

SEQENS

COSMETICS

Glycuron™ 2.78

4M Daltons polysaccharide
Rich in uronic acid

«Megasugar»
Emotional beauty
enhancer

Skin hydration
Skin surface perfector
Improves self-image and
projected allo-perception

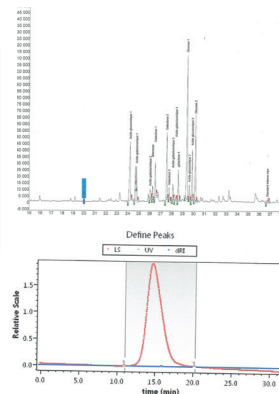
CONTINUUM OF PROGRESS

«Megasugar» produced by biotechnology

Glycuron™ 2.78 is produced by *Alteromonas sp strain*. This microorganism has been collected in Moorea sea lagoon, in associated with a sea anemone. Glycuron™ 2.78 is an exopolysaccharide with very special physicochemical properties (see below). This 4million Da sugar polymer, rich in uronic acid, is liquid at 0.5% in water and shows very strong biological properties of hydration and brightness enhancement, together with generating sensory feeling that is able to impact image self-perception and projected allo-perception.

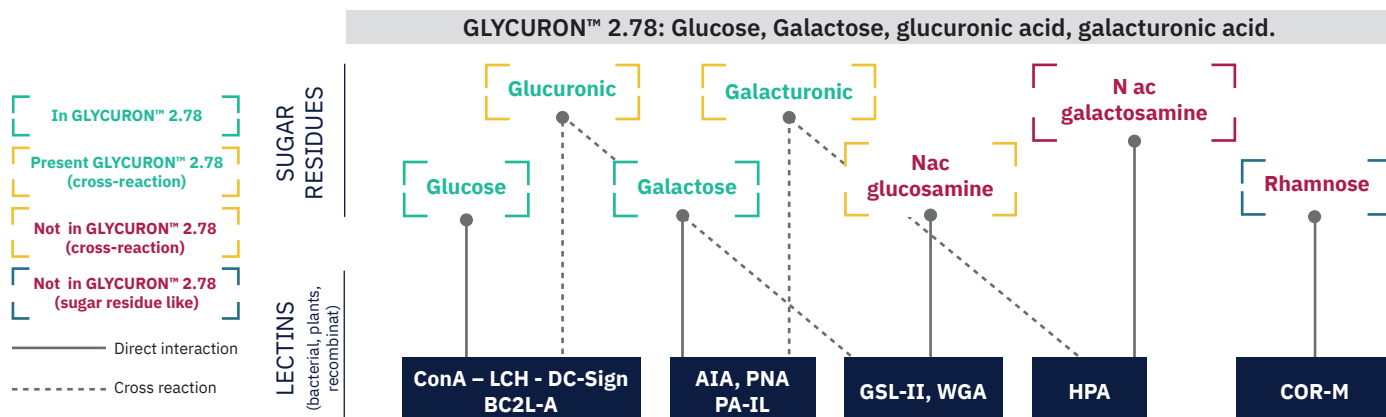
Analytics performed on pure Glycuron™ 2.78

		Technique	Flagship technical focus
Osidic sequence/ ratio:	GLUCOSE/GALACTOSE/ GLUCURONIC ACID/ GALACTURONIC ACID 1/2/1,5/1	GC (Gas Chromatography)	Rich in Uronic acid (up to 45%)
Polydispersity Index:	1.4	HPSEC (High Performance Size Exclusion Chromatography)	Very consistent (homogeneous production of this polysaccharide)
Molecular weight:	4.16 10 ⁶ Da		Very high molecular weight
Organic substituents:	Presence of lactate and acetate	NMR (Nuclear Magnetic Resonance)	
Sulfate groups:	No	FTIR (Fourier Transform Infrared Spectroscopy)	

