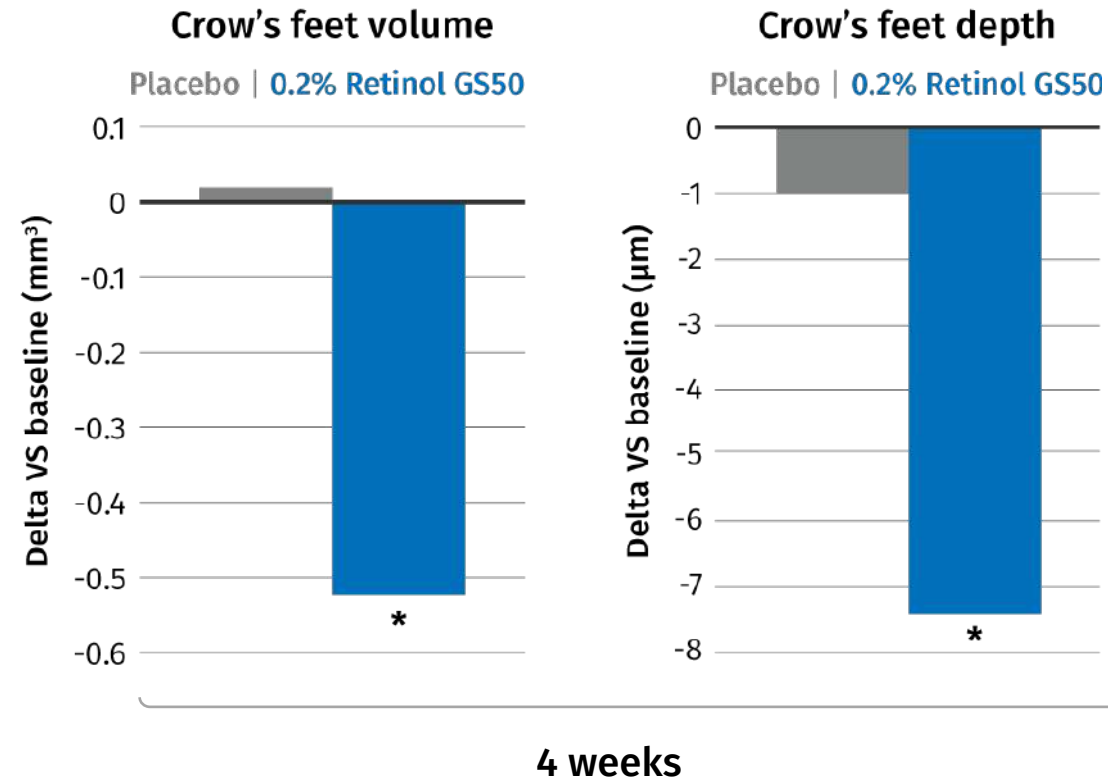
Retinol GS50 proven to reduce crow's feet wrinkles in just 4 weeks

Visible effect and quantification by Primos^{lite} measurement

NEW



In 4 weeks only



Significant ($p < 0.05$) improvement on crow's feet parameters (less volume and depth)

In the same time placebo effect was negligible

With prolonged retinol application a continuous improvement over time is expected



Retinol GS50證實可以在4週內減少魚尾紋

用Primos^{lite}測量可見的效果和可量化的結果

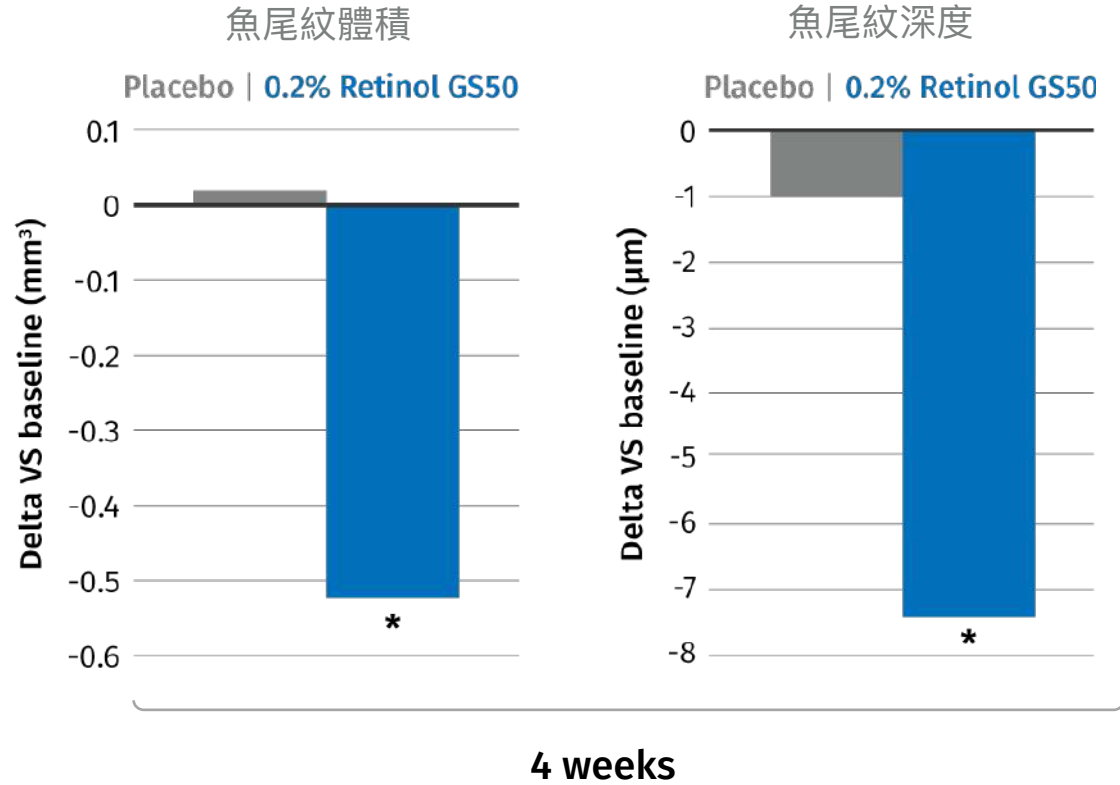


Baseline subject 127

4週後結果



4 weeks subject 127



在魚尾紋的測量指數(減少體積及深度)有明顯(p<0.05)的改善。

然而安慰劑的改善效果卻是微乎其微的

長期的塗抹Retinol可以預期到持續的改善

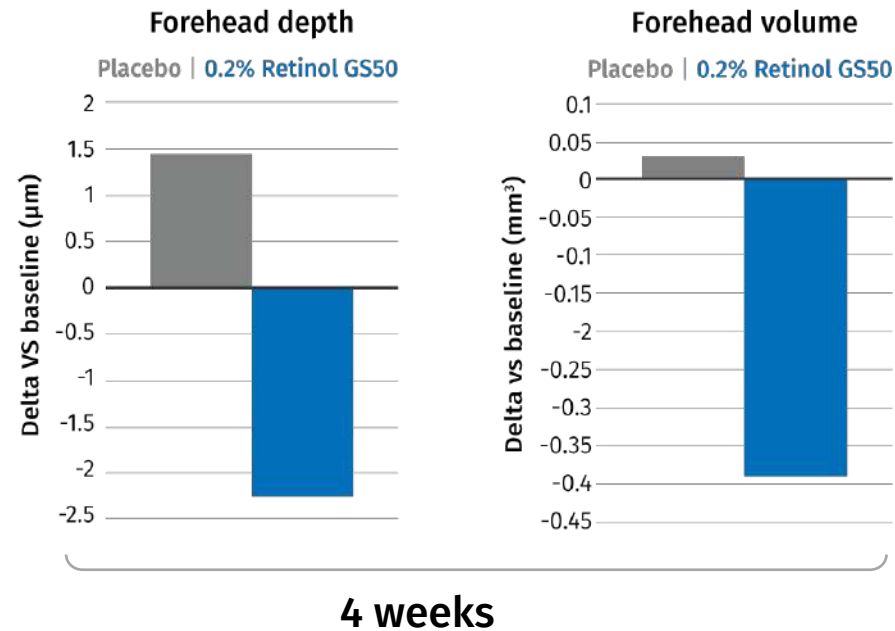
NEW

Retinol GS50 proven to reduce forehead wrinkles in just 4 weeks

Primos^{lite} measurement



In 4 weeks only



DSM Nutritional Products
own study

Strong trend for improvement on forehead wrinkles (less volume and depth)

In the same time placebo was ineffective with slight aggravation

With prolonged retinol application a continuous improvement over time is expected

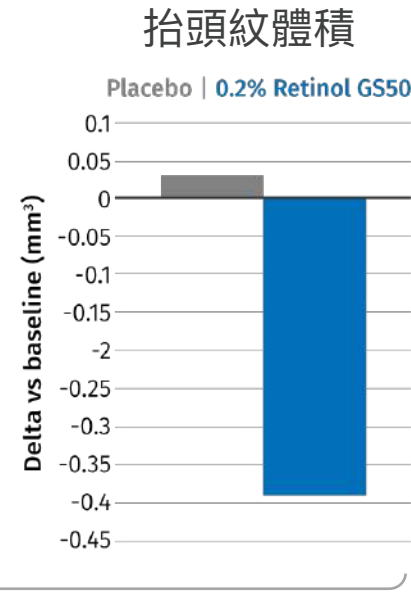
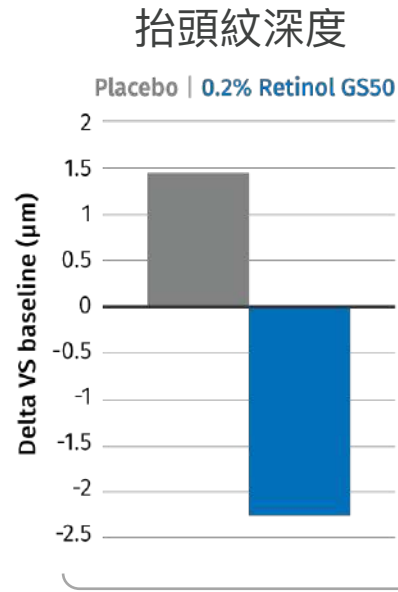


Retinol GS50使用4週下來證實有減少抬頭紋的功效

用Primos^{lite}測試



僅僅4週的使用時間



4 週

DSM Nutritional Products
own study

對於改善抬頭紋有顯著的傾向(減少體積跟深度)

與此同時，安慰劑的部分不僅無效且有一點增加抬頭紋的情況

長期的塗抹Retinol可以預期到持續的改善

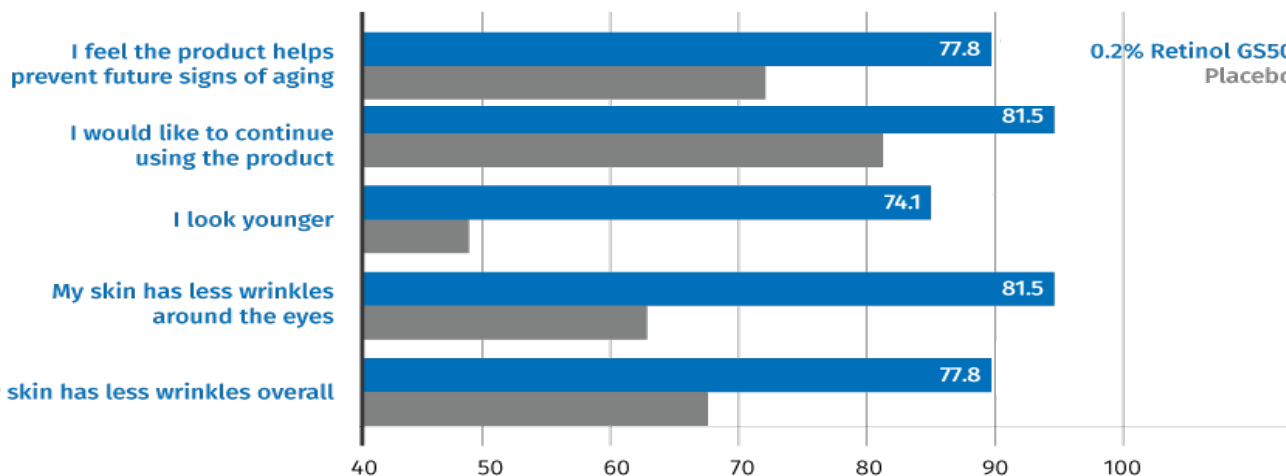


Volunteers' self-assessment

Amazing feedback for Retinol GS50!



