Top Quality Hyalouronic Filler

Age is just a number

ZARTAUX

dermaFILL+

Made in Switzerland

Hyaluronic acid

Hyaluronic acid (HA; also called hyaluronan and hyaluronate) is an anionic, nonsulfated glycosaminoglycan distributed widely throughout connective, epithelial, and neural tissues. It is unique among glycosaminoglycans in that it is nonsulfated, forms in the plasma membrane instead of the Golgi, and can be very large, with its molecular weight often reaching the millions.

One of the chief components of the extracellular matrix, hyaluronan contributes significantly to cell proliferation and migration, and may also be involved in the progression of some malignant tumors.

The average 70 kg (154 lb) person has roughly 15 grams of hyaluronan in the body, one-third of which is turned over (degraded and synthesized) every day. Hyaluronic acid is also a component of the group A streptococcal extracellular capsule, and is believed to play a role in virulence.

QualityTip:

DERMAFILL by ZARTAUX is developed by using innovative Growth Factors.

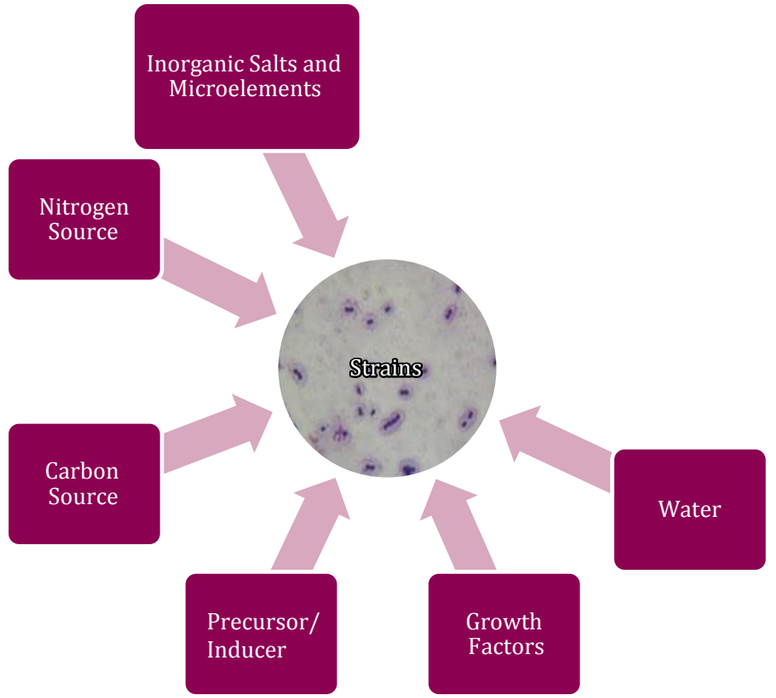
Research

Due to its high biocompatibility and its common presence in the extracellular matrix of tissues, hyaluronan is gaining popularity as a biomaterial scaffold in tissue engineering research.

In particular, a number of research groups have found hyaluronan's properties for tissue engineering and regenerative medicine are significantly improved with crosslinking, producing a hydrogel.

This added feature allows a researcher to form a desired shape, as well as to deliver therapeutic molecules, into a host. Due to its ability to regulate angiogenesis by stimulating endothelial cells to proliferate, hyaluronan can be used to create hydrogels to study vascular morphogenesis. These hydrogels have properties similar to human soft tissue, but are also easily controlled and modified, making HA very suitable for tissue engineering studies.

For example, HA hydrogels are appealing for engineering vasculature from endothelial progenitor cells by using appropriate growth factors such as VEGF and Ang-1 to promote proliferation and vascular network formation. Vacuole and lumen formation have been observed in these gels, followed by branching and sprouting through degradation of the hydrogel and finally complex network formation. The ability to generate vascular networks using HA hydrogels leads to opportunities for in vivo and clinical applications. One in vivo study, where HA hydrogels with endothelial colony forming cells were implanted into mice three days after hydrogel formation, saw evidence that the host and engineered vessels joined within 2 weeks of implantation, indicating viability and functionality of the engineered vasculature.