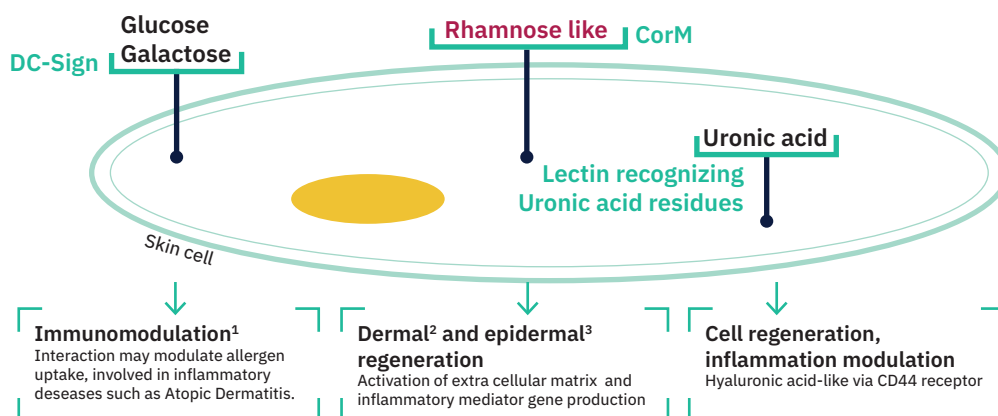


Deciphering biological efficacy

Step 1: lectin array: glycan pattern identification



Step 2: Glycobiological interaction to predict biological activities



Protocol

The GLYcoPROFILE®* is the interaction profile of a product with a range of lectins. For this project, the study was carried out on 20 lectins. Interaction profiles: indirect method based on the inhibition by the sample of the interaction between a specific lectin-glycan couple.

- 3 concentrations.
- Each analysis is repeated twice

* Glycoprofile® is a trademark at GLYcoDiag company.

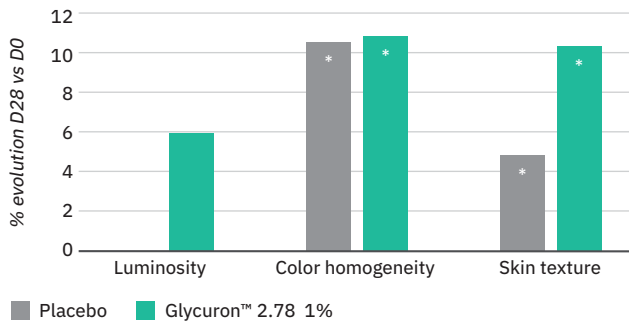
Bibliography:

- 1 - Y. Zhanga, Y. Luoa, W. Lib, J. Liuc, M. Chena, H. Gua, B. Wang, Dr., X. Yao, Dr.
DC-SIGN promotes allergen uptake and activation of dendritic cells in patients with atopic dermatitis
Journal of Dermatological Science 84.2 (2016): 128-136
- 2 - G. Faury, J. Molinari, E. Rusova, B. Mariko, S. Raveau, P. Huber, V. Velebny, A.M. Robert, L. Robert
Receptors and aging: Structural selectivity of the rhamnose-receptor on fibroblasts as shown by Ca²⁺-mobilization and gene-expression profiles
Archives of Gerontology and Geriatrics 53 (2011) 106-112
Biol Cell. 1991;73(1):35-42.
- 3 - Cerdan D, Grillon C, Monsigny M, Redziniak G, Kieda C.
Human keratinocyte membrane lectins: characterization and modulation of their expression by cytokines.
Biol Cell. 1991;73(1):35-42.

