Volume
Wrinkles
Fat atrophy

REJUPLLA®

Sterile absorbable Poly-L-Lactic Acid
(PLLA) Dermal Filler

"...Beauty completed with erasing the traces of aging...."

DFK BIO LAB+

HIGH QUALITY COLLAGEN BOOSTER

REJU PLLA®

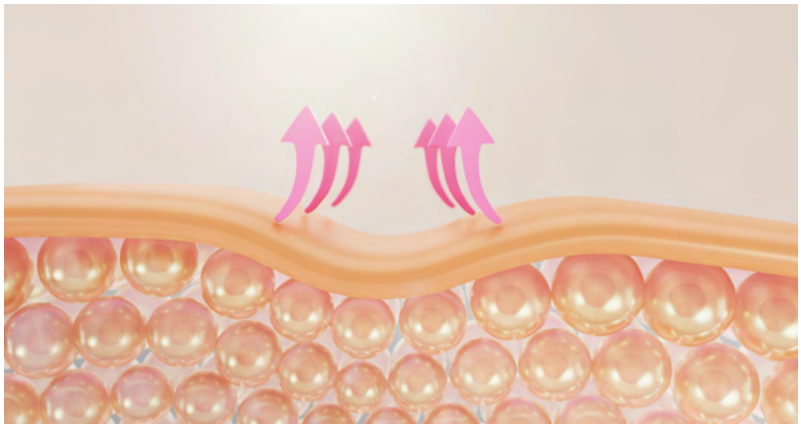
Improvement of volume and wrinkles of true facial skin

PLLA (poly-L-lactic acid) polymer particles, which are safely absorbed by the body, naturally break down within the skin, stimulate deep within the skin, and promote the skin's own collagen production to naturally improve volume defects and wrinkles.

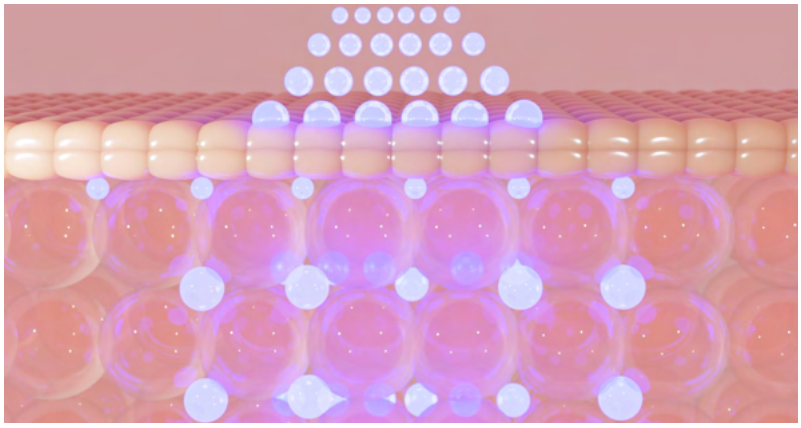
[Product Name] Sterile Absorbable Poly-L-Lactic Acid(PLLA) Dermal Filler
[EC Certificate No.】 1434-MDD-107/2021 Full Quality Assurance System , 1434-MDD-106/2021 EC Design-examination
[Intended Use] It is used as injection using syringe into deep dermis for the treatment of severe facial wrinkles and folds, replacement of volume defects, facial lipoatrophy and improvement of facial contour deformities.
[Packing Unit] 1 vial/box
[Storage] Store at room temperature below 30 C. Do not freeze

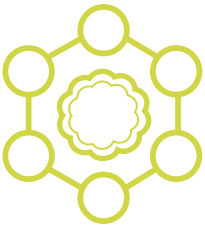
About REJUPLLA®

REJUPLLA is a collagen bio-stimulator containing PLLA microspheres, carboxymethylcellulose (CMC), and mannitol, forming a tissue-friendly micellar structure.
The optimized mixing ration of PLLA, CMC, and mannitol ensures collagen production in the skin while stimultaneously improving volume defects, wrinkle and folds, and facial lipoatrophy effect.

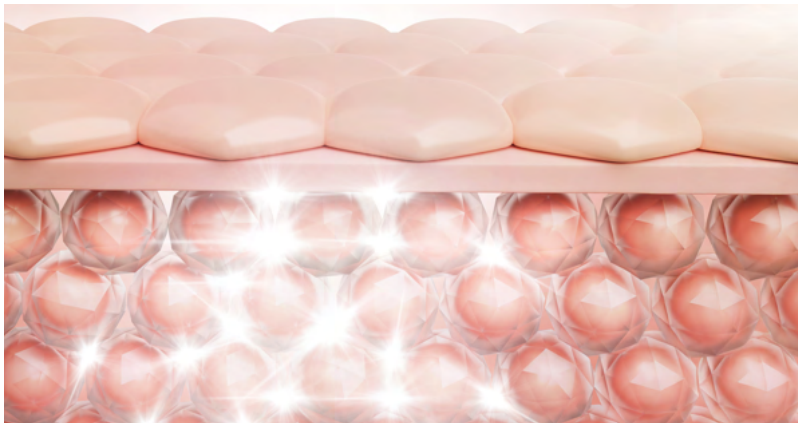


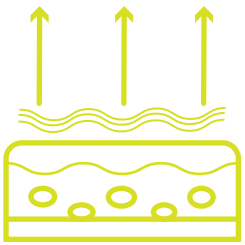
Long-lasting and excellent collagen promotion effect





The soft oval particles are easily absorbed into the skin





H2O (Water) and CO2 (Carbon dioxide)
It is broken down and eliminated from the body

Europe CE certified, Korea MFDS certified

Why REJUPLLA® ?

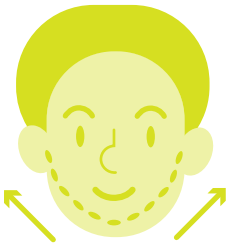
[Natural volume with longetivity]

Injected REJUPLLA (poly-l-lactic acid) stimulates collagen in the skin layer to restore volume.
It creates volume with long-lasting self-collagen

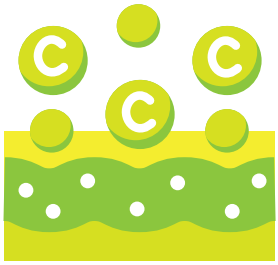
European CE certification, Korean MFDS certification

PLLA (ingredient) medical device

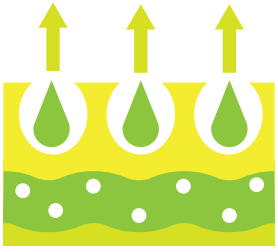
Proven safety



This product can improve skin volume, wrinkles, and elasticity through collagen regeneration



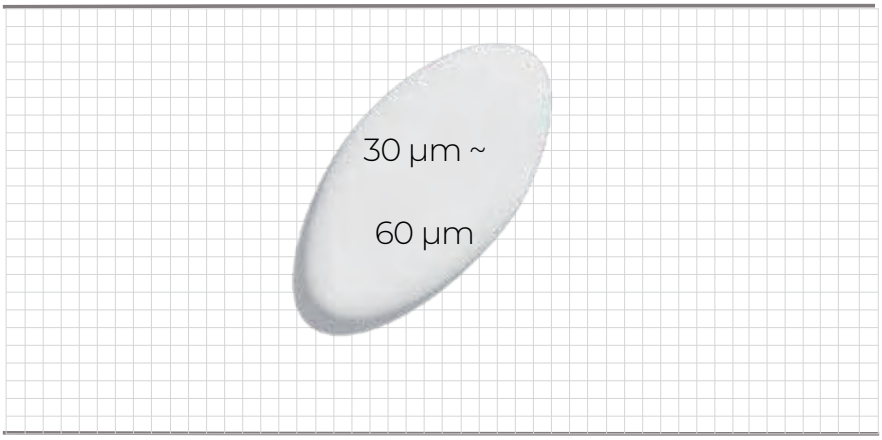
PLLA forms a collagen support layer in the dermis through sophisticated fibroblast stimulation and M2 macrophage response