Production of Hyaluronan

Industrial manufacturing of hyaluronan is based on two main processes, while both technologies produce polydisperse high molecular weight hyaluronan (Da, polydispersity ranging from 1.2 to 2.3) for biomedical and cosmetic applications.

1. Extraction from animal tissues.

The first process, to be applied at industrial scale, was the extraction of hyaluronan from animal waste which is still an important technology for commercial products, but is hampered by several technical limitations. One drawback in the extraction process is the inevitable degradation of hyaluronan, caused by:

(a) The endogenous hyaluronidase activity in animal tissues, breaking down the polymer chain through enzymatic hydrolysis, and

(b) The harsh conditions of extraction. Extraction protocols have been improved over the years, but still suffer from low yields, due to the intrinsic low concentration of hyaluronan in the tissue, and from high polydispersity of polymer products due to both the natural polydispersity of hyaluronan and to the uncontrolled degradation during extraction. As in any process for the production of therapeutic compounds from animal sources, there is a potential risk of contamination with proteins and viruses, but this can be minimized by using tissues from healthy animals and extensive purification. Nevertheless, concerns on viral (particularly avian) and protein (particularly bovine) contamination increased the interest in the biotechnological production of hyaluronan.

2. Microbial fermentation using bacterial strains.

Production of hyaluronan by bacterial fermentation evolved to a mature technology in the last two decades of the 20th century. In the early developmental stages of bacterial fermentation using group A and C streptococci, optimization of culture media and cultivation conditions along with strain improvement were used to increase hyaluronan yield and quality. Hyaluronan yields reached 6-7 g L–1, which is the upper technical limit of the process caused by mass transfer limitation due to the high viscosity of the fermentation broth. Bacterial fermentation produces hyaluronan with high molecular weight and purity. The identification of the genes involved in the biosynthesis of hyaluronan and of the sugar nucleotide precursors in the 90s opened the way towards hyaluronan production using safe, nonpathogenic recombinant strains.

Animal Extraction Method VS Bio-Fermentation

	Extraction Method	**Bio-Fermentation Method**
State of existence	Form complex with protein and other mucopolysaccharide, with complicated separation and purification	Exist freely in Fermentation liquid, prone to separation and purification
Molecular weight	Subject to animal tissue materials and is beyond control basically and normally (0.1-2.5)*10^6	It can be controlled through parameter conditions of fermentation culture and is normally (1.0-4.0)*10^6
Quality and output	Depend on the quality and quantity of animal tissues	Quality controllable, no output limit, easy for creation of large-scale industrial production
Risk	With risks of residual animal-derived protein, easily lead to allergy With risks of animal-derived pathogenic virus contamination	Free of protein; No risk of animal-derived pathogenic virus infection

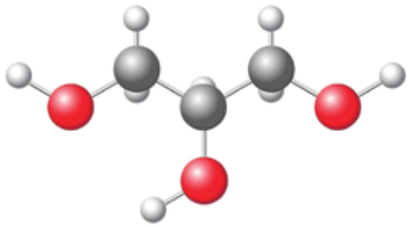
QualityTip:

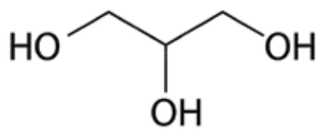
DERMAFILL by ZARTAUX is developed by using Bio-Fermentation of the bacteria.

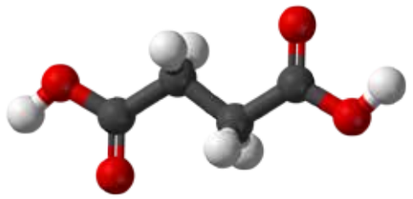
DERMAFILL By Zartaux Cross linker

When DERMAFILL by ZARTAUX degrades, it breaks down into harmless byproducts or into byproducts that are identical to substances already found in the skin.

Glycelor (glycerine)







Succinic Acid

DERMAFILL by Zartaux PRODUCTS

Ultra 1: 22 mg/ml
Fine Lines/Lips/Tears/ Naso labial

Ultra 2: 24 mg/ml
Medium Lines/Lips/ Naso labial

Ultra 3: 26 mg/ml
Deep Lines/ Naso labial

Voluma: 28 mg/ml
Cheeks/ Body Volumizer

DERMAFILL By Zartaux

HA concentration =28mg/ml
pH= 6.0 – 7.5
Estrusion force with 27G (TSK) = 1.5 kg ca.
Endotoxin <0.25 EU/ml
BDDE residual = < 2 ppm

DermaFill by Zartaux is developed and commercialized, as Top Quality Crosslinked Hyaluronic Acid Gel, to be used in therapeutic topical skin care and in medical applications including soft tissue augmentation.

