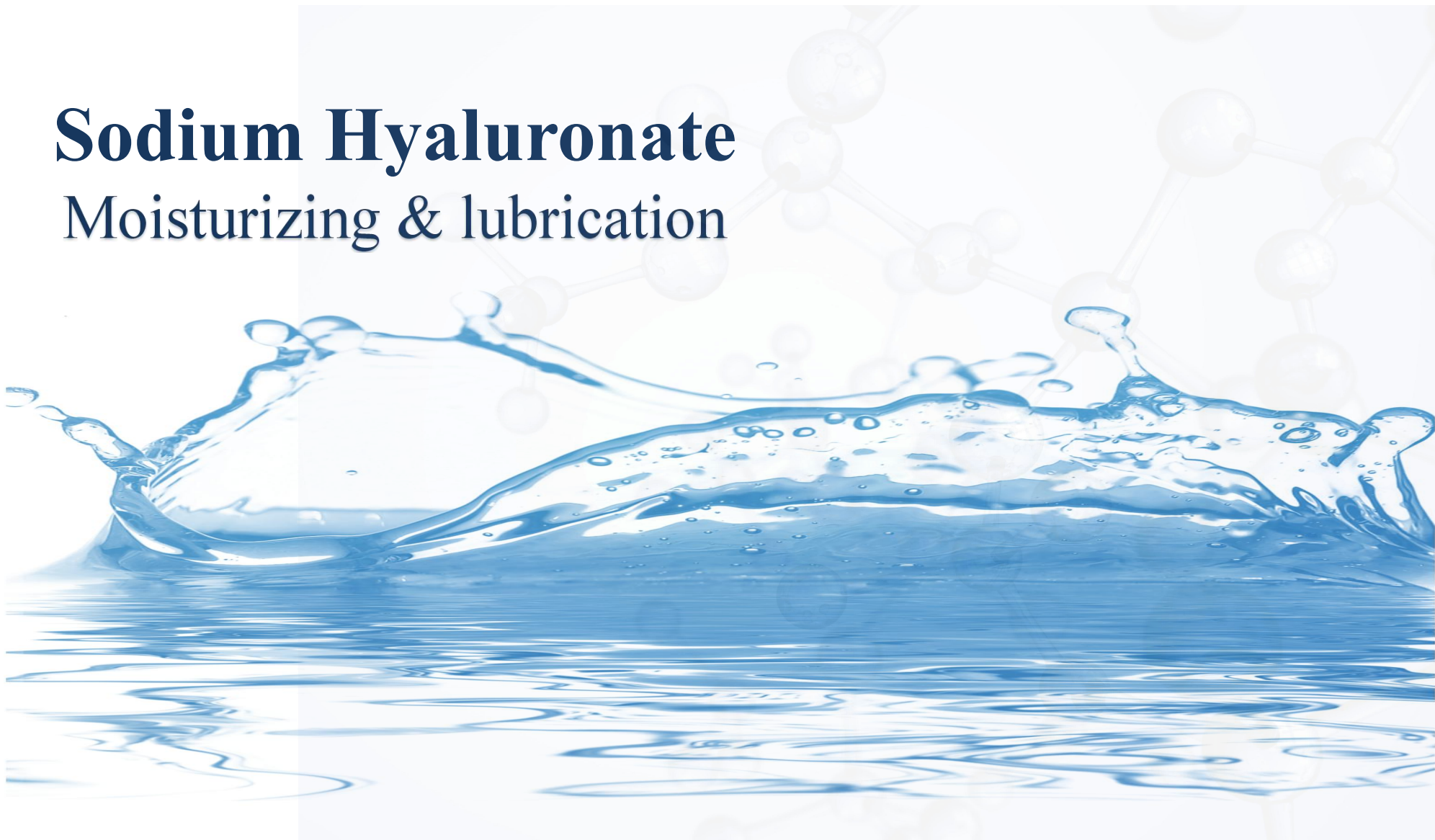


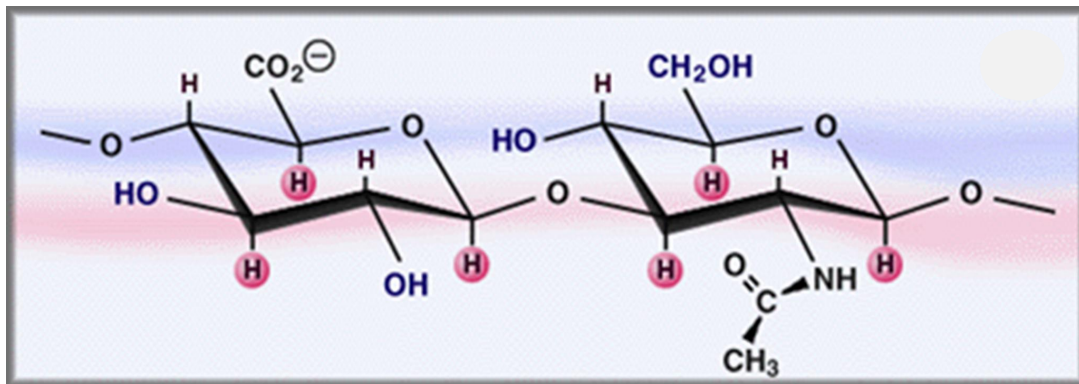
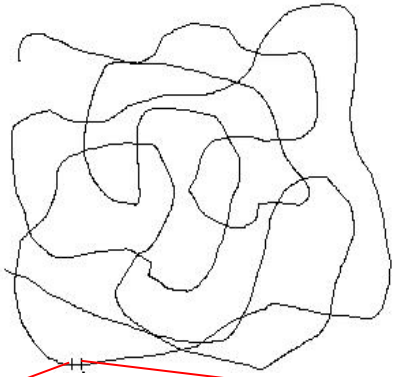
Sodium Hyaluronate

Moisturizing & lubrication



Sodium hyaluronate

Sodium hyaluronate (Hyaluronic acid, HA) is a high molecular weight unbranched glycosaminoglycan, composed of repeating disaccharides (N-Acetyl-D-glucosamine & D-glucuronic acid).



- ◆ It is synthesized by in the plasma membrane of cells with the product being translocated out of the cell.
- ◆ It is a widely distributed component of the extracellular matrix of vertebrate tissues.
- ◆ Due to its unique physical and chemical properties, HA has a wide range of applications in the fields of chemistry, biology, and medicine.

HA applications in pharm field

Intra-articular Injection
