# Biotechnology for skin and hair

Catalogue 2024



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# WHO WE ARE

A **biotechnological** company specialising in the design, development and manufacture of nano-systems for **drug delivery** applications in the field of **medicine** and **cosmetics**.



# • NANOVEX BIOTECHNOLOGIES

**Main brand.** Uses drug delivery technology focused on applications in the field of **medicine**: new treatments for cancer, vaccines and **gene therapy**, amongst others.

Offers services and products in the field of **nanobiotechnology** 

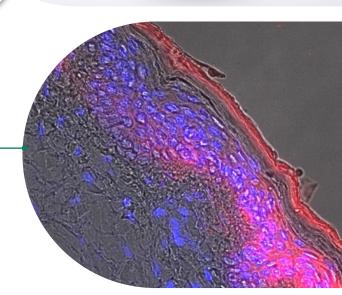




# **INDERMAL**

**Brand** focused on applications in **cosmetics**. Adaptation of the drug delivery technology used by Nanovex, for the development of **cosmetics products** with a high efficiency.

Applies Nanovex technology to dermocosmetics





# **AWARDS**



# **CEEI AWARDS**

BEST TECHNOLOGY BASED BUSINESS PROJECT



## NORTHWEST INVESTOR'S DAY

**BEST COMPANY** 



## **CHOISEUL 100 SPAIN**

**ECONOMIC LEADERS OF TOMORROW** 

# **CERTIFICATES**







**VEGAN** 

**RSPO** 











**CAAE Cosmos Approved** 

**AENOR 9001** 

Dermatologicaly tested



# DRUG DELIVERY TECHNOLOGY

# APPLIED TO DERMOCOSMETICS

By way of contrast to the liposomes used in cosmetics which are formulated with soy lethicin and manufactured with simple methodology, **INdermal offers a new generation of nanovesicles** which are custom designed according to the active to be encapsulated and the cosmetic target of the skin where they are to be delivered.

Resistant and very stable, compatible with any formula type and very easily incorporated into the cosmetic fabrication process.

# A delivery system for each cosmetic target



VEGAN DEEP DELIVERY SYSTEM



VEGAN CORNEUM DELIVERY SYSTEM



VEGAN FOLLICULAR DELIVERY SYSTEM



VEGAN HAIR DELIVERY SYSTEM



Free from animal origin ingredients, without altering the high efficiency







# **SMART DELIVERY SYSTEM**

# **IMPROVEMENT VS FREE ACTIVE**

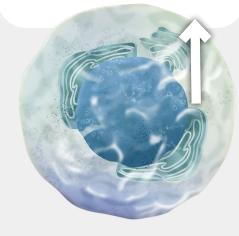
### **PENETRATION**



# Up to **X20** times penetration

(According to Ex vivo Efficacy test of Vegan DDS Pure Retinol)

# **EFFICACY STUDIES IN HUMAN SKIN**



# Up to **X40** times collagen recovery

(According to Ex vivo Efficacy test of Vegan DDS Pure Retinal (2%))

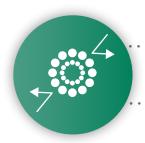
# **CLINICAL EFFICACY**

# SUBJECTIVE EVALUATION IN CLINICAL STUDIES



**91%** satisfied volunteers

(According to In vivo Efficacy test of Vegan DDS True Retinol)



# **COMPLETE PROTECTION**



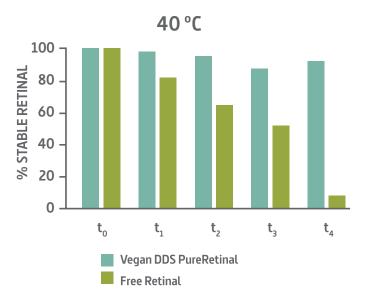
Simplify the formulation process by **PROTECTING THE ACTIVE** ingredient from oxidation, light degradation and interaction with other ingredients.

**SOLVE ORGANOLEPTIC PROBLEMS** by masking the smells and colours of the ingredients in a rapid, enduring and scalable manner.





