

Since 2001

# Ellead

Skin & Bio Research

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Clinical Evaluation  
In vitro test

# Scientific Beauty Substantiation

Global Leader in Asian Cosmetics Clinical Testing

Ellead is a leading clinical and biotechnology company specializing in cosmetics and food supplements. Since 2001, Ellead has been conducting rigorous clinical studies in compliance with internationally recognized standards and protocols to assess the efficacy, safety, and sensory attributes of cosmetics, cosmeceuticals, and functional food products with the highest standards of accuracy and reliability.

- ISO 9001: 2015 certification
- IRB (Institutional Review Board) registration



*“We provide trust and faith”*

# CORE VALUES



## Sophistication

Our dermatologists have various clinical experiences and our skilled researchers provide the most suitable testing method to meet the demands of our customers. We perform clinical trials in accordance with Good Clinical Practice (GCP) under the supervision of our dermatologists.



## Advance

In order to correspond with the current rapidly changing market, Ellead strives to extend its business spectrum to provide total clinical evaluation service focused on customer satisfaction by building a network with research and development centers and universities. We continue to develop new instruments software and studies to maintain our advanced technologies.



## Reliance

Ellead has been acknowledged for producing reliable and accurate results and accredited by the government. Many research results were presented at academic conferences. Now multinational corporations trust our research results and maintain a business partner.

# QUALITY MANAGEMENT

- Standard Operating Procedures (SOP) sets to meet various international regulations
- Obtained ISO 9001 certification from 2004
- Studies conducted based on GCP guideline
- Ellead Institutional Review Board (IRB) registered with Korea and US FDA
- Quality Assurance system for high reproducibility and accuracy
- Dermatologist-controlled studies
- Patented scientific photography system
- Multiple instruments to ensure reliability
- Various protocols tailored to each customer's needs



# TESTING OVERVIEW

## TESTING FOR

- Cosmetic products
- Active ingredients
- Raw materials
- Hair care products
- Toiletries
- Household-products
- Functional foods
- Cosmetic devices
- Medicated Products (Quasi-drugs)



# SAFETY TEST

## Patch test

A variety of patch test designs are available to test for irritation or sensitization in the product development process.

- Primary irritation test (PIT)
- Sensitive Skin Primary irritation test
- Repeated insult patch test (RIPT)



## Comedogenicity test

Comedogenic potential is tested by counting the number of comedones.

- Follicular biopsy test on the back
- Home use test with visual assessment



## In-use test

In-use test is designed to test your product on the consumer's view and dermatologist examination.

- Self-assessment questionnaires (satisfaction & tolerance)
- Adverse reaction
- Sensitive skin testing available
- Itching skin testing available



## Eye irritation test

Eye irritation test is conducted in collaboration with ophthalmologist and dermatologist to study the level of sting and irritation in the eye that occur from contacting a product.



## ONE STOP PROCESS

### Clinical efficacy study

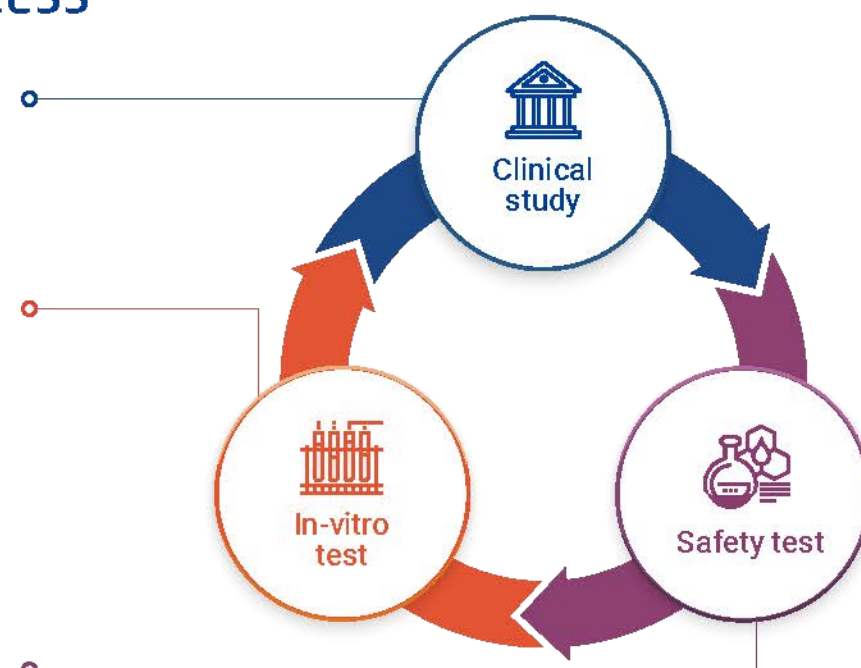
- Functional cosmetics
- Functional foods
- Quasi-drugs

