

HELENE

A New Breed of semi permanent **injectable implant**
'Hyaluronic Acid'

For in-company education

A New Breed of semi permanent **injectable implant**
'Hyaluronic Acid'

high Product line : Cross - linking rate **low**



Helene All
(N:60)



Helene Mid
(N:45)



Helene Smooth
(N:17)



Helene Shine
(N:7/2ml)

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Product description

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01

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Technology introduction

Filler related technology

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Microbead and its manufacturing process using Polysaccharide Polymer (Hyaluronic Acid)

Overcoming the limitations of cross-linking technology applied in conventional HA fillers,
The company used **triple Multi staged Cross-Linking Technology** to create a more stable molecular structure
and higher cross-linking rate. This solves the short duration problem of conventional HA fillers,
and **this technology has enabled the creation of world's first semi-permanent HA filler
with a good property of material.**

Polysaccharide Polymer (Hyaluronic Acid)

Development period	7 years
Development cost	5 million USD(as of October 30, 2014)
Commercialization	Pre-clinical trials completed, post-clinical trials completed(Seoul National University Hospital, Bundang), commercialization complete
Development method	Self developed (Patent No. 0548965)
Use	Shows high biocompatibility and biological safety using biomacromolecule. Can be used to regenerate skin tissue in areas of loss
Differentiation with competing product	- Manufacturing into microbead results in increased longevity-overcoming the disadvantage that conventional HA Fillers possess
Technological advantages	- Marketing available as single product (SkinPlus-Hyal). - Anti-adhesive, arthritis treatment (KneePlus-One), ophthalmic surgery aid

[Patent] Microbead and its manufacturing process using Polysaccharide Polymer (Hyaluronic Acid)



HELENE

02



Product features

Long-lasting
Safe & Removable

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Long-lasting, Helene Filler

Our product possesses all these three ideal mechanical properties with strong viscosity (cohesiveness) and migration resistance; effective gel hardness that allows delicate control of G (gel hardness) range that results in an excellent moldability.

Moreover, our product applies the unique technology of creating a semi-solid state gel of Hyaluronic Acid. Our product applies innovative Hyaluronic Acid technology to **increase longevity (long-lasting) effect, safety and increase removability (safe & removable) to** produce the most ideal product.

The most ideal mechanical properties of filler

- ① Strong viscosity and cohesiveness;
- ② Effective gel hardness (gel hardness can be controlled delicately [G prime;G'])
- ③ Easy molding

Innovation in hyaluronic acid technology

high

Product line : Cross - linking rate

low



Helene All



Helene Mid



Helene Smooth



Helene Shine

+
LONG-LASTING

+
SAFE & REMOVABLE

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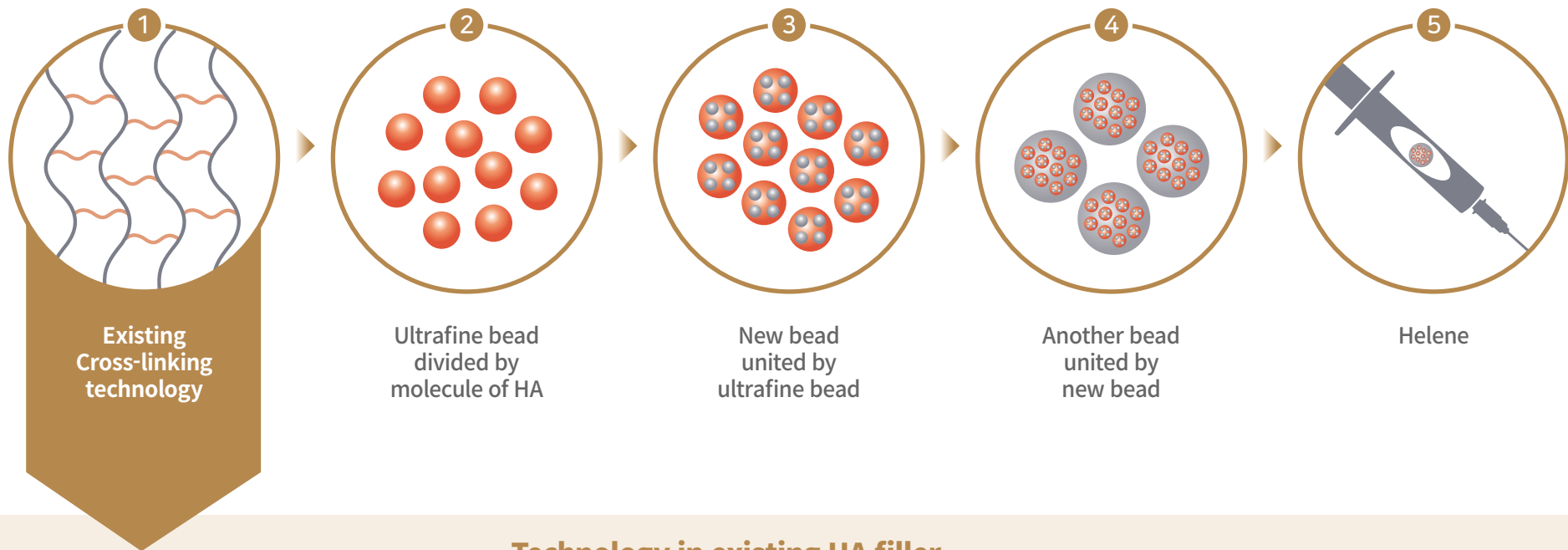
Innovative Multi Staged Cross-Linking (MCL) technology