Clinicals

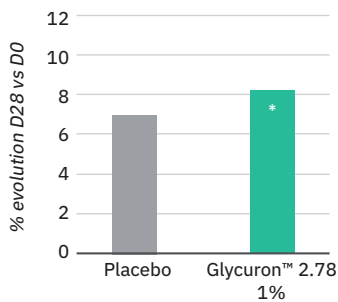
Biometric parameters

Brightness



Skin brightness is enhanced

Hydration



Skin hydration is significantly increased

* $p < 0.05$ significantly different versus D0

Protocol

Double blind study



Placebo



Glycuron™ 2.78
1%

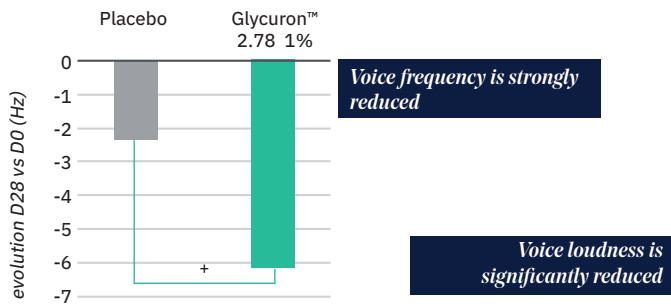
- 44 volunteers included (10% additional subjects)
- 46 to 60 years old caucasian subjects
- Inclusion criteria: with a lack of luminosity, and inhomogeneous complexion, declarative
- 2 groups of 20 Volunteers
- Application on the whole face
- 28 day application
- Twice a day
- Measurement at D0 and D28
- Moisture measured by MOISTUREMAP: Based on penetration of electromagnetic fields in the skin. Measure of GreyIndex.
- Skin brightness measured by CLBT method**: Evaluation by an expert with analogical scale 1 to 10.

**Method published by Spincontrol. Visual evaluation in vivo of 'complexion radiance' using the C.L.B.T.™ sensory methodology. *Skin Research and Technology* 10(1):50-6 - March 2004.