### In-vitro test for cosmetic ingredients and products

- Cytotoxicity test
- Efficacy evaluation

### Clinical test for Safety evaluation

- Primary patch test
- Repeated insult patch test



# CLINICAL EFFICACY TEST



## Skin care

Clinical efficacy tests are conducted to test and substantiate the product's intended purposes. We offer a wide range of tailored studies to claim your product's efficacy and to maximize its impact in the marketplace using the latest equipment and technology.

### Skin care products

- Anti-aging · Anti-wrinkle · Anti-oxidation
- Skin Whitening · Brightness
- Sunscreen (SPF, PA, Waterproof)
- Skin Hydration & Lasting Effect
- Trans-Epidermal Water Loss (TEWL)
- Skin Barrier Recovery · Defence
- Skin Elasticity · Dermal Density
- Facial lifting · Volume
- Eyelid Sagging · Cheek Sagging
- Skin Sebum · Blackhead
- Pore Cleansing · Cover Lasting
- Skin Desquamation · Turn Over
- Skin Gloss · Translucency · Skin Thickness
- Dark Circle
- Cellulite · Puffiness · Stretch Mark
- Skin Temperature · Microcirculation
- Various Environment Condition Test
- Itchiness of Dry Skin
- Keratin Antioxidation
- Skin pH · Fatigue
- Skin Texture · Tone · Pore
- Acne Skin Relief · Suitable
- Stimuli Relief (SLS · TS · UV · IR)

### Raman spectroscopy

- Skin Penetration of Active Ingredient
- Water Concentration Profiles in Skin
- Assessment of NMF Content of Skin