Companies of conventional fillers that claim to have created a long-lasting HA filler tell us that they have achieved in raising the cross-linking rate. However, most products have only raised concentration and particle size due to limitations in the cross-linking technology.

This does not contribute to longevity of the product. Moreover, products that merely increase concentration results in a product that is not easily moldable.

Our product applies the patented **3 staged microbead processing technology** that allows to increase the viscosity and produce a long-lasting filler. **By controlling the cross-linking rate to adjust the viscosity,** we are able to produce a wide range of high quality fillers depending on its use.

Multi Staged Cross-linking (MCL)

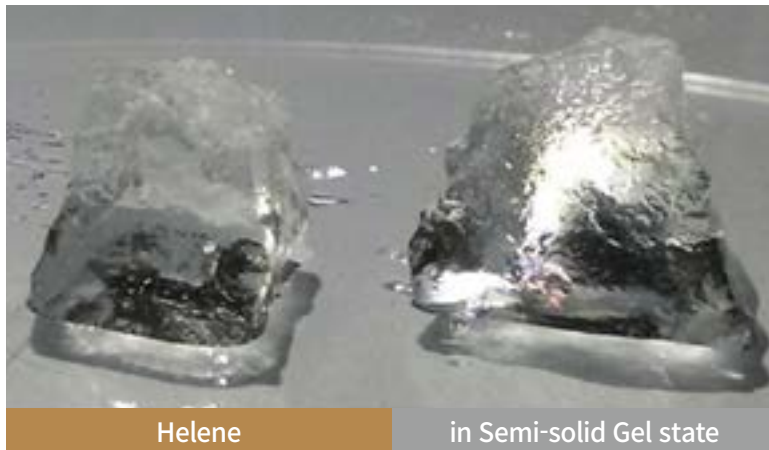


Technology in existing HA filler

Primary or Secondary cross-linking can be different in each company.

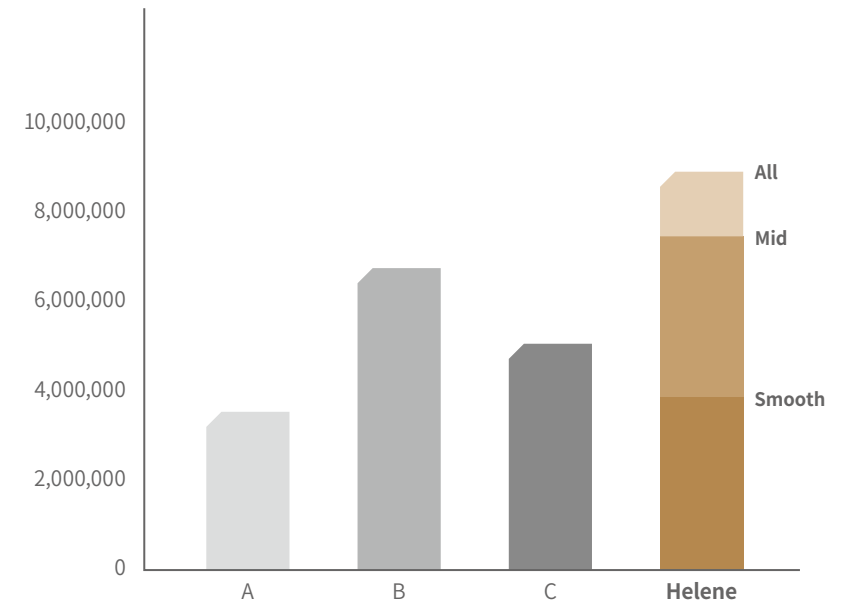
Test result conducted by a respectable laboratory