Cartilage transplant \ viscosupplementation



Anti-adhesive Devices



Aesthetic Correction
Filler \ Mesotherapy



Dermatological Preparations



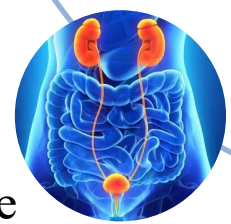
Rhinology



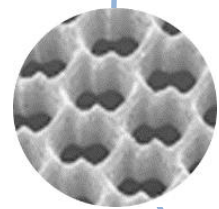
Ophthalmology
OVD \ Eye Drops



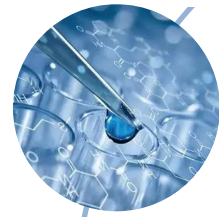
Reproductive Health
Candidiasis \ In vitro fertilization



Urology
Cystitis \ Incontinence

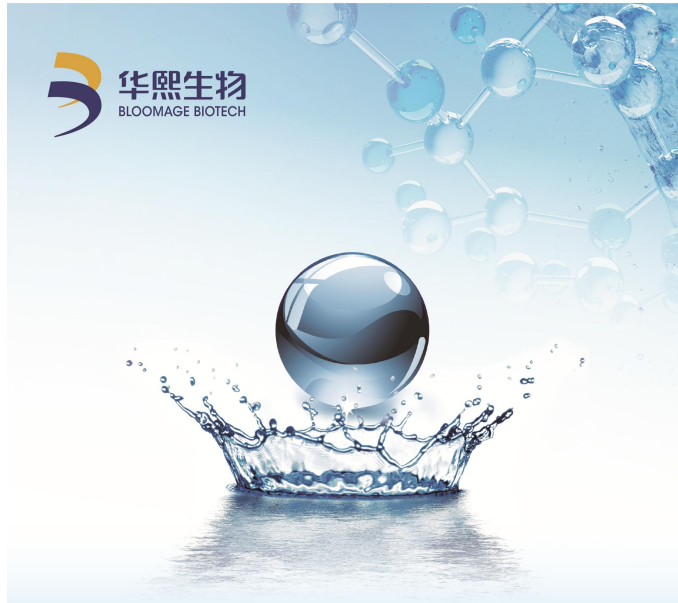


Tissue Engineering
Artificial Skin Grafts \ Bone Healing



Drug Delivery System

HyatruTM



HyatruTM Pharmaceutical Grade Sodium Hyaluronate

Application



Injection Grade

- Ophthalmic Viscosurgical Device
- Intra-articular Injection
- Mesotherapy
- Dermal Filler
- Anti-adhesive Agent
- Tissue Engineering



