

BioReNuva[®]

Beauty & Personal Care Ingredients

DESIGNING BIOSURFACTANTS EXCLUSIVELY FOR BEAUTY CARE

LOW ODOR
LOW COLOR
LONG SHELF LIFE & STABILITY
BROAD PH AND TEMPERATURE STABILITY



FLORENCE E. WALL
A PIONEER IN COSMETIC SCIENCE



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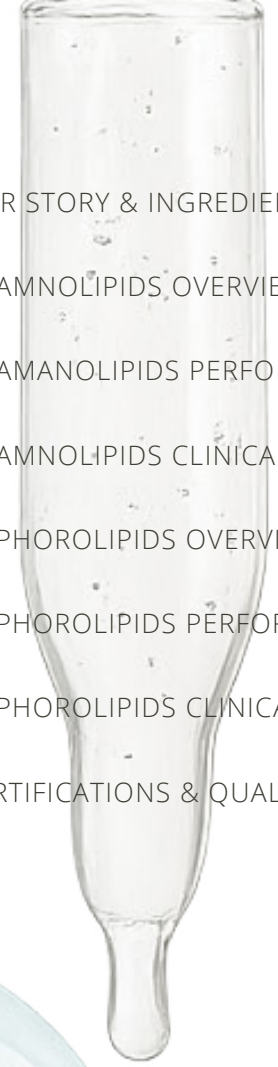
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From advanced strain engineering to precision fermentation, every step of our process is purpose-built to deliver high-performance, gentle surfactants, emulsifiers, and solubilizers—formulated exclusively for beauty and personal care.

BioReNuva[®]

OUR STORY

BioReNuva, founded in 2022 in Austin, Texas, is driven to find the “holy grail” of beauty ingredients that delivers modern synthetic performance with pure, safe nature. Our team obsessively pursues personal care products that are effective yet gentle.

We believe biotechnology is the key to bridging this divide. Rather than relying on harsh chemical processes, we harness the power of fermentation, a process as old as human civilization itself. Through our engineering process, we design biosurfactants that are 100% naturally produced, deliver on function and clinical benefits, are light in color & odor, and provide multi-functionality in formulation.

We invite you to join us on this journey toward a cleaner, more effective future in beauty, where science and nature come together in perfect harmony. After all, at BioReNuva, we believe the holy grail of ingredients isn't just a myth—it's our reality.

BIOTECHNOLOGY INGREDIENTS

Our BioSurfactants are Engineered Exclusively for Beauty, Personal, and Oral Care

ReNuva™ SL-A70

INCI: GLYCOLIPIDS

Developed Naturally via Yeast Biotechnology

ISO 16128 NOI = 1, (100% Natural)

Superior Cleanser & Excellent Solubilizer

Medium Foamer with Unrivaled Mildness

Moisturization & Sebum Control Benefits

Anti-Inflammatory Properties

Pore Tightening and Cleansing

Acne, Dandruff and Preservation Control

CMC 20-300x Lower Than Standard Amphiphiles

SOPHROLIPIDS

ReNuva™ SL-L70

INCI: GLYCOLIPIDS

Developed Naturally via Yeast Biotechnology

ISO 16128 NOI = 1, (100% Natural)

Excellent Cleanser & Emulsifier

Low Foamer with Unrivaled Mildness

Anti-Inflammatory Properties

Moisturization & Sebum Control Benefits

Bactericide Preservation Boosting Capabilities

Acne & Dandruff Control

CMC 20-300x Lower Than Standard Amphiphiles

ReNuva™ RL-50

INCI: GLYCOLIPIDS

Developed Naturally via Bacterial Biotechnology

Lightest Color and Odor Rhamnolipid on Market

ISO 16128 NOI = 1, (100% Natural)

Superior Solubilizer & Cleanser

Foam Height = SLES @ pH 7.0 plus very tightly packed bubbles

Biofilm Disruptor (Oral, Skin, Scalp)

