

aesPlla®

New

PLLA

INJECTABLE POLY-L-LACTIC ACID

MS



Elegant & Natural

# Diamond Collagen

## aesplla

As a safe and effective collagen stimulator, aesplla® is an injectable and biocompatible medical device. aesplla™ helps to restore natural volume for aging skin lost collagen.

Poly L-Lactic Acid, the main ingredient is used for medical material over 20 years and confirmed safety by US FDA.

Injected aesplla® (is made up of Poly L-Lactic Acid) to subcutaneous layer starts to stimulate the body's collagen production. This increases the skin's elasticity and volume naturally and makes young looking. Depend on the condition of patients, 2 to 3 times of treatments are recommended to extend longevity of volume staying.<sup>1)</sup>

## PLLA COLLAGEN STIMULATOR Confirmed By Korean Ministry of Food and Drug Safety (MFDS)

aesplla® is a collagen stimulator made of PLLA which is confirmed by FDA as a medical material.

Injected aesplla® stimulates and generates collagen under the skin and restores volume for facial area. It naturally helps to reduce fine line wrinkles and present youth looking.<sup>2)</sup>

### aesplla® Product Information

**Volume :** 365mg x 1 vial

**Indication :** For treatment of severe facial wrinkles and folds, replacement of volume defects, facial lipoatrophy and improvement of facial contour deformities.

[Reference]

1) Aesthetic Surgery Journal 2018, Vol38(51) 513-517

2) aesplla® Confirmed by Korean Ministry of Durg and Food Safety(as of 2021-05)

3) EC certified(as of 2021-03)



# Why aesPLLA?

## Natural Volume with longevity

Injected Poly-L-Lactic Acid(aesplla®)restores volume through stimulating collagen in the skin layer.  
Generated volume with own collagen lasts more than 2 years.



### For You

#### Convenient

#### Long lasting volume

#### Safe

Confirmed by Korean MDFS and achieved CE mark.<sup>3)</sup>  
The main ingredient PLLA is biodegradable.

#### Economic

Solution = aesplla® + WFI(Water For Injection) + Lidocaine

#### Steady treatment over 20 years

The treatment for improving wrinkle with  
PLLA is being done over 20 years.

#### Short treatment time



### For Patients

#### Natural result

The result will be shown gradually.

#### Long lasting volume

#### Quick recovery time

With less downtime, easy to return to normal life.