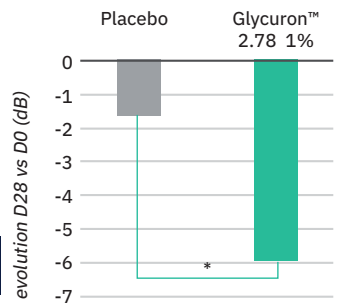
Emotional parameters

Voice frequency



+ limit significant Glycuron™ 2.78 vs placebo

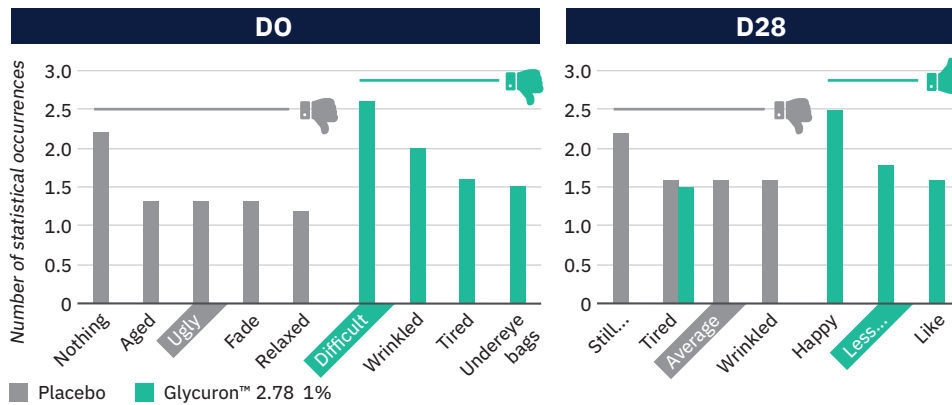
Voice loudness



* Statistically significant Glycuron™ 2.78 vs placebo $p < 0,05$

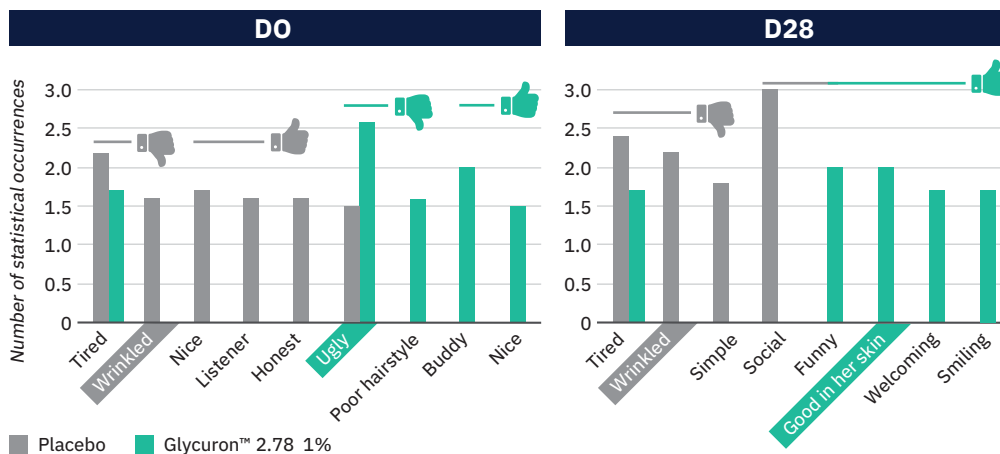
Glycuron™ 2.78 improves emotional state

How would you describe yourself physically?



Glycuron™ 2.78 improves Self perception & Projected Allo perception

What would be the first impression of someone meeting you for the first time?



* All parameters are statistically significant. Frequency of appearance $p < 0.05$

Protocol



Placebo



Glycuron™ 2.78 1%

EMOSPIN

EMOSPIN** based on the analysis of 2 parameters

- **Prosody:** vocal signal analysis
 - Loudness of the signal, Decibels (dB)
 - Pitch: fundamental frequency, Hertz (Hz)
- **Verbatim:** quantitative analysis of the word content of answers of subjects (only statistic words are shown)
 - Q1: Can you remember your comprehensive address (to set up the base of prosody)
 - Q2: how would you describe yourself physically
 - Q3: what would be the first impression of someone meeting you for the first time