CMC 20-300x Lower Than Standard Amphiphiles

RHAMNOLIPIDS

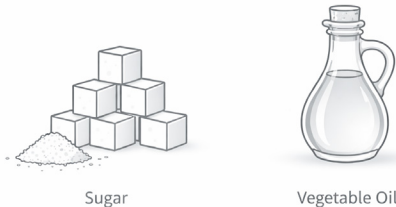
in-cosmetics[®]
korea
K-Beauty
Standout
Award 2025
FINALIST



RHAMNOLIPIDS

RENUVA™ RL-50

ReNuva RL-50 is BioReNuva's 100% natural and biodegradable, high-purity rhamnolipid biosurfactant designed to deliver strong cleansing, foaming, and emulsification while staying gentle on skin and supporting mild, sulfate-free formulations. It also helps solubilize oils and fragrances and can add multifunctional benefits like improved skin feel and formulation efficiency at low use levels.



RAW MATERIALS



BIOFERMENTATION



RHAMNOLIPIDS

(DI:DI STRUCTURE)

1

EXCELLENT FOAMING HEIGHT
(OUTPERFORMS SLES AT PH ~7)

CREAMY, DENSE AND SMALL BUBBLE SIZE FOAM

EFFICIENT SOLUBILIZER FOR EOs, FRAGRANCES AND ACTIVES

FRAGRANCE BOOSTER & BLOOMER

EXCEPTIONALLY MILD, HIGH EFFICACY CLEANSER

IMPROVES SKIN HYDRATION AND SOFTNESS

EFFECTIVE ANTI-MICROBIAL & ANTI BIO-FILM AGENT

1. KEY BENEFITS

2



3



2. AN EXTREMELY MILD FOAMING CLEANSER

3. BUILT TO INTEGRATE IN VARIOUS SYSTEMS

NEW LAUNCH

ReNuva™ RL-50

1. CREATES ROBUST FOAM

ReNuva™ RL-50 has a naturally low CMC and strong interfacial activity pack bubbles tightly, creating a velvety, dense microfoam that rises tall and often outlasts benchmark synthetics like SLES—while delivering average bubble sizes 23% smaller than SLES and 40% smaller than CAPB.

2. FOAMS HIGH

RL-50 consistently matches—or exceeds—the “gold-standard” SLES on both initial and sustained foam height in neutral-pH cleansing systems. Tight bubble packing resists collapse over time. In bench-top Ross-Miles and shake-flask tests, the RL-50 foam column stays visibly higher and more stable through the full observation window, retaining its structure - delivering superior sensorial richness without the irritation profile often associated with chemical surfactants.

3. CLEANSSES

At 2% in formula, ReNuva™ RL-50 lifts ~93% of intense red lipstick in just ten rubs, out-cleaning other common surfactants and solubilizers. It's naturally derived rhamnolipid structure keeps skin barrier-friendly and exceptionally mild.

4. SOLUBILIZES

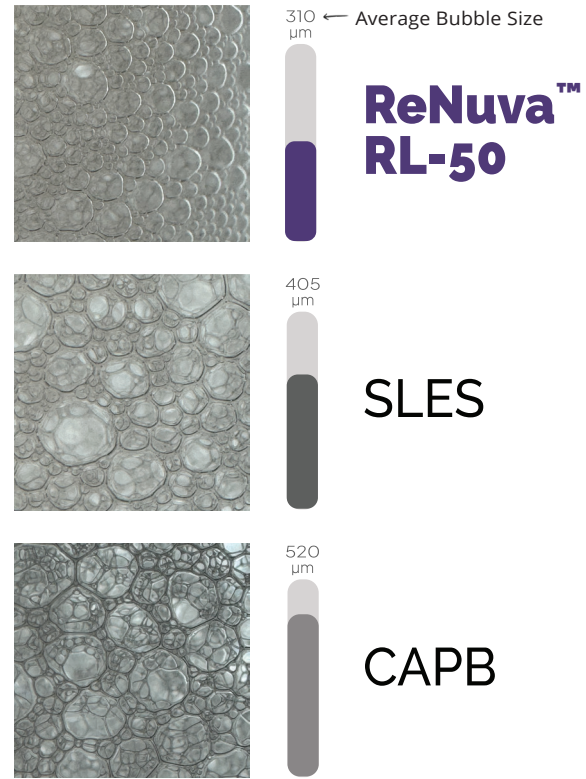
Thanks to its ultra-low CMC and balanced hydrophilic-lipophilic profile, RL-50 efficiently solubilizes a wide range of essential oils, fragrances, and oil-soluble actives—often achieving clear, stable systems at room temperature without extra co-solvents. This simplifies formulation and boosts loading capacity, especially in sulfate-free, neutral-pH products.

