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# Replengen™

Hyaluronic Acid Dermal Filler

리플랜젠™ 히알루론산 더말 필러

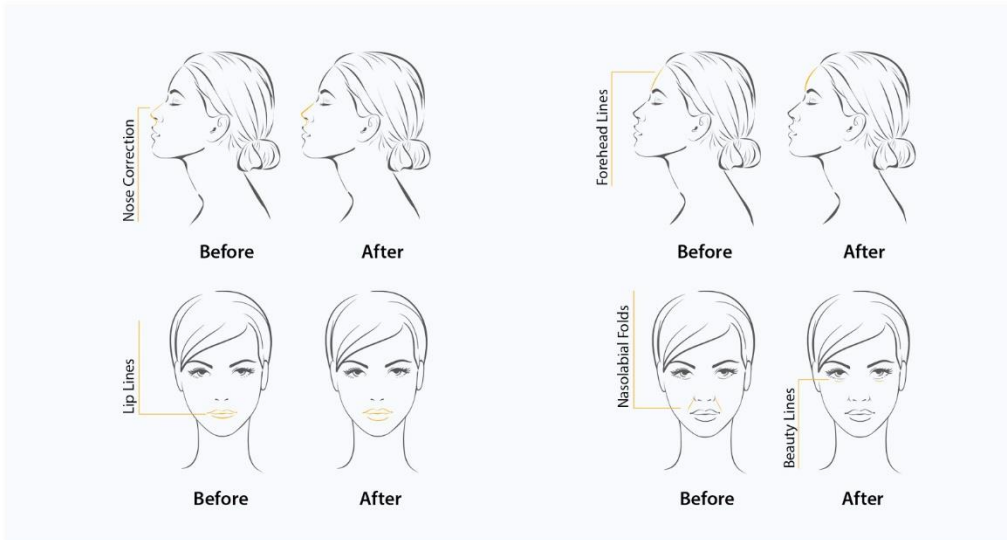


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# 1. HA Filler?

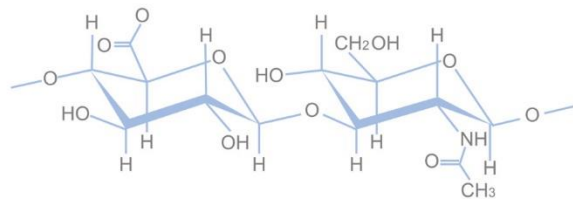
## Hyaluronic Acid Filler

- Hyaluronic acid filler is syringe-type medical device injected into the body and used to restore the volume of face.
- It is slowly decomposed and remains about 6 ~ 12 months after filling in the depressions of skin unlike Botox.
- Dermal fillers are commonly used in nasolabial and beauty lines as well as in wrinkles by repeated facial expressions.



## Hyaluronic Acid

- Hyaluronic acid (HA), a naturally occurring linear polysaccharide is composed of repeating disaccharide units of D-Glucuronic acid and N-acetyl-D-glucosamine.
- HA help maintain joint mobility, skin elasticity and excellent moisturizing effect.
- In addition, it is not only harmless to human body but no side effect.



# 2. Replengen™ Product Features

## Excellent Persistence

- HBCT(Hexagonal Block Crosslinking Technology) application
- Delay biodegradable of filler in body
- Improved filler duration

## PrecisionProcess

- MGIT (Micro Grinding Irregular Technology) Method
- Constant extrusion force
- Soft injection technique
- Stable procedure

Excellent Persistence

Precision Process

High Quality

High Safety



## High Quality

- New manufacturing equipment & analysis equipment
- Strict quality control and assurance system (GMP, ISO)
- Anti-wrinkle and volume maximizing effect

## High Safety

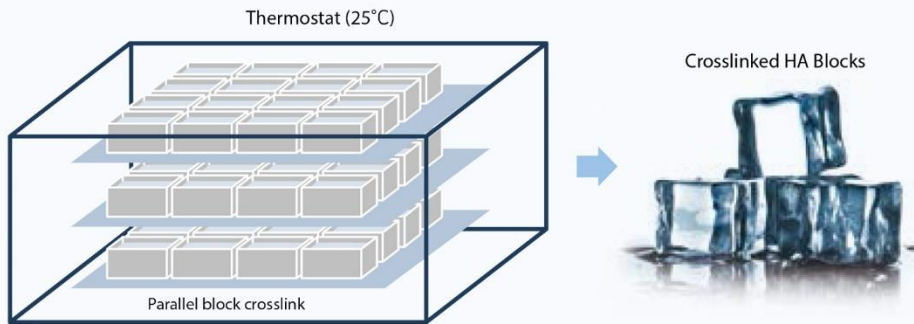
- Dialysis purification process for 2 weeks/twice
- Perfect removal of harmful substances
- Complete biosafety test