#### Economic

Less cost than other surgical treatments

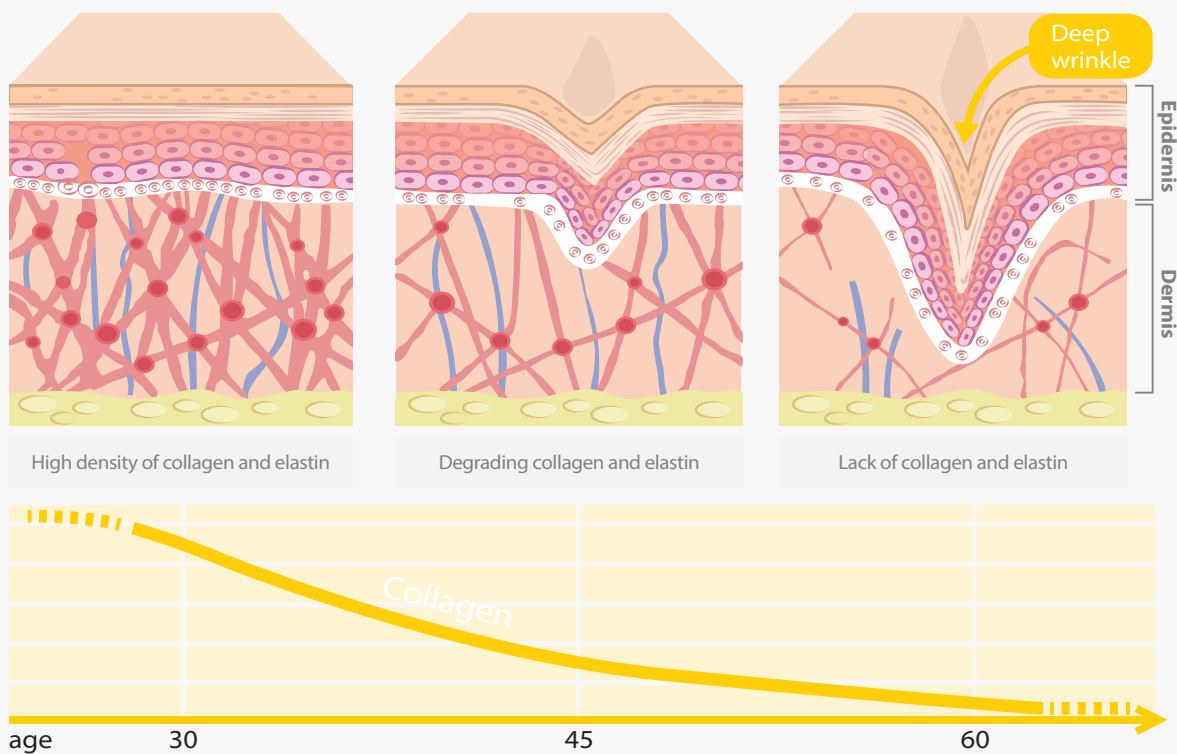
#### Volume Improvement & Restoration

Improvement of wrinkle through lost collagen renaturation

#### Short treatment time

# The correlation between Collagen & Skin aging<sup>4)</sup>

- The proportion of the collagen types in skin change with age. Young skin is composed of 80% type I collagen and about 15% collagen type III. With age, the ability to replenish collagen naturally decreases by about 1.0%-1.5% per year.
- **This decrease in collagen is one of the characteristic hallmarks associated with the appearance of fine lines and deeper wrinkles. [Picture 1]**
- Moreover, deep inside in the dermis, fibrillary collagens, elastin fibers and hyaluronic acid, which are the major components of the extracellular matrix, undergo distinct structural and functional changes.



Picture 1. Collagen content in skin tends to increase until approximately the mid-20s. Thereafter, there is a progressive loss of collagen through the decades.

The loss of collagen is clearly correlated with changes to **appearance attributes which are typically referred to as fine lines and wrinkles.**

[Reference]  
4) Reilly et al. Plast Aesthet Res 2021;8:2

# How aesPLLA works

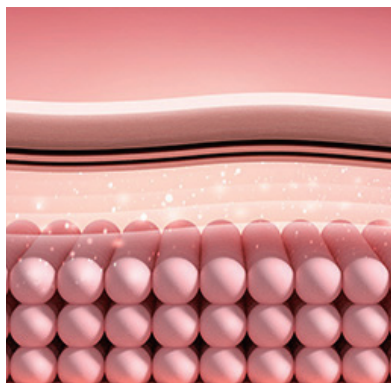
PLLA (Poly L-Lactic Acid), the main ingredient of aesplla® is biocompatible and biodegradable synthetic polymer that has been used for sutures and other medical devices. Injected PLLA stimulates collagen generation, the volume gradually restored Improves wrinkles.

## Mechanism of action



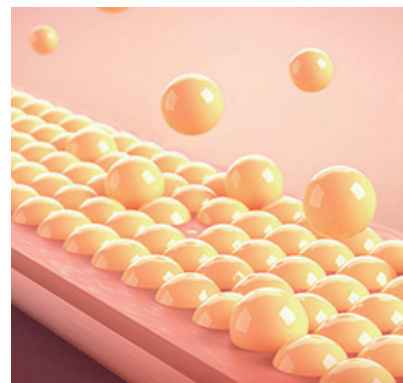
### STEP 01

Inject diluted aesplla® into the subcutaneous layer of the skin.



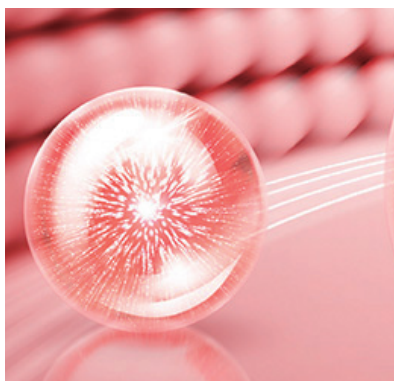
### STEP 02

Firstly wrinkle improvement can be shown with WFI (water for injection) and diluted aesplla®.



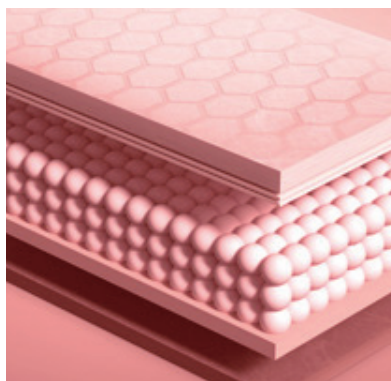
### STEP 03

Within some days, after absorbing water, only aesplla® particles left.



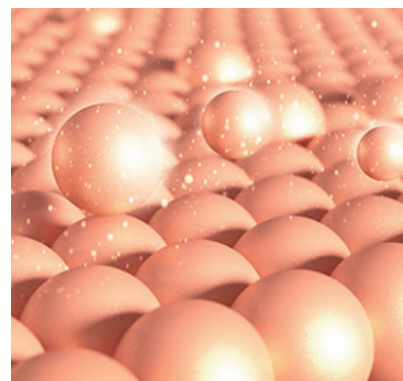
### STEP 04

New cells are gathered around PLLA and increasing fibroblasts.