5. SAFE SURFACTANT

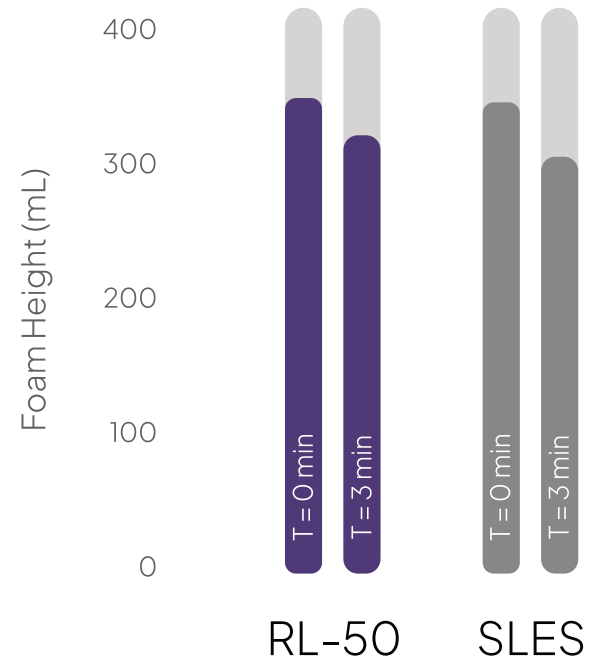
Fermented from sugar + vegetable oil, RL-50 is sulfate- and solvent-free. HRIPT plus oral and ocular assays rate it non-irritant, so it cleans effectively while staying exceptionally mild.

6. CLEAN & SUSTAINABLE

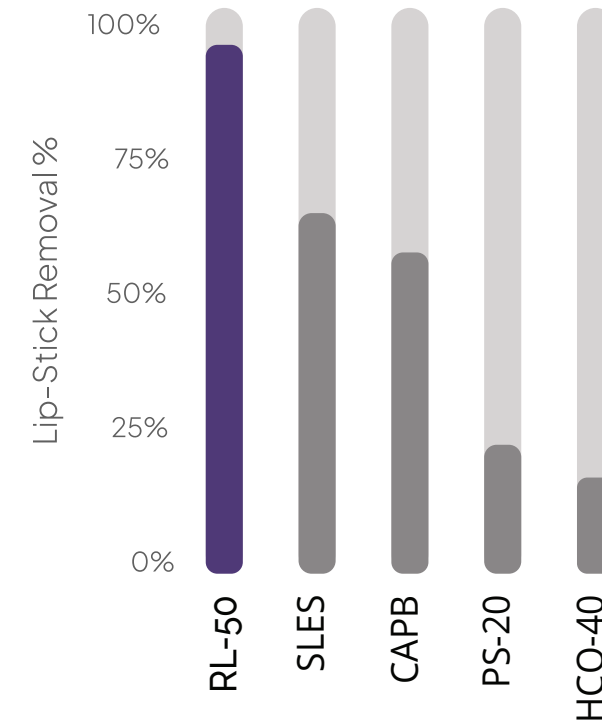
RL-50 is 100 % bio-derived from renewable sugar and plant oil, fully biodegradable, palm-free, and sulfate-free—delivering high performance with a minimal carbon footprint for true clean-beauty formulations.