REJUPLLA® maintains long-lasting effects up to 24 months with its solid L-form

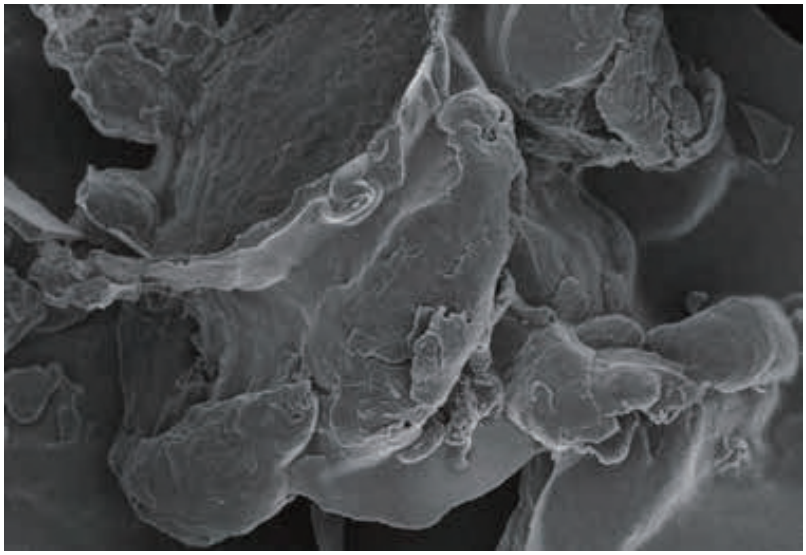
REJUPLLA® is the ideal product for rapid recovery and safe return to daily life

REJUPLLA is a high-quality collagen stimulator that improves volume defects, deep wrinkles, and fat lipoatrophy



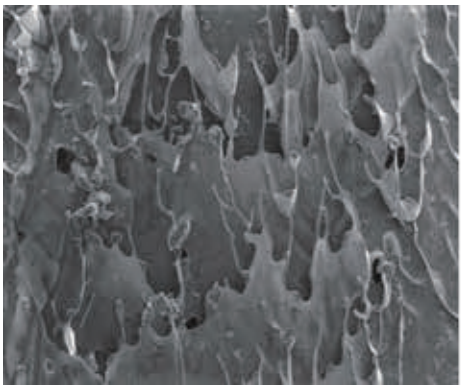
Product name	REJUPLLA
Major component	PLLA + CMC + Mannitol
Dose	365mg / vial
Particle size	30 μm ~ 60 μm
Target layer	Subcutaneous & Dermis layer
Treatment area	Wrinkles, volume defects, fat lipoatrophy

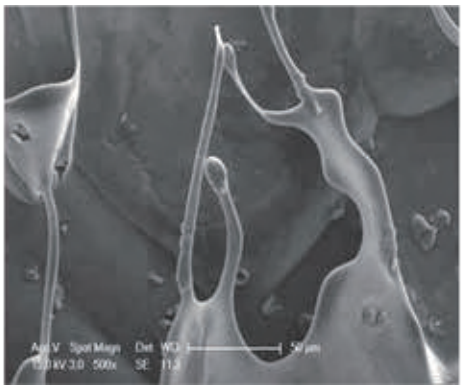
REJUPLLA® Shape (SEM) & Composition

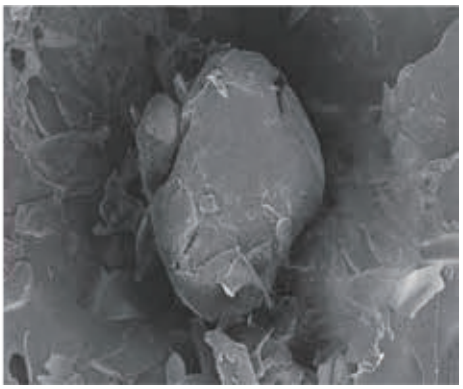


PLLA microsphere has an oval shape, reduces unwanted inflammatory reations and the possibility of side effects.