### **RETINAL STABILITY AT FORCED CONDITIONS**





# **MAXIMUM STABILITY**



Compatibility in a multitude of cosmetic formulations

•

Water-based formulas



Oil-in-water emulsions

0

Water-in-oil emulsions



We recommend adding them at room temperature



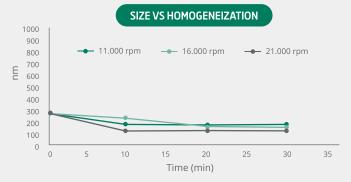
It is recommended to add them in the **last stage of manufacturing** process



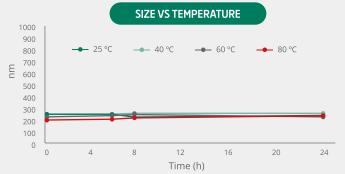
The only incompatibility is to add them in **pure oils** 



Comfortable and easy to incorporate owing their **HIGH LEVELS OF STABILITY AND COMPATIBILITY** with all types of cosmetic forms.









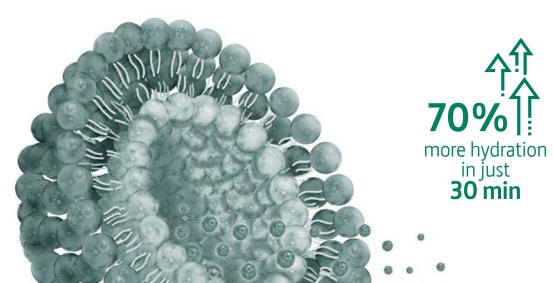
# HIGH STRENGTH HYDRATION AND RESTORATION

They increase hydration up to 70% within 30 minutes that lasts for a minimum of 24 hours.

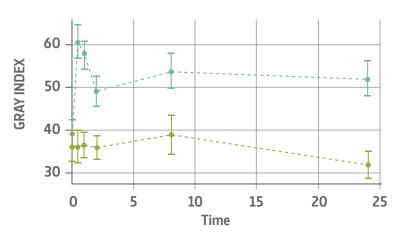


# BIOMIMETIC COMPOSITION

A similar composition to the epidermis cell membranes.



### IN-VIVO MOISTURISING EFFECT STUDY



- Treatment with Indermal nanovesicles
- Control

# 2.1. **DDS**. DEEP DELIVERY SYSTEM



The active ingredients encapsulated in the **DEEP DELIVERY SYSTEM** are delivered specifically in the deepest layer of the epidermis for a more intense and precise effect on the structures and cells located there: **melanocytes**, **Langerhans cells**, **keratocytes**, **basal cells**, **Merkel cells**.



- ✓ The use of these deep delivery systems enables up to twenty times the amount of active ingredient to reach the interior of the skin compared to when applied freely.
- ✓ In addition, the encapsulated active ingredients in these deep delivery systems penetrate the skin quickly and safely without undergoing changes in their molecular structure and thereby retaining their functionality at the point of delivery.

x20
MORE PENETRATION

SUSTAINED DELIVERY

LOW IRRITATION



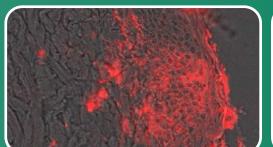
### PENETRATION STUDY USING CONFOCAL MICROSCOPY

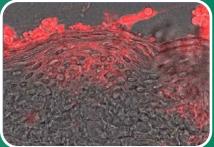
The micrographs carried out with fluorescent confocal microscopy show that DDS nanovesicles marked with rhodamine (red colour) are able to penetrate to the deepest layers of the epidermis.











# 2.2. CDS. CORNEUM DELIVERY SYSTEM -

CDS

The active ingredients encapsulated in the **CORNEUM DELIVERY SYSTEMS** are delivered specifically to the superficial layers of the epidermis -the stratum corneum- for a more intense and precise effect at this level.



The Corneum Delivery systems are especially useful for the encapsulation of AHAs as they facilitate a very low pH level in the nanovesicles, irrespective of the pH of the final formula. Therefore, practically all of the encapsulated acid remains undissociated until its release in the stratum corneum.

- ✓ Stratum corneum specific targeting minimalizes penetration at deeper levels
- ✓ Composition of phospholipids and ceramides helps to quickly repair any damage caused by the AHA
- Recuperates skin barrier
- ✓ Increases skin tolerance level to AHA, especially sensitive skin
- ✓ Facilitates a reduction in the necessary dosage of AHA
- ✓ Allows to use physiological pHs in the final formulation

SUSTAINED DELIVERY

AT ACTIVE PH

LOW IRRITATION



### PENETRATION STUDY USING CONFOCAL MICROSCOPY

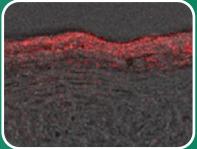
The micrographs carried out with fluorescent confocal microscopy show that CDS nanovesicles marked with rhodamine (red colour) are able to concentrate selectively on the stratum corneum of the epidermis.