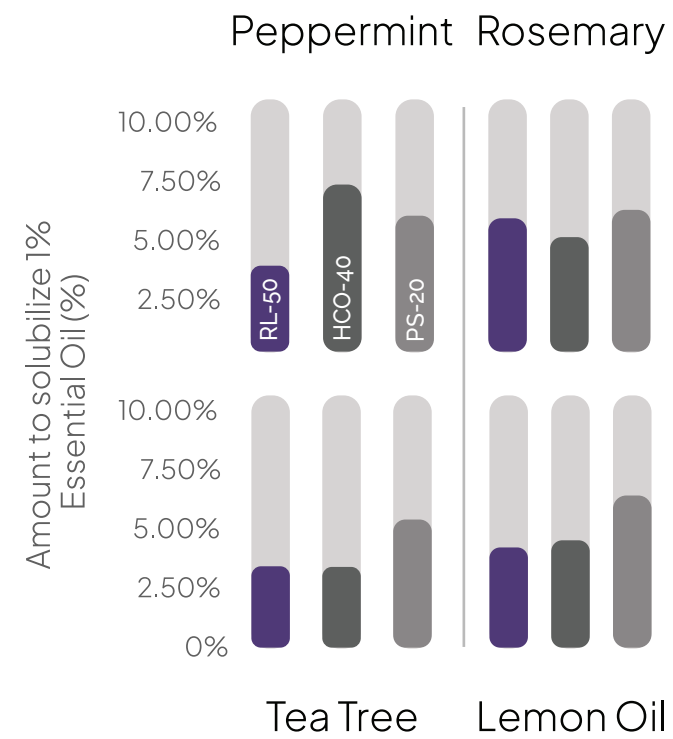
1. FOAMING QUALITY



2. FOAMING HEIGHT



3. CLEANSING



4. SOLUBILITY



5. SAFETY FIRST



6. GOOD FOR CONSUMERS, GOOD FOR THE PLANET

ANTI-MICROBIAL

Rhamnolipids function as biosurfactants that disrupt microbial cell membranes by intercalating into and solubilizing the lipid bilayer, causing cell lysis — and because *M. furfur* is a lipid-dependent yeast and *P. acnes* is a lipophilic anaerobic bacterium, both are particularly vulnerable to this membrane-disrupting mechanism, making RL-50 exceptionally effective against precisely the two organisms most responsible for acne and dandruff.

DANDRUFF

01RL10(M) Dandruff-Causing Organism (1% ReNuva RL-50 Diluted)				
Day	1 (24h)	3 Days	7 Days	Test Results
Dilution	10 ⁻¹	10 ⁻¹	10 ⁻¹	Anti-Microbial Efficacy
<i>Malassezia furfur</i>	ND	ND	ND	0

ACNE

01RL10(M) Acne-Causing Organism (1% ReNuva RL-50 Diluted)				
Day	1 (24h)	3 Days	7 Days	Test Results
Dilution	10 ⁻¹	10 ⁻¹	10 ⁻¹	Anti-Microbial Efficacy
<i>P.acnes</i>	ND	ND	ND	0

STUDY OUTLINE

This study was conducted to evaluate the antimicrobial efficacy of ReNuva RL-50 against two of the most clinically significant skin microorganisms in personal care including *Propionibacterium acnes*, the primary driver of acne, and *Malassezia furfur*, the primary driver of dandruff. Both organisms were inoculated at 1×10⁶ organisms/ml under anaerobic conditions, and ReNuva RL-50 was tested at a 1% dilution across three timepoints: 24 hours, 3 days, and 7 days. Colony counts were assessed by serial dilution plating against an untreated control group.