Easy Molding with Strong Viscosity



Our product applies the unique technology of creating a semi-solid state gel of Hyaluronic Acid. Our high viscosity types of filler as an implant form create pseudocapsule when injected. It resists from easily dissolving by the hyaluronidase in human body. (Long lasting mechanism)

Comparison with other products (Type of the highest viscosity)

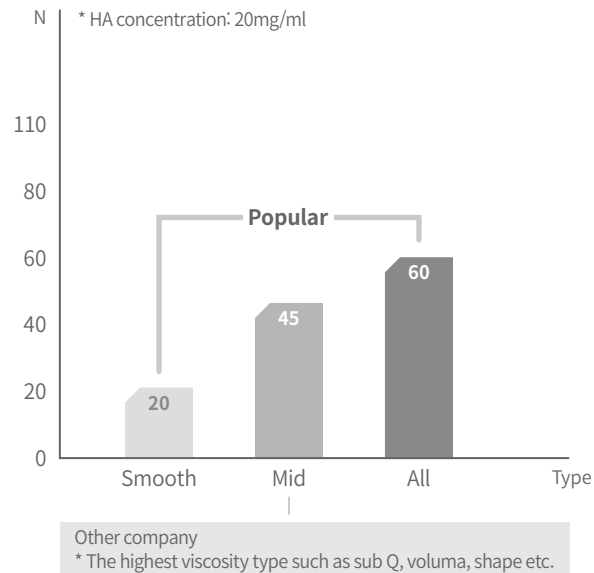


Our product has a higher viscosity than competing products and we are able to produce a high viscosity product that can reach up to 11,000,000 cp.

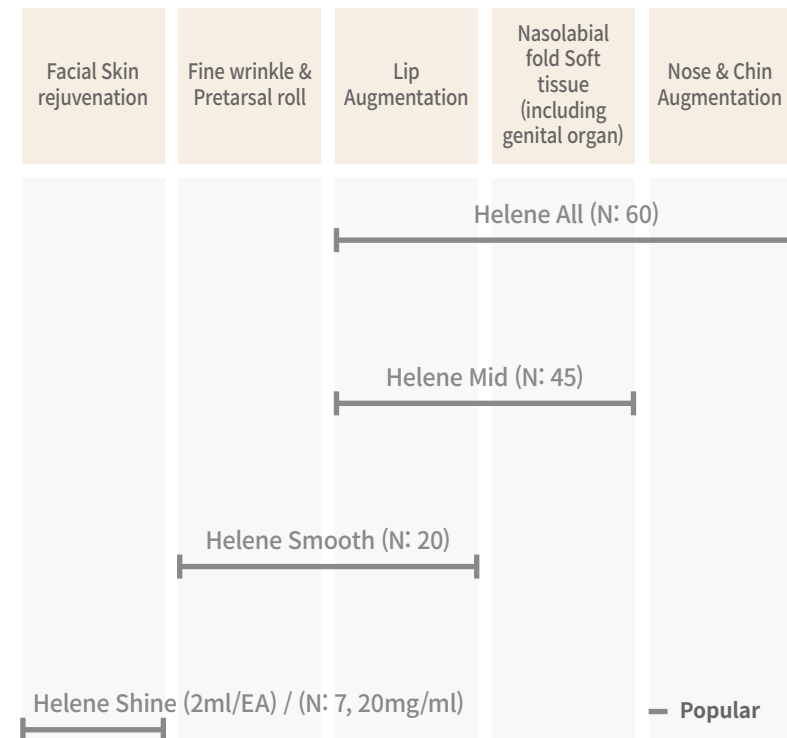
Viscosity & Cohesiveness

Extrusion Force(N):