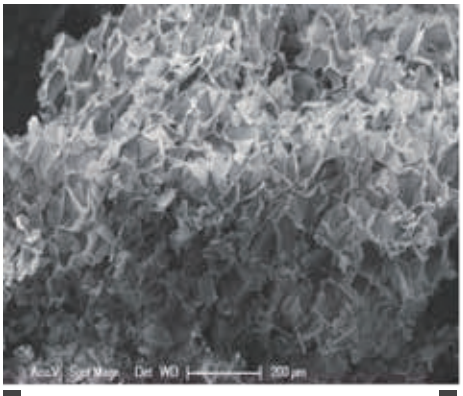
REJUPLLA



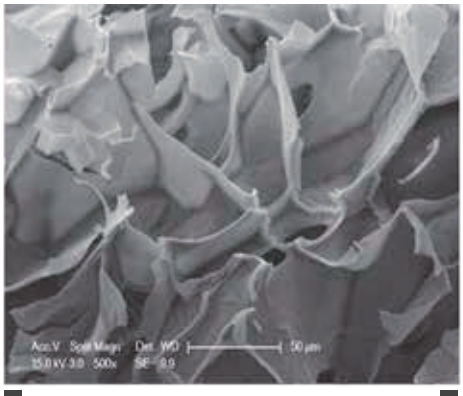




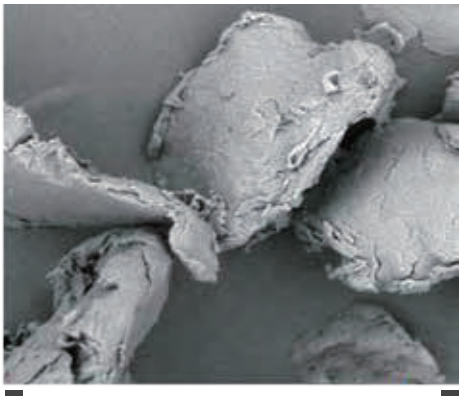
Product A



SEM Mag 100



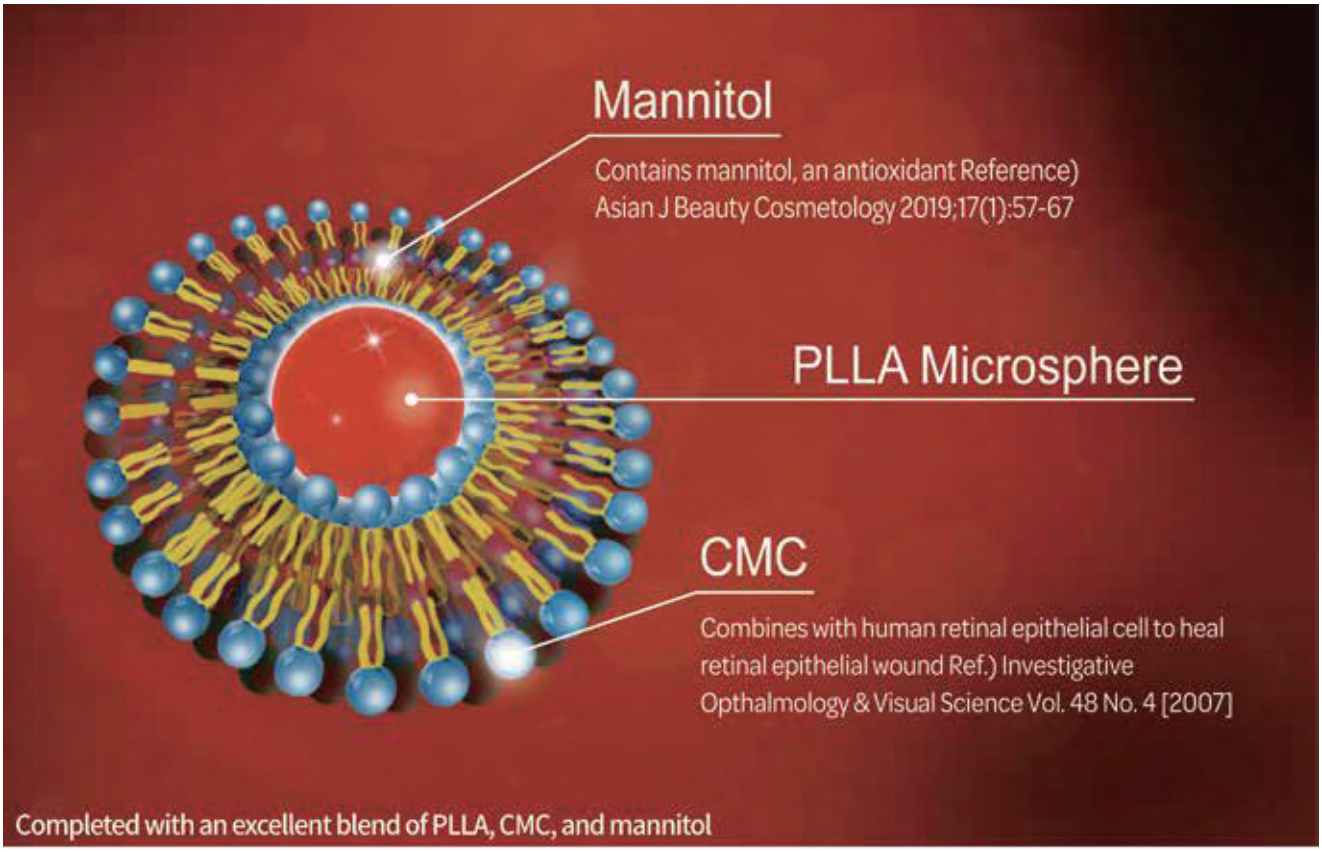
SEM Mag 500

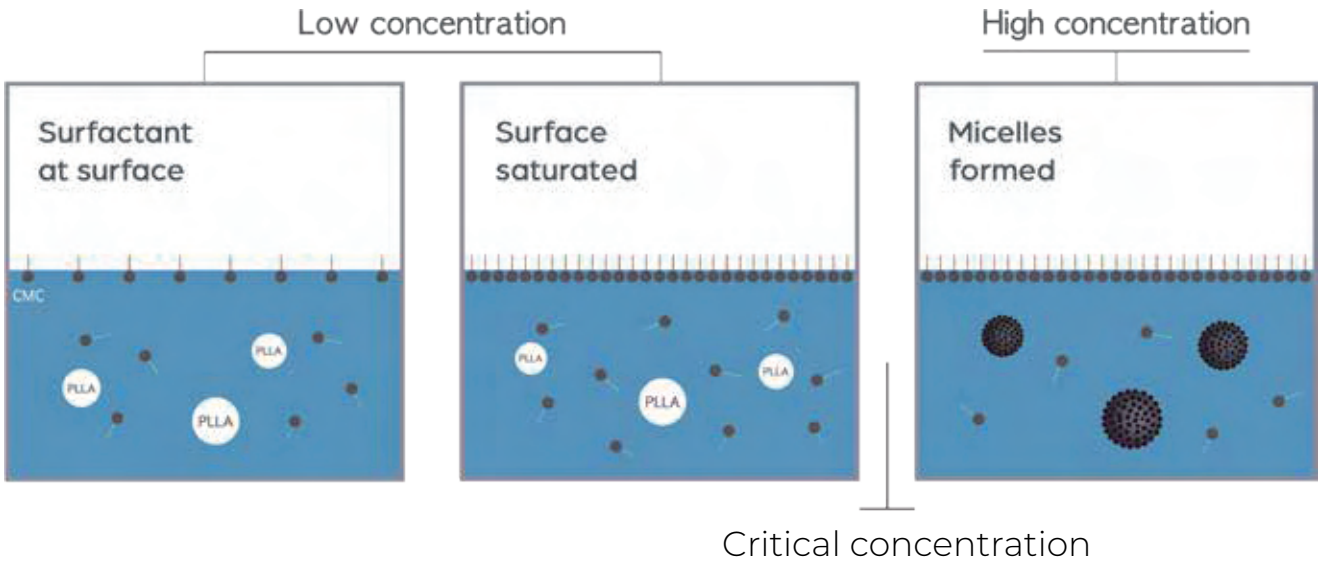


SEM Mag 2000

Micellar formation mechanism of PLLA and CMC

PSMMT (PRP Science Microsphere Micelle Technology)reduces unwanted side effects such as nodules while maximizing biocompatibility with skin tissue. In addition, the micelle (CMC) structure of PLLA ensures smooth injection and improves the convenience of the procedure.





PLLA collagen formation mechanism

The IL-4, IL-13 axis in skin fibrosis and scarring

TH1 CYTOKINES (T HELPER TYPE1)