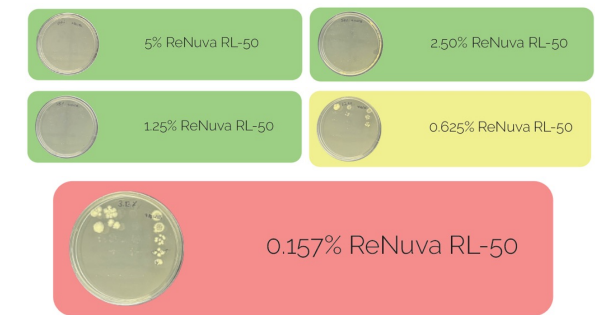
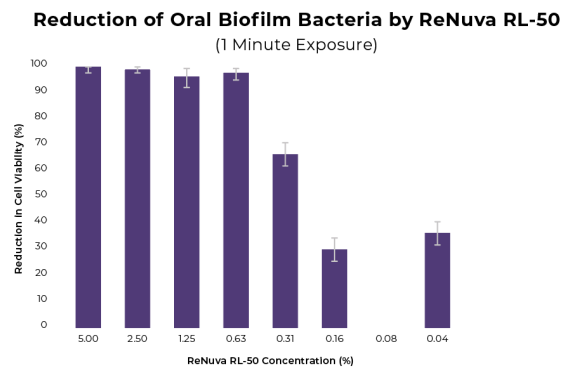
STUDY RESULTS

The untreated control remained Too Numerous To Count (TNTC) at every time-point, confirming a valid challenge. ReNuva RL-50 at just 1% concentration achieved complete elimination of both *P. acnes* and *M. furfur* from a starting load of 1×10⁶ organisms/ml.

Zero organisms detected from the first 24-hour reading through Day 7 which earned ReNuva RL-50 the highest possible efficacy rating for both acne and dandruff organisms tested.

ANTI-BIOFILM

In a 1-minute biofilm challenge test using hydroxyapatite-coated pegs to simulate tooth enamel, ReNuva RL-50 demonstrated significant dose-dependent reduction of oral biofilm bacteria from 0.625% to 5% concentration, selectively suppressing the caries-associated pathogen *Lactobacillus fermentum* while leaving the beneficial commensal *Streptococcus salivarius* entirely unaffected.



STUDY OUTLINE

This study evaluates ReNuva RL-50's ability to reduce oral biofilm and selectively target harmful bacteria while sparing beneficial commensals. Mixed salivary cultures from multiple participants were grown for 48 hours on hydroxyapatite-coated pegs designed to simulate tooth enamel biofilm formation. Established biofilms were then exposed to RL-50 concentrations ranging from 0.157% to 5% for one minute, followed by sonication-based recovery, colony counting, and gDNA sequencing to identify specific species affected.

STUDY RESULTS

RL-50 showed clear dose-dependent biofilm reduction, with significant inhibitory activity from 0.625% to 5% after just one minute of exposure — reaching up to ~90-100% cell viability reduction at higher concentrations. Sequencing identified *Lactobacillus fermentum* (associated with dental caries) as showing progressive, concentration-dependent suppression, consistent with rhamnolipids' membrane-disrupting mechanism. Notably, *Streptococcus salivarius*, a beneficial oral commensal, showed no meaningful growth reduction at any concentration tested — demonstrating that RL-50's antimicrobial activity is selectively targeted toward harmful pathogens while preserving the healthy oral microbiome.

1

Unparalleled Safety

SUGAR and VEGETABLE OIL ONLY

***HRIPT** 0 (No Skin Reaction)

****Extended** 72% Reduction (vs SLS)

****Bio-Ocular** 48/50 (ET 50)

* Eurofins: 50% Raw, 50+ Clinical Subjects
 **14 Day Cumulative Skin Irritation
 ***OECD 492B

2

Moisture & Sebum Benefits

SUGAR BASED + LOW CMC

***Corneometer®** 58% Boost (ReNuva SL-A70)

****TEWL** 83.33% Boost (IMMED.)
 41.67% Boost (24hr.)

***Sebumeter®** 14% Reduction (ReNuva SL-A70)

* Hand wash (10% ReNuva™ SL-A70)
 **Body Lotion (5% ReNuva™ SL-A70)