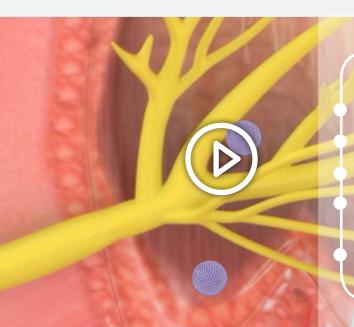




# 2.3. **FDS**. FOLLICULAR DELIVERY SYSTEM



The active ingredients encapsulated in the **FOLLICULAR DELIVERY SYSTEMS** are delivered specifically to the hair follicle for a more intense and precise effect on the structures and cells located there: **the hair bulb, the dermal papilla and the sebaceous gland**.



Ideal for the formulation of products such as:

**ANTI-HAIR LOSS AGENTS** 

**ENERGISERS** 

**GROWTH STIMULANTS** 

SEBUM REGULATING AGENTS

**ANTI-ACNE AGENTS** 

- ✓ The "Follicular Delivery" nanovesicles vehicles the active ingredients towards the deepest areas of the hair follicle without needing alcohol solvents to promote absorption and thereby completely avoiding the adverse effects of dryness and irritation that such solvents generate.
- The "Follicular Delivery" system, is particularly effective in the protection and conduction of 5-α reductase inhibitors facilitating their specific delivery in the sebaceous gland.
- ✓ Furthermore, the hydro dispersible nature of the encapsulated product makes it the perfect option for the **formulation of water-based cosmetics** which are the preferred choice for users with greasy hair or skin.

# HIGH SPECIFICITY

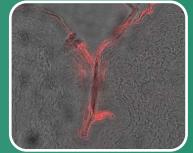


# PENETRATION STUDY USING CONFOCAL MICROSCOPY

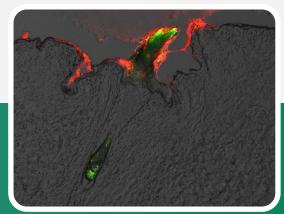
The micrographs carried out with fluorescent confocal microscopy show that FDS nanovesicles marked with rhodamine (red colour) are able to concentrate selectively in the hair follicle and its surrounding area.











**Vegan Follicular Delivery System** In red, free active, in green, active encapsulated in our Vegan FDS.

# 2.4. HDS. HAIR DELIVERY SYSTEM -



The active ingredients encapsulated in the HAIR DELIVERY SYSTEMS are delivered specifically to the cuticle of the hair fiber for a more intense and precise effect including penetration towards the cortex and medulla, particularly in damaged hairs.



- ✓ The "Hair Delivery" nanovesicles are formulated with cationic phospholipids which achieve an increased level of capillary adherence and a considerable resistance to rinsing and washing.
- √ The "Hair Delivery" systems produced by INdermal are particularly effective in the conduction and protection of protein molecules since the encapsulation avoids their degradation during formulation, where the peptides chains can be damaged due to shear stresses or temperature.
- Furthermore, the phospholipids and ceramides which compose the nanovesicle repair and intensely hydrate the hair thanks to their high quality, bioavailability and concentration levels.

### **HIGH PENETRATION**



## **CAPILLARY ADHERENCE STUDY USING CONFOCAL MICROSCOPY**

The micrographs carried out with fluorescent confocal microscopy show that HDS nanovesicles marked with rhodamine (red colour) are able to adhere to the hair in high concentration levels and can resist washing and rinsing.





**WASH RESISTANT** 



control sample of hair (untreated) in fluorescence mode



Image of a hair sample after 30 minutes

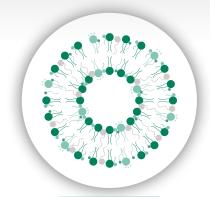


after 120 minutes

Vegan HDS 5% in Vegan HDS 5% in fluorescence mode

# OUR TECHNOLOGY 02.

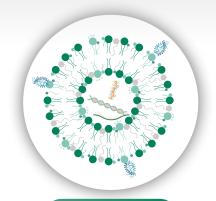
# TWO CAPSULE CONCEPTS





# **Concentric lipid bilayer**

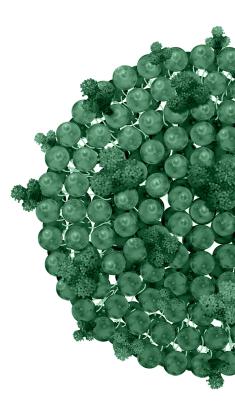
- Pure compound encapsulated in a medical degree manufactured liposome
- **High specificity**
- One active ingredient