Qualitative questionnaire



DSM Nutritional Products
own study

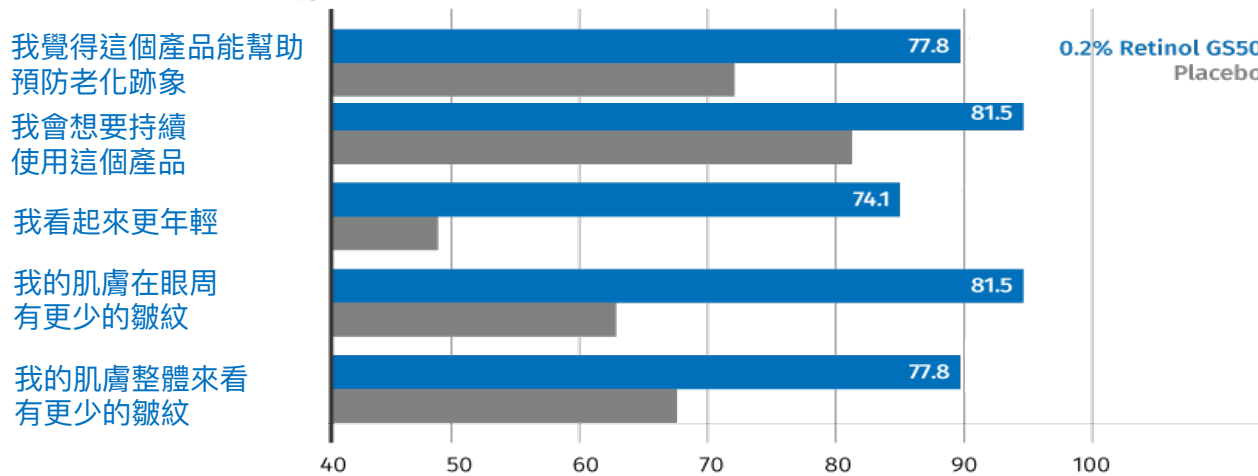


志願者的自我評估

令人驚喜的Retinol GS50反饋！



定性問券



DSM Nutritional Products
own study



Comparison among Different Forms of Vitamin A



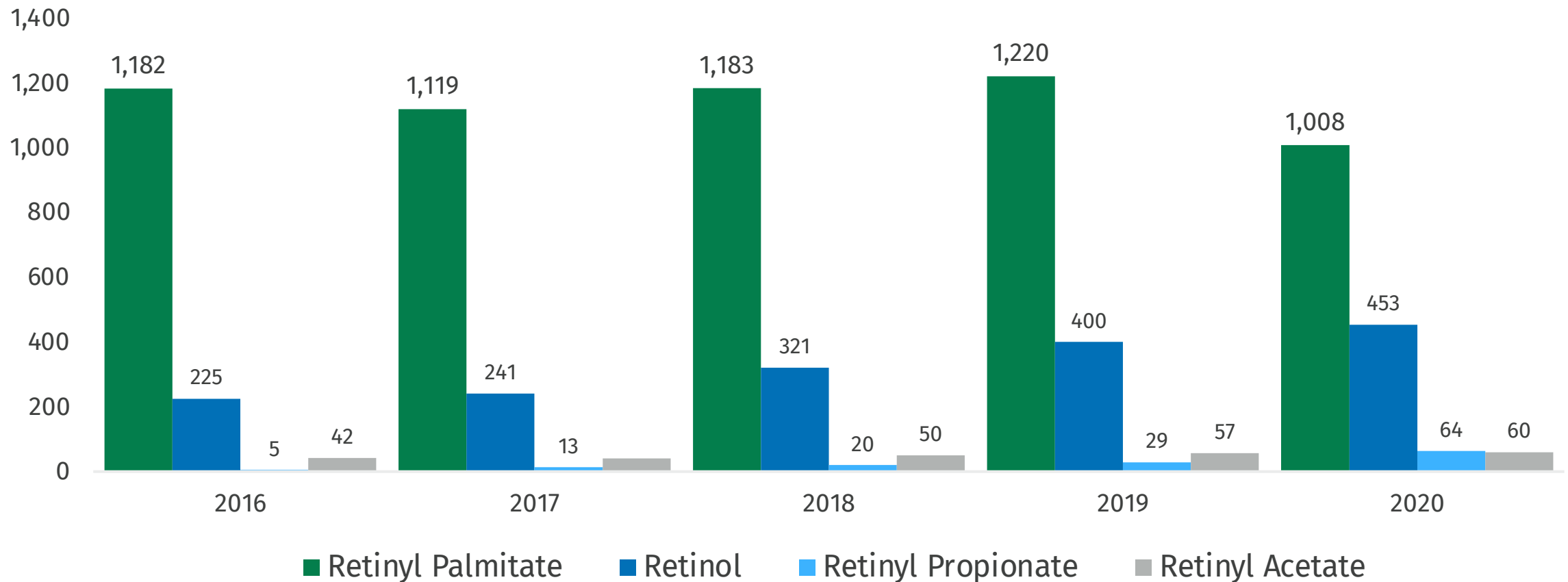
比較各種不同形式的維生素A



Vitamin A Launches around the globe

DSM offers the 3 key forms

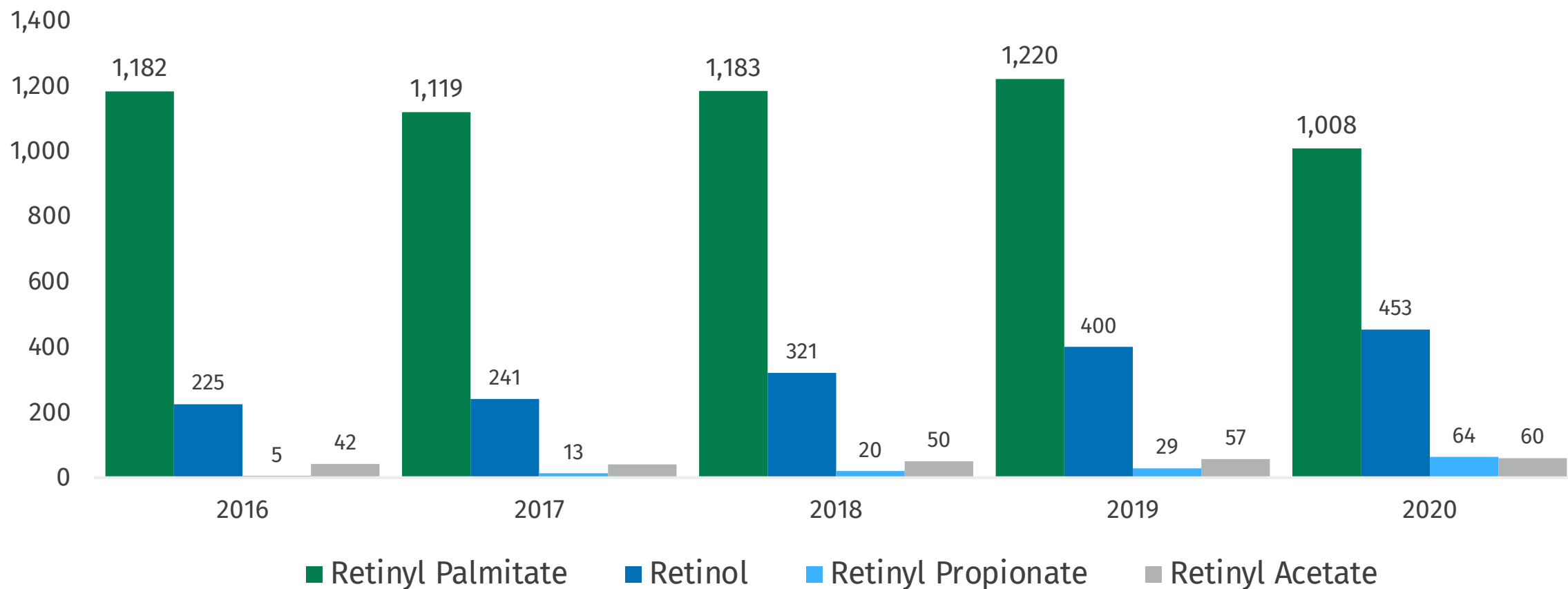
Vitamin A: Total Global Launches in Skin Care



在全球上市的維生素A

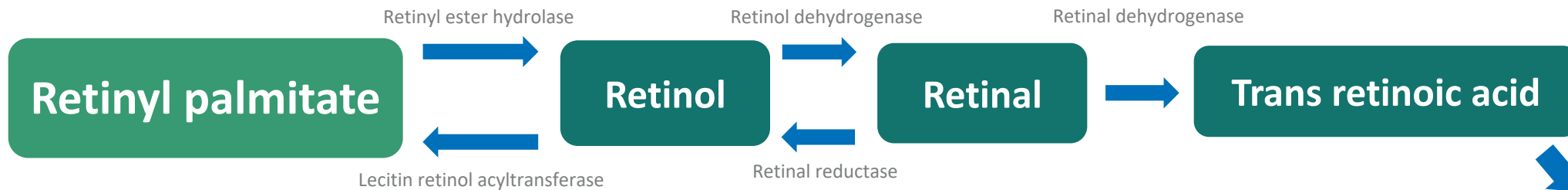
DSM主要提供3種不同形式的維生素A

維生素A:整體保養品在全球的發行情況



Retinyl Palmitate

Just one step away from retinol



Retinyl palmitate (RP) is more stable than retinol, but needs to be used in higher concentration

RP is converted to retinol and subsequently to the active form in skin

Increased use level of RP compensates for the extra conversion step compared to retinol

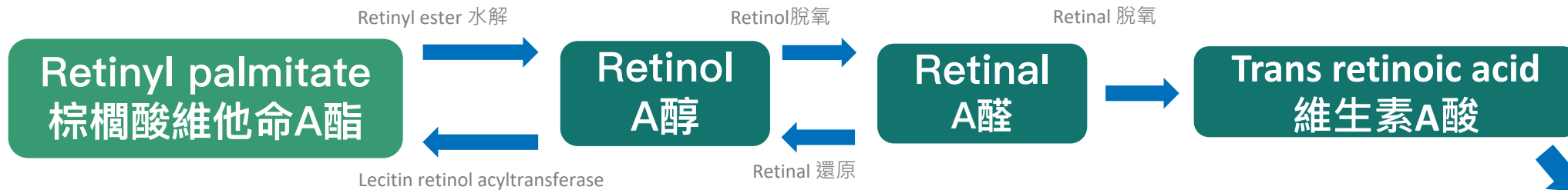
RP is naturally present in skin as storage form of retinol



anti aging effects

Retinyl Palmitate

Just one step away from retinol



Retinyl palmitate (RP)比A醇更加穩定，不過需要使用更高的濃度

RP會被轉換成A醇，接著才會轉換成在肌膚中有用的形式

相較A醇之下RP的用量增加來補償多一步驟的轉化

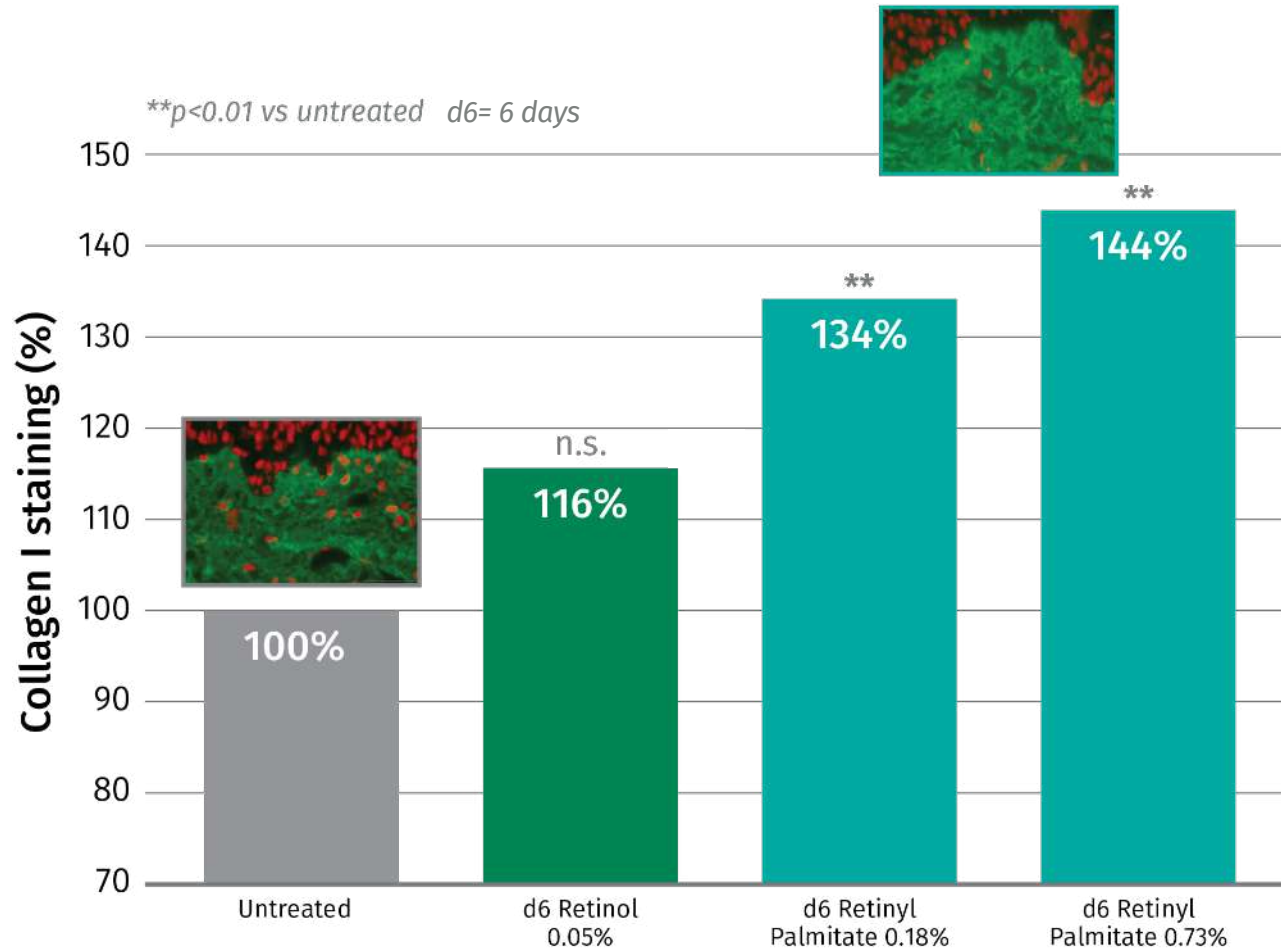
RP 作為A醇天然存在於皮膚中儲存形式



抗老效果

Retinol and derivative- Collagen I

6 days of ex vivo skin treatment



Collagen I staining was quantified in the papillary dermis using cellSens software

DSM Nutritional Products
own study



Retinol 0.05% boosts collagen I by **16%**

Retinyl Palmitate, significantly boosts collagen I, but at higher concentration than Retinol – and dose dependently