IL-2
IL-12
IFN-γ
TNF-β

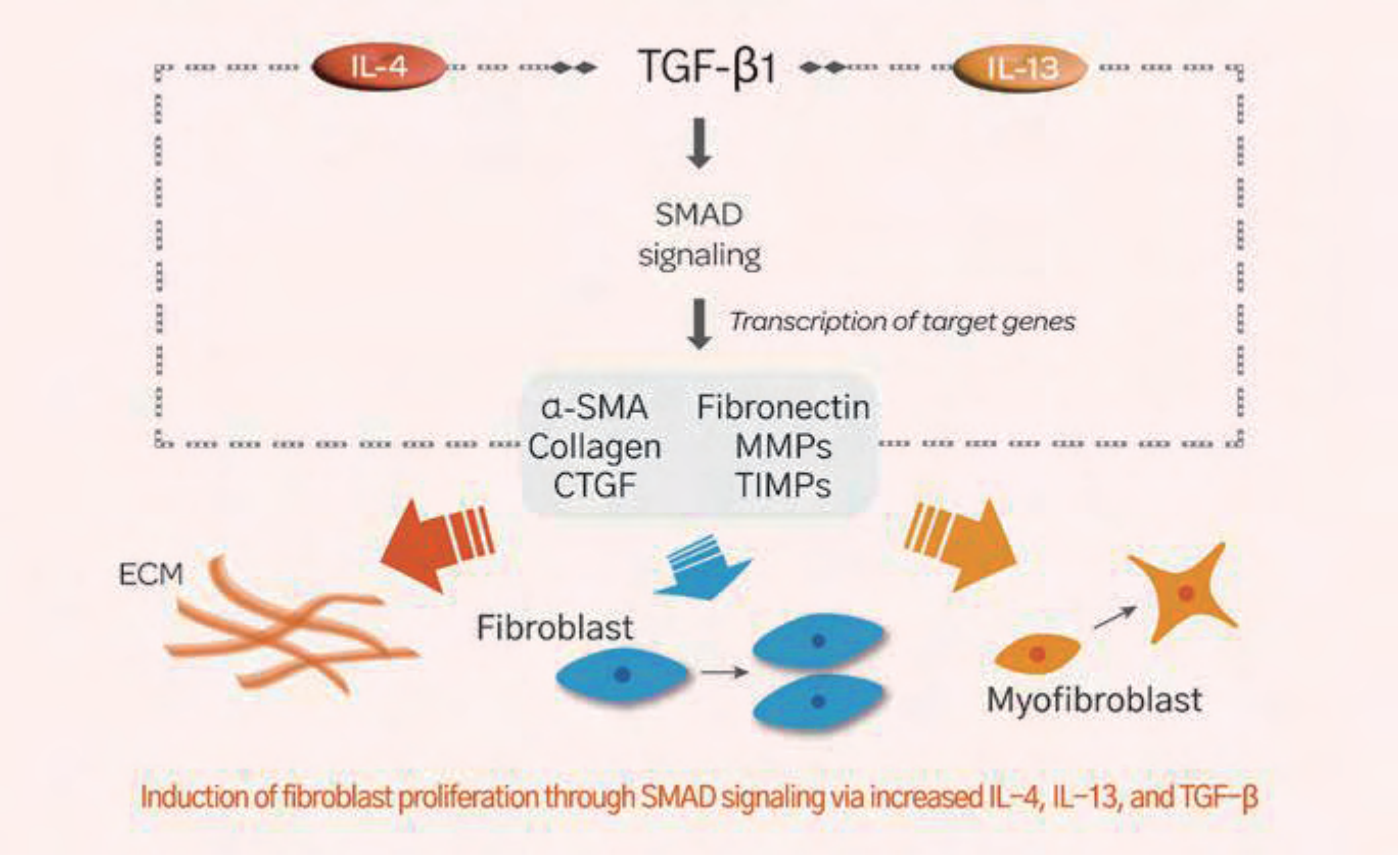
Type 1 Immunity
- Protective inflammation
- Defence against intracellular pathogens
- Tissue destruction (collagen degardation)

Type 2 Immunity
- Resolution of cell-mediated inflammation
- Barrier defences
- Tissue repair and regeneration (collagen synthesis)

IL-4
IL-5
IL-9
IL-10
IL-13

TH2 CYTOKINES (T HELPER TYPE2)

Th1 Cytokines promote Collagen Synthesis



PLLA → IL-4, IL-13↑ → M2 polarization↑

TGFβ ↑
pSMAD2 ↑ / CTGF ↑
α-SMA ↑
P13K/AKT ↑
Collagen Synthesis ↑

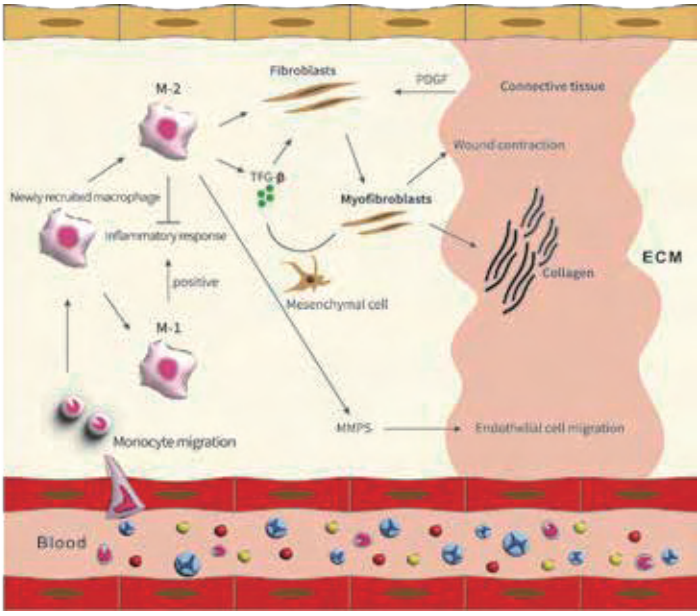
IL-10 ↑
TIMP ↑
MMP2 ↓
Collagen degradation↓

Skin rejuvenation

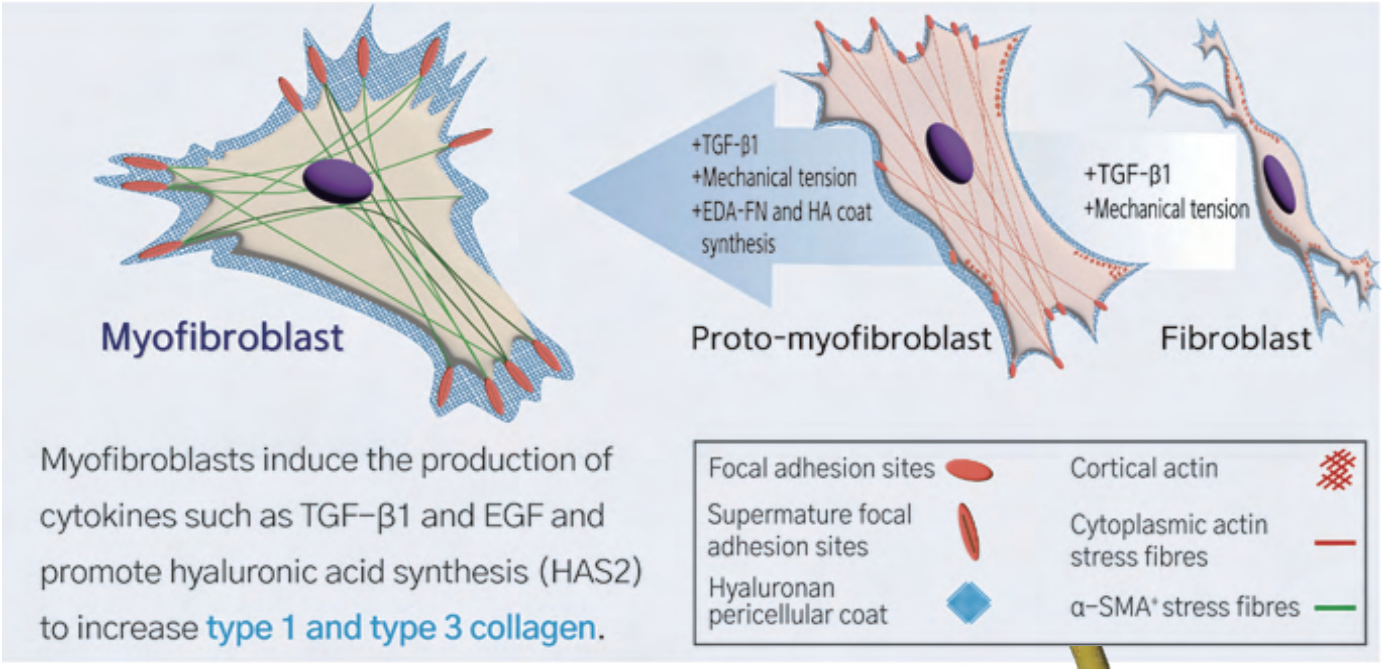
PLLA M2 macrophage mechanism

[M2 macrophage action]

REJUPLLA consists of spherical solid particles and induces differentiation of M2 macrophages through a foreign body reaction. In the process, fibroblasts are stimulated and the level of TGF-β1 is increased, resulting in activation of myofibroblasts and collagen production.