### STEP 05

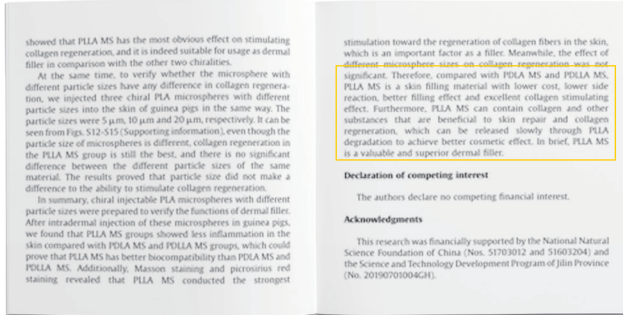
Increased fibroblasts stimulate collagen generation and improve skin folds.



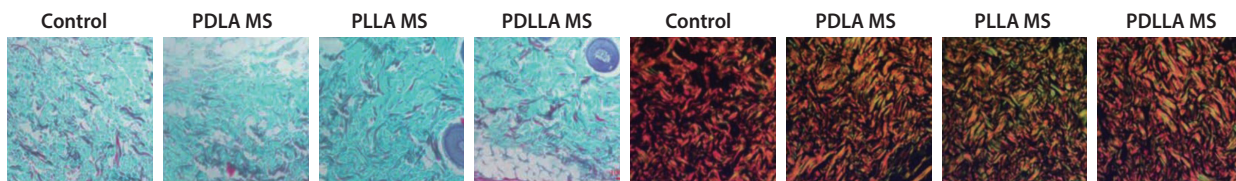
### STEP 06

Generated collagen lasts for 2 years and aesplla® particles are biodegraded.

## ✓ Superior Collagen stimulator PLLA<sup>5)</sup>



Therefore, **compared with PDLAMS and PDLA MS**, PLLA MS is a skin filling material with lower cost, lower side reaction, better filling effect and excellent collagen stimulating effect. Furthermore, PLLA MS can contain collagen and other substances that are beneficial to skin repair and collagen regeneration, which can be released slowly through PLLA degradation to achieve better cosmetic effect. **In brief, PLLA MS is a valuable and superior dermal filler.**



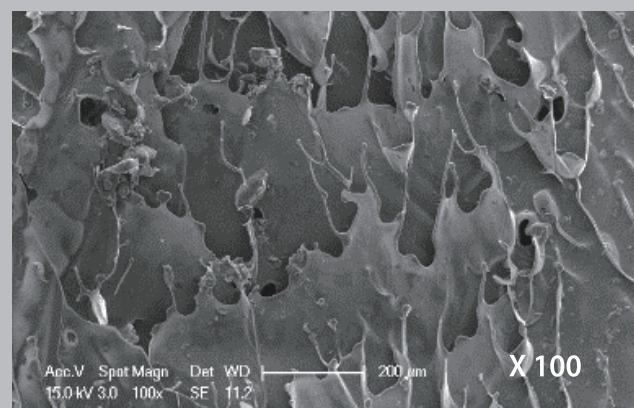
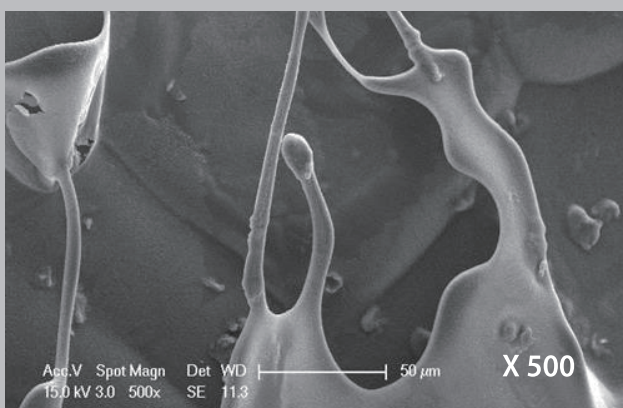
Collagen fiber, mucus and cartilage: **Blue**

Type I collagen: **Red or Yellow**

Type III collagen: **Green**

Histological analysis of collagen regeneration. (A) Masson staining and (B) Picrosirius red staining of the skin at the injection site of three kinds of PLA microsphere on Day 30. Type I collagen fibers are red or yellow, type III collagen fibers are green.