Medical Grade

- Eye Drops
- Contact Lens Solutions
- Topical Drug
- Medical Lubricants
- Mucosa Healing
- Drug Carrier

Natural and Safe

Raw materials and products are safe

- It is produced by bacterial fermentation.
- Non GMO
- Hyatru[®] has been tested and proven safe and non-toxic.
- Regulatory Compliance

High purity

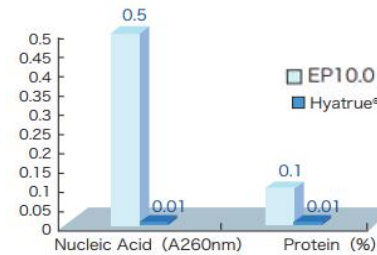


Chart 1. Impurity level of Hyatru[®] (Medical Grade)

Quality of Hyatru[®] is much higher than European Pharmacopoeia standard.

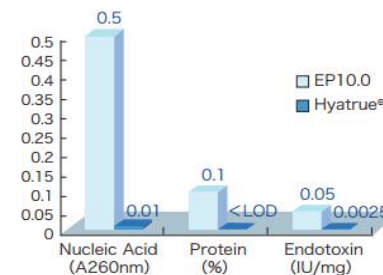


Chart 2. Impurity level of Hyatru[®] (Injection Grade)

High stability

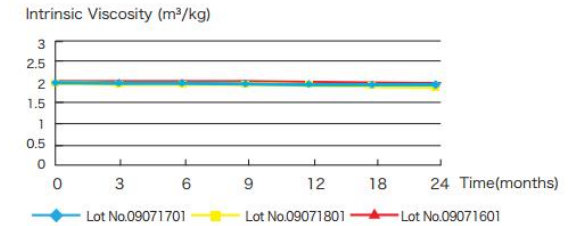


Chart 3. Long-term stability test for Hyatru[®] (2-8°C)

Hyatru[®] is stable under its recommended storage and transportation conditions.

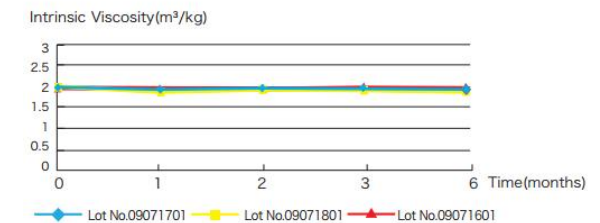
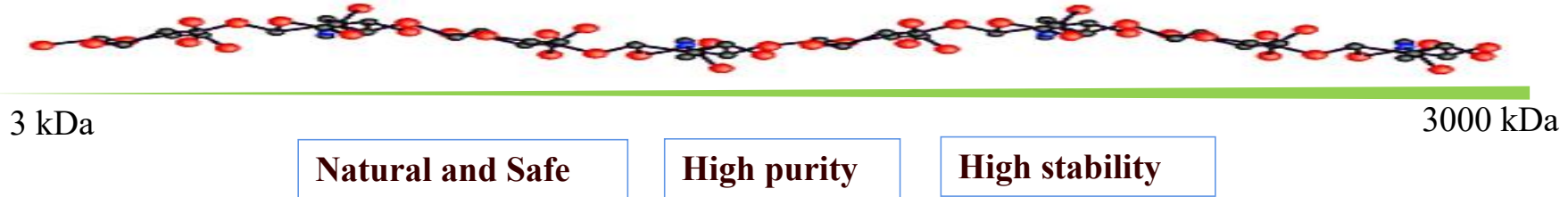


Chart 4. Accelerated stability test for Hyatru[®] (25°C)

Pharma Grade HA

- **Wide molecular weight range and precise control on MW-** Low MW (3 kDa) to High MW (3000 kDa)



- **Different grade HA to different applications-** Quality assurance, product competitiveness