3

Anti-Inflammatory Properties

BIOFERMENTATION

TNF-α 32% Reduction*
 55% Reduction**

COX-2 37% Reduction*

IL-6 60% Reduction*
 42% Reduction**

NO 58% Reduction**

* 2.50% ReNuva™ SL-A70
 **2.00% ReNuva™ SL-L70

4

Preservation Boosting

ANTI-MICROBIAL LACTONES

***USP-51** ReNuva™ SL-A70 (Pass, Bacteriostatic)
 ReNuva™ SL-L70 (Pass, Bactericide)

****Dip-Slides** ReNuva™ SL-A70 (Pass)
 ReNuva™ SL-A70 (Pass)

* 10% Glycolipids
 **5% Glycolipids

1. UNPARALLELED SKIN SAFETY

Our motto is “What We Put In Is What We Get Out.” Sugar, vegetable oil, and wild-type yeast are our only inputs. As the sole biosurfactant producer for beauty care, we prioritize safety and purity. With these clean inputs, we uphold our mission for maximum efficacy. Whether on skin, eyes, or hair, our Glycolipids set the standard for mild, safe formulations that meet the most sensitive skin care demands.

2. SKIN MOISTURIZATION & SEBUM CONTROL

Derived from sugar-based molecules, we naturally leverage sugar’s humectant qualities to draw in and retain moisture, helping support optimal skin hydration. Their inherently low CMC also enables superior oil de-agglomeration, effectively dispersing excess sebum to promote a balanced, clearer complexion.

3. ANTI-INFLAMMATORY PROPERTIES

Our fermented sophorolipids demonstrate remarkable anti-inflammatory capabilities, outperforming conventional triglycerides by significantly reducing pro-inflammatory cytokines. This highlights the power of biofermentation, enabling gentler, targeted action that delivers potent benefits while maintaining superior skin compatibility.

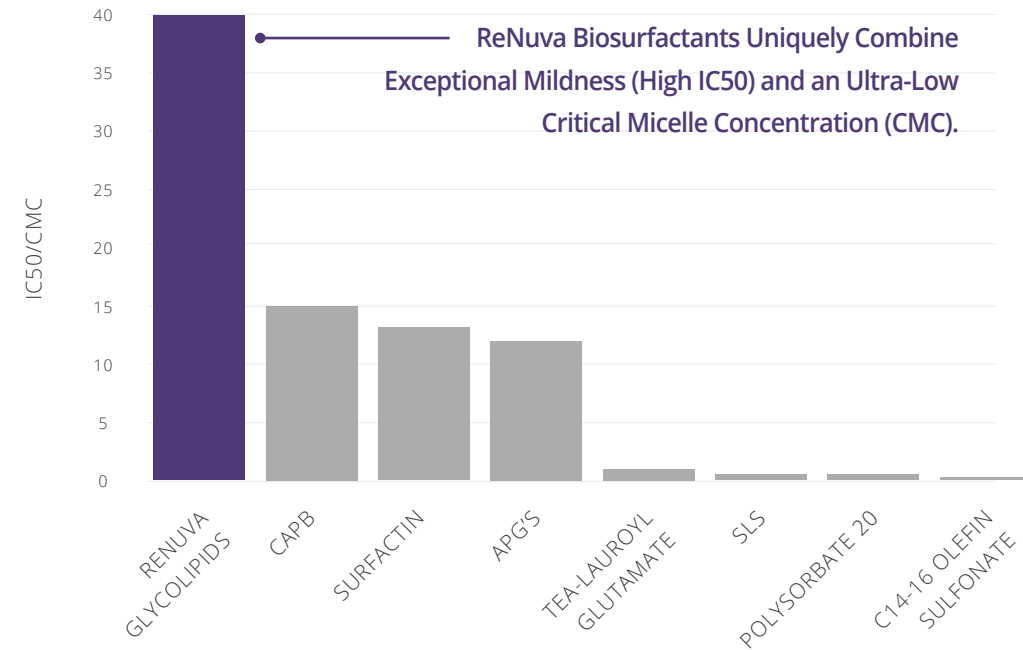
4. PRESERVATION BOOSTING

We exhibit robust, broad-spectrum preservation-boosting capabilities in both dip slide evaluations and USP 51 studies, effectively inhibiting a wide range of microbes. This synergy empowers cosmetic formulators to strengthen their preservation systems without solely relying on harsh or excessive preservatives, ensuring safer, more stable products.

