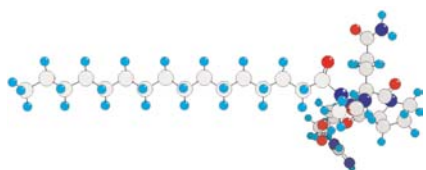




Patent N° FR 00.00031

# RIGIN™



## Peptide Pal-GQPR

### Function:

Controls the secretion of cytokines (Interleukine 6), responsible for many of the signs of aging  
Restores the cytokine balance in mature skin

### Definition:

Lipopeptide with the sequence Palmitoyl-Gly-Gln-Pro-Arg solubilised in a hydroglycolic excipient

### Properties:

Delays the effects of premature aging. Improves elasticity and firmness. Hydrates, protects and smoothes skin

### Characteristics:

Action similar to DHEA (dehydroepiandrosterone) which is known as the "youth hormone"

### Points of interest:

Rigin™ is a fragment of immunoglobulin G

### INCI name:

Aqua - Glycerin - Steareth-20 - Palmitoyl Tetrapeptide 3

### Applications:

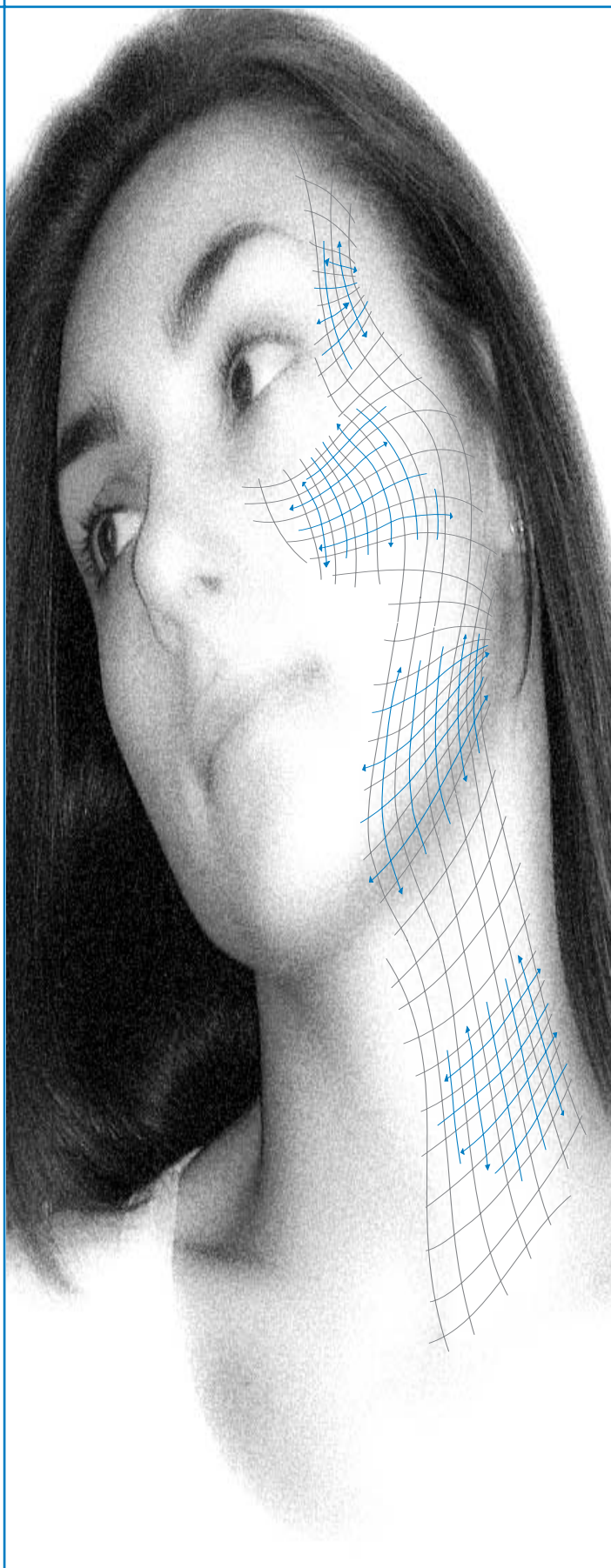
Skin care products for face and neck

### Formulation:

Water soluble - Incorporate at 45°C or at room temperature

### Recommended use level:

3%



**DHEA like**  
**for a**  
**more firmly**  
**delineated**  
**face and**  
**neck**

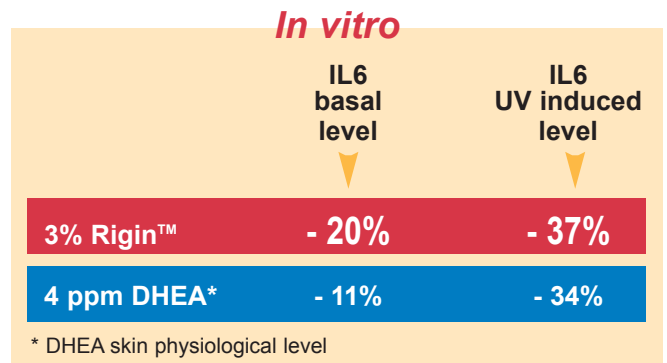


## In vitro tests

### ● Regulation of interleukin 6 (IL6) level by Rigin™ versus DHEA

Study on keratinocyte cultures, measurements by Elisa kit of the IL6 basal level and the IL6 level induced by UV radiation

**Acts in the same way as DHEA**  
**Exhibits better results than DHEA**



## Clinical study

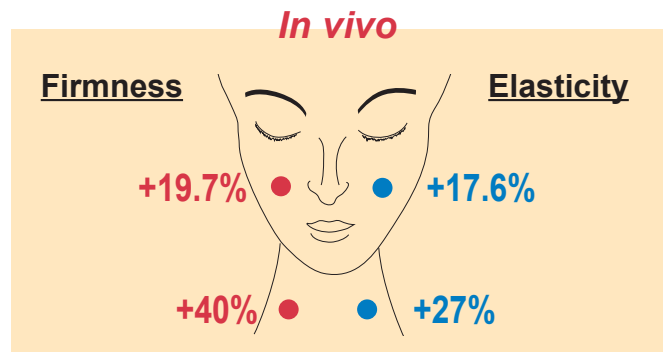
### ● Firmness and Elasticity

17 volunteers  
Blind study of a cream containing 3% Rigin™  