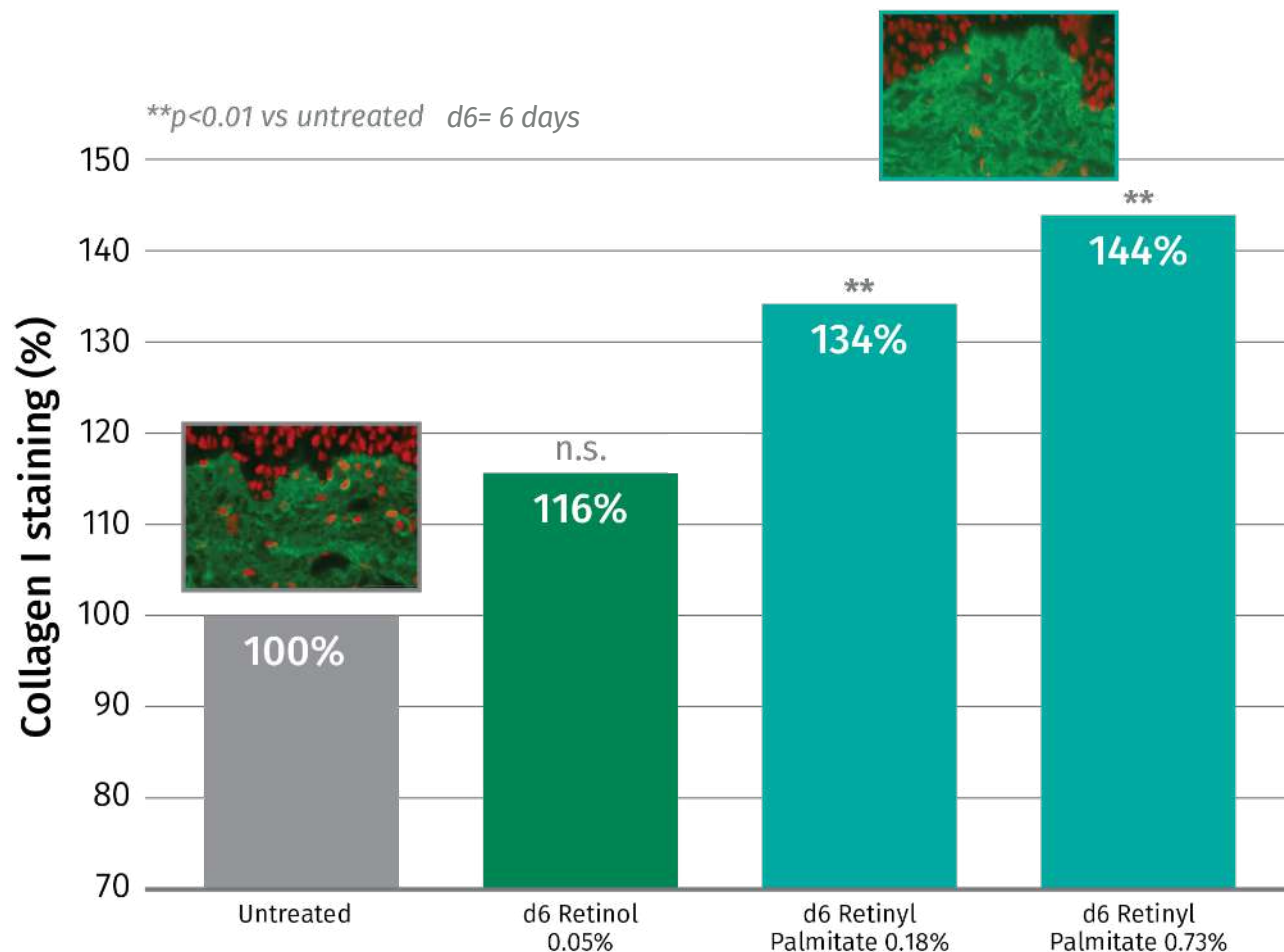
- **34%** collagen I boost at 0.18%
- **44%** collagen I boost at 0.73%

	Retinol equivalent
0.05% Retinol= 0.1% Retinol GS50	1x
0.18% Retinyl Palmitate	2x
0.73% Retinyl Palmitate	8x

Collagen I is the most abundant collagen in the dermis but more difficult to boost

Retinol 和其衍生物- I型膠原蛋白

6天在活體外肌膚的測試



Collagen I staining was quantified in the papillary dermis using cellSens software

DSM Nutritional Products
own study



Retinol 0.05% 增生I型膠原蛋白 16%

Retinyl Palmitate 顯著的增生I型膠原蛋白，不過跟Retinol比較起來是使用更高的濃度，且分別如下：

- 34% 增生I型膠原蛋白 at 0.18%
- 44% 增生I型膠原蛋白 at 0.73%

	Retinol 換算
0.05% Retinol= 0.1% Retinol GS50	1x
0.18% Retinyl Palmitate	2x
0.73% Retinyl Palmitate	8x

I型膠原蛋白是在真皮層裡最重要的膠原蛋白，不過相較於其他型的膠原蛋白，更加困難去增生

DSM Discovery

The Retinol Booster

2021
INNOVATION



2021
INNOVATION

DSM Discovery DSM的發現

增生Retinol



DSM social media listening: Overall positive consumers' sentiment around Retinol, but still some "pain points" to overcome...

Source: Retinol + social Media listening



“...Retinol is **highly unstable**; ..if it's not formulated correctly, it just doesn't do what it's supposed to be doing”

“..use Retinol w/o sunscreen, expose skin to so much damage”

“If any of you see Retinol product in a clear bottle, don't put it in your shopping cart...Retinol is **very photosensitive**: UV radiation + a clear bottle will mess with the effectiveness”

“..Retinol increases cells turnover and can potentially cause **skin** to become **more sensitive to sun**”

“..**severe redness/irritation** even w/ just a few applications”

“...Retinol can trigger irritation, especially if you have **sensitive skin**. Professionals recommend starting gradually, increasing as skin grows more tolerant...”

“.. Side effects of Retinol... safe for all skin types, but some can experience **dryness, redness, irritations**”

“...introduce into regimen slowly to **allow the skin to accommodate to avoid irritation...**”

DSM聆聽社交網路的聲音：消費者對於Retinol的觀感整體為正向的，不過仍有些“痛點”需要克服

Source: Retinol + social Media listening



正面的 ↑(1.5K%) | 中立的 ↑(4.8K%) | 負面的 ↑(3.3K%)

高度推薦

溫和去除
高濃度 有效降低
總的來說
天然形成 高度推薦
評分高的 非常喜愛
唯一選擇
晚安面膜 極度有效
有用 天然萃取 大幅度改善
推薦每日使用 終於決定
認真使用 有效
直接塗抹
溫柔的按摩

“Retinol 高度不穩定，...如果沒有正確配方，它就是無法做到它應該達成的功效”

“...使用Retinol在w/o的防曬中，使皮膚暴露在更多的傷害”
“如果你們有看到Retinol 相關的產品被裝在透明的瓶器中，不要把它放到你的購物車...Retinol 有極高的光敏性:UV 照射+ 透明瓶器會破壞它的功效”

“...Retinol加速細胞更新，有可能會造成肌膚對陽光更加敏感”

“...嚴重的紅腫/刺激，即使只有使用幾次而已”

“...Retinol 可以引發刺激，尤其是當你擁有敏感肌的時候。專家建議漸進式地開始使用，讓皮膚建立耐受性”

“...Retinol的副作用...任何皮膚都適用，但對於有些肌膚可能會產生乾燥、紅腫、刺激的不適”

“...把它慢慢加入日常保養中，讓肌膚適應來避免刺激...”

Brands are looking for milder solutions...



Combining pure retinol and **gradual release** 0.3% retinol + **Vitamin B3** **soothing** agent



Time-released retinol and a retinol booster + Niacinamide



0.3% Retinol + 2% **plant derived Bakuchiol**



Retinol + **CBD Oil**

...but efficacy could be concerned

一些品牌尋找更加溫和的解決方式...



結合純的A醇和漸進式釋放的
0.3% A醇+維他命B3作為舒緩



緩釋型Retinol和
Retinol增強劑+B3



0.3% Retinol +
2%植萃補骨脂



Retinol + CBD油

...不過功效可能要再觀察

...but efficacy could be a concern

What if...

**...we could boost
efficacy, while
reducing amount
of Retinol needed?**



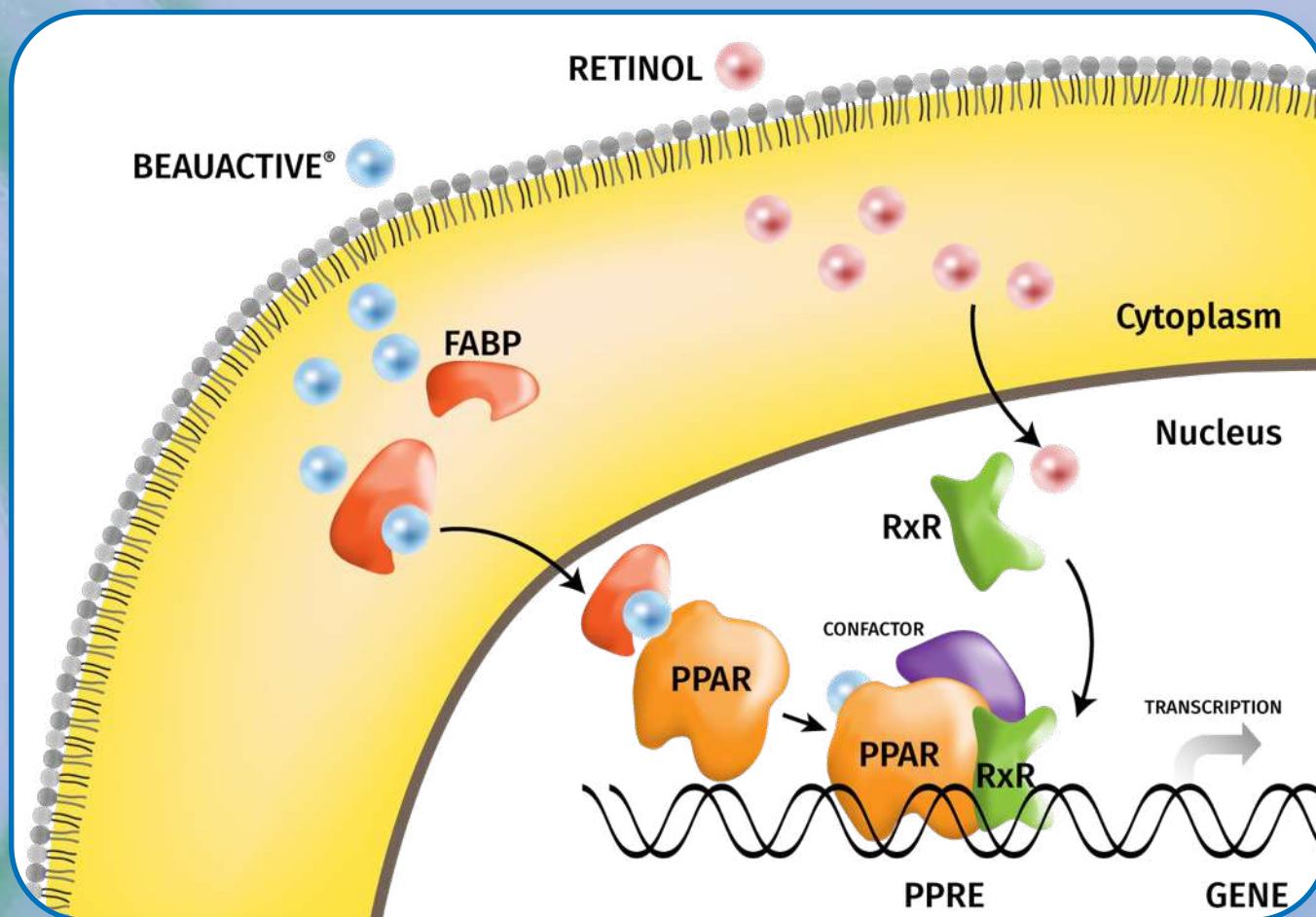
...不過功效性可能成為隱憂

如果...

...我們可以加強功效，
且降低Retinol的需要的
用量呢？



BEAUACTIVE® and Retinol working together



RXR α (Retinoid X Receptor) is activated by RETINOL

PPAR α is activated by **BEAUACTIVE®**

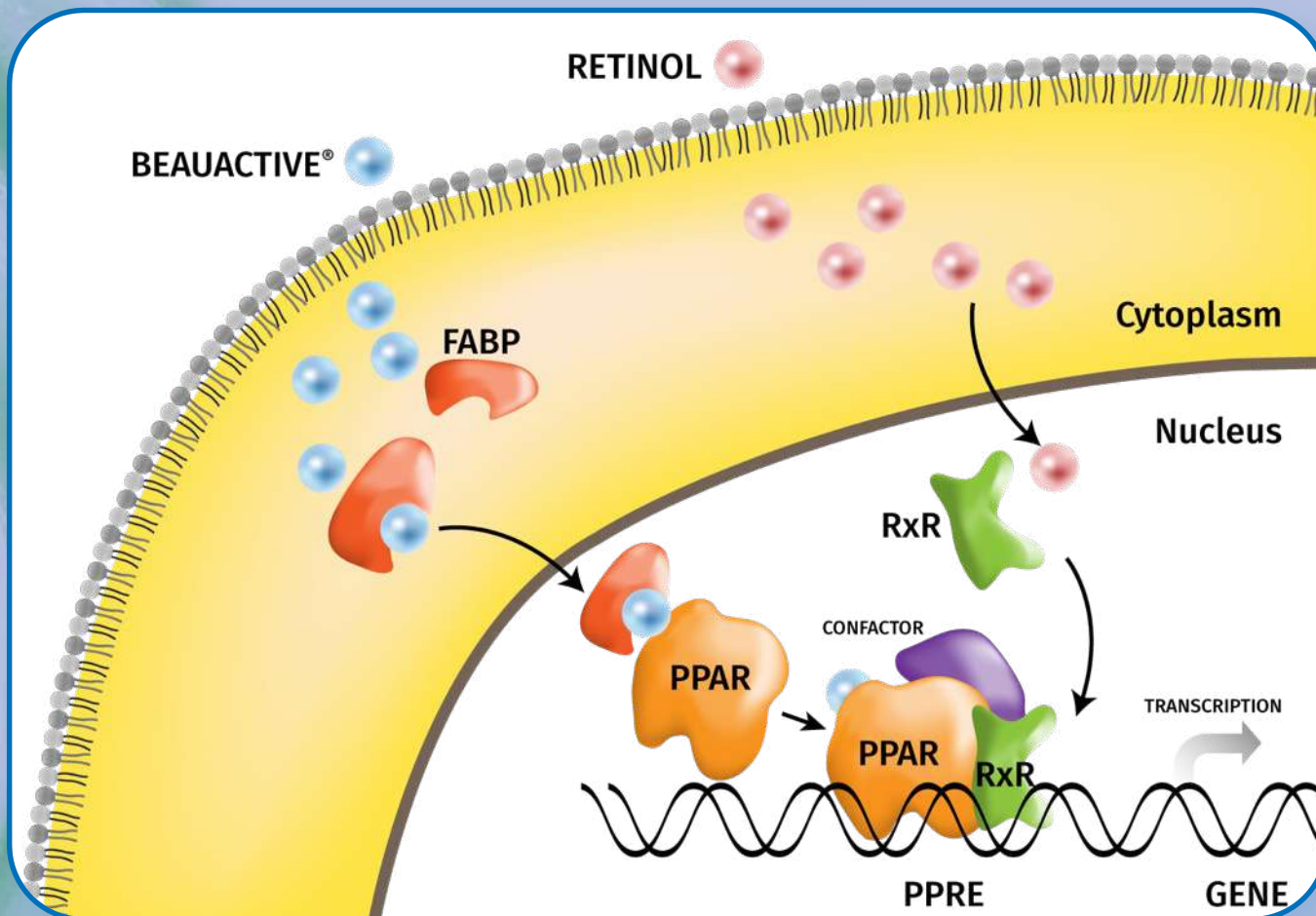


PPAR α binds RXR α forming PPAR α :RXR α heterodimer



BEAUACTIVE® + RETINOL TOGETHER
WE CAN EXPECT SYNERGY FOR EVEN MORE EFFICACY!