FUNCTIONAL PERFORMANCE

AN IDEAL CHOICE FOR A WIDE RANGE OF BEAUTY CARE FORMULATIONS

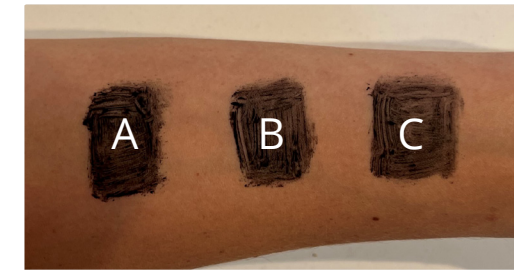
Glycolipids, have a best-in-class low critical micelle concentration (CMC) and are produced via a fully biological process resulting in extremely mild properties, offer superior benefits in cleansing, emulsification, and solubility applications where performance and safety matter most.



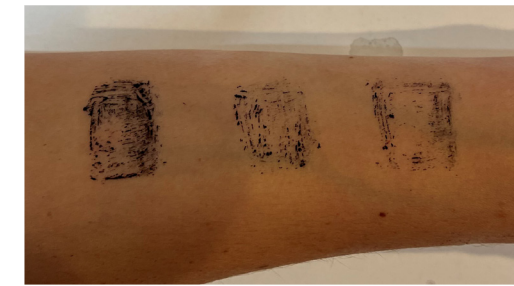
Critical Micelle Concentration, CMC (mg/L) of Various Amphiphiles

ReNuva Rhamnolipids	2 - 20
ReNuva Sophorolipids	10 - 30
CAPB (Betaine)	200 - 250
SLS	300 - 500
APG (Alkyl Glucosides)	800 - 1000
LCS (Amino Acid)	2,000 - 3,000

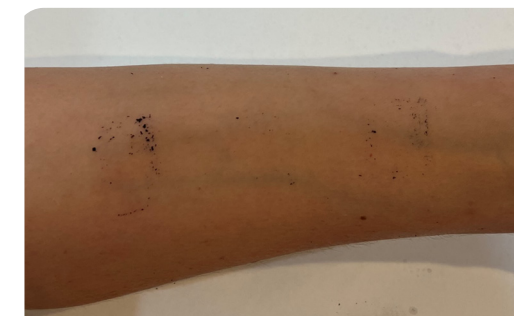
CLEANSING



INITIAL



FIRST SET OF WIPES



FINAL SET OF WIPES

1

1. CLEANSING

(1) L'ORÉAL WATERPROOF MASCARA APPLIED TO SKIN AND ALLOWED 15 MINUTES TO DRY.

(2) COTTON PADS WERE DIPPED AND ALLOWED TO SOAK UP 5 GRAMS OF MATERIAL A, B, C.

- A. COMMERCIAL MAKE-UP REMOVER
- B. COMMERCIAL MAKE-UP REMOVER + 10% RENUVA LIPIDS
- C. 10% RENUVA LIPIDS + 90% H₂O

SOLUBILITY



2

EMULSIFICATION



3

2. SOLUBILITY

SOLUBILIZES A WIDE RANGE OF ESSENTIAL OILS, FRAGRANCES, AND ACTIVES COMPARABLY TO HCO-40 AND POLYSORBATE-20.