### Anti-pollution

- Block for Fine-dust
- Fine-dust Cleansing Effect

### EEG test (Electroencephalogram)

- Brain Relaxation

Various test areas



Whitening



Face light reflection



Anti-wrinkle



In-vivo Raman spectroscopy



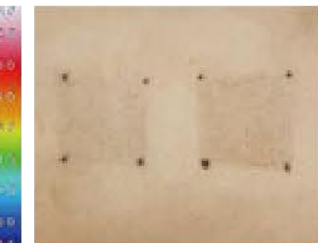
Pore



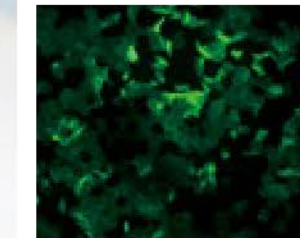
Skin temperature



Block for fine-dust



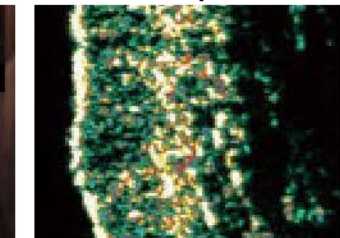
In-vivo anti-oxidation



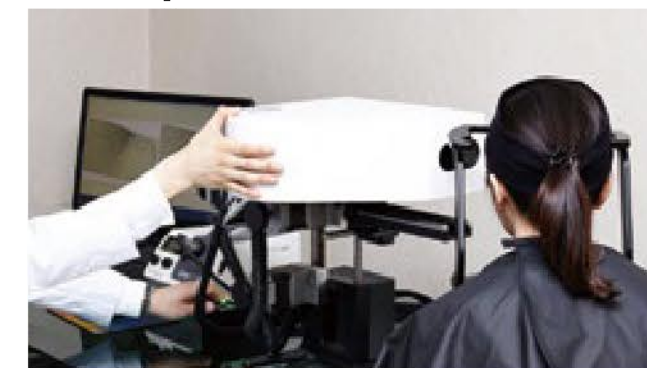
Facial lifting



Dermal density



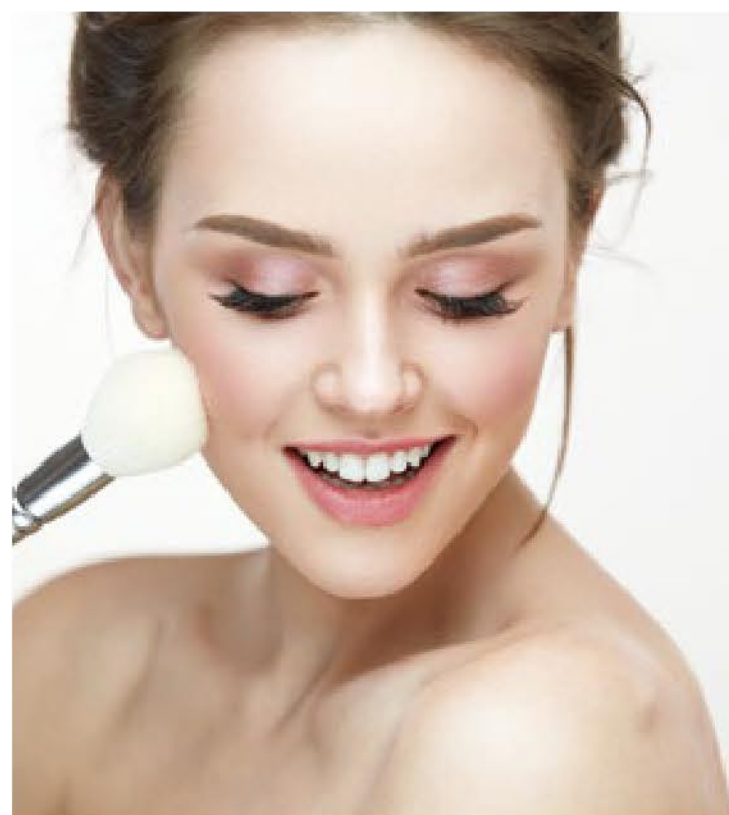
PRIMOS High Resolution



VISIA-CR



# CLINICAL EFFICACY TEST



## Make-up

A variety of makeup products from foundations to eye makeup products can be tested to prove their efficacies on improving skin tone and lightening as well as for long lasting coverage, waterproof, curling and volumizing effect.

- Makeup Color Lasting Effect · Homogeneity
- Makeup Coverage & Lasting Effect
- Mascara & Eyeliner Waterproof Effect
- Eyelash Curling & Volume
- Nail Color · Eyebrow Lasting Effect
- Smear Proof · Sweat Proof

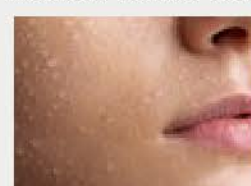
Color durability and homogeneity



Eyelash curling



Smear & Sweat Proof



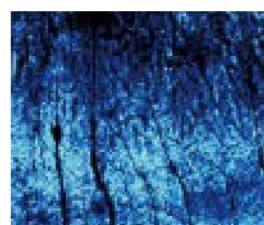
Color Lasting Effect



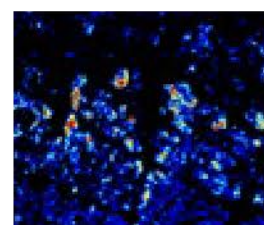
## Lip care

Clinical tests for lip products are mainly focused on evaluating moisturizing effects, wrinkle reduction, improvement in lip texture, alleviation of dryness, and smoothing of roughness.