BEAUACTIVE® and Retinol 協同增效作用



視黃醇受體(RXR α)被Retinol活化
而PPAR α 被BEAUACTIVE®活化

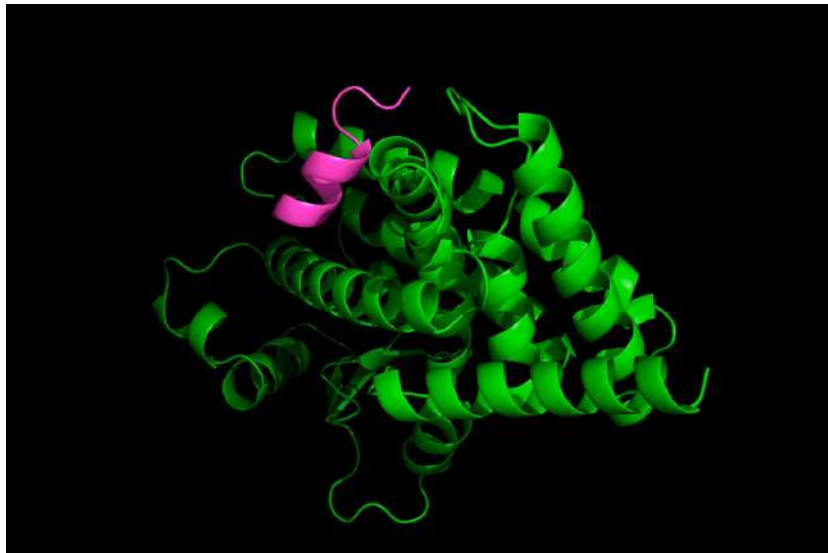


PPAR α 聯繫 RXR α 的組成
PPAR α 與RXR α 透過異二聚反應結合



BEAUACTIVE® + RETINOL 一起
我們可以期待協作增效的作用

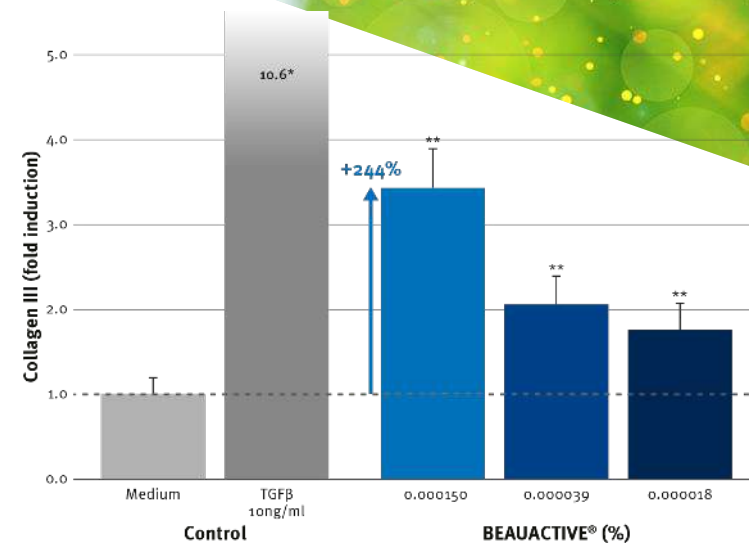
BEAUCTIVE[®] activates PPAR α and increases Collagen.



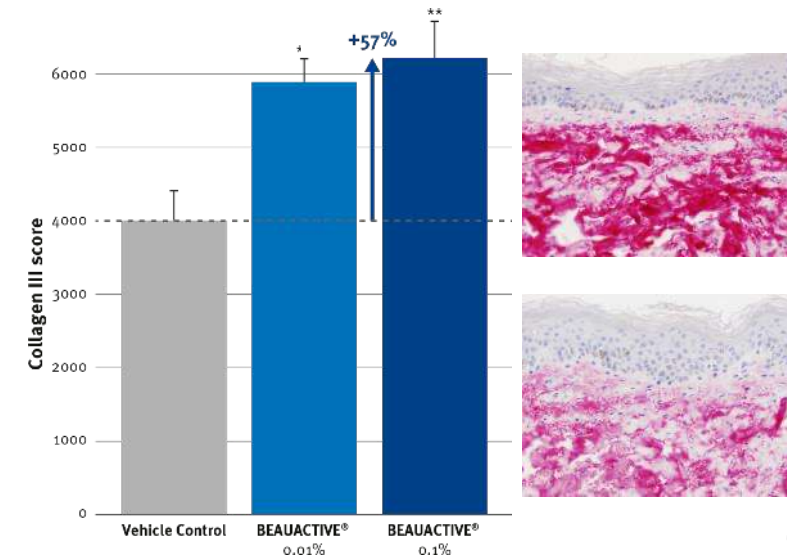
In silico, we can predict how well BEAUCTIVE[®] can activate PPAR α

BEAUCTIVE[®]

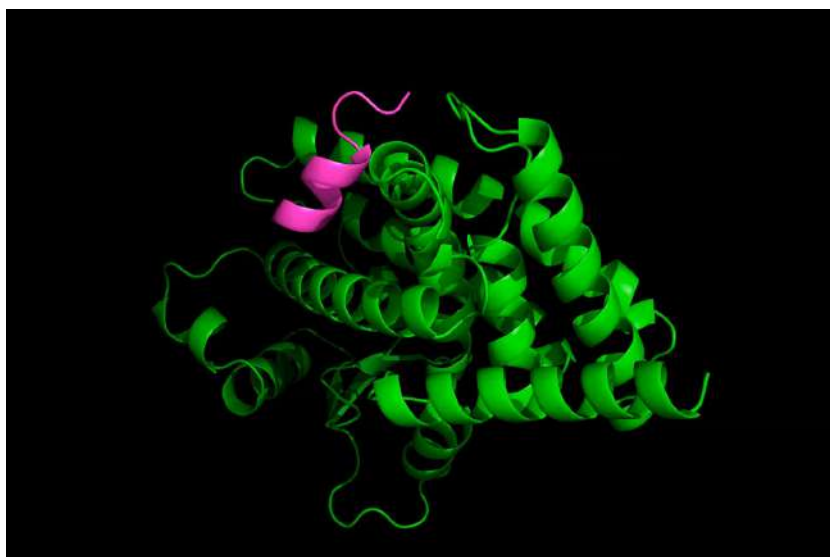
in vitro



ex vivo



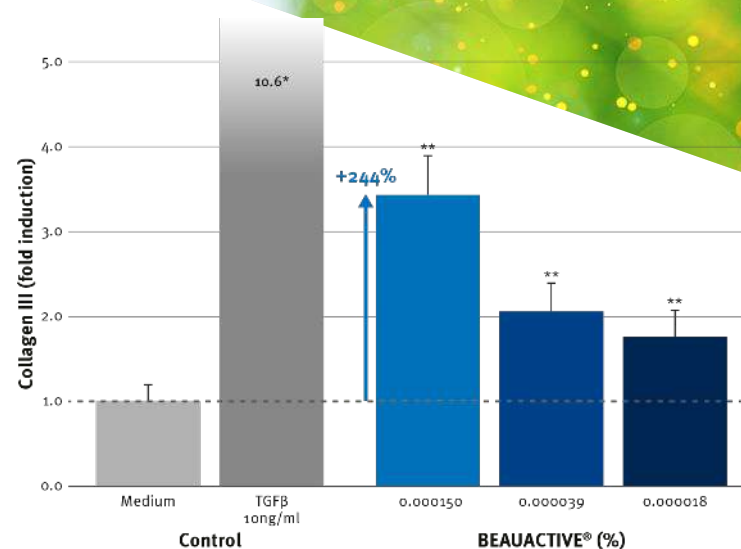
BEAUACTIVE® 活化 PPAR α 和增加膠原蛋白



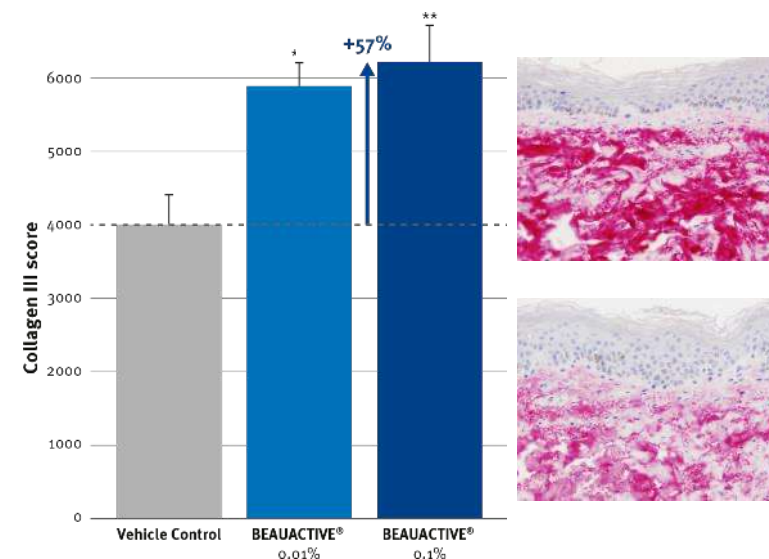
In silico · 我們可以預測到
BEAUACTIVE® 可以活化PPAR α 的
優異效果

BEAUACTIVE®

in vitro

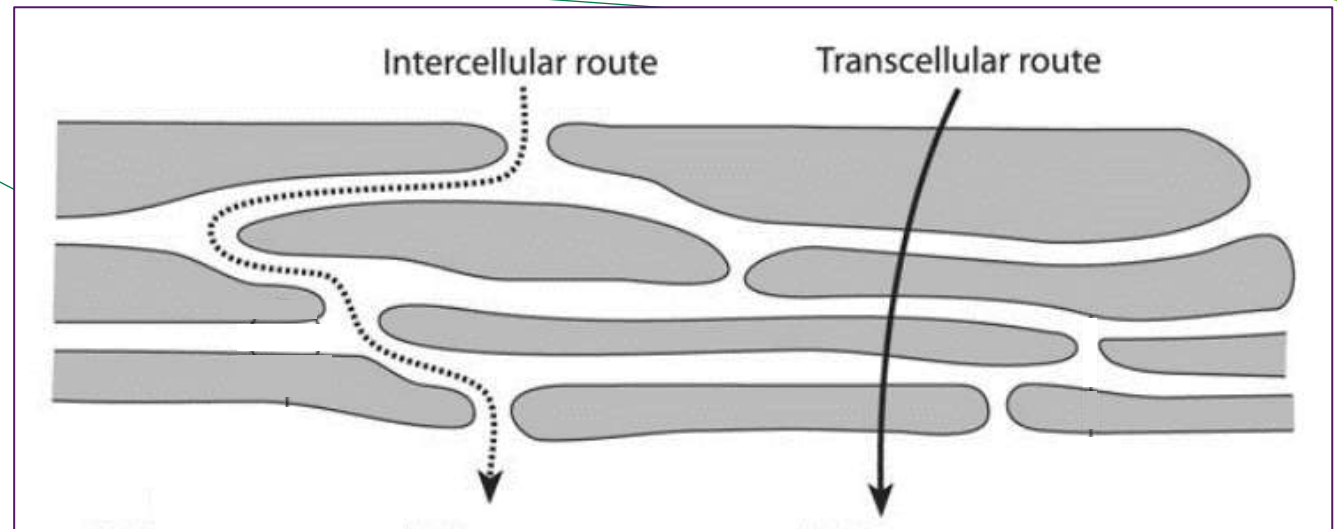
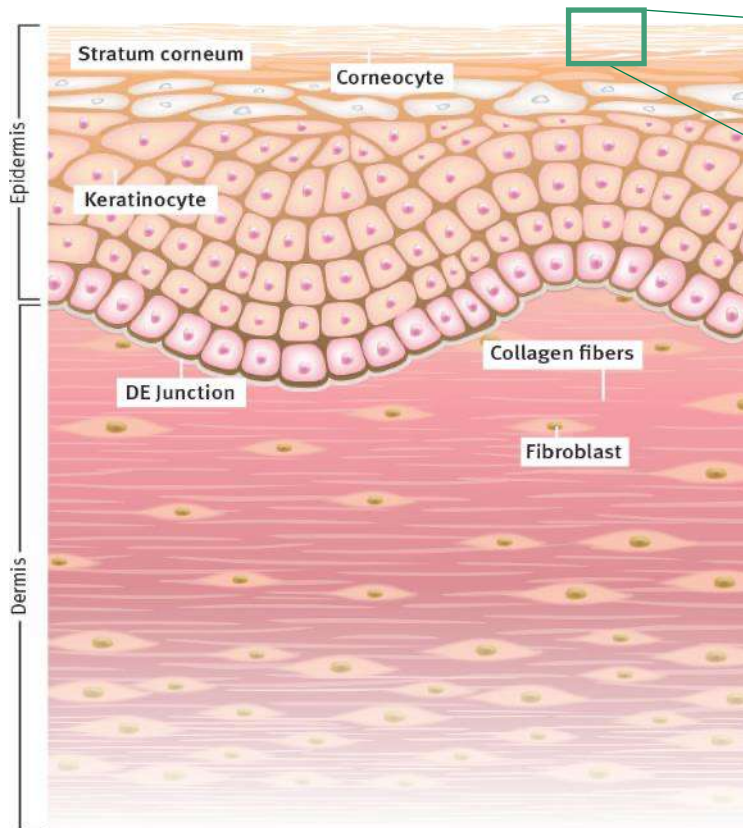


ex vivo



[quick aside]