# **EXOSOME**

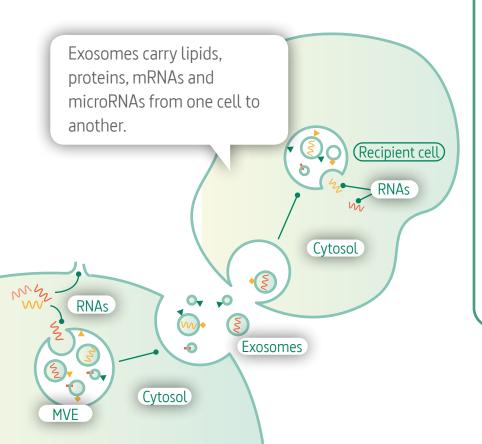
Concentric lipid bilayer
Membrane proteins
Nucleic acids

- Biocompounds encapsulated in a medical degree manufactured liposome
- Powerful extract plus active ingredient
- Multiple benefits
  - Synergies between ingredients



# ...and what is their role in COSMETICS?

As **key communicators**, these exosomes could be used in cosmetics to modulate physiological processes **bio mimicking the natural process** of intercellular communication and also to vectorize other compound.



# NATURAL EXOSOMES



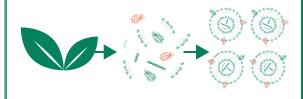
### **ADVANTAGES**

- Natural
- Obtained directly from plants

### **DISADVANTAGES**

- Very low concentration
- No customization

# BIOMIMETIC EXOSOMES



### **ADVANTAGES**

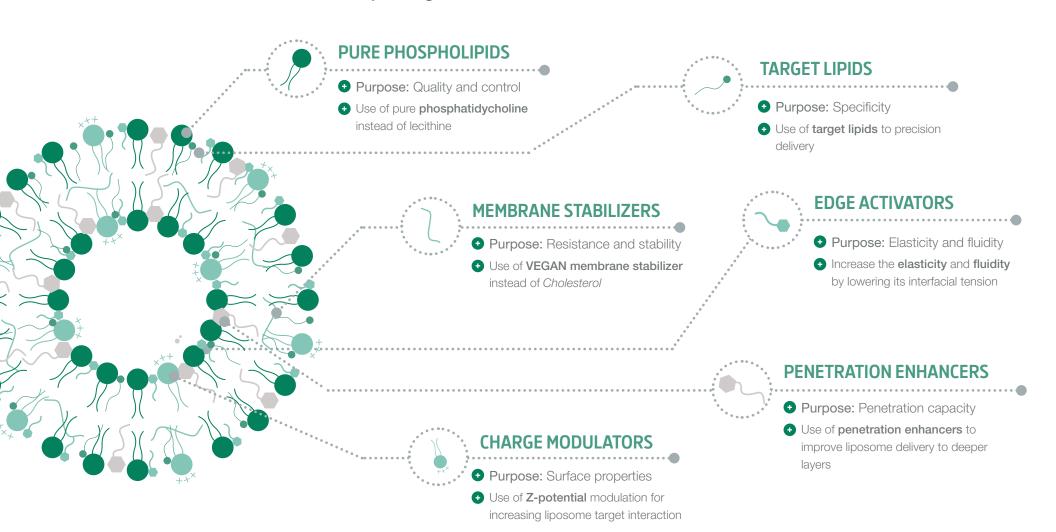
- Natural
- Manufactured with compounds obtained directly from plants
- Total customization
- External customization
- Encapsulation of other actives
- High concentration



# WHAT MAKES US UNIQUE

# **HIGH-QUALITY MULTIFACTOR COMPOSITION**

Our formulation is easily distinguishable from others since we use:



# 3.1. INNOVATIVE MEDICAL-MANUFACTURING METHOD



# Medical based process

Our manufacturing method for cosmetics is based on our method for medical applications to obtain high quality liposomes.



Quality and effectiveness



### 3 stage method

Resistance and stability





# Great manufacturing capacity

Our facilities can manufacture up to 500 kg/day.



Fast and guaranteed manufacturing



# On demand manufacturing

We manufacture on demand to offer a product that is always fresh.



Always fresh



# Adaptation to the customers' needs

We adapt to the needs of the customer offering custom-made solutions.