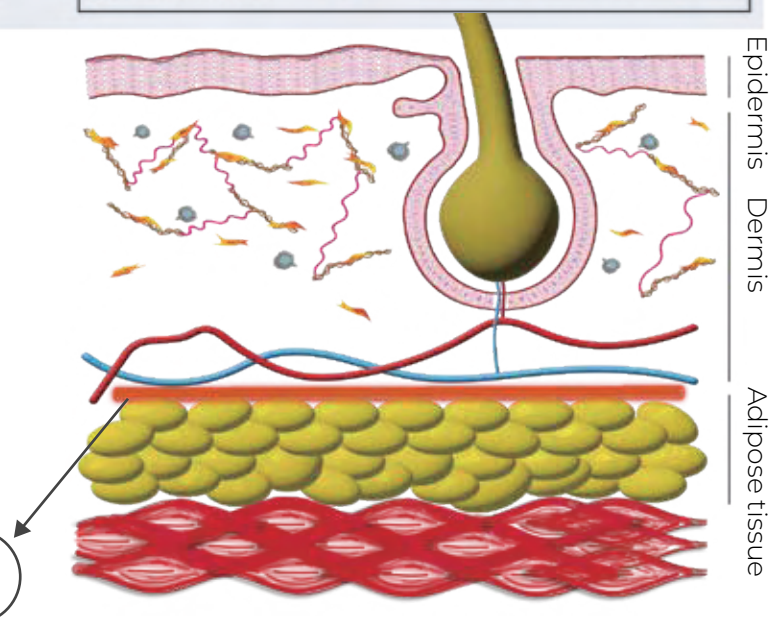


Reference:
Macrophages in skin injury and repair Immunobiology Volume 216, Issue 7, July 2011, Pages



[REJUPLLA's target layer]

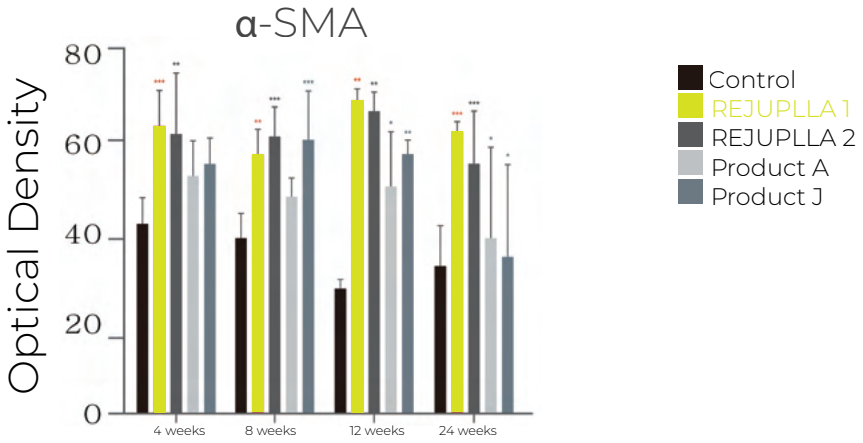
REJUPLLA is suitable for use between the dermis and subcutaneous tissue. It is an ellipsodial particle with a large surface area that uses the M2 macrophage response to convert fibroblasts into myofibroblast, forming the extracellular matrix (ECM).



Expression of α-SMA

[Effective expression of α-SMA]

REJUPLLA® 1 showed the highest α-SMA activation compared to other products at 24 weeks



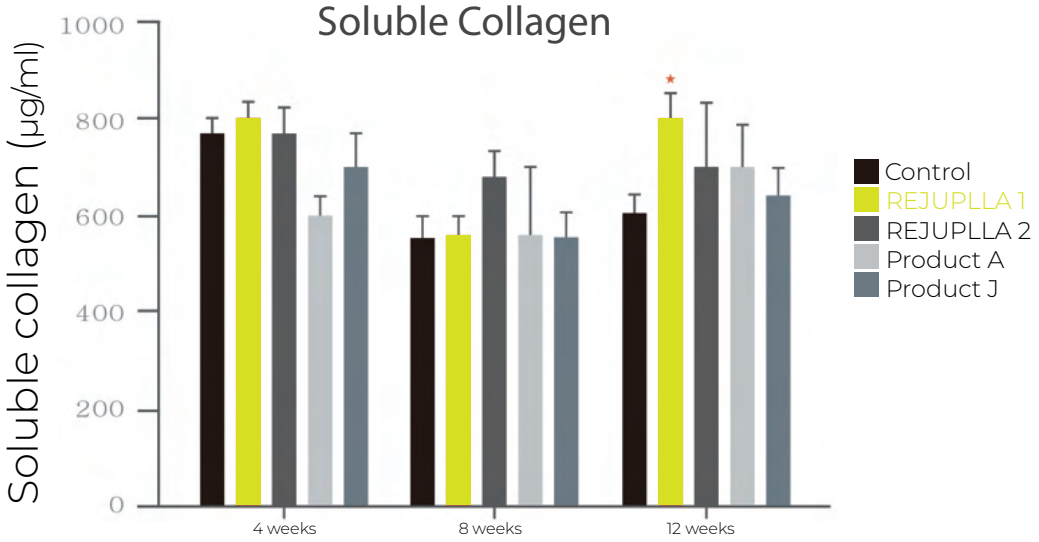
	4 weeks	8 weeks	12 weeks	24 weeks
REJUPLLA 1	44%	41%	72%	64%
REJUPLLA 2	38%	51%	70%	55%
Product A	20%	24%	57%	40%
Product J	24%	50%	74%	35%

[Figure & Table] Image optical density percentage (%) compared to α-SMA control over time after filler injection

Source: Chung-Ang University Medical Center Department of Dermatology

[Increased Soluble Collagen]

REJUPLLA® 1 injection group showed significant increase in soluble collagen at 12 weeks



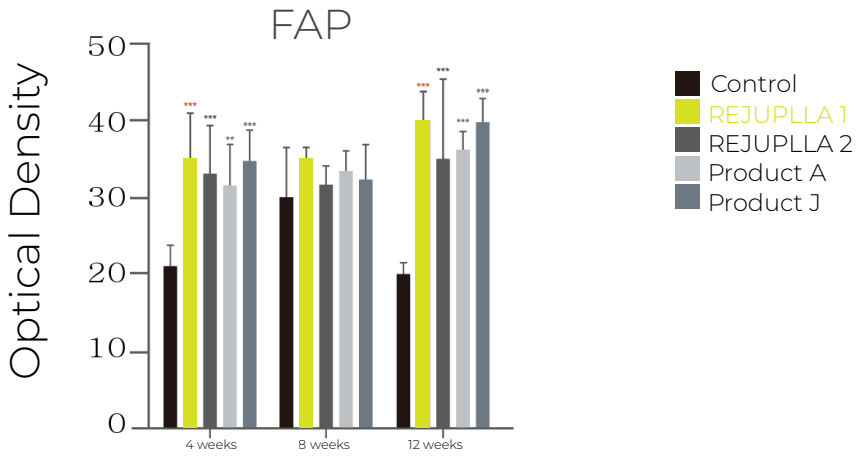
REJUPLLA 1 injection group is the only group displaying significant level of soluble collagen after filler injection at 12 weeks