Oil soluble vs. Water soluble ingredients

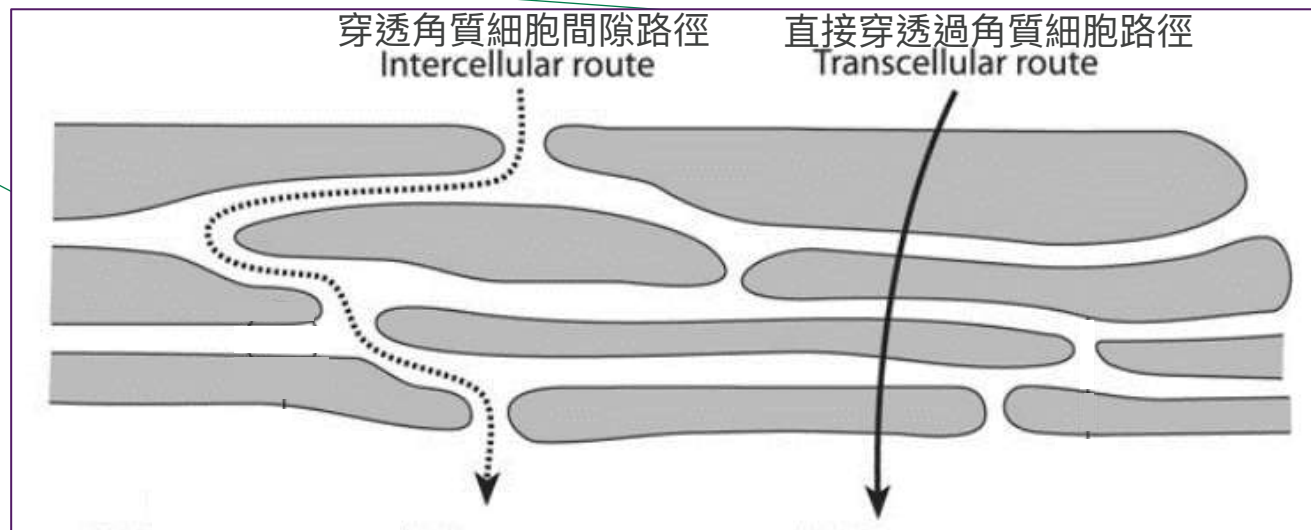
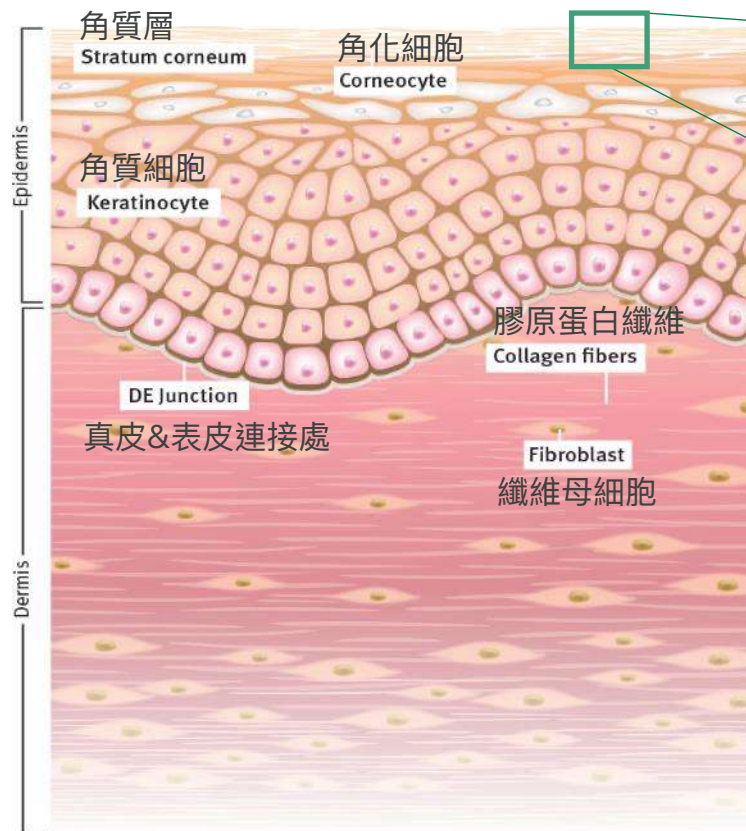


Small nonpolar and moderately lipophilic substances penetrate best; highly polar water soluble compounds, least.

RETINOL and BEAUACTIVE® are both lipophilic.

[順帶一提]

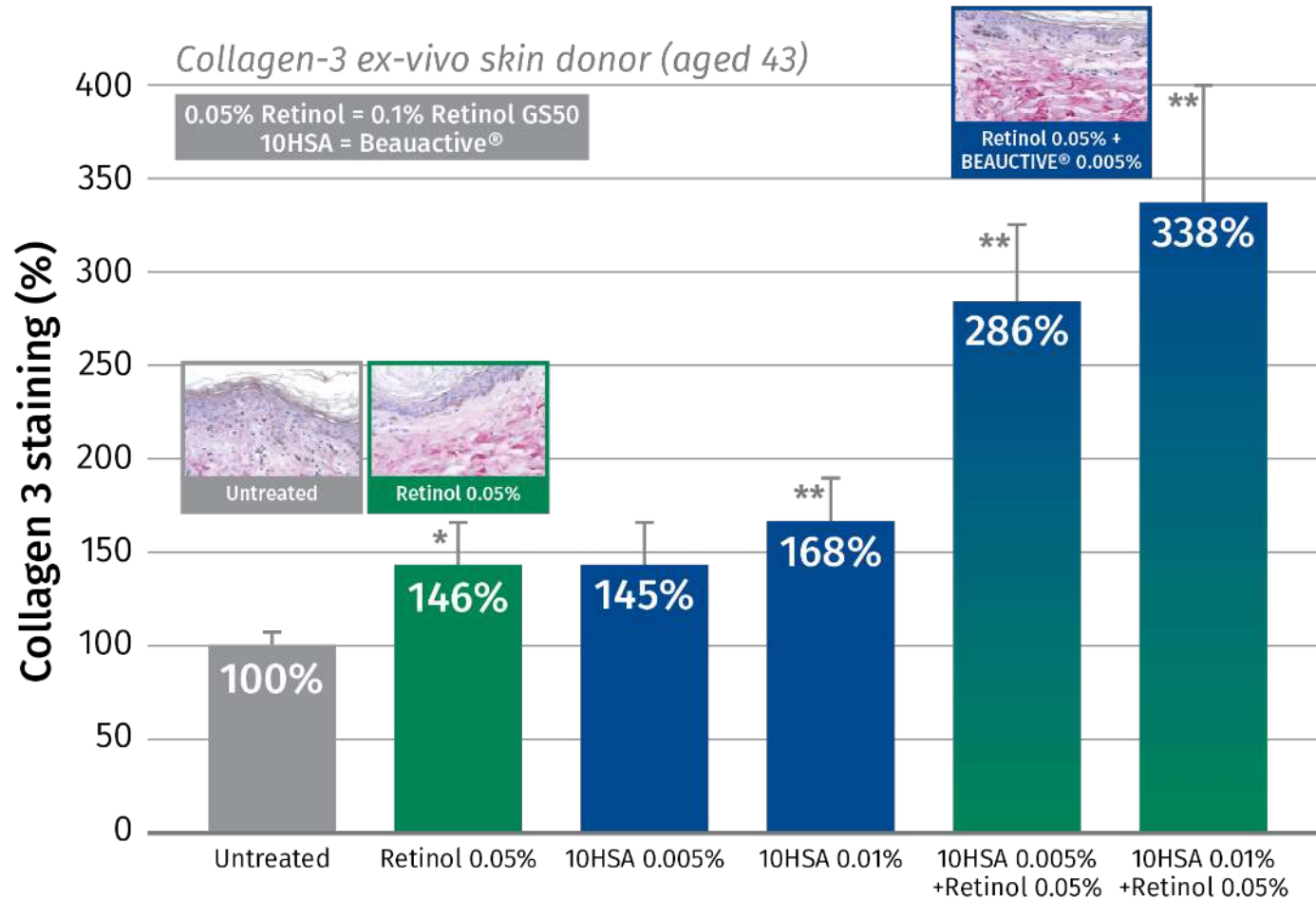
油溶 v.s. 水溶原料



小非極性分子和溫和親脂物質滲透力最好；高極性的水溶化合物最不好
而 **RETINOL** 和 **BEAUACTIVE®** 都是親脂的

BEAUACTIVE® + RETINOL

Super - synergy for anti-aging efficacy



DSM Nutritional Products
own study



Retinol alone boosts collagen III by **46%**
BEAUACTIVE® alone boosts collagen III by **68%**

Retinol in combination with
BEAUACTIVE® synergistic boost collagen
III by **238%**, **5x** more than retinol alone.