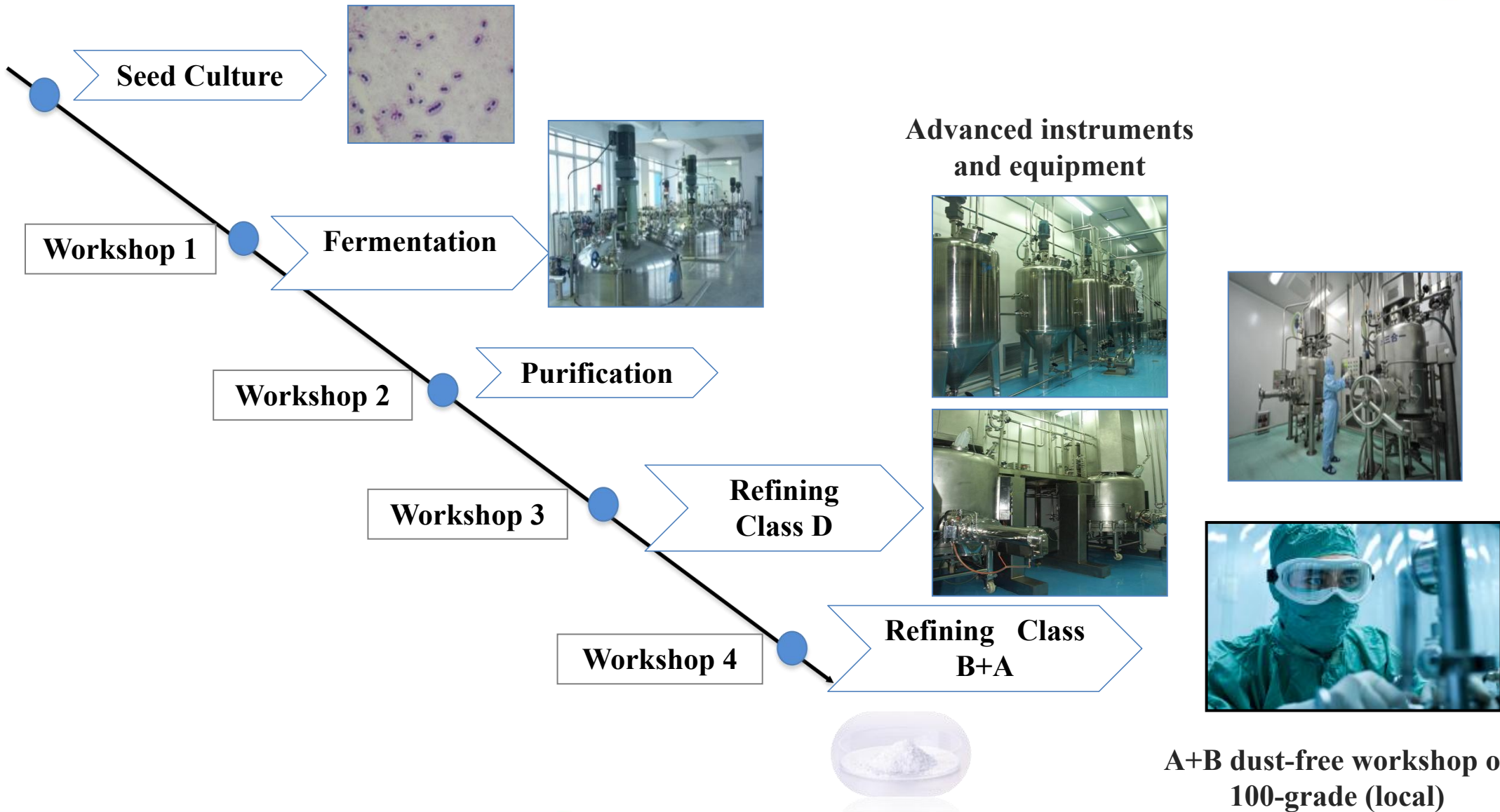
Injection grade HA



Medical grade HA

- **Research grade Sodium Hyaluronate oligosaccharides**, tetrasaccharide (HA4), hexasaccharide (HA6), octasaccharide (HA8) and decasaccharide (HA10)

Production Process of Sodium Hyaluronate



A+B dust-free workshop of
100-grade (local)

Pharm Grade HA



Pharm Grade Sodium Hyaluronate Hyature[®]

	Medical grade HA	Injection grade HA	
Product Name	HA-E Grade	HA-EP-N Grade	HA-EP Grade
Refining environment	Refining in Class D	Refining in Class D	Refining in Class B+A
Process Water	Purified Water	Purified Water	Water for Injection
Registration	US DMF; CEP	US DMF; CEP; KDMF	US DMF; CEP; KDMF
Applications	Eye drop, contact lens solution, topical preparations, oral formulation, etc.	Dermal filler, intra-articular injections, OVD, anti-adhesion preparation, etc.	