Source: Chung-Ang University Medical Center Department of Dermatology

Expression of FAP

[Effective expression of FAP]

REJUPLLA® 1 showed the highest activation of FAP compared to other products at 12 weeks



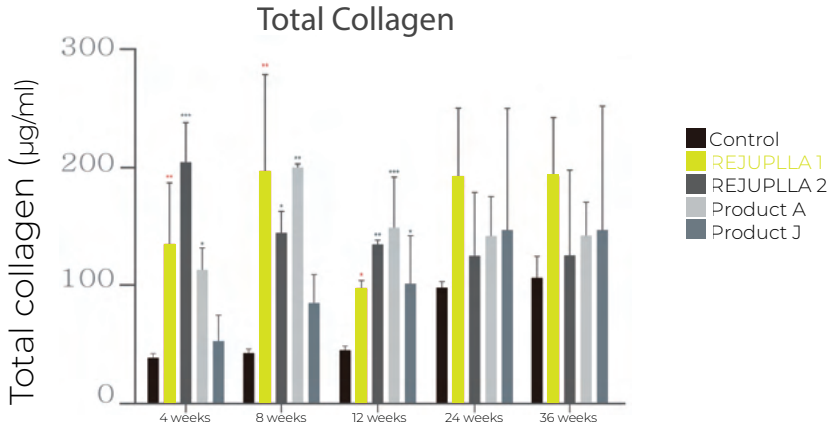
	4 weeks	8 weeks	12 weeks
REJUPLLA 1	70%	17%	99%
REJUPLLA 2	60%	8%	76%
Product A	53%	10%	83%
Product J	67%	8%	95%

[Figure & Table] Image optical density percentage (%) compared to FAP control over time after filler injection

Source: Chung-Ang University Medical Center Department of Dermatology

[Increased Total Collagen]

REJUPLLA® 1 showed the highest increase in total collagen compared to other products



	4 weeks	8 weeks	12 weeks	24 weeks	36 weeks
REJUPLLA 1	346%	491%	221%	186%	174%
REJUPLLA 2	529%	348%	276%	125%	121%
Product A	291%	504%	348%	147%	134%
Product J	151%	207%	234%	152%	144%

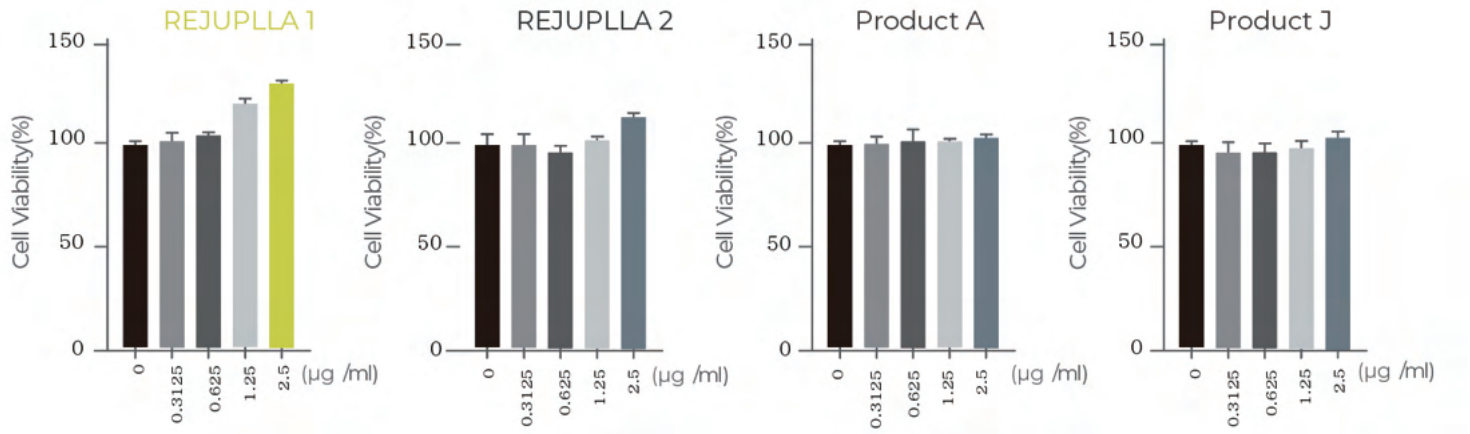
[Figure & Table] Total collagen percentage (%) compared to the control group over time after filler injection

Source: Chung-Ang University Medical Center Department of Dermatology

Non-toxic cell proliferation

[Cell Viability] REJUPLLA® is a safe and effective PLLA filler

REJUPLLA® is a safe product that does not exhibit toxic effects to cell growth



[Figure] Cell toxicity assay (24 hours) of REJUPLLA 1, REJUPLLA 2, Product A and Product J on murine fibroblast (L929)

In mouse fibroblast cells (L929), REJUPLLA 1, 2, Product A and Product J were confirmed to be non-cytoxic up to a concentration of 2.5 μg/mL after 24 hours of treatment, and REJUPLLA 1 showed a significant cell proliferation rate after 24 hours at concentrations of 1.25 and 2.5 μg/mL.

Source: Chung-Ang University Medical Center Department of Dermatology

[Least Inflammation and Foreign body Reaction]

REJUPLLA® 1 injection group showed low inflammation and foreign body reactions at 4 weeks

Time	Grade	REJUPLLA 1	REJUPLLA 2	Product A	Product J
3 day	Mean/Median	2.17/2.13	2.44/2.50	2.38/2.38	2.19/2.25
	Minimum	2.00	2.00	2.25	2.50
	Maximum	2.50	2.75	2.50	2.25
1 week	Mean/Median	2.13/2.13	2.03/2.00	2.19/2.13	2.00/2.00
	Minimum	1.75	2.00	2.00	1.75
	Maximum	2.50	2.25	2.50	2.25
4 weeks	Mean/Median	2.06/2.13	2.00/2.00	2.19/2.13	2.06/2.00
	Minimum	1.50	1.75	2.00	2.00
	Maximum	2.50	2.25	2.50	2.25
8 weeks	Mean/Median	1.94/2.00	1.63/1.63	1.94/2.00	1.75/1.88
	Minimum	1.50	1.50	1.50	1.25
	Maximum	2.25	1.75	2.25	2.00

Inflammation and foreign body reaction after REJUPLLA 1 injection over time on H&E Staining (x100 magnified)