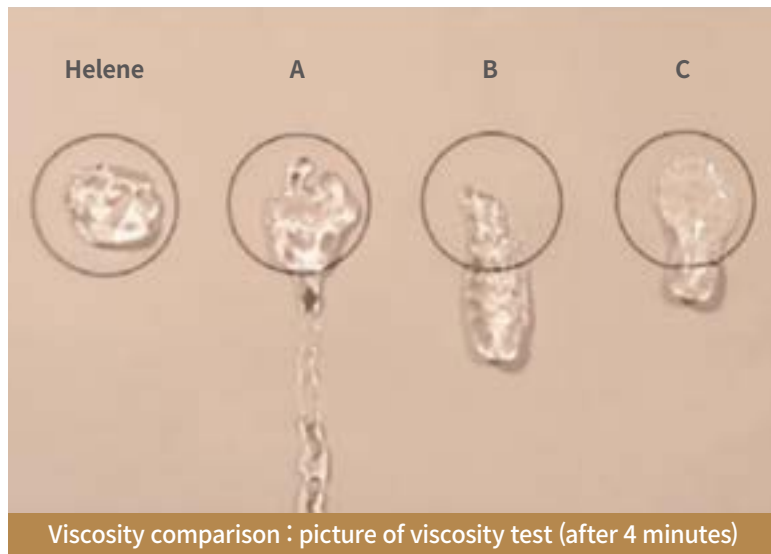
Fill the contents into a 1ml syringe(the bore 0.21mm), combine the 27G*13mm NW needle, and measure the maximum value(N) when pushing the plunger rod at a speed of 12mm /min.



Clinical applications of our products



Strong Viscosity confirmable by viscosity test



Running a viscosity test with competing products we can see that after 4 minutes most of the competing product(A,B,C) has migrated outside the circle whereas our product shows intact shape.

Easy molding and maintenance of form after injection



If we look at the picture where SkinPlus-HYAL has been injected prior 3 years, we can see the filler has **formed pseudocapsule as an implant form (injectable implant "Hyaluronic acid")**.

Moreover, another differentiation from competing products is the effective gel hardness, that results in a natural nose after injection, and the high cross-linking rate results in a high cohesiveness and viscosity while reducing the particle size allowing easy molding and maintenance of form after injection.

Long-lasting

Companies of conventional fillers that claim to have created a long-lasting HA filler tell us that they have achieved in raising the cross-linking rate. However, most products have only raised concentration and particle size due to limitations in the cross-linking technology. This does not contribute to longevity of the product. Moreover, products that merely increase concentration results in a product that is not easily moldable.



Increased concentration

Products that have raised concentration to 50mg/ml does not provide easy moldability (most fillers have a concentration of 20mg/ml). These products have not improved their cross-linking technology and therefore uses conventional cross-linking technology that does not contribute to a long-lasting effect.

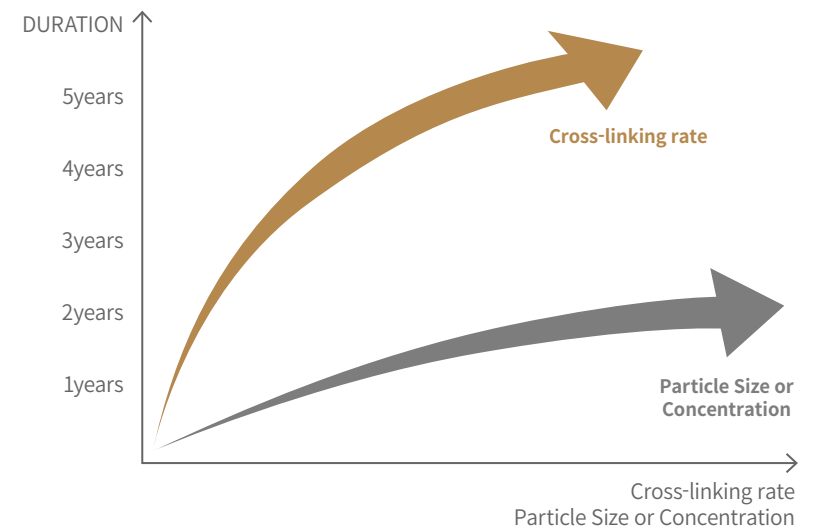


Increased particle size

Due to limitations in the conventional cross-linking technology, that competing products cannot achieve microbead formations. the low cross-linking rate technology applied by conventional products does not contribute to long-lasting effect. (3 months - 12 months)

Longevity comparison graph

If we look at the following table, we have compared other filler with our products with the same concentration. If we compare the particle size of the most high viscose products: other filler and SkinPlus-HYAL, we can see that our product has a particle size 1.7 times smaller. Our product is **a very detailed product that has a small particle size with a high cross-linking rate** to create a high viscosity and cohesiveness.