Twice daily application on the cheek and the neck for 28 days  
Measurement with a cutometer

### ● Smoothness of the skin - Micro depressionary network

Blind study with 15 volunteers  
Twice daily application (on the forearm) of a gel containing 3% Rigin™ for 14 days  
Evaluation with image analysis

Skin regularity: **+ 23.3%**  
Decrease in roughness: **14.2%**



### ● Hydration

16 volunteers  
Blind study on the forearm  
Twice daily application of a gel containing 3% Rigin™ for 14 days  
Measurement with corneometry

Increase in hydration: **24%**

## Formulation

### Firming face cream with Rigin™

Indicative formula ref : SED0101114A

Part A	%
Water deionised	qsp 100
Ultrez 10 (Carbomer, B F Goodrich)	0.30
Part B	%
Glycerin	5.00
Phenova (Phenoxyethanol and Mixed Parabens, Crodaron)	0.80
Part C	%
Crodacol CS90 (Cetearyl alcohol, Croda)	0.50
Crodamol AB (C12-15 Alkyl Benzoate, Croda)	5.00
Cyclomethicone	2.00
Pemulen TR2 (C 10-30 Alkyl Acrylate cross polymer, B F Goodrich)	0.20
Crillet 1 (Polysorbate 20, Croda)	1.00
Part D	%
Potassium sorbate	0.10

Part E	%
Water deionised	5.00
Sodium hydroxide 10 N	0.50
Part F	%
RIGIN™ (Sederma)	3.00
Part G	%
Fragrance	0.10

### Protocol

Disperse Ultrez 10 in water (part A) and let swell for 15 minutes. Mix part B, add it to part A and heat to 75°C in water-bath. Weigh part C and heat to 75°C in water-bath. Add part C to part (A+B). Homogenise well and add with part D and E. Add part F and part G at about 35°C. Homogenise.