Source: Chung-Ang University Medical Center Department of Dermatology

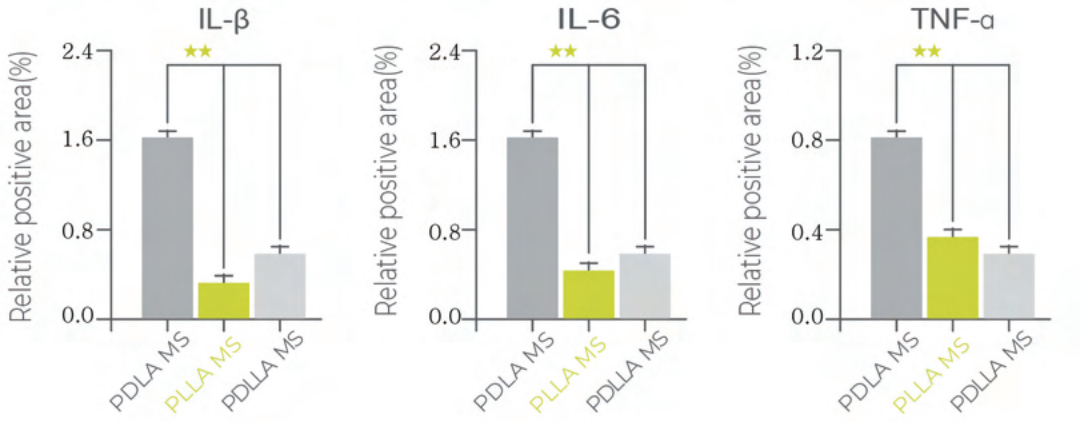
4 efficacies

Safety

PLLA has 3 times lower inflammation levels than PDLLA and PDLA

Minimum TNF - α Level

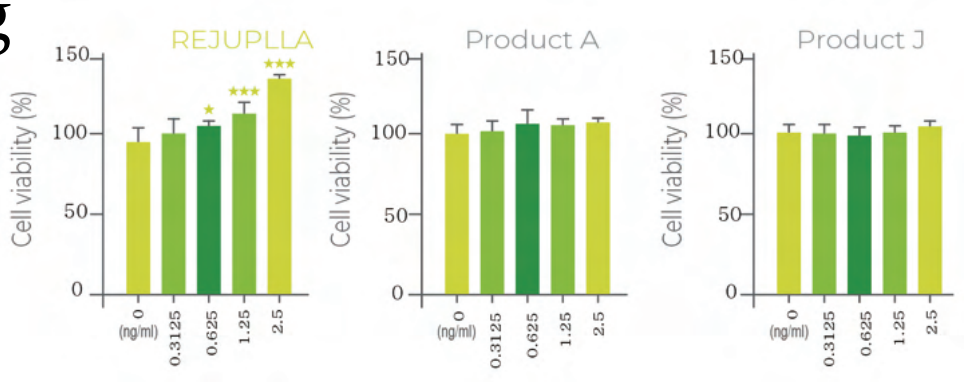
REJUPLLA is biocompatible and biodegradable compound



Source: Chinese Chemical Letters

Long-lasting

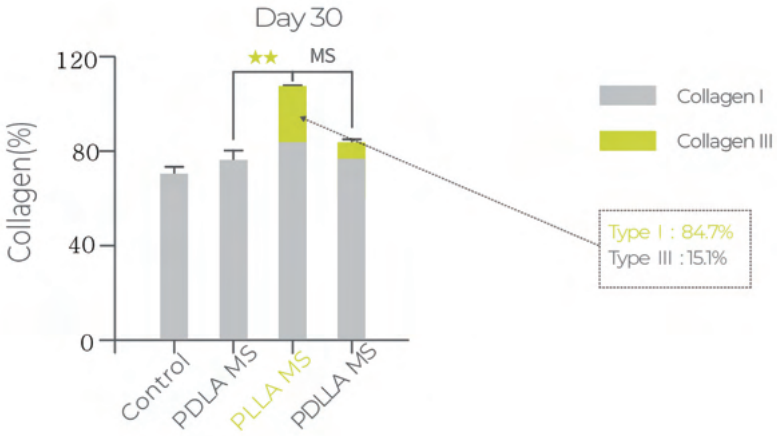
REJUPLLA® shows significant fibroblast growth



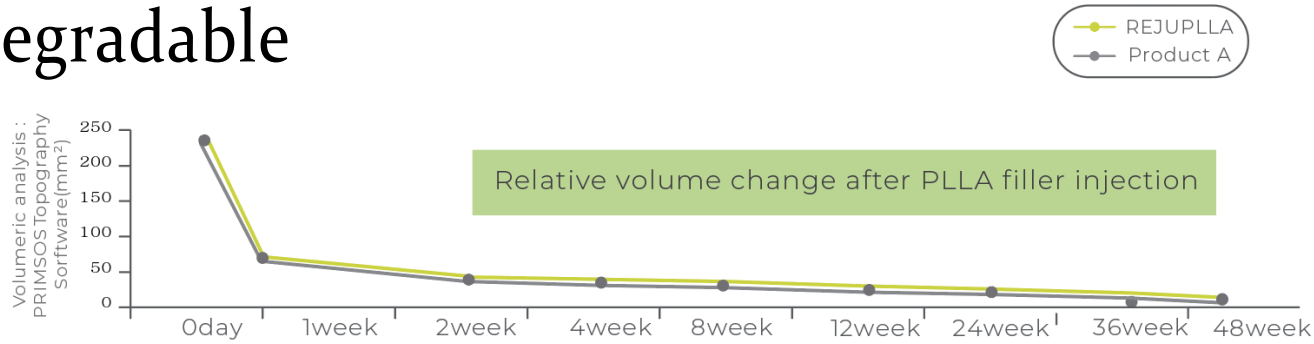
Source: Chung-Ang University Medical Center Department of Dermatology

Excellence

PLLA (L-type) has a 40% higher collagen stimulation effect than PDLLA and PDLA.



Degradable



Source: Chung-Ang University Medical Center Department of Dermatology

How to use REJUPLLA®

Preparation

Mixing:

Sterile WFI , 5mL syringe, 18G needle

Treatment:

1mL syringe, 26G cannula or 26G needle

Use within 72 hours

Preparation

Remove the cap from the vial and clean the rubber stopper with disinfectant

Inject 5 mL of sterile WFI through the vial wall

Shake firmly for 2~3 minutes

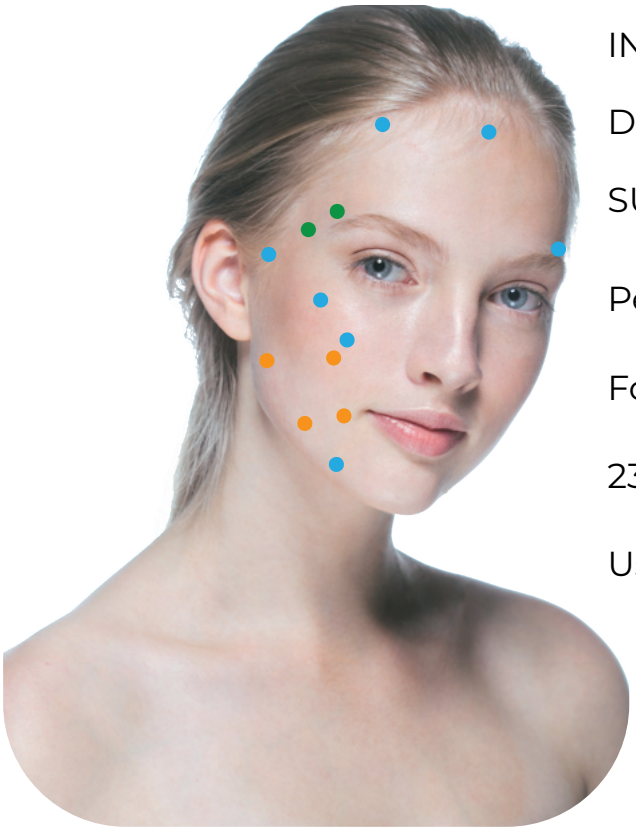
Store at room temperature for at least 3 hours

just before use, shake gently from side to side for 2~3 minutes

Transfer 1~3 mL of suspended liquid to the syringe for treatment

REJUPLLA®

[Manual Procedure]
Treatment targeting Subcutaneous & Dermis layers using 26G cannula or 26G needle