- Hydration
- Wrinkle
- Texture
- Plumping
- Roughness
- Desquamation



Hydration of lips



Desquamation



Wrinkle



Plumping

## Sunscreen

Sunscreen test offers according to the desired standard listed below.



SPF	PA	Water resistance	in-vitro
ISO 24444 : 2019	ISO 24442 : 2022	ISO 16217 : 2020	FDA final rule : 2011
FDA final rule : 2011	MFDS	ISO 18861 : 2020	ISO 24443 : 2021
MFDS	CFDA	FDA final rule : 2011	
CFDA	ASEAN	Colipa : 2005	
ASEAN		MFDS	
		CFDA	
		AS/NZS 2604: 2012	


## Oral care

Oral care products, such as tooth paste or mouthwash, can be tested for tooth whitening effect, oral hygiene and breath odor.



- Tooth Whitening · Discoloration Prevention
- Oral Hygiene (Breath odor) · Halitosis
- Gingivitis Score · Bleeding on Probing by Dentist
- Tooth Surface Gloss / Roughness
- Plaque Index
- White Tongue Removal
- Dry Mouth
- Oral Microbiome · Anti-oxidation
- Tooth Sensitivity
- Safety in Oral Mucosa

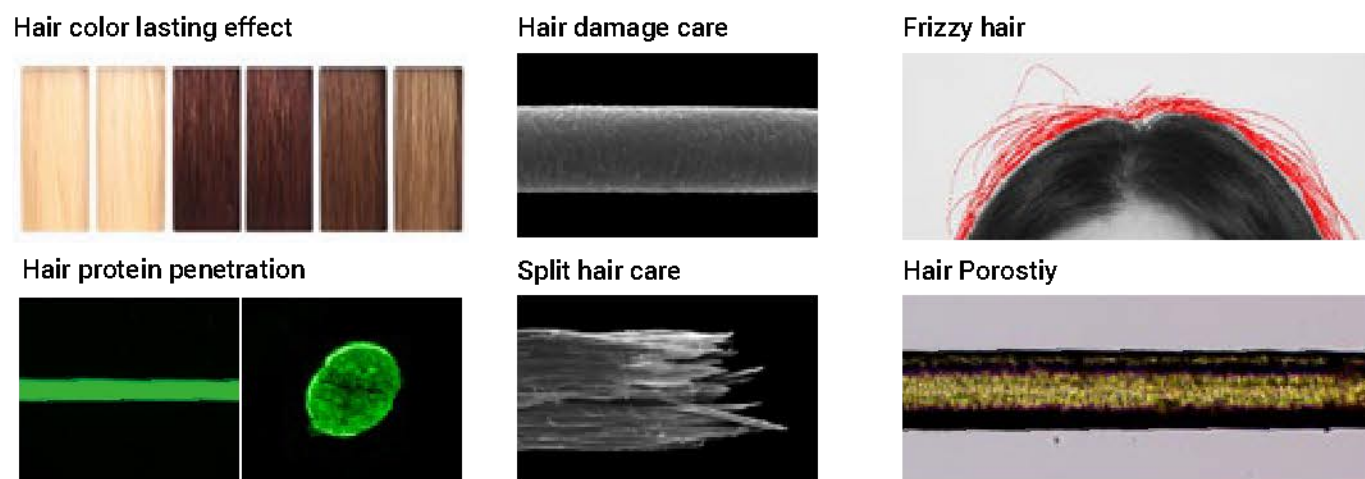
# CLINICAL EFFICACY TEST



## Hair care

A wide range of hair product testing is available including hair growth studies with phototrichogram as well as hair condition, color, strength and style testing services.