## ✓ Safe Collagen stimulator PLLA



[Reference]  
5) Chinese Chemical Letters 32(2021)577-582

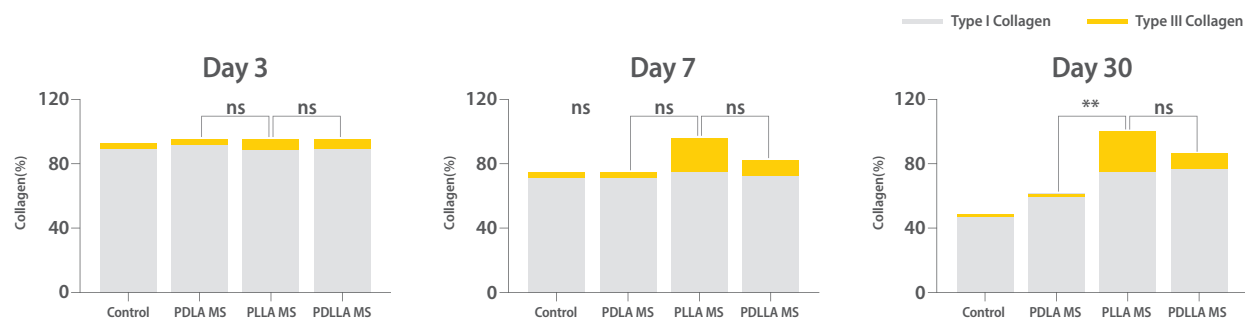
inflammatory response shortly after the injection, while the inflammation was decreased or disappeared on Day 7 or Day 30 (Figs. S6 and S7 in Supporting information). Nevertheless, due to the rapid degradation rate of PDLA MS, a large number of PDLA MS were degraded and absorbed in the skin tissue on Day 30, which could not guarantee the long-term effect. And PDLA MS was easy to cause redness and swelling due to the strong inflammation after injection, the strong inflammation was not conducive to recover which was a major disadvantage of PDLA as a filler.

Collagen fibers are the most widely distributed fiber in connective tissue. In order to evaluate the effect of chiral PLA microspheres on collagen regeneration, collagen in the sections were observed under the optical microscope. Masson staining is an authoritative and classic technique for the staining of collagen fiber. It is frequently used in the analysis of collagen and smooth muscle. Collagen fiber, mucus, and cartilage were stained blue, and cytoplasm, muscle, cellulose, and glia were stained red. Nucleus was stained blue purple [25]. By using picrosirius red staining, different types of collagen fibers can be distinguished according to their specific forms and distinct colors under polarized light. For example, type I collagen fibers are densely arranged showing red and yellow colors, while type III collagen fibers exhibits threadlike structure in green color [26]. As shown in Figs. S8 and S9

(Supporting information), on three days and seven days after injection of microsphere, the collagen fibers were arranged neatly and densely, with no significant difference among the three groups. However, on Day 30, the collagen fibers in the control group were messy and sparse, and the collagen loss was very serious. On the contrary, the collagen fibers in the PLLA MS groups still remained normal arrangement. Meanwhile, the collagen density of PDLA MS and PDLA MS group was significantly sparse than that of PLLA MS group. Nevertheless, the results of PDLA MS group stimulation of collagen regeneration were better than that in PDLA MS group (Fig. 4A). Similar results were shown in optical photo of tissue sections stained with picrosirius red. Three days after injection, a large amount of type I collagen fibers (red and yellow) were observed in all the groups (Fig. S10 in Supporting information). On Day 7, collagen fibers turned darker and sparse. Specifically, type III collagen fiber was generated in PLLA MS group which was showing green in Fig. S11 (Supporting information). This difference was enlarged on Day 30, when new collagens were still much more than those in PDLA MS and PDLA MS groups (Fig. 4B). The content of type I collagen in the PLLA group was still 84.7%, and type III collagen was 15.1%. Total of type I and type III collagen were 1.4 times than the collagen in the PDLA group, and 1.1 times than the collagen in the PDLA group (Fig. 4C), which showed that

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**PLLA MS has the most obvious effect on stimulating collagen regeneration, and it is indeed suitable for usage as dermal filler in comparison with the other two chiralities.**



Semi-quantitative analyses of type I and type III collagen fibers. Data are presented as mean ± standard deviation (n = 3; \*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001, ns: not significant)

aesPLLA

Safe & Long lasting  
volumizing  
Natural Collagen



aesPlla®  
INJECTABLE POLY-L-LACTIC ACID POWDER

# MS

*"Don't wait!"*

*Dilutes within 30min!"*

AESPLLA provides benefit to patients as it quickly dilutes within 30 minutes, making it very convenient for both doctors and patients unlike other PLLA Fillers.



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