INTERFASCIAL (CANNULA) -

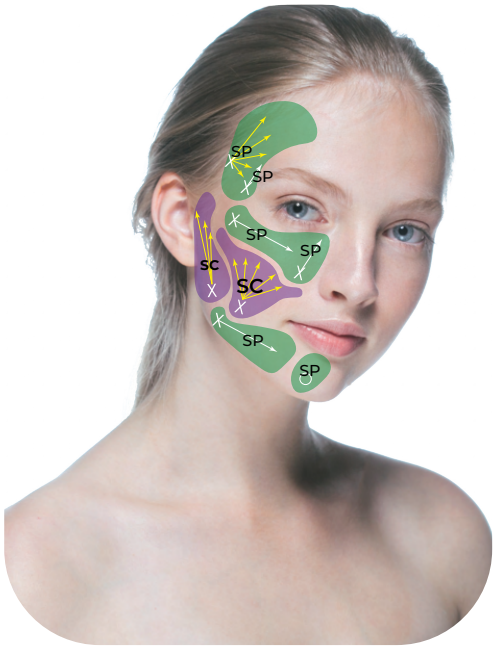
DERMIS (CANNULA) -

SUBCUTANEOUS (CANNULA) -

Perform local anesthesia of the face

Forming the injection port using a 21G - 23G needle

Use blunt cannula (26G)



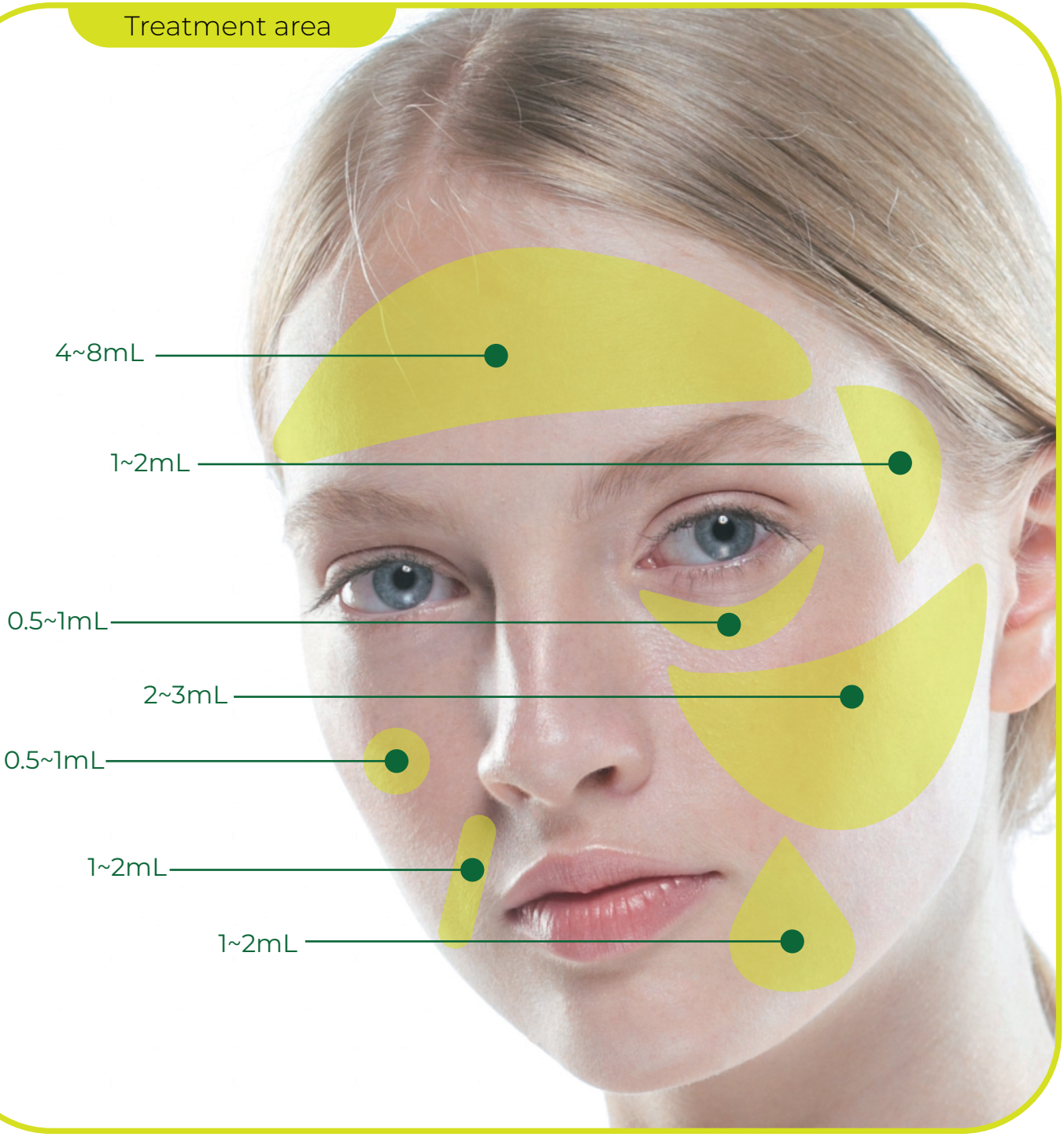
Example of injection on one side of the face

How to use REJUPLLA®

Treatment intervals

- 1st treatment shows effect after 1~ months and treatment effects may last 12~24 months after 3 treatment cycles in 4 week intervals.
- Treating continuosly in 6~12 month intervals will help maintain youth through collagen activation.

Treatment area



Description & Management

- Before injection, clearly explain the indications and cautions (e.g. prohibitions, warnings, general care, potential side effects or adverse events), and injection methods associated with the product to the patients. Before treatment, doctors should thoroughly examine the medical history of the patients to be treated and make sure that the injection of the product is appropriate for the concerning patients.
- Explain that injection amount and frequencies may vary depending on the circumstance and the degree of wrinkles and folds of individual patients.
- During the injection, periodically massage the injection site to evenly distribute the product. Store the product at room temperature below 30°C and do not freeze.
- After injection, redness, swelling and/or bruising may occur. In this case, wrap ice cubes or an ice pack with fabric (avoiding any direct contact of the ice with the skin) and apply the ice pack to the treatment area to reduce swelling or bruising caused by the injection.
- In the case of injection, only moderate corrections should be made using the product.
- Any excessive corrections or injections should be prohibited.
- Do not use the product if there is a skin disease (infection or inflammation) at the injection site.

Treatment Precautions

- When the product is injected into the blood vessel, serious adverse effects including the loss of eyesight may occur. It is strongly reccomended not to use the product in the periorbital areas including the areas between the eyes where the skin is thin and where it is highly likely to be injected into blood vessels. Extra care should be taken during the treatment.
- Be aware of the reported risks of increase in papules or nodules due to injection into thin skin, overfilling and incorrect compounding of the solution. The occurrence of papules or nodules can be minimized by massaging the injection site to evenly distribute the injected product.
- Do not inject into the vermilion areas of the lips.
- Avoid injection into blood vessels which may cause vessel occlusion and subsequent tissue necrosis.

Guide for medical professionals only

REJU PLLA®

DFKBIOLAB INC.
www.sbodyline.com