- Hair Growth · Thickness
- Hair Damage · Loss
- Hair Gloss · Hydration
- Hair Tensile Strength · Elasticity
- Curling · Volume · Softness
- Dye Color Durability · Gray Hair Covering
- Scalp Sebum · Desquamation · Cleansing
- Scalp Hydration · Elasticity · Temperature
- Dandruff
- Hair Density
- Hair Porosity



# OTHERS & MARKETING SUPPORT

## Others

- Infant Testing (Safety · Hydration · TEWL)
- Synergy with Dermatological Treatment
- Collaboration with Specialists
- Guidelines (MFDS · JCSS · US FDA · ISO etc)



Infant Testing

## Marketing Support

- Testing Design Support
- Marketing Claim Support
- Before & After Comparison Photography
- Innovative Cosmetic Advertising Claim
- Temperature Control Test



Before

After

# FUNCTIONAL FOODS



Efficacy claims are tested after the approval of Ellead Institutional Review Board.

- Blood examination, urine examination
- Diet investigation

## Skin care

- Skin Hydration, Anti-wrinkle, Whitening, Skin Elasticity

## Body

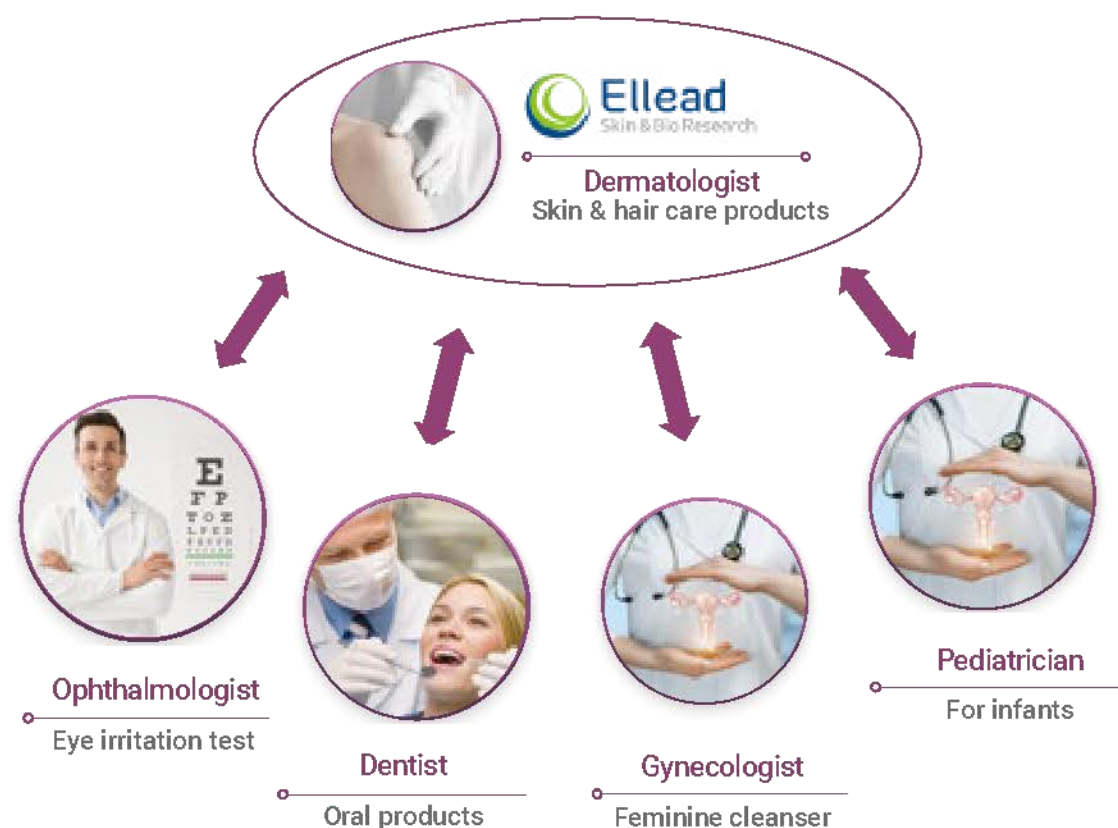
- Cellulite
- Nail
- Hair

# AUTHENTICATION MARK

The authentication mark is issued when specialists in various fields, such as dermatologists, conduct tests as principal investigators to verify the safety and effectiveness of a product on human skin, ensuring high reliability of the test results.