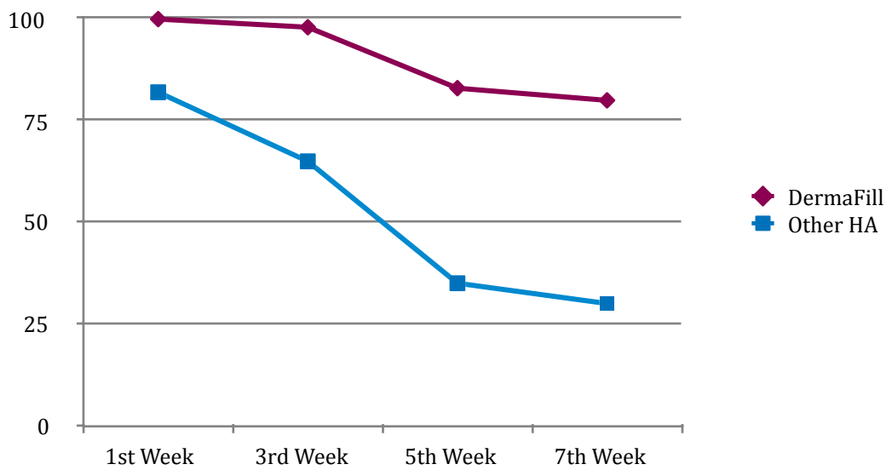
In the skincare field, Zartaux Company has already patented Dermaceutical Skin Care products.

The safety and efficacy of Zartaux Dermaceutical Skin Care, makes them value-added for use in high performance demands, developed to manage dermal disorders (including dry, inflamed, burned, bruised or injured skin), improve the health and appearance of skin, protect the skin from further injury or damage from environmental stressors and address the damaging effect of ultraviolet radiation on the skin.

In the medical field, the company's novel, patented Crosslinked HA technology is designed to provide improved stability and efficacy of soft tissue implants and to provide safe, biocompatible, long-lasting depot delivery of actives.

QualityTip:

DERMAFILL by ZARTAUX is resistant to enzyme degradation (hyaluronidase) as compared to regular crosslinked HA gels, measured by loss in viscosity:



Injection Techniques

Each technique has advantages for certain situations, and the ultimate determining factor is often surgeon preference. The angle of injection is determined by the depth of the defect.
In general, more obtuse angles of insertion are used for deeper defects.
Fine to moderate rhytides and other superficial defects require injection into the mid dermis with an angle of approach of 30-45 degrees.
Deeper rhytides may require an entry angle of greater than 45 degrees.
Fillers can be injected by one of the following 5 techniques:
Serial puncture, threading, fanning, and crosshatching.

1. Serial puncture - to avoid irregularity - involves injecting a series of small boluses of the filler along the length of the defect.
2. Threading - for fine or superficial wrinkles - involves tunneling the needle beneath the defect at the appropriate depth and injecting the product as the needle is withdrawn (linear threading).
3. Serial Threading - for lip and nasolabial fold augmentation - when combined with serial puncture, the technique is called serial threading.
4. Fanning - to enhance tissue volume in areas such as the naso-labial triangle - is similar to threading, but multiple threads are injected radially by changing direction without withdrawing the needle.
5. Crosshatching - for facial contours and enhancing tissue volume - involves injection of a series of threads perpendicular to one another in a grid. Both fanning and crosshatching techniques are used to fill larger defects and for facial shaping.

The choice of needle is determined by the viscosity of the filler.

Ultra 1: 22 mg/ml
30G-13mm

Ultra 2: 24 mg/ml
30G-13mm

Ultra 3: 26 mg/ml
27G-13 mm

Voluma: 28 mg/ml
25G- 13mm

Before & After

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Made in Switzerland

Bibliographical References

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