Changes are part of the process

# WHAT MAKES OUR METHOD SPECIAL?

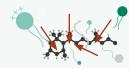
The 3-stage method, using the correct formulation and adequate control of parameters, allows us to obtain liposomes with high efficiency and resistance, unlike the classic methods with only one stage using lecithins.

1. Solubilization

2. Chemical interaction

3. Assembly







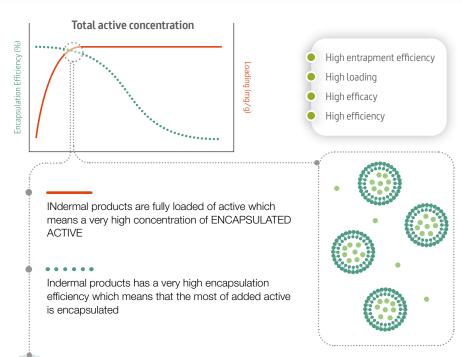
# THE HIGHEST ENCAPSULATION OF ACTIVE INGREDIENTS IN LIPOSOMES

# WHAT MAKES US UNIQUE 03.



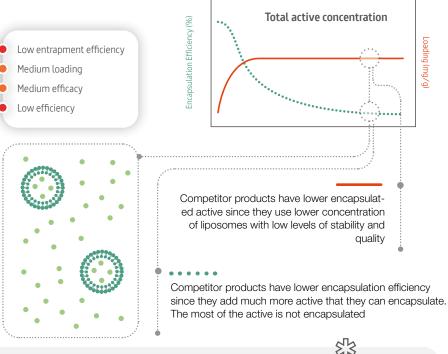


# **Others**



15 times more liposome concentration: The higher

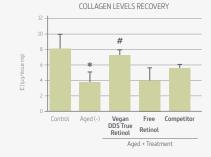




concentration of liposomes the higher loading and encapsulation efficiency

Red line represents the **LOADING** (total ammount encapsulated). Green line represents the **ENCAPSULATION EFFIENCY** (active encapsulated regarding the

total active added in the formula).



### Vegan DDS True Retinol (Retinol)

Total collagen recovery: 80.58%

Improvement relating to free retinol: x18.5 Improvement relating to competitor: x1.96



# EFFICACY STUDIES EFFICACY STUDIES AND CHARACTERIZATION

## **FULL CHARACTERIZATION**

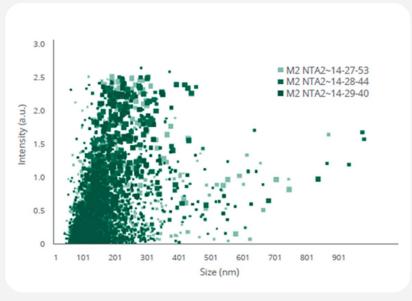
We are able to **perform a complete characterization of liposomes** by measuring all key parameters.

- Mean size
- Size distribution
- Liposome concentration
- Z-Potential (surface charge)
- Loading

### STABILITY IN FINAL FORMULA

Our equipment allows us to **measure liposomes in the final cosmetic product** to evaluate their stability.





Measurement obtained through Nanoparticle Tracking analysis (NTA)

# O4. EFFICACY STUDIES

### "EX VIVO" AND "IN VIVO" TESTS

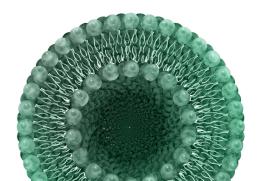
We also carry out *ex vivo* and *in vivo* tests to monitor the improvement in efficacy of the encapsulated actives, as a result of our delivery systems.

### NANOVESICLES FOR SKIN DELIVERY

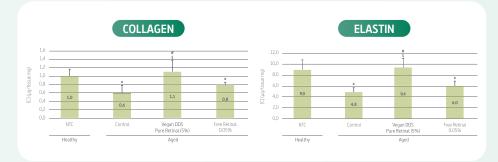
We carry out efficacy tests using human skin explants to simulate real life situations of penetration and cosmetic activity.

By way of example we hereunder show some of the results obtained.