# COLLABORATION



# IN VITRO TEST



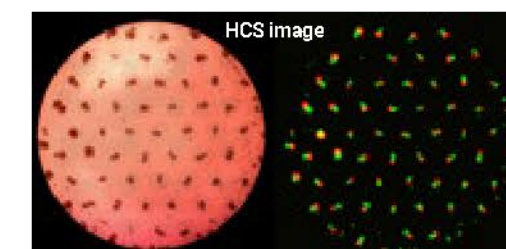
## In-vitro test

In-vitro testing is essential in raw material active ingredient development. Ellead offers various efficacy and safety tests customized to your needs at our new Ellead Osong research center dedicated solely for in-vitro testing.

- |  |   |   |
|--|---|---|
| <p><b>Anti-oxidant</b></p> <ul style="list-style-type: none"> <li>• DPPH radical scavenging assay</li> <li>• ABTS radical scavenging assay</li> <li>• ORAC assay</li> <li>• Total polyphenol quantification assay</li> <li>• SOD activity assay</li> <li>• ROS scavenging assay</li> <li>• Carbonylated protein fluorescence staining</li> </ul> | <p><b>Anti-wrinkle</b></p> <ul style="list-style-type: none"> <li>• Collagen synthesis assay</li> <li>• Collagenase inhibition assay</li> <li>• Collagen fluorescence staining</li> <li>• Elastase inhibition assay</li> <li>• Elastin synthesis assay</li> </ul> | <p><b>Cytotoxicity&amp;Cell viability</b></p> <ul style="list-style-type: none"> <li>• MTT assay</li> <li>• WST-1 assay</li> <li>• LDH assay</li> <li>• Alamar blue assay</li> <li>• Wound healing assay</li> <li>• Agar diffusion assay</li> </ul> |
| <p><b>Whitening</b></p> <ul style="list-style-type: none"> <li>• Melanin inhibition assay</li> <li>• Tyrosinase inhibition assay</li> <li>• DOPA oxidation inhibition assay</li> </ul>   | <p><b>Moisture&amp;Skin barrier</b></p> <ul style="list-style-type: none"> <li>• mRNA expression analysis</li> <li>• TARC (Thymus and Activation-regulated Chemokine) assay</li> </ul>  | <p><b>Hair</b></p> <ul style="list-style-type: none"> <li>• Human dermal papilla cell viability</li> <li>• mRNA expression analysis</li> <li>• Hair protein expression analysis</li> <li>• Hair pore space analysis</li> </ul>                      |
| <p><b>Eye irritaion test</b></p> <ul style="list-style-type: none"> <li>• Short time exposure, STE (OECD 491)</li> <li>• Reconstructed Human Cornea-like Epithelium (OECD 492)</li> </ul>  | <p><b>Anti-inflammation</b></p> <ul style="list-style-type: none"> <li>• Nitric oxide inhibition assay</li> <li>• Cytokine inhibition assay</li> <li>• mRNA expression analysis</li> <li>• PGE2 assay</li> </ul>  | <p><b>Others</b></p> <ul style="list-style-type: none"> <li>• Lipid inhibition assay</li> <li>• Fine dust</li> </ul>  |

## 3D hair follicle organoids

- 96-well based high throughput screening
- Micro patterned (60~150/well) plate
- Hair growth candidates efficiency test
- Automated imaging & analysis using HCS\*
- \*HCS: High-content screening
- Result analysis (n=over 100)
- Quantitative analysis (Fluorescence staining)
- Hair growth comparison (Length & diameter)