### 3. Differentiation of Replengen™

#### Precision porous micro particle structure with unique characteristics of Replengen™

Replengen™ has a compact hexagonal structure using HBCT (Hexagonal Block Crosslinking Technology) developed by Reanzen co., Ltd. which delays the decomposition rate in the body and improved the duration.

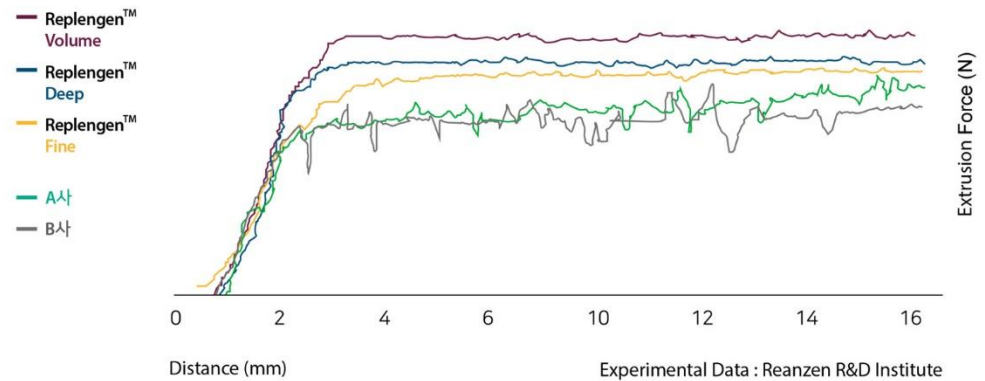
#### HBCT (Hexagonal Block Crosslinking Technology)



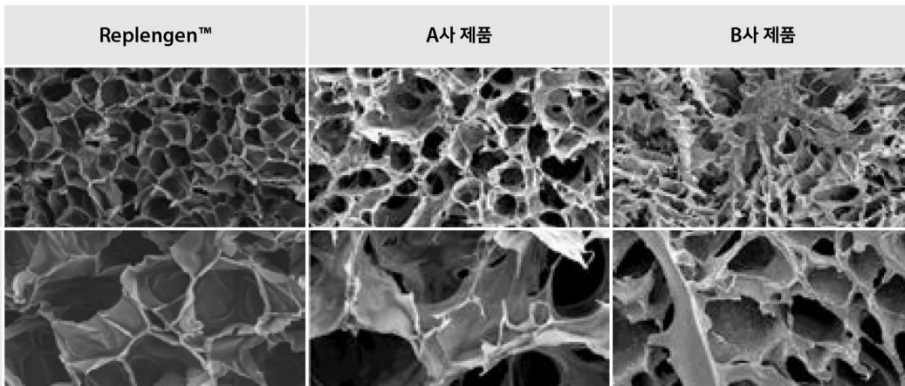
#### Fine-regulated mono-phasic filler particles for precise treatment

Replengen™ has soft injection and stable treatment because of fine-regulated gel by Reanzen's MIGT (Micro Irregular Grinding Technology)

#### Deviation of Extrusion Force



| 구분                  | Replengen™ Volume | A사 제품    | B사 제품    |
|---------------------|-------------------|----------|----------|
| HA gel conc.        | 24 mg/mL          | 24 mg/ml | 20 mg/ml |
| G' modulus (저장탄성률)  | 260 ~ 300 Pa      | 113.4 Pa | 316.7 Pa |
| G'' modulus (손실탄성률) | 23.7 Pa           | 22.7 Pa  | 61.1 Pa  |
| % Elasticity        | 83.4 %            | 83.3 %   | 84.1 %   |
| Needle size         | 25 G              | 27 G     | 30 G     |



## 4. Product type of Replengen™

### Replengen™ Fine With Lidocaine

Used to treat shallow wrinkles such as eye wrinkles, neck wrinkles and fine wrinkles.

### Replengen™ Deep With Lidocaine

Used to treat moderate and deep wrinkles such as nasolabial fold, enlargement of the face, chin and lips.