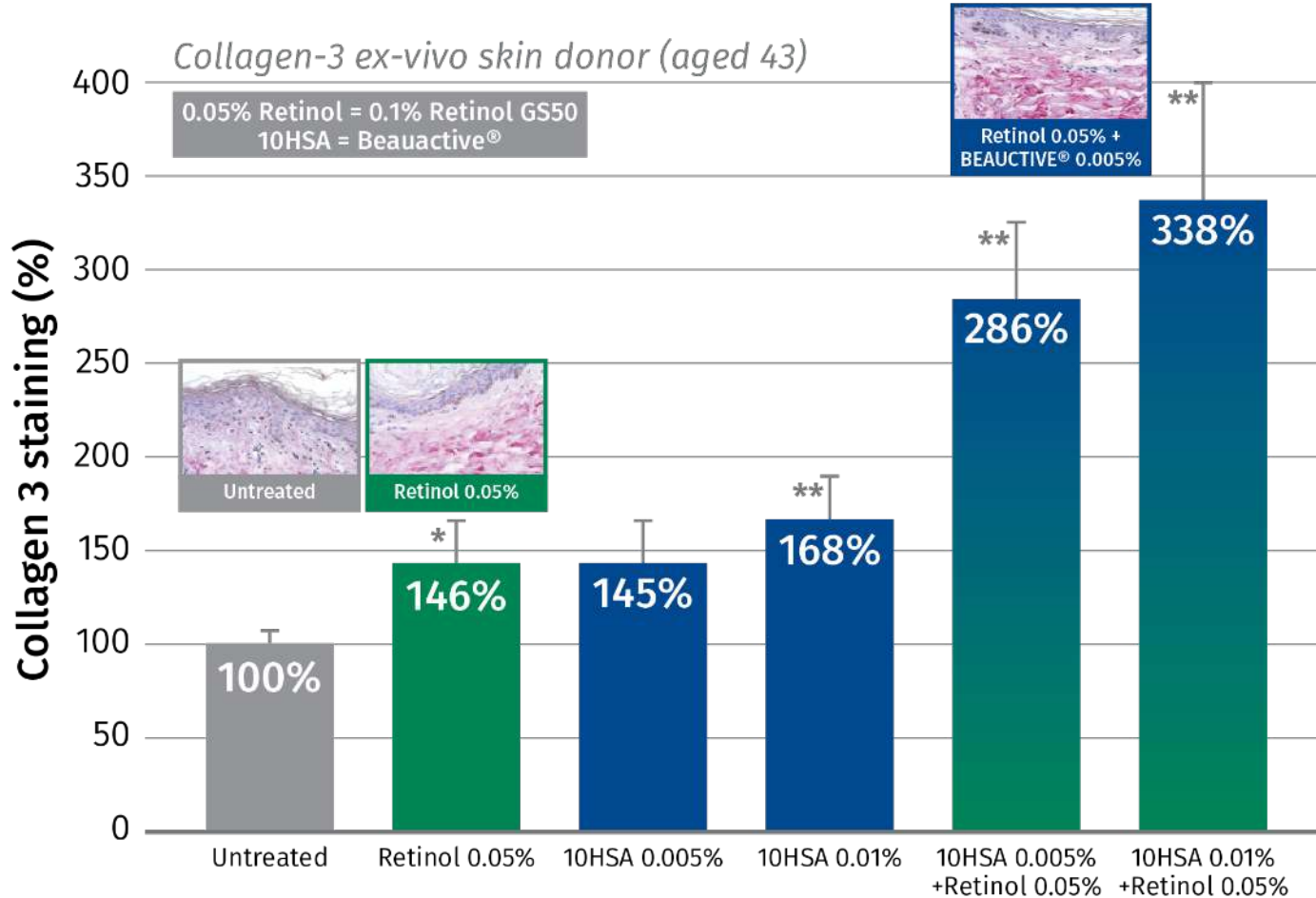
>>> **Strong boost efficacy** <<<

* p<0.05 vs untreated, ** p<0.01 vs untreated



BEAUACTIVE® + RETINOL

極好的：抗衰老的協同作用



DSM Nutritional Products
own study



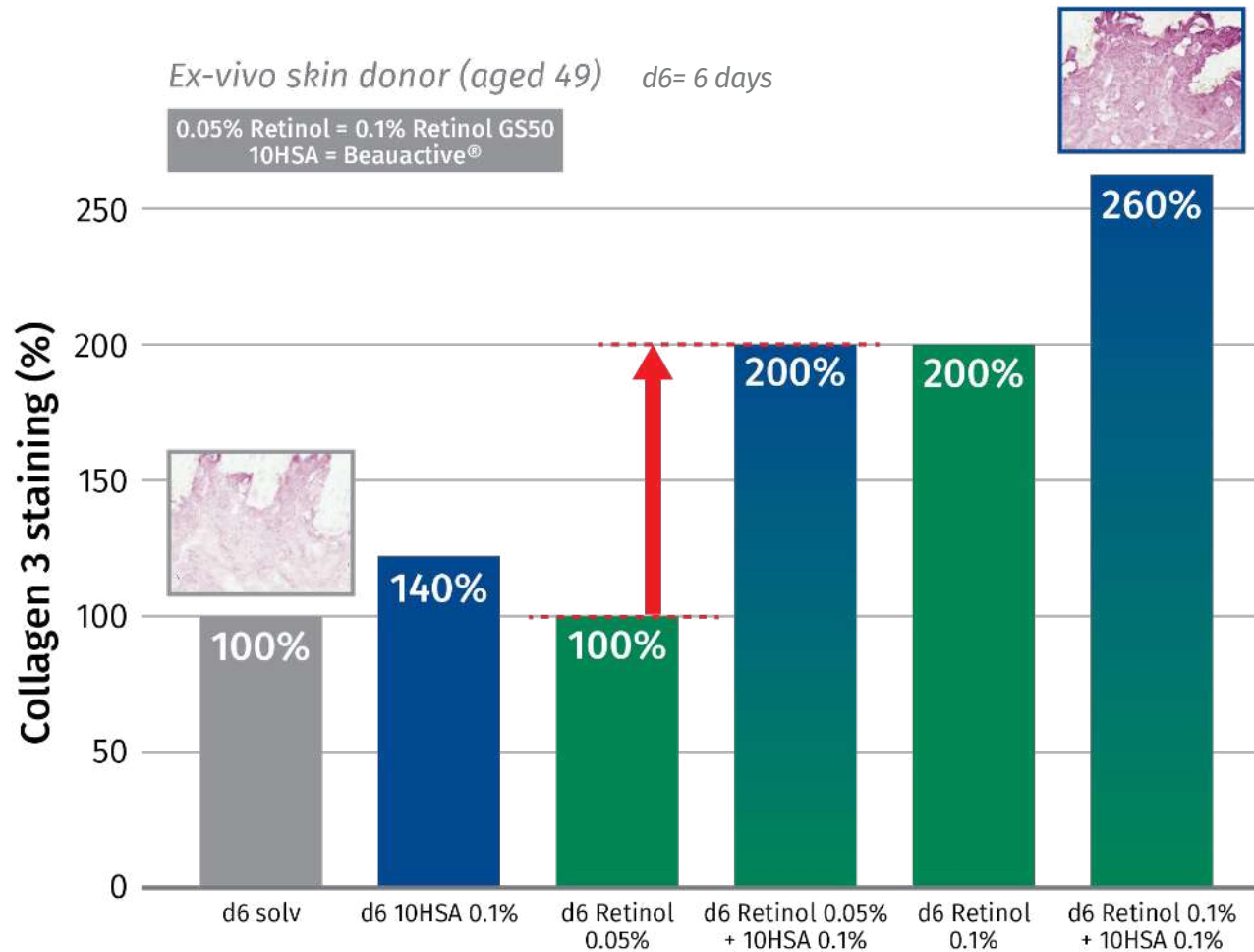
單獨使用Retinol可以增生第 III 型膠原蛋白46%
單獨使用BEAUACTIVE®
可以增生第 III 型膠原蛋白68%
而Retinol和BEAUACTIVE®結合之後的協同作用
可以增生可以增生第 III 型膠原蛋白238% ,
跟Retinol單獨使用比較起來高出5倍
>>> 強大的加強作用<<<

* p<0.05 vs untreated, ** p<0.01 vs untreated



BEAUACTIVE® + RETINOL

Strong efficacy also for low retinol responders



DSM Nutritional Products
own study



Low RETINOL responders are greatly boosted with the support of BEAUACTIVE®

RETINOL boosts collagen performance when combined with BEAUACTIVE®

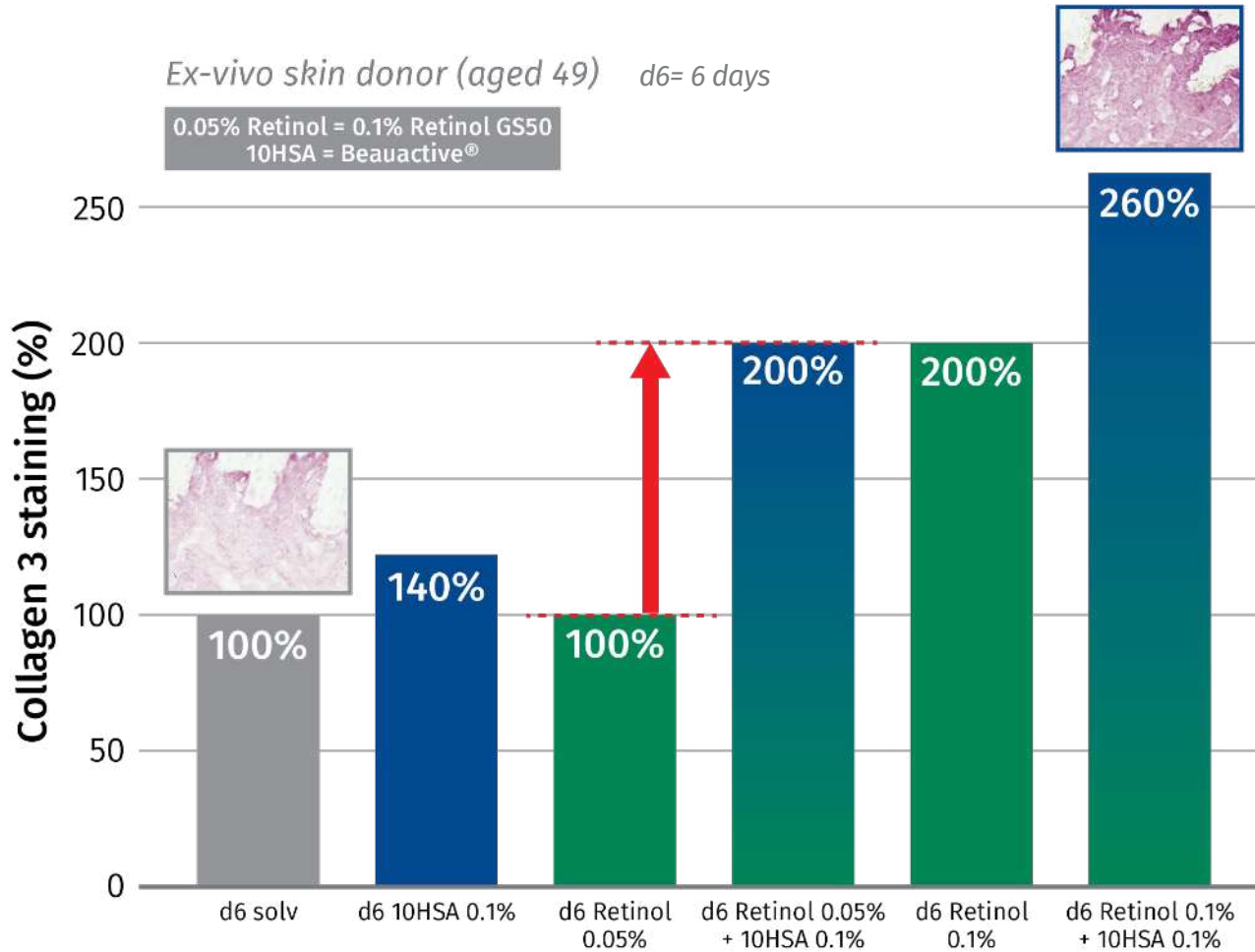
2x less retinol possible: Combination of Retinol at 0.05% with 0.1% BEAUACTIVE® provides the same performance than Retinol at 0.1%.

Combination also better than BEAUACTIVE® alone



BEUACTIVE® + RETINOL

即使添加很少的Retinol也有強大的效果



DSM Nutritional Products
own study



添加 BEUACTIVE® 之後，即使少量的 Retinol 仍然有強大的作用

當 BEUACTIVE® 和 Retinol 結合時，加強了增生膠原蛋白的表現

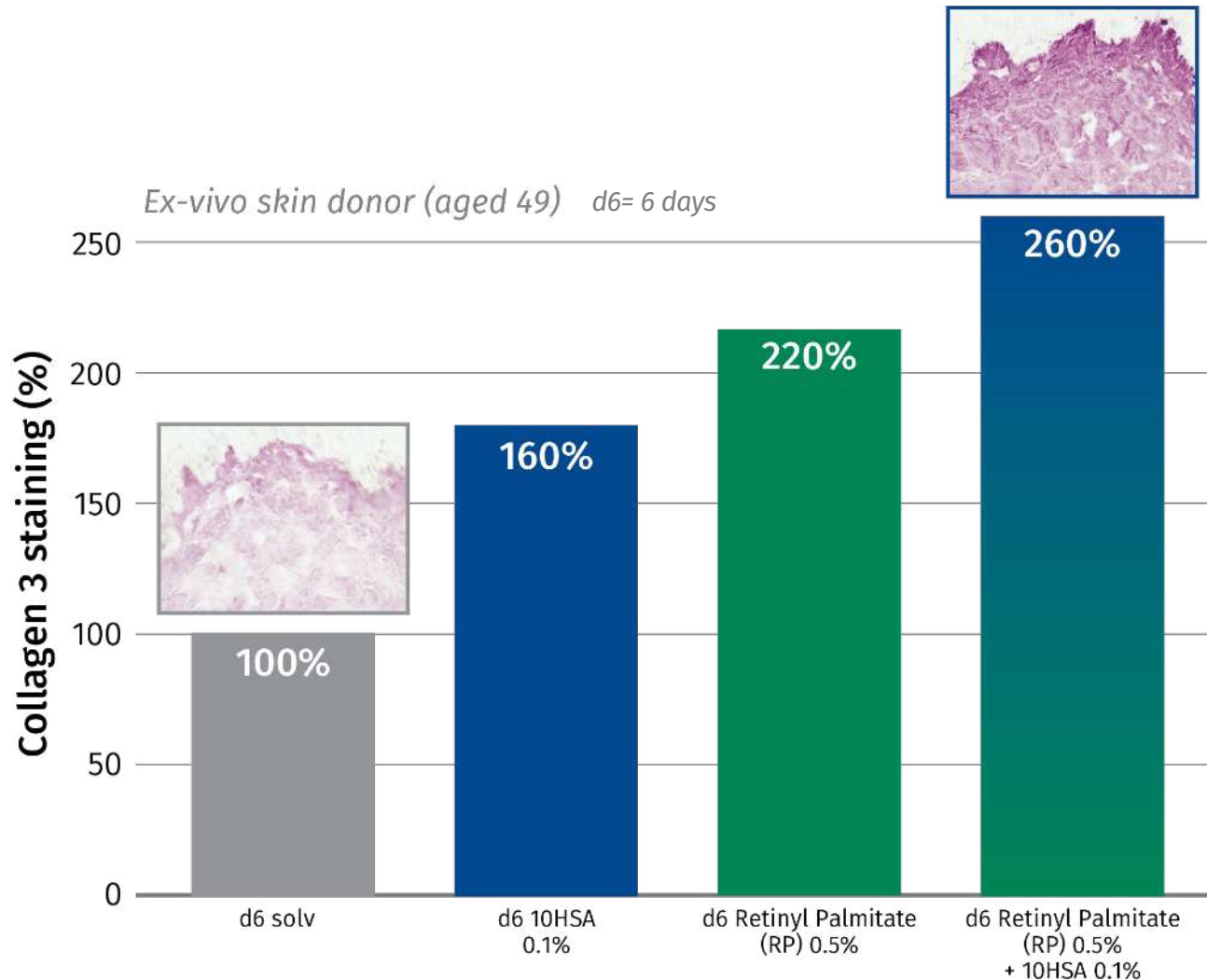
使用低於原本用量 2 倍的 Retinol 是有可能的：Retinol 0.05% 和 0.1% 的 BEUACTIVE® 和 0.1% 的 Retinol 達到相同的表現

這個結合也比單獨使用 BEUACTIVE® 更好



BEAUACTIVE® + VITAMIN A PALMITATE

Efficacy in other forms of retinoids (*ex vivo*)



DSM Nutritional Products
own study



BEAUACTIVE® boosts also activity with other forms of retinoids.

BEAUACTIVE® boosts Retinyl Palmitate performance on collagen III by 40% and by 160% comparing to untreated.