Safe & Removable

You don't have to worry about unsatisfactory results after injection.

Our product is strong against natural hyaluronidase inside the body, but can be completely removed by injecting hyaluronidase. Injected fillers can be easily removed using an injectable needle. Then the filler left in the soft tissue can be completely removed.

Our product has overcome the problems faced by increasing the cross-linking rate, to create a safe and removable product. Issues faced when increasing the cross-linking rate of Hyaluronic Acid and the strengths of our product is as follows.



Particle Size and HA concentration comparison

Sortation	Other filler	Hyal
Products	The type of highest viscosity	ALL
Particle Size	1,000 μm	460 μm

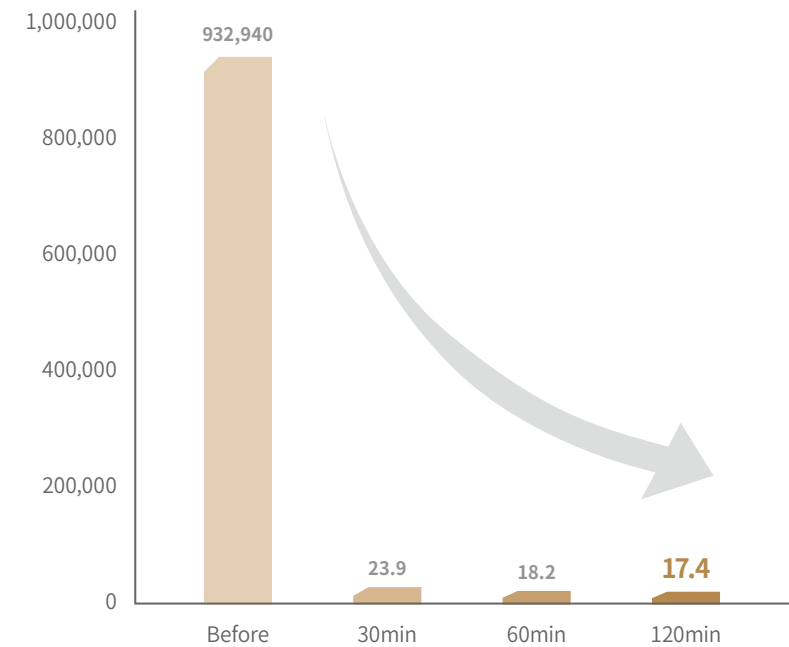
#1 Picture of before and after removal

Our product is strong against natural hyaluronidase inside the body, but can be completely removed by injecting hyaluronidase.



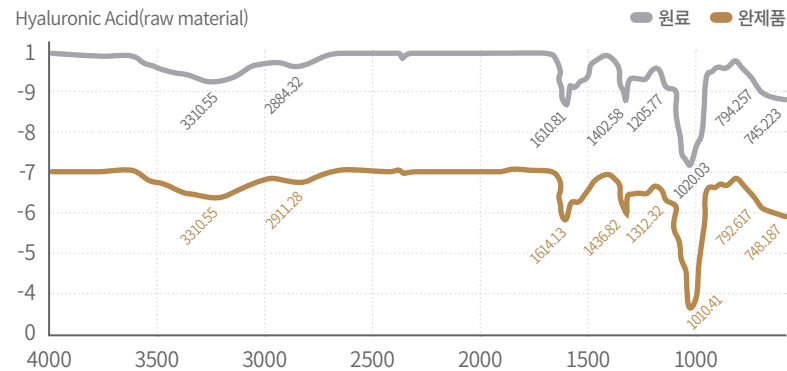
Hyaluronidase Test

We can see how our product easily dissolves with hyaluronidase.