# CONTENTS

## Skin care

- **Fine Dust Anti-adhesion**
- **Anti-bacterial**
- **Skin Anti-oxidation**
  - Skin Stress Relief
- **Whitehead**
- **Blackhead**
- **Defense of Skin Damage (TS / SLS / UV / IR)**
- **Skin Calming**
- **Temperature**
- **Cheek Sagging**
- **Complexion**
  - Skin Vitality
  - Dull, Radiance, Rosy, Healthy Skin Tone
- **Desquamation Turnover**
- **Ease of Redness**
- **Resilience**
- **Moisture Affinity**
- **Sebum Control**
  - Daily Sebum
  - Sebum Secretion Rate
- **Skin Barrier Recovery**
- **Brightness**
- **Skin Density**
- **Skin pH**
- **Redness**
- **Lifting**
  - Anti Gravity
  - Sagging
- **Texture**
  - Skin Smoothness
  - Texture Density (Skin Anisotropy)
- **Tone Evenness**
- **Volume**
- **Cooling**
- **Wrinkle**
  - Expression Lines
  - Bold / Fine
- **Inhibits Sweat Secretion**
- **Desquamation**
  - Corneocyte Unevenness
  - Uneven Keratin Thickness
  - Uneven Keratinization
- **Fatigue**
- **Translucency**
  - Skin Clarity
- **Stickiness**
  - Mask-proof / Transfer-proof
- **3D Elasticity**
  - 360° Elasticity
  - Elasticity Uniformity
- **Elasticity**
  - Inner Elasticity
  - Firmness
  - Softness
- **Gloss**
  - Radiance Barrier
  - 3D Gloss
  - Multi Gloss
- **Hydration**
  - Inner Hydration
  - Moisture Density
  - Cumulative Hydration
- **Hydration Lasting**
  - Extreme Long Lasting\_100hrs
- **TEWL**
  - Skin Barrier Repair or Strength
- **Soothing**
  - Soothing External Irritations
- **Pore**
  - Horizontal and Vertical Pores

## MFDS Guidelines

- **SPF / PA / Water Resistance**
- **Wrinkle**
- **Wrinkle (JCSS)**
- **Whitening**
- **Moisture**
- **Elasticity**
- **Sebum Control**
- **Acne-prone Skin Relief**
- **Non-comedogenicity**
- **Cellulite**
- **Skin Blood Circulation**
- **Dark Circle**
- **Stretch Mark**
- **Edema (Facial, Eyelid, Calf)**
- **Restoration of Skin Barrier Function**
- **Fine Dust Block**
- **Dandruff, Itch**
- **Hair Loss Relief**
- **Tooth Whitening**
- **Halitosis Relief**

## Cleansing

- **Fine Dust Cleansing**
  - Ultrafine Dust Cleansing
- **Cleansing**
  - Multiple Cleansing
- **Cleansing Easiness**
- **Pore Cleansing**

## Safety

- **Primary Irritation Patch Test (PIT)**
- **Sensitive Skin PIT**
- **Repeated Insult patch Test**

## Hair/Scalp

- **Dyeing Lasting**
- **Dandruff**
- **Scalp Cleansing**
- **Fine Dust Cleansing**
- **Hair Fluorescence**
- **Hair Falling Out**
- **Split End**
- **Hair Curl Lasting**
- **Hair Damage**
- **Hair Elasticity**
- **Hair Gloss Lasting**
- **Hair Roughness**
- **Hair Softness**
- **Hair Tensility**
- **Hair Volume**
- **Scalp Desquamation**
- **Scalp Elasticity**
- **Scalp Temperature**
- **Volume Cover Lasting**
- **Gray Hair**
- **Hair Gloss**
- **Hydration**
- **Hair Line Improvement**
- **Scalp Sebum**
- **Hair Density**
- **Hair Porosity**
- **Hair Protein**
- **Flyaway & Frizz**

## Make-up

- **Make-up Color Lasting**
- **Cover Lasting**
- **Pore Cover Lasting**
- **Make-up Color**
- **Mascara Lasting**
  - Curl, Volume, Long lash
- **Adhesion**
- **Adhesion Lasting**
- **Sweat Proof**
- **Water Proof**
- **Activity Proof**
- **Smudge Proof**