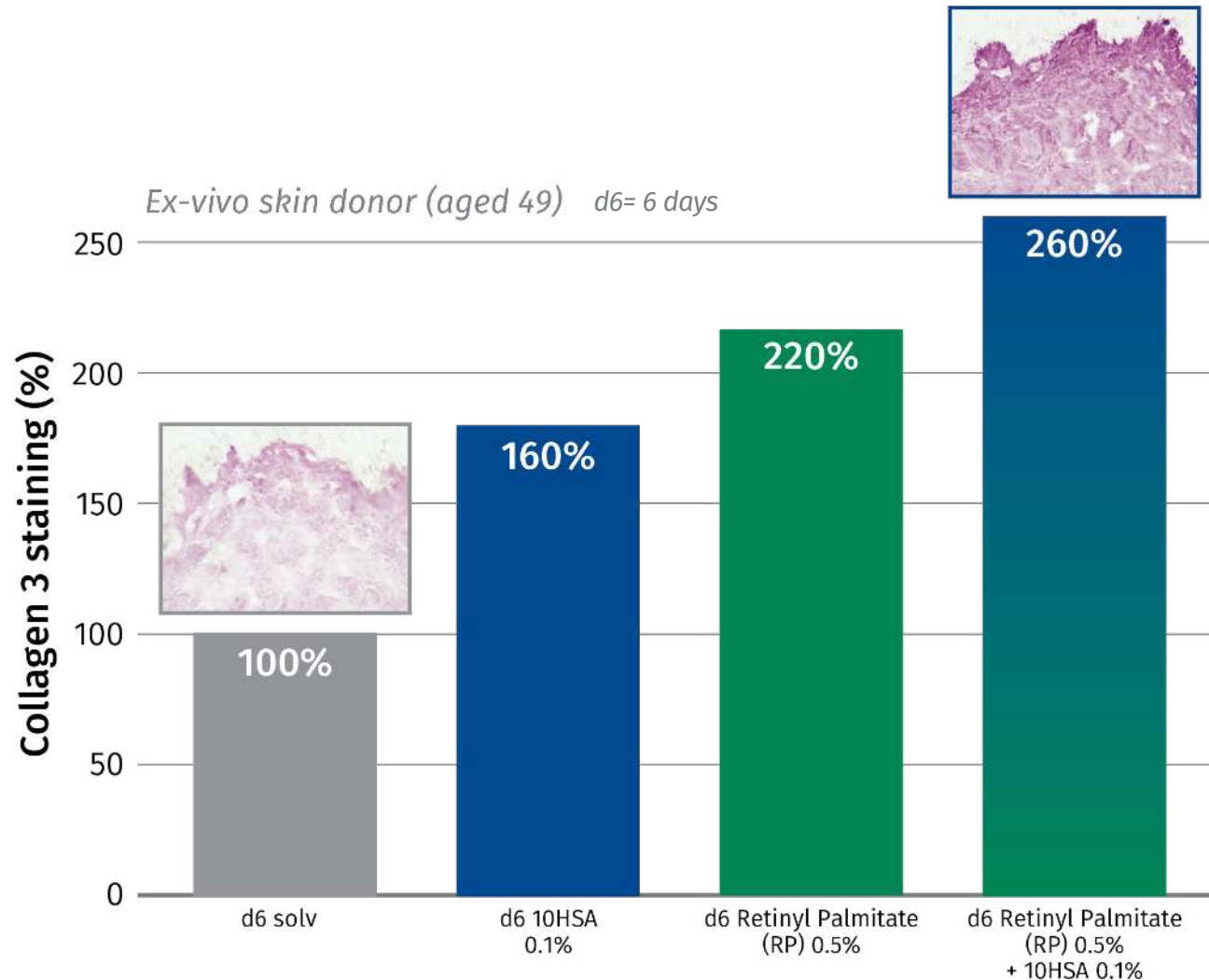
The combination achieves a level of efficacy that remains unmatched when single ingredients are used

	Retinol equivalent
0.5% Retinyl Palmitate	5.5x



BEAUACTIVE® + VITAMIN A PALMITATE

跟其他形式的維生素A (*ex vivo*) 結合的功效



DSM Nutritional Products
own study



BEAUACTIVE®也有增強和其他形式的維生素A反應的功效

BEAUACTIVE®增強棕櫚酸維他命A酯(RP)增生第III型膠原蛋白的表現跟未添加RP的比起來達40%和160%

這個組合達成的效果跟各自單獨使用時的效果仍然是無可匹敵的

	Retinol 換算
0.5% Retinyl Palmitate	5.5x



MatchUp

The Collagen Booster



MatchUp

膠原蛋白增強劑



Retinol Booster

Line-up- The perfect Match

- **Retinol** *reduces* the appearance of lines and *wrinkles* while *improving firmness* and *elasticity* of the skin.
- **Beauactive®** high purity and *sustainable* patent ingredient that activates the master cell regulators, *boosting collagen* production.
- **MatchUp**
Advanced dual technology that combines a *magnificent* oil gel with *Retinol* and a smooth cream with *Beauactive®* to synergistically *boost collagen* and deliver an effective and *visible anti- wrinkle* results.



Retinol增強劑

排列：絕佳的結合

- **Retinol**減少皺紋和細紋的產生，同時也能改善肌膚的緊實和彈性
- **Beauactive®** 高純度和永續的專利原料，能夠活化主要細胞調節因子，增加膠原蛋白的生成
- **MatchUp**
- 先進的雙重科技，能夠結合極好的 Retinol 油膠和光滑的 Beauactive® 乳霜，一起協同增強膠原蛋白生成和達成有且可見的抗皺效果



Magnificent Oil Gel Formulation

The Oil Gel contains a dual form of **VITAMIN A** to reduce the appearance of lines and wrinkles while improving firmness and elasticity of the skin.

INGREDIENTS	INCI NAME	%W/W
Eutanol® G	OCTYLDODECANOL	47,85
Myritol® 318	CAPRYLIC/CAPRIC TRIGLYCERIDE	47,85
Mixed Tocopherols 95	TOCOPHEROL	0,20
DL-alpha-Tocopheryl Acetate	TOCOPHERYL ACETATE	0,50
Oilkemia™ 5S Polymer	CAPRYLIC/CAPRIC GLYCERIDES, POLYURETHANE-79	3,00
RETINOL GS 50	RETINOL, POLYSORBATE 20, BHT, BHA	0,30
Vitamin A Palmitate 1.7 MIU/g tocopherol	RETINYL PALMITATE, TOCOPHEROL	0,30

SK-E-101695-11

The **Mixed Tocopherols 95**, a natural form of vitamin E, acts as an antioxidant prolonging Retinol performance.



Magnificent Oil Gel Formulation

這個油膠配方含有2種不同形式的維他命A來達到減少細紋和皺紋的效果，同時也能改善肌膚的緊實度和彈性

INGREDIENTS	INCI NAME	%W/W
Eutanol® G	OCTYLDODECANOL	47,85
Myritol® 318	CAPRYLIC/CAPRIC TRIGLYCERIDE	47,85
Mixed Tocopherols 95	TOCOPHEROL	0,20
DL-alpha-Tocopheryl Acetate	TOCOPHERYL ACETATE	0,50
Oilkemia™ 5S Polymer	CAPRYLIC/CAPRIC GLYCERIDES, POLYURETHANE-79	3,00
RETINOL GS 50	RETINOL, POLYSORBATE 20, BHT, BHA	0,30
Vitamin A Palmitate 1.7 MIU/g tocopherol	RETINYL PALMITATE, TOCOPHEROL	0,30

SK-E-101695-11

Mixed Tocopherols 95是一種天然的維他命E，可被當作抗氧化劑來延長Retinol的表現



Amplifier Soft Cream Formulation

This smooth and luxurious cream contains **BEUACTIVE®**, a high purity, sustainable ingredient that activates the master cell regulators, boosting collagen production.

INGREDIENTS	INCI NAME	%W/W
Water Dem	AQUA	54,78
SODIUM GLUCONATE GRANULAR	SODIUM GLUCONATE	0,20
TILAMAR® PDO with NØØVISTA™	PROPANEDIOL	8,00
Keltrol® CG-T	XANTHAN GUM	0,20
Dermosoft® Octiol	CAPRYLYL GLYCOL	0,20
Cosphaderm® Pentiol natural	PENTYLENE GLYCOL	3,00
Olivem® 1000 MB	CETEARYL OLIVATE, SORBITAN OLIVATE	4,00
Lanette® O	CETEARYL ALCOHOL	1,50
Myritol® 318	CAPRYLIC/CAPRIC TRIGLYCERIDE	8,00
Eutanol® G	OCTYLDODECANOL	10,00
BEUACTIVE®	HYDROXYSTEARIC ACID	0,50
VEGELIGHT® 1214 LC	COCONUT ALKANES, COCO-CAPRYLATE/CAPRATE	2,00
Sepinov™ EMT 10	HYDROXYETHYL ACRYLATE/SODIUM ACRYLOYLDIMETHYL TAURATE COPOLYMER	0,40
SYN®-COLL	PALMITOYL TRIPEPTIDE-5, GLYCERIN, AQUA	3,00
SYN®-AKE	GLYCERIN, AQUA, DIPEPTIDE DIAMINO BUTYROYL BENZYLAMIDE DIACETATE	4,00
Perfume Sail Away 49454695	PARFUM	0,20
Citric Acid 10% Solution	CITRIC ACID, AQUA	0,02



Amplifier Soft Cream Formulation

這個光滑且奢華的乳霜含有BEAUACTIVE®，一種高純度、永續的原料，可以活化主要細胞調節、增加膠原蛋白的生成

INGREDIENTS	INCI NAME	%W/W
Water Dem	AQUA	54,78
SODIUM GLUCONATE GRANULAR	SODIUM GLUCONATE	0,20
TILAMAR® PDO with NØØVISTA™	PROPANEDIOL	8,00
Keltrol® CG-T	XANTHAN GUM	0,20
Dermosoft® Octiol	CAPRYLYL GLYCOL	0,20
Cosphaderm® Pentiol natural	PENTYLENE GLYCOL	3,00
Olivem® 1000 MB	CETEARYL OLIVATE, SORBITAN OLIVATE	4,00
Lanette® O	CETEARYL ALCOHOL	1,50
Myritol® 318	CAPRYLIC/CAPRIC TRIGLYCERIDE	8,00
Eutanol® G	OCTYLDODECANOL	10,00
BEAUACTIVE®	HYDROXYSTEARIC ACID	0,50
VEGELIGHT® 1214 LC	COCONUT ALKANES, COCO-CAPRYLATE/CAPRATE	2,00
Sepinov™ EMT 10	HYDROXYETHYL ACRYLATE/SODIUM ACRYLOYLDIMETHYL TAURATE COPOLYMER	0,40
SYN®-COLL	PALMITOYL TRIPEPTIDE-5, GLYCERIN, AQUA	3,00
SYN®-AKE	GLYCERIN, AQUA, DIPEPTIDE DIAMINO BUTYROYL BENZYLAMIDE DIACETATE	4,00
Perfume Sail Away 49454695	PARFUM	0,20
Citric Acid 10% Solution	CITRIC ACID, AQUA	0,02



Formulation tips



Formulation Tips

Retinol GS 50

- Retinol GS 50 is **soluble** in fats and **oils**
- **Sensitive to Oxygen**. It is therefore recommended to manufacture retinol formulations under an inert atmosphere or to reduce the presence of Oxygen during handling and production to the possible minimum.
- **Sensitive** to higher **temperatures** (> 40°C) and daylight.
- To improve the **stability** of RETINOL GS 50 in the formulation it is recommended to add **chelating agents** like EDTA, **UV absorbers** like Parsol® Guard* and antioxidants like **Vitamin E** or **Stay® -C 50**.
- **Stay® -C 50** has recently shown **high performance to recover retinol content** at room temperature and 40 °C. Be aware, that it is a salt and may impact the stability of electrolytes sensitive systems.
- Recommended **pH** of the final formulation: **4.5 – 8.0**

配方建議

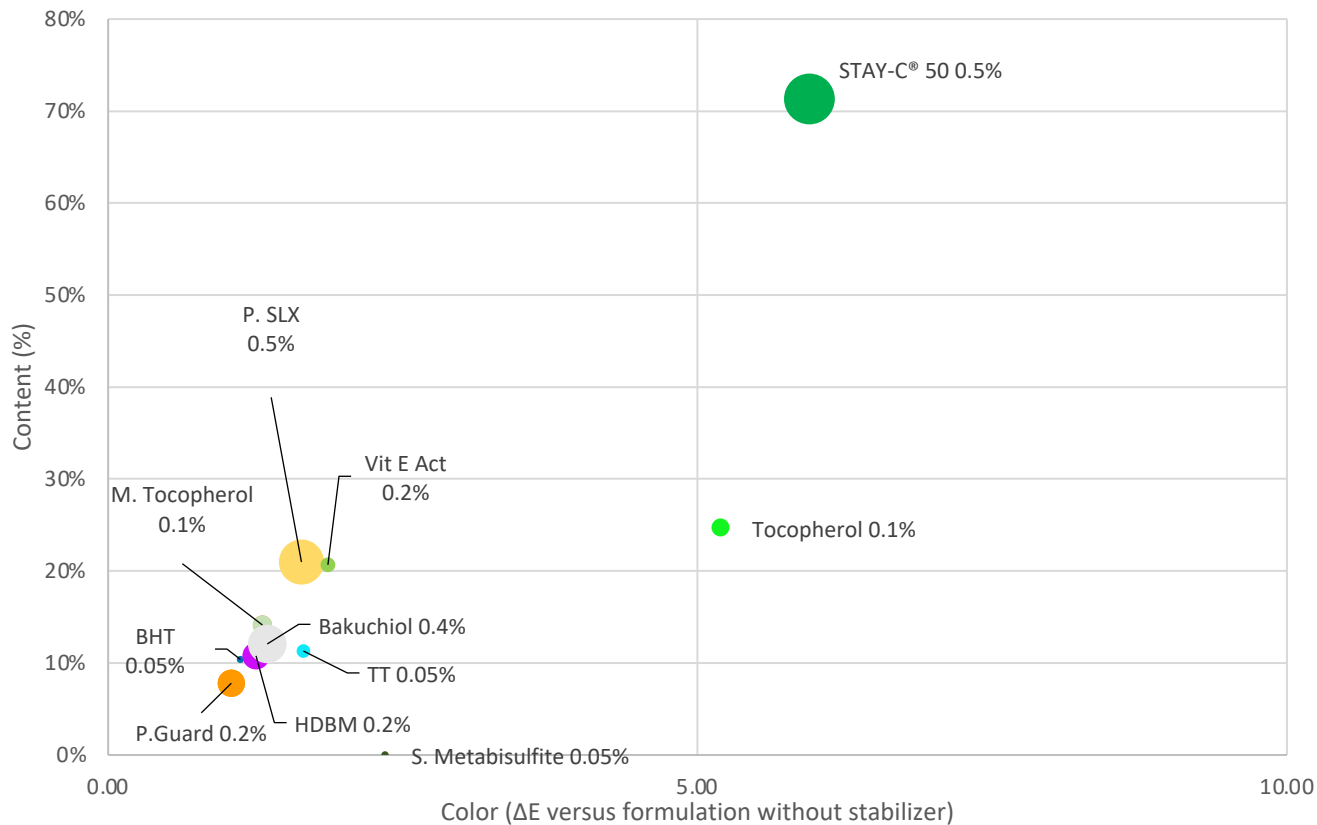
Retinol GS 50

- Retinol GS 50 可以和脂質和油脂中溶解
- 對氧很敏感。因此建議在惰性氣體或減少氧氣接觸原料的環境下生產retinol配方。
- 對於高溫(> 40°C) 和光線敏感
- 在配方中改善Retinol GS 50的穩定性，建議加入像EDTA的螯合劑、像Parsol Guard的光穩定劑和像Vitamin E或Stay-C 50的抗氧化劑
- Stay-C 50在近期的測試中顯示在室溫和 40°C 下對於復原Retinol的活性有很好的表現。但請注意，這個是磷酸脂類維他命C鈉鹽，有可能會影響到電解質穩定性敏感的系統
- 最終配方的建議pH值:4.5–8.0

Retinol GS 50 and Stabilizers

Stability after 6 weeks at 40°C versus formula with Retinol GS 50 only

Retinol Stabilizers x Color x Cost in use



Mixed Tocopherol 95 is a natural replacement to BHT with equivalent performance to recover Retinol content.