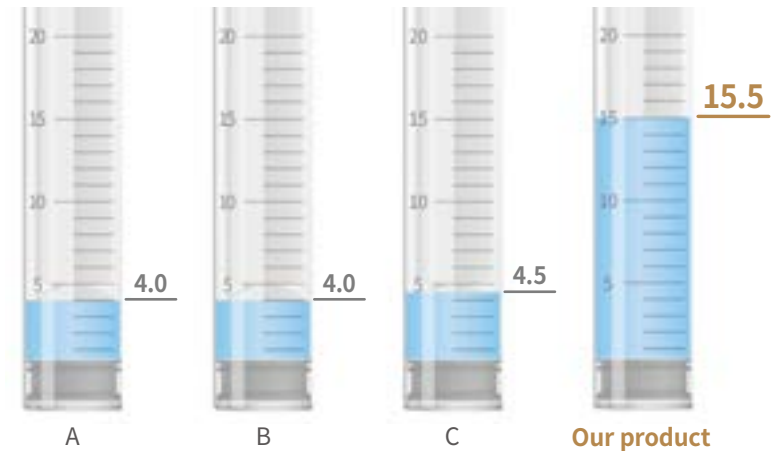
#2 Safe

Generally we can see how the raw material (Hyaluronic Acid) is easily chemically modified on high cross-linking rates. However our product, as seen in the refractive index test, shows a wavelength pattern that is exactly like its raw material, showing that the final product has **maintained 100% its HA** without any modifications. In other words, the product can be safely absorbed by the human body without any harm, and both the raw material and the final product are 100% HA.



#3 High hydrophilic capacity

Generally HA falls hydrophilic capacity when cross-linking rate is high. But our product shows excellent hydrophilic capacity by **stable particle structure** despite the high cross-linking rate, which means that compared to the same amount of competing products, our product shows **higher volumizing effect**.



Test condition: Addition of 500cc of water to 1cc of samples; centrifugation at 3,000 rpm for 30 minutes.

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Product description

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Premium Quality HELENE

HELENE, a detailed product, was developed on February 2006 applying the patented technology (Microbead and its manufacturing process using Polysaccharide Polymer),
to **increase the cross-linking rate but at the same time reduce the particle size.**
(We have overcome the limitations of conventional cross-linking technology of competing products to product a higher grade HA filler).

This product is one of a kind in the world, being semipermanent, but at the same time can be easily removed through hyaluronidase if the patient is not satisfied with the results.

Our product finished clinical trials at Seoul National University Hospital on March 2009, where **4,000 cases of clinical trials have shown safety and longevity of the product.**
95% of the cases from among 1,000 cases have shown the product to last over 5 years.

Moreover the product has acquired CE approval on July 2014, a sales permit by the Korean FDA on November 2014. Currently the product is under clinical trials (for longevity of over 5 years) under a joint trial between Korea and Japan, and 18 countries are registering the product for import.

Popular type of Helene

Helene is a popular product with a reduced cross-linking rate and lower viscosity and particle size. It applies our technology to achieve excellent longevity and safety. a 100% HA filler product. Helene has six product lines for various use.

Helene All has the highest viscosity (8,000,000 cp) with excellent cohesiveness and small particle size (460 um) showing good moldability that can be used in any area. It is an new advanced product that is used for contouring and volumizing the forehead, temples, nose, cheeks, chin, and improves deep wrinkle lines such as the nasolabial folds. It also has excellent longevity.

Helene Mid has 370um particle size and effective for forehead, temples, cheeks, nasolabial folds and lip lines.

Helene Smooth has a lower viscosity and particle size than Helene all, and it is effective for fine wrinkles.

Popular type

Helene All



viscocohesiveness	60
HA concentration	20 mg/ml
Volume	1ml x 1
Needle	25G 13mm (Nano-needle)
Particle Size	460 um
Cross-linking rate	★★★★☆
Area of use	Nose, chin, forehead and nasolabial folds, soft tissue volumizing effect Most appropriate for Nose Dosal Augmentation
Injection area	Mid-deep dermis Subcutaneous Upper Periosteum

Popular type

Helene Mid



viscocohesiveness	45
HA concentration	20 mg/ml
Volume	1ml x 1
Needle	25G 13mm (Nano-needle)
Particle Size	370 um
Cross-linking rate	★★★★☆
Area of use	Nose, chin, forehead and nasolabial folds, soft tissue volumizing effect Most appropriate for Nose Dosal Augmentation
Injection area	Mid-deep dermis Subcutaneous Upper Periosteum

Popular type

Helene Smooth



viscohesiveness	20
HA concentration	20 mg/ml
Volume	1ml x 1
Needle	30G 1/2" needle
Particle Size	260 um
Cross-linking rate	★★★☆☆
Area of use	lips, fine wrinkles
Injection area	Mid dermis

Popular type

Helene Shine



viscohesiveness	7
HA concentration	20 mg/ml
Volume	2ml x 1
Needle	31G or 32G Multi needle
Particle Size	107 um
Cross-linking rate	★★★☆☆
Area of use	All facial area
Injection area	Mid dermis

HELENE

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