## Oral Care

- **Halitosis**
- **Oral Mucosa Safety**
- **Dental Plaque**
- **Gum Inflammation**
- **Oral Bacteria**
- **Periodontitis**
- **Gingivitis**
- **Tooth Discoloration**
- **Tooth Sensitivity**
- **White Coating of Tongue**
- **Tooth Gloss**
- **Tooth Whitening**

## Special

- **Medical Treatment**
  - Fractional Laser, HIFU, IPL, Neobeam, RF, Skin Scaling, Toning
- **Water Contents in Skin**
  - Amount of Moisture in Skin
- **NMF Contents in Skin**
- **Skin Absorption**
  - Absorption Depth and Amount, Rate
- **Quantification of Adjective Expression**
  - Skin Vitality, Dull, Radiance, Rosy, Healthy Skin Tone
- **Temperature and Humidity Control Test**
- **Sensitive Skin Improvement**
  - Skin Sensitivity Score
- **Daily Frictional Irritation Relief**
- **Diaper Irritation Relief**
  - Diaper Rash (TEWL, Erythema)
- **Infant Hydration**
- **Infant TEWL**
  - Skin Barrier Evaluation for Kids
- **Infant Usability**
  - Pediatric Specialist Evaluation
- **Feminine Hygiene Product**
  - Gynecologist Visual Evaluation
- **Eye Irritation**
  - Ophthalmologist Eye Irritation Evaluation
- **VAS(Visual Analog Scale) Evaluation**
  - Odor Reduction
- **Visual Evaluation**
  - Various Grading System (0-7scale)
- **Usability**
- **Sensitive Skin Usability**
- **HUT**
  - Safety HUT
- **Scent Lasting Assessment**
- **EEG (Electroencephalogram)**
  - Relaxation
  - Fragrance Sensory Evaluation



# ACHIEVEMENT

## Certificates & Awards



- ISO 9001 : 2015
- Certificate of INNO-BIZ
- Certificate of Venture Enterprise
- IRB\_FDA (IORG0007174)
- IRB\_KOR (1-219969-A-N-01)
- Certificate of Global Leading Company 1,000+
- Professional Research Business Operator
- Corporate Research Institute Certification
- Presidential Award : One Million Dollar Export Tower
- Presidential Award : Commendation for Technological Innovation
- Minister of Trade, Industry and Energy Award : Commendation for contributions to National Industrial Development
- Governor of Gyeonggi Province Award : Commendation for contributions to Venture Industry Development
- Financial Services Commission : Savings Day Commendation

## MOHW & MFDS Guidelines Project Execution



### Execution of the Ministry of Health and Welfare (MOHW) Research Project

- National Skin Characteristics Database Development Project

### Execution of the MFDS Guideline Research Project

- Cosmetics Efficacy Evaluation for Suitability on Acne-prone Skin
- Cosmetics Efficacy Evaluation for Dark Circles
- Cosmetics Efficacy Evaluation for Edema Relief
- Cosmetics Efficacy Evaluation for Skin Blood Flow Improvement
- Determining of Protection Factor of UVA Test Method (PA++++)
- Study of Evaluation Methods for Water Resistance of Sunscreen Product
- Study of Evaluation Methods for Cosmetics : Whitening Improvement (in vitro)
- Study of Evaluation Methods for Cosmetics : Wrinkle Improvement (in vitro)

## Patents



- Quantification of Adjectives that Describe Facial Complexion to Evaluate Various Expressions
- Quantitative Analysis Method of Sample Penetration in Skin Tissue Using Raman Spectroscopy
- Skin Image Overlay and Matching Method
- Stereoscopic Imaging Measurement System and Method for Evaluating Skin Wrinkles
- Moire Image Processing Method for Measuring Skin Lifting
- Contaminant Adsorption Test Device
- Fine Dust Adsorption Test Device
- Ellead color Map
- ElleadSys Pro

## Sophistication · Advance · Reliance



“We provide trust and faith”



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