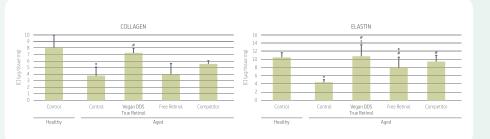


# VEGAN DDS PURE RETINAL (EX VIVO / ANTI-AGING ACTIVITY)



**x3.7** higher collagen and elastin recovery than free active

# VEGAN DDS TRUE RETINOL (EX VIVO / ANTI-AGING ACTIVITY)



**x18.5** higher collagen recovery than free active

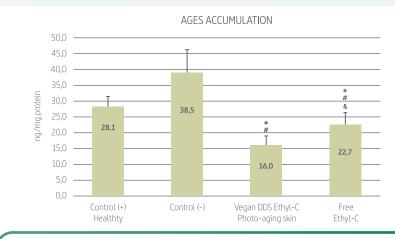
**x1.7** higher elastin recovery than free active



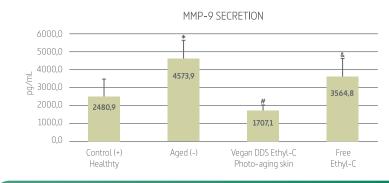
2024

# **VEGAN DDS ETHYL C**

## (PHOTOPROTECTIVE EFFECT)



### Improved benefits over Free Ethyl-C treatment



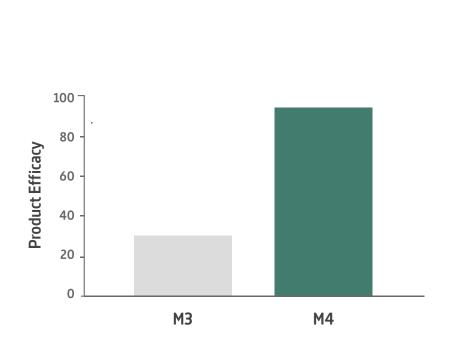
**x62.7** higher reduction in the secretion of MMP-9, similar values to the healthy Control group.





## **VEGAN HDS KERADEFENCE**

(UV AND POLLUTION PROTECTIVE EFFECT)



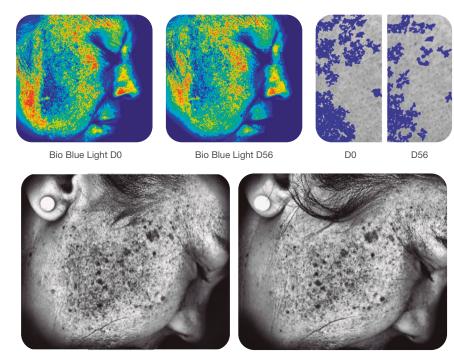
**VeganHDS-KeraDefence (M4)** provides **89.45%** protection against keratin degradation caused by UV-A radiation and pollution

indermal.com • 21



# **VEGAN DDS TRANEXAMIC**

(IN VIVO ANTI-BROWN SPOT EFFECT)



Bio Blue Light D0

Bio Blue Light D56

Bio Blue Light Images at the begining and end of the treatment.

### **CONCLUSIONS -**

**95%** of the volunteers confirmed their satisfaction with the results.



## **VEGAN CDS GLYCOLIC**

(EVALUATION OF THE ANTI-PEELING EFFECT)

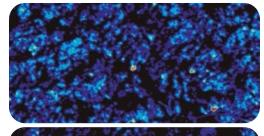


Image of peeling (Corneofix + Visioscan) at T0

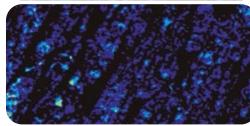


Image of peeling (Corneofix + Visioscan) at T14

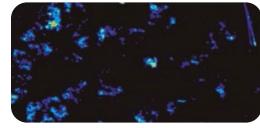


Image of peeling (Corneofix + Visioscan) at T28

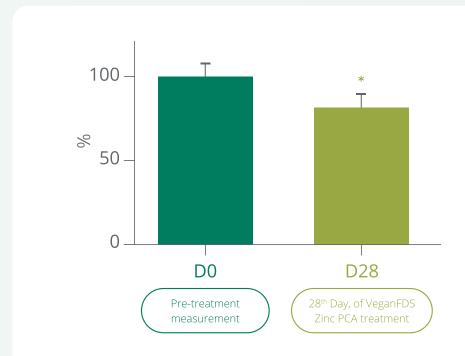
### **CONCLUSIONS**

The VeganCDS Glycolic product shows no immediate sign of anti-peeling effect but does show a progressive cell renewal effect which increases with continued use.