3. EMULSIFICATION

EFFECTIVELY REDUCE SURFACE TENSION BETWEEN IMMISCIBLE LIQUIDS, FACILITATING STABILITY IN A WIDE RANGE OF EMULSIONS,

ACNE PROTECTION

Sophorolipids in their lactone form exhibit especially potent antibacterial properties against *Cutibacterium acnes*, the primary culprit behind acne. This specialized ring structure enhances their ability to target and inhibit *C. acnes* proliferation, promoting a cleaner complexion without disrupting the skin's natural balance while reducing redness and inflammation.



DANDRUFF PROTECTION

Sophorolipids effectively combat dandruff by targeting *Malassezia*, the primary fungus responsible for scalp flaking and irritation. Their broad-spectrum antimicrobial properties help maintain a healthier scalp environment, reducing dryness, itchiness, and visible flakes without the harshness often associated with conventional antifungal agents.



STUDY OUTLINE

We convened a pilot panel to assess the potential efficacy of a wash-off product containing 10% ReNuva SL-L70 + 90% Water, designed to improve skin condition and appearance as evaluated through photographic analysis. Participants completed a two-week washout phase—discontinuing all acne treatments—followed by four weeks of product use, with assessments at Baseline and Week 4.

STUDY RESULTS

Photographic analysis revealed that after four weeks of product use, two selected lesions shrank by 99.93% and 99.88%. Additionally, subjects demonstrated an overall reduction of 63.22%.

Meanwhile, MIC testing against *C. acnes* showed effective concentrations at 0.5% for ReNuva SL-A70 and 0.05% for ReNuva SL-L70.

Minimum Inhibitory Concentration (MIC)
C. acnes Bacteria

ReNuva™ SL-A70: 0.50% MIC
ReNuva™ SL-L70: 0.05% MIC

STUDY OUTLINE

In a three-week trial of BioReNuva Leave-On Hair Spray containing 10% ReNuva SL-L70 + 90% Water we examined the anti-microbial properties of Sophorolipids to eradicate *Malassezia* fungus. A panel of 8 subjects completed the study and no adverse events were observed. Expert Grading was conducted via clinical photography to evaluate for scalp flaking at baseline and following 3 weeks of treatment.

STUDY RESULTS

Eight participants showed statistically significant reductions in scalp flaking, with no adverse events reported. Expert Grading confirmed these improvements, indicating both the safety and efficacy of the formulation in promoting scalp health. Seven of eight, or 83.33%, of subjects saw an improvement with an average of 33.11% reduction in flakes from baseline. Further MIC information is detailed below:

Minimum Inhibitory Concentration (MIC)
Malassezia Fungus

ReNuva™ SL-A70: 0.75% MIC
ReNuva™ SL-L70: 0.50% MIC

CLEAN BEAUTY CERTIFIED...



...AND STORE APPROVED

SEPHORA



DOUGLAS

FEELUNIQUE



QUALITY IS OUR BRAND

Quality is at the core of everything we do—we design exclusively for the beauty care formulator, understanding the high bar they face when working with natural or biotech ingredients. That's why our materials are crafted to deliver exceptional performance without the typical challenges of color, odor, or formulation instability.



SOPHOROLIPIDS

RHAMNOLIPIDS

SETTING THE STANDARD FOR COLOR, ODOR AND PRODUCT STABILITY FOR BIOSURFACTANTS



WHY CHOOSE RENUVA™ BIOSURFACTANTS?

BioReNuva biosurfactants offer an unmatched combination of biotechnology-driven performance and gentle care. With an exceptionally low Critical Micelle Concentration (CMC), our sophorolipids and rhamnolipids deliver high efficacy at minimal use levels—enabling superior cleansing, solubilization, and emulsification while preserving formulation simplicity and economy.

Naturally derived and dermatologically mild, BioReNuva biosurfactants are clinically shown to support moisturization, sebum control, and skin barrier protection—making them a true functional-active hybrid.

For formulators seeking next-generation ingredients that bridge nature, science, and performance, BioReNuva sets the new standard. Whether you're building sulfate-free, microbiome-friendly, or sensitive skin formulations, our biosurfactants are the ideal choice to bring biotech beauty to life.