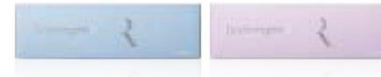
### Replengen™ Volume With Lidocaine

Excellent for creating and maintaining structures because of high viscoelasticity and used to improve deep wrinkles and facial contours.

### Replengen™ Implant S With Lidocaine

It is used for improving deep wrinkles such as nasolabial fold, and enlargement procedure of face, chin, lips and improve the volume (Contours) of the body (Breast, Buttock, Penis etc) as well

| Product Name       | Replengen™ Fine With Lidocaine         | Replengen™ Deep With Lidocaine       | Replengen™ Volume With Lidocaine | Replengen™ Implant S With Lidocaine |
|--------------------|--|--------------------------------------|----------------------------------|-------------------------------------|
| Type               | Monophasic                             |                                      |                                  |                                     |
| Crosslinked HA     | 24 mg/mL                               |                                      |                                  |                                     |
| Lidocaine HCl      | 3 mg/mL                                |                                      |                                  |                                     |
| Viscoelasticity    | 60 ~ 100 Pa                            | 160 ~ 200 Pa                         | 260 ~ 300 Pa                     | 260~360 Pa                          |
| Extrusion force    | 10 ~ 25 N                              |                                      |                                  |                                     |
| Needle size        | 30 G                                   | 27 G                                 | 25 G                             |                                     |
|                    |  | T.S.K Premium Needle (Made in Japan) |                                  |                                     |
| Volume             | 1.1 mL                                 |                                      |                                  |                                     |
| Duration           | 6 ~ 12 months                          | 12 ~ 18 months                       |                                  |                                     |
| Crosslinking agent | BDDE (1,4-Butanediol Diglycidyl Ether) |                                      |                                  |                                     |
| Injection area     | Shallow wrinkles                       | Deep wrinkles                        | Facial contouring                | Depressed areas                     |
| Injection depth    | Dermis                                 | subcutaneous                         | Deep subcutaneous                |                                     |
| Packing (Carton)   | 1 Syringe, 2 Needle                    | 1 Syringe, 1 Needle, 1 Cannula       |                                  |                                     |



### Replengen™ 20 & Replengen™ 20 Plus With Lidocaine

Used to improve the volume (contours) of the body (Breast, Buttock etc.)



### Replengen™ 40 & Replengen™ 40 Plus With Lidocaine

Used to improve the body's deep wrinkles and body contouring.

| Product Name       | Replengen™ 20                          | Replengen™ 20 Plus With Lidocaine | Replengen™ 40 | Replengen™ 40 Plus With Lidocaine |
|--------------------|--|-----------------------------------|---------------|-----------------------------------|
| Gel type           | Monophasic                             |                                   |               |                                   |
| Crosslinked HA     | 20 mg/mL                               | 24 mg/mL                          | 20 mg/mL      | 24 mg/mL                          |
| Lidocaine HCl      | -                                      | 3 mg/mL                           | -             | 3 mg/mL                           |
| Volume             | 10.0 mL                                |                                   |               |                                   |
| Viscoelasticity    | 260 ~ 320 Pa                           | 260 ~ 300 Pa                      | 380 ~ 450 Pa  | 380 ~ 420 Pa                      |
| Volume             | 10.0 mL                                |                                   |               |                                   |
| Duration           | 12 ~ 18 months                         |                                   |               |                                   |
| Crosslinking agent | BDDE (1,4-Butanediol Diglycidyl Ether) |                                   |               |                                   |
| Injection area     | Body contouring                        |                                   |               |                                   |
| Injection depth    | Deep subcutaneous                      |                                   |               |                                   |
| Packing (Carton)   | 1 Syringe                              |                                   |               |                                   |

### Replengen™ Vital With Lidocaine



| Product Name       | Replengen™ Vital With Lidocaine        |
|--------------------|--|
| Gel type           | Monophasic                             |
| Crosslinked HA     | 20 mg/mL                               |
| Lidocaine HCl      | 3 mg/mL                                |
| Viscoelasticity    | 10 ~ 30 Pa                             |
| Volume             | 2.5 mL                                 |
| Packing            | 2 syringe/carton                       |
| Duration           | 0 ~ 6 months                           |
| Crosslinking agent | BDDE (1,4-Butanediol Diglycidyl Ether) |
| Injection area     | Shallow wrinkles                       |
| Injection depth    | Epidermis                              |
| Storage            | 2 ~ 25 °C                              |
| Expiry date        | 24 months                              |