No sample stored at 40°C had a recovery content higher than 25% of initial value, except STAY-C® 50 with 70% recovery.

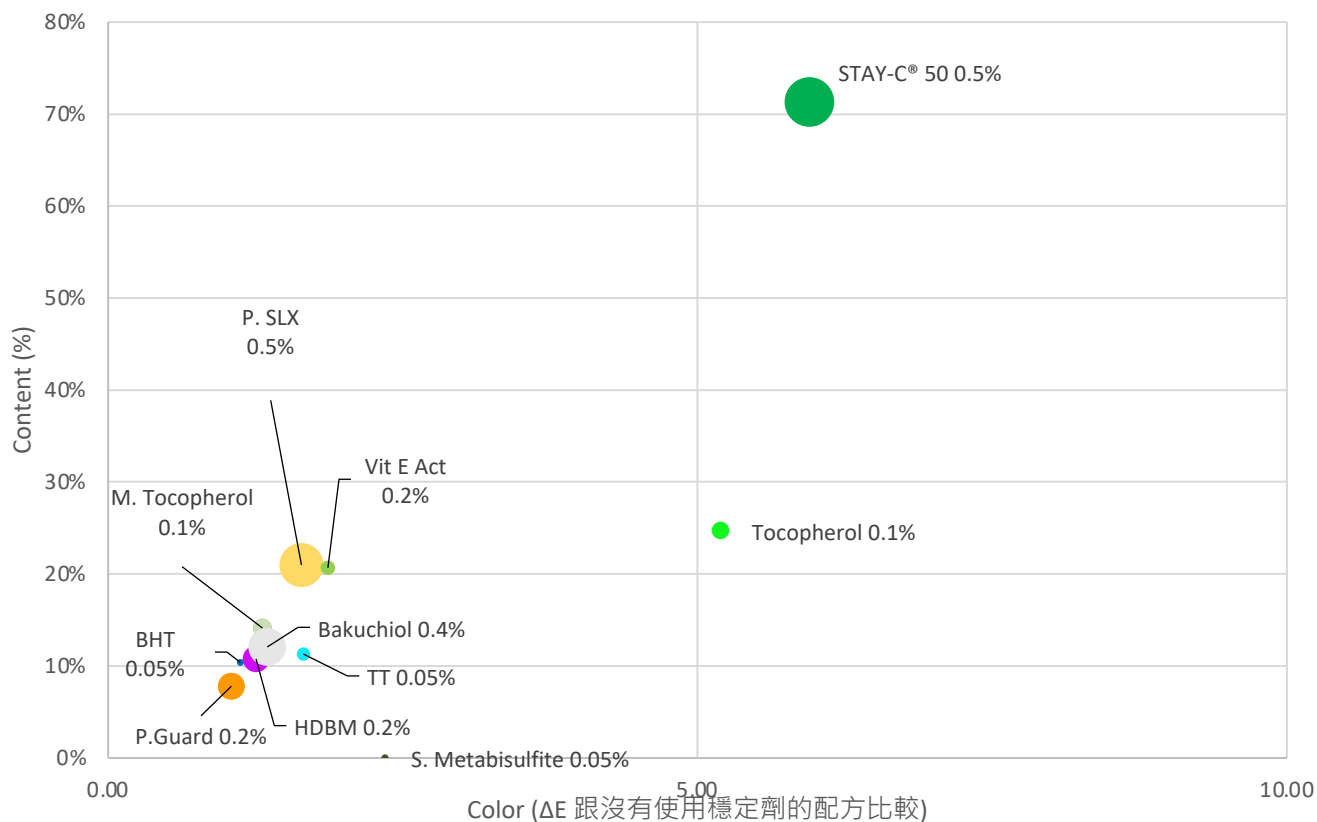
There is not a visual discoloration impact in the sample with Stay-C® 50 comparing to Retinol GS 50 only at RT and a slight discoloration at 40°C.



Retinol GS 50 和穩定劑

添加Retinol GS 50的配方在 40°C 六週後穩定性比較

Retinol 穩定劑 x 顏色 x 用量



Mixed Tocopherol 95 是一種對於恢復Retinol活性和BHT有相同效果的天然取代原料

除了STAY-C 50有70%的活性恢復度之外，沒有一個樣本儲存在 40°C下有高於初始值25%的活性恢復度

在室溫下使用Stay-C 50的樣本跟Retinol GS 50單獨使用相較之下視覺上沒有明顯的變色影響，而在40°C 下會有輕微的變色情況



Vitamin C - The Retinol Protector

Retinol recovery content with Stay-C® 50 -3 month

RT



Retinol GS 50
Without stabilizer

40°C



Retinol GS 50
Without stabilizer



Retinol GS 50
Stay-C® 50 at 0.5%



Retinol GS 50
Stay-C® 50 at 0.5%

Retinol is highly sensitive to temperature, after 6 weeks at 40°C Stay-C® 50 was the best stabilizer tested with 70% retinol content

Stay-C® 50 recovers retinol content by 78% at RT and by **52%** at 40°C after 3 month stability.

None of the other 12 stabilizer tested stored at 40°C had significant recovery content after 3-month stability.

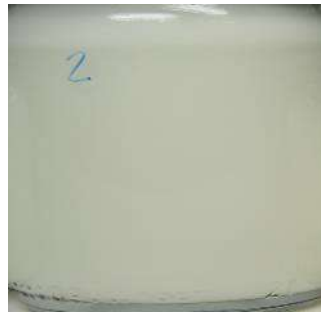
There is not a visual discoloration impact in the sample with Stay-C® 50 comparing to Retinol GS 50 only at RT and a slight discoloration at 40°C.

DSM Nutritional Products
own study

Vitamin C維他命C - Retinol 守護者

3個月後使用Retinol的活性恢復

RT



Retinol GS 50
在沒有穩定劑之下

40°C



Retinol GS 50
在沒有穩定劑之下



Retinol GS 50
Stay-C® 50 at 0.5%



Retinol GS 50
Stay-C® 50 at 0.5%

Retinol對於溫度有高度的敏感性，在 40°C經過6週後 Stay-C 50保有70%的Retinol活性是最好的穩定劑

Stay-C 50在室溫下恢復78%的retinol活性，而在 40°C下3個月後仍保有52%的活性

在 40°C 儲存條件下，這12個穩定劑在3個月的穩定測試都沒有顯著的活性恢復能力

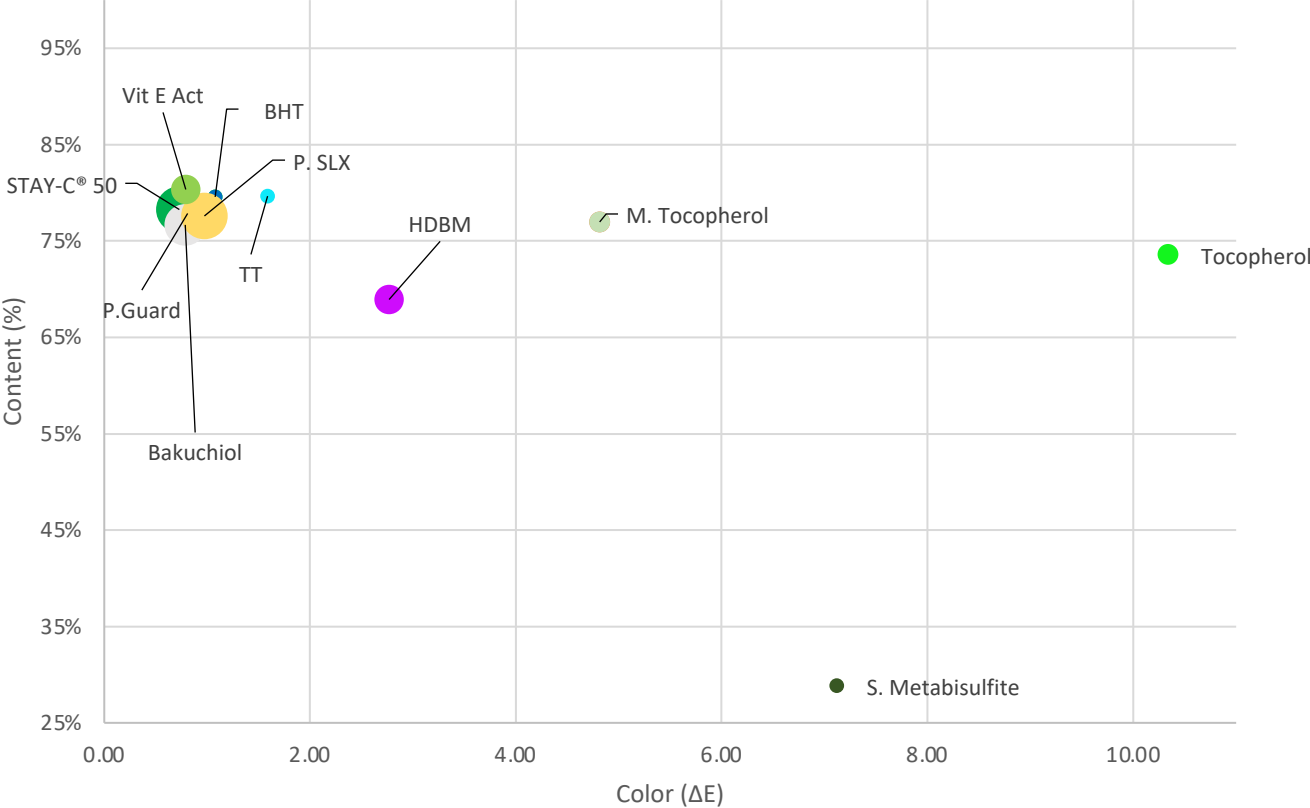
在室溫下使用Stay-C 50的樣本跟Retinol GS 50單獨使用相較之下視覺上沒有明顯的變色影響，而在40°C 下會有輕微的變色情況

DSM Nutritional Products
own study

Retinol Stabilizers

Stability after 3 month at RT versus formula with Retinol GS50

Retinol stabilizers x Color x Cost in use



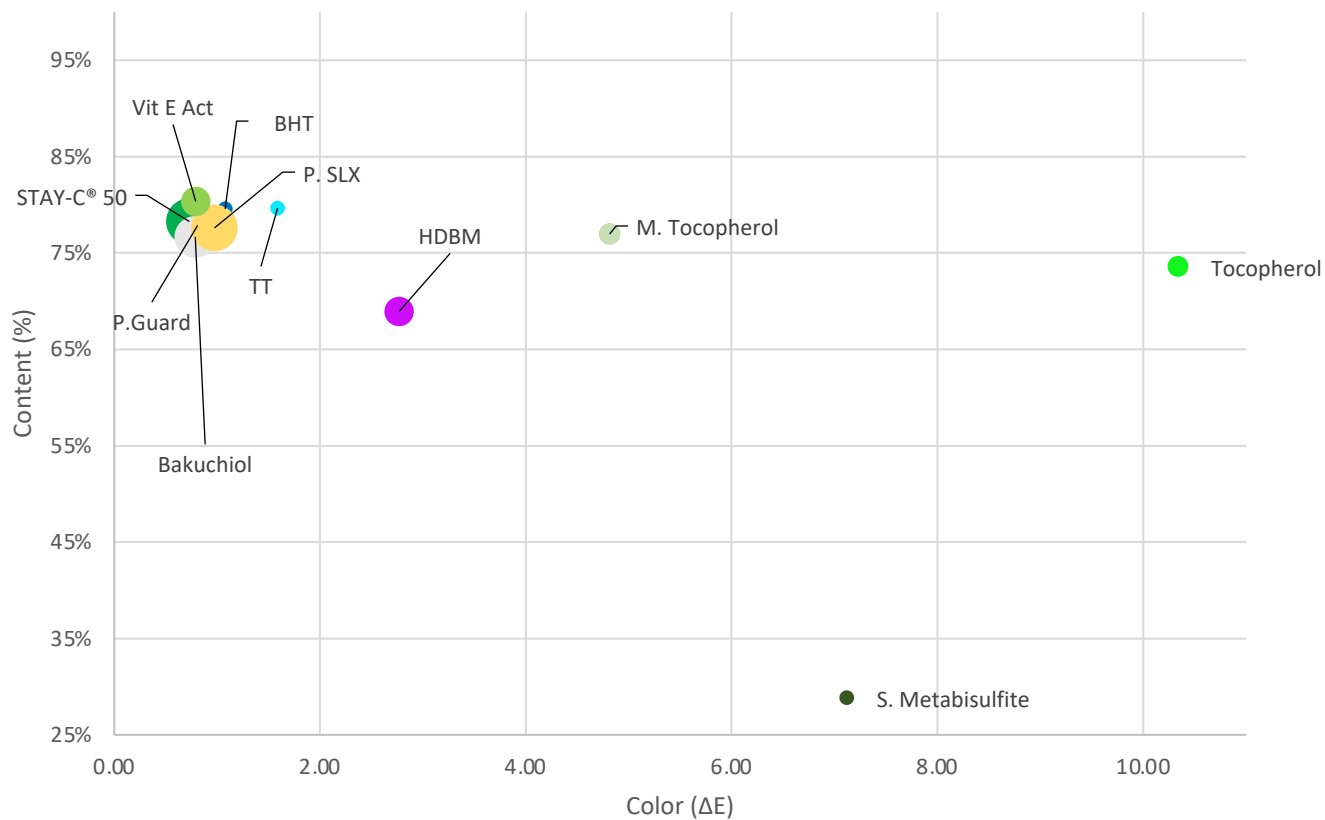
3 month at RT



Retinol 穩定劑

在室溫下3個月的Retinol配方穩定性

Retinol stabilizers x Color x Cost in use



在室溫下3個月



Access to learn more about DSM Quali[®] Vitamin A and to request a sample



BRIGHT SCIENCE. BRIGHTER LIVING.™



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