### Non-guarantee

This formulation has been subjected to limited stability tests and has been shown to perform well. However formulators adopting this approach should ensure to their own satisfaction long term stability and functionality. It is good practice to conduct safety tests on all final formulations prior to marketing. Suggested uses should not be taken as an inducement to infringe any existing patents.



## FACE AND NECK FIRMNESS

### Function and Characteristics:

RIGIN is a fragment of immunoglobulin G, solubilised in a hydroglycolic excipient.

RIGIN controls the secretion of cytokines (interleukin 6) in keratinocyte and fibroblast cultures.

RIGIN offers the way to restore the cytokine balance.

### Cosmetic interest (properties):

This original lipopeptide, Palmitoyl-Gly-Gln-Pro-Arg, delays the effects of premature ageing. RIGIN improves elasticity and firmness, hydrates, protects and smoothes skin. RIGIN acts in the same way as DHEA (Dehydroepiandrosterone) which is known as "youth hormone" at the cutaneous level.

### Applications:

Face and neck care

Recommended use level: 3%

### CTFA / INCI name:

Water (Aqua) - Glycerin - Steareth-20 - Palmitoyl Tetrapeptide-3

### Specifications:

Appearance	: clear liquid
Colour	: colourless to yellowish
Odour	: characteristic
pH	: 5.5 – 7.0
Density (20°C)	: 1.030 – 1.050
Water content (K. Fischer)	: 75 – 85%
Refractive index (25°C)	: 1.350 – 1.370
Pal-GQPR content	: > 450ppm
Bacteria	: <100 germs/g
Yeast and moulds	: <10 germs/g
Reference	: RIGINV1

Patent Sederma: FR 2 788 777 - WO 00/43417

## CLAIM SUBSTANTIATION

### IN VITRO

#### Regulation of interleukin 6 level - Comparison RIGIN / DHEA:

Study on keratinocytes cultures, measurements by Elisa kit of the interleukin 6 (IL6) basal level or the IL6 level induced by UV radiation.

**The results show a similar action between RIGIN and DHEA at cutaneous level.**

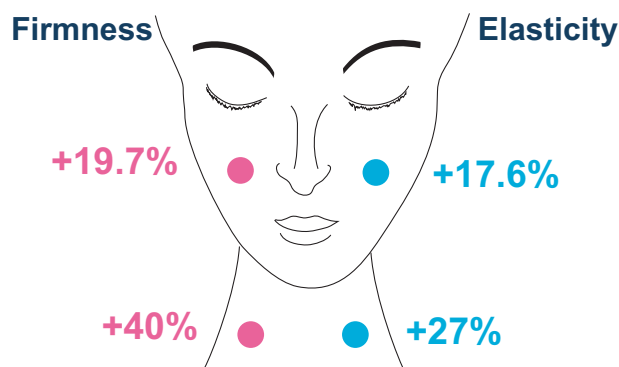
	Basal level	UV induced level
<b>3% RIGIN</b>	<b>-20%</b>	<b>-37%</b>
4ppm DHEA*	-11%	-34%

\* DHEA skin physiological level

### IN VIVO

#### Firmness and Elasticity:

17 volunteers / Blind study of a cream containing 3% RIGIN / Twice daily application on the cheek and the neck during 28 days / Measurement with a cutometer



#### Smoothness of the skin – Micro depressionary network:

Blind study with 15 volunteers / Twice daily application of a gel containing 3% RIGIN during 14 days on the forearm / Evaluation with image analysis

- Skin regularity	: +23.3%
- Skin roughness	: -14.2%

#### Hydration:

6 volunteers / Blind study on the forearm / Twice daily application of a gel containing 3% RIGIN during 14 days / Measurement with corneometry

- Increase of hydration	: +24%
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