## **VEGAN FDS ZINC PCA**

(SEBUM ANALYSIS)



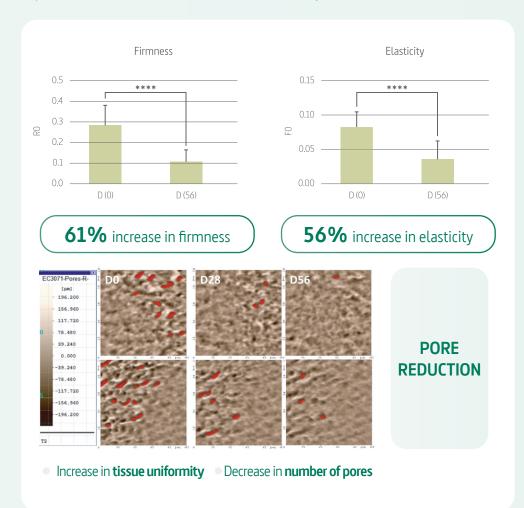
### **CONCLUSIONS**

The VeganFDS-Zinc PCA product, shows a seboregulating effect when used in a continuous manner. These results were confirmed, in a subjective way when submitting a self-assesment questionnaire at the end of the treatment (Day 28).



## **VEGAN DDS TRUE RETINOL**

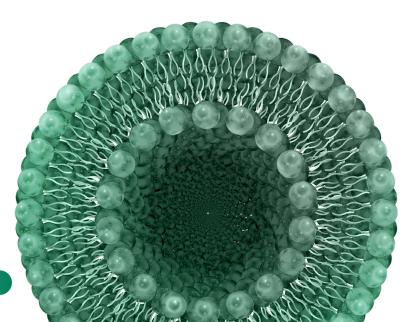
(IN VIVO / ANTI-AGING ACTIVITY)



# O4. EFFICACY STUDIES

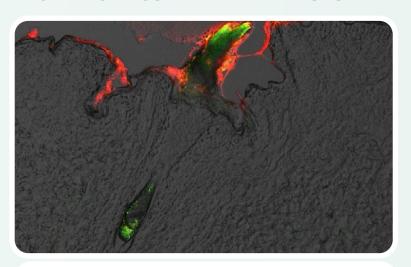
## **FLUORESCENT TEST**

These tests are based on a **fluorescent labeling** on our liposomes, using a covalent bond, to track them through the skin, hair or other areas.





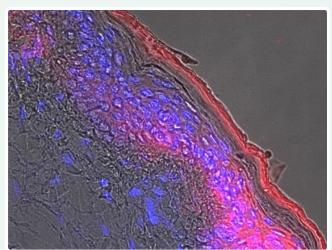
# **VEGAN FOLLICULAR DELIVERY SYSTEM**



In red, free active, in green, active encapsulated in our Vegan FDS.



## **VEGAN DEEP DELIVERY SYSTEM**



In blue, cell nucleus, in red, active encapsulated in our Vegan DDS

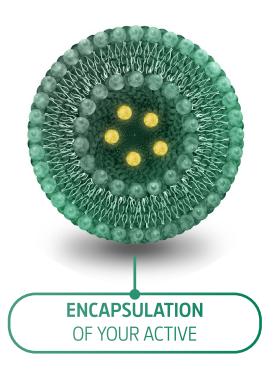


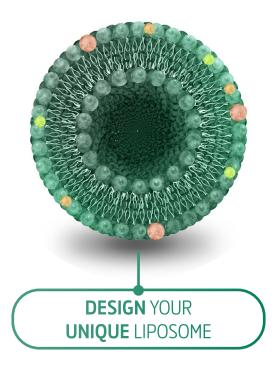
# CUSTOM-DESIGNED PRODUCTS • FLEXIBILITY & ADAPTATION

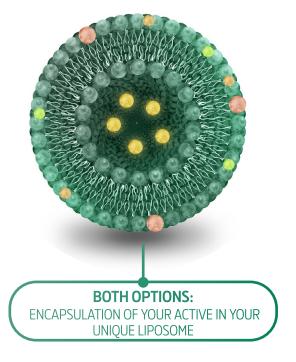


We adapt to the specific requirements of each customer and can develop, **quickly and efficiently**, any variant of our catalogue products or type of **nanovesicle that meets the specific demands of our customer**: encapsulated active ingredient, cosmetic structure target, type of cosmetic formula, preservative system.

### WE OFFER













# STAGES OF CUSTOM DEVELOPMENT

The development of customized product is divided into three consecutive stages: **feasibility study**, **development** and **first production**.



# **Feasibility study**

First stage is the feasibility study of the Project in which all the necessary information is collected and the evaluation is made.