**Method patented by Spincontrol

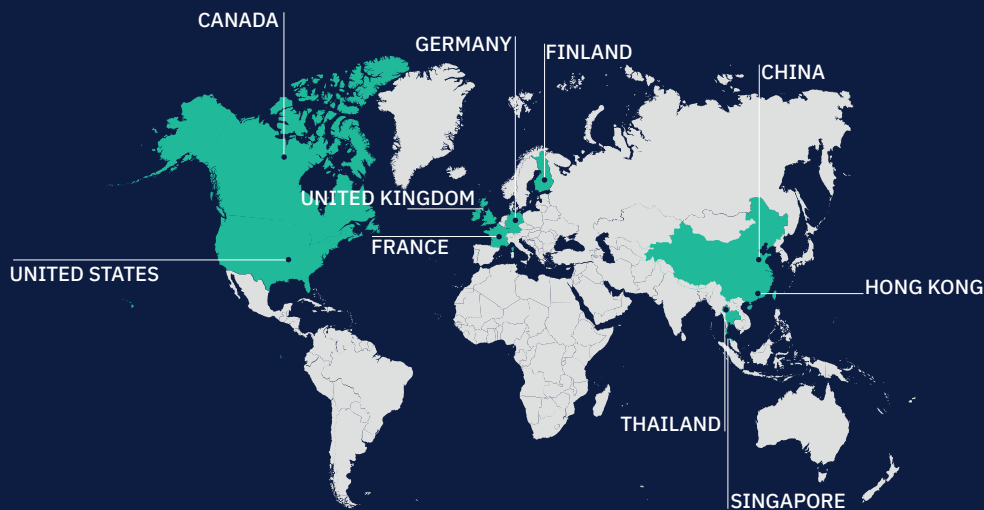


Synthesis table

Reference	LBG-278-01
INCI	<i>Alteromonas Ferment Extract</i>
Chinese denomination (IECIC 2015)	<i>Alteromonas Ferment Extract</i>
Japanese name	<i>Alteromonas Ferment Extract</i>
Origin: biotechnology	
Bacterial strain gender	<i>Alteromonas sp</i>
Origin	Moorea (lagoon), associated to sea anemone (Actiniaria)
Culture conditions	Sea water, 30-35°C
Presentation	
Solution	0.5% Exopolysaccharide (EPS) in water/propanediol/pentylene glycol
Aspect	Translucent to clear
Viscosity	250 to 800 cps
Odor	Characteristic
Analytics (solution 0.5%)	
Dry matter	0.35% to 0.80%
Neutral oses (Dubois 1956)	0.25% to 0.55% (50 to 70% in pure EPS)
Osodic sequence/ratio (GC- Gas Chromatography)	GLUCOSE/GALACTOSE/ GLUCURONIC ACID/ GALACTURONIC ACID 1/2/1,5/1
MW (HPSEC- High Performance Size Exclusion Chromatography)	3.5-4.5 10 ⁶ Da
IP (polydispersity Index)- (HPSEC)	1.2-1.8
Proteins	<0.05%
Preservative: pentylene glycol	
TAMC (total aerobic microbial count)	<100 CFU/mL
TYMC (total yeast and moulds counts)	<10 CFU/mL
Toxicological package (concentration)	
Cutaneous irritation / SkinEthic RHE / (according to the OECD guideline 439 dated July, 28th, 2015 and the epidermis supplier Standard Operating Protocol)	Not irritant
Ocular irritation / HET-CAM (according Official Journal of the Republic of France (N°300), December 26 th , 1996)	Practically non-irritant
Mutagenicity / AMES (according to the OECD #471 Guideline (July 21 st , 1997) and the Directive 2000/32/CE, method B13/14, dated June 8th 2000)	Non mutagenic / Non pro-mutagenic
Sensitization / Keratinosens	Non sensitizing
Phototoxicity / 3T3 NRU (According to the OECD guideline N°432)	NA
Stability solution	
2-8°C	1 month (pending study)
Room temperature (25°C)	4 months (pending study)
45°C	1 month (pending study)
Stability EPS powder	
Room temperature (25°C)	24 months
Use	
Concentration of use	1 to 4%
Formulation	Add at the end of the formulation at 30°C
Efficacy	
Biological efficacy	Very hygroscopic, is able to maintain skin hydration. Enhances epidermal regeneration. This polymer is also able to create films at the skin surface and to enhance sensory properties of formulas.
Clinical efficacy	Increases hydration, skin brightness. Positively impacts emotional state, improves self perception and projected allo perception.
Certifications	
Certificate ISO16128 (Naturality Index)	The natural percentage of this product is 67%. Determined by the renewable carbon content.
Trademark	
Glycuron™ 2.78	Class 1, 3 France
IP	
France	Patent pending

* preliminary specifications on 1 industrial batch, final specifications will be set up after 3 industrial batches

SEQENS, an integrated global leader in pharmaceutical synthesis and specialty ingredients



ABOUT SEQENS

SEQENS is an integrated global leader in pharmaceutical synthesis and specialty ingredients, delivering outstanding performance, unrivalled market responsiveness and bespoke solutions to our customers.

A unique expertise to develop and produce highly complex molecules

SEQENS' mission is to bring R&D and industrial performance to our clients' projects with a unique skill set and a broad continuum of technologies.

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SEQENS operates 24 industrial plants and 3 R&D centers in Europe, North America and Asia. More than 300 scientists, engineers and experts develop tailor-made solutions for its customers and ensure that products are successfully transferred into production.

An integrated partner in pharmaceutical synthesis and specialty ingredients

In the pharmaceutical industry, SEQENS supports its customers for the development, scale-up and manufacturing of drug substances from preclinical through to commercial phase and offers a large portfolio of APIs and proprietary products. SEQENS also develops custom solutions and ingredients for the most demanding industries such as healthcare, electronics, cosmetics, food and homecare.

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Driven by a culture of excellence and a strong entrepreneurial spirit, SEQENS' 3,200 employees are committed to providing its customers with the highest level of service and product quality while acting ethically in the frame of its Corporate Social Responsibility program.



3200
people



300
scientists, experts
and engineers



24
manufacturing sites



3
R&D centers



1000
clients in more
than 80 countries

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