### Replengen™ Smart Portable Injector



#### 제품특징

- 3 Types derma solution selectable
- 1 ml ~ 3 ml Syringe applicable
- 9 - Pin exclusivemulti needle for single-use
- User friendly design

## 5. Replengen™ specification

### Certificate of Analysis

| Test item<br>(with Lidocaine) | Criteria   |                   |                                   | Result       |         |        |
|-------------------------------|--|-------------------|-----------------------------------|--------------|---------|--------|
|                               | 1.1 mL   | 10.0 mL           | Vital                             | 1.1 mL       | 10.0 mL | Vital  |
| Appearance                    | Colorless transparent, Viscous liquid with no foreign material |                   |                                   | Conformity   |         |        |
| Actual capacity               | More than 1.1 mL   | More than 10.0 mL | More than 2.5 mL                  | 1.1 mL       | 10.0 mL | 2.5 mL |
| pH                            | 6.8 ~ 7.5  |                   |                                   | 7.01         |         |        |
| BDDE residue                  | < 2.0 ppm  |                   |                                   | 0 ppm        |         |        |
| Heavy metal                   | < 10.0 ppm   |                   |                                   | 0 ppm        |         |        |
| Osmotic pressure              | 200 ~ 400 mOsm/kg  |                   |                                   | Pass         |         |        |
| Extrusion force               | 10 ~ 25 N  | 60 N              | 10 ~ 25 N                         | Pass         |         |        |
| Endotoxin                     | < 12.5 EU/mL   |                   |                                   | < 0.05 EU/mL |         |        |
| Sterility test                | sterile  |                   |                                   | Conformity   |         |        |
| Assay                         | Sodium Hyaluronate   |                   | Sodium Hyaluronate 90.0 ~ 110.0 % | 101.1 %      |         |        |
|                               | Lidocaine HCl  |                   | Lidocaine HCl 0.27 ~ 0.33 %       | 0.31 %       |         |        |
| Viscoelasticity               | 60 ~ 300 Pa  | 260 ~ 450 Pa      | 10 ~ 30 Pa                        | Pass         |         |        |

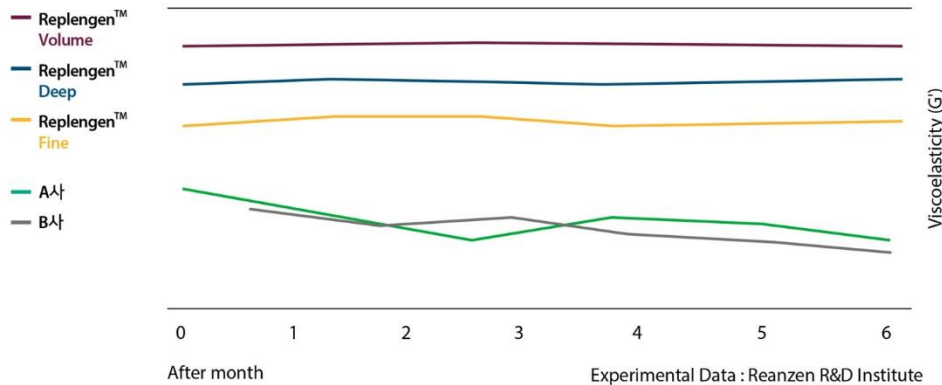
### Storage & Expiration date

|                |  |
|----------------|--|
| Storage        | 2 ~ 25 °C                              |
| Extrusion date | 24 months from the date of manufacture |

### High-quality filler products with excellent persistence

Replengen™ Filler with high-technology created by Reanzen's best R&D experts is top-quality filler for anti-wrinkle and skin volume recovery because able to maintain viscoelasticity for a long time to other products.

#### Viscoelasticity Stability



| Test item | BDDE residue | Heavy metal |            |
|-----------|--------------|-------------|------------|
| Criteria  | 1.1 mL       | < 2.0 ppm   | < 10.0 ppm |
|           | 10.0 mL      |             |            |
|           | 2.5 ml       |             |            |
| Result    | 1.1 mL       | 0 ppm       | 0 ppm      |
|           | 10.0 mL      |             |            |
|           | 2.5 ml       |             |            |