# **Product Development**

After verifying the feasibility of the project, the development of the product begins. Several prototypes are designed to meet the customer specifications



# **First Production**

Finally, once the development is finished and the client approves a prototype, first production of 1 kg is carried out











## GET THE EXCLUSIVITY OF YOUR LIPOSOME THROUGH A PATENT

We offer the possibility to file a **utility model** (a quicker, cheaper and easier type of patent).

We offer the possibility to obtain a patentability report.

We work together to be able to get two types of patents: (and be able to use **patent pending** on your product).

Possibility of obtaining the **trademark** for the product.











Efficacy studies



Help with claims and marketing



Possibility to appear in publications such as:

- Cosmetic Journals
- Scientific Journals





# PRODUCTS CATALOGUE

We offer a comprehensive range of products which have been designed and developed by our experts to achieve the maximum performance from the encapsulated cosmetic active ingredient.

Our range covers all of the dermocosmetic targets and practically all of the requirements: anti-oxidant, antipigment, moisturiser, anti-wrinkle/aging, firming, regenerating, anticellulite, antihair loss, sebum regulator...



DDS	
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00000	IJ





### **SHORT LEAD TIMES**

Delivery time: 2 weeks



## **FLEXIBLE PRICES**

Scaled pricing based on volume



# **LOW MOQs**

MOQ from 5 kg



<u> </u>	
HDS	1
2000	

NAME	Reference	Code
VeganCDS Glycolic	Vegan CDS Glycolic_01	20246
Vegan DDS Cysteamine	Vegan DDS Cysteamine_01	20266
Vegan DDS Diosmin	Vegan DDS Diosmin_01	20137
Vegan DDS EGF	Vegan DDS EGF_01	20212
Vegan DDS Enoxolone	Vegan DDS Enoxolone_01	20347
Vegan DDS Ethyl C	Vegan DDS Ethyl C_01	20338
Vegan DDS Ferulic	Vegan DDS Ferulic_01	20248
Vegan DDS K1 Oxide	Vegan DDS K1 Oxide_02	20221
Vegan DDS Multivitamin	Vegan DDS Multivitamin_01	20209
Vegan DDS Niacinamide	Vegan DDS Niacinamide_01	20327
Vegan DDS OligoHA	Vegan DDS OligoHA_01	20211
Vegan DDS Pure Retinal	Vegan DDS Pure Retinal_01	20382
Vegan DDS Resveratrol	Vegan DDS Resveratrol_01	20243
Vegan DDS Retinol	Vegan DDS Retinol_01	20138
Vegan DDS Tranexamic	Vegan DDS Tranexamic_01	20214
Vegan DDS True Retinol	Vegan DDS True Retinol _01	20343
Vegan DDS True Retinol	Vegan DDS True Retinol _02 (With sodium ascorbyl phosphate)	20397
Vegan DDS VitaC	Vegan DDS VitaC_01	20258
Vegan FDS Zinc PCA	Vegan FDS Zinc PCA_02	20124
Vegan HDS KeraDefence	Vegan HDS KeraDefence_01	20319
Vegan HDS Panthenol	Vegan HDS Panthenol_01	20265





# UNDER DEMAND CATALOGUE



## **FREE SAMPLES**

We offer free **50 g samples** of all **catalogue products** and **under demand products** 

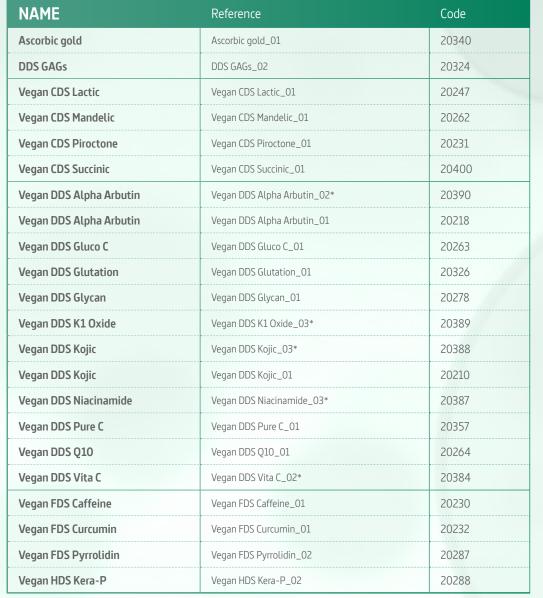


**REQUEST** FREE SAMPLE













<sup>\*</sup>with pentylene glycol instead of sodium benzoate and potassium sorbate

# CONTACT



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