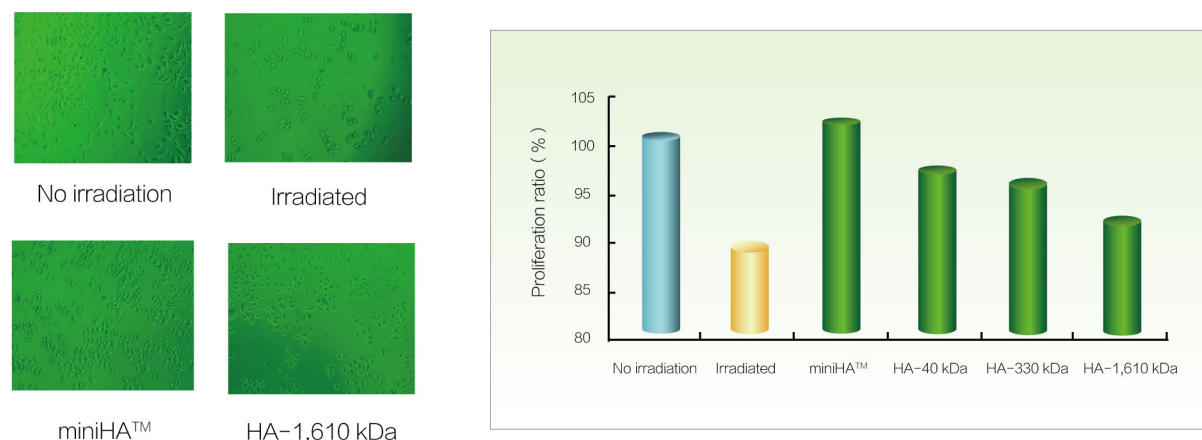


High capacity of after sun repair

miniHA™ can repair the skin cells from ultraviolet irradiation damage.



Applications in cosmetics

1 Application

Moisturizer, anti-aging agent, sunblock.

2 Formulation form

Aqueous solution, gel, cream, emulsion, etc.

3 Recommended usage

0.1% ~ 0.5%.

Much better efficacy when combined with common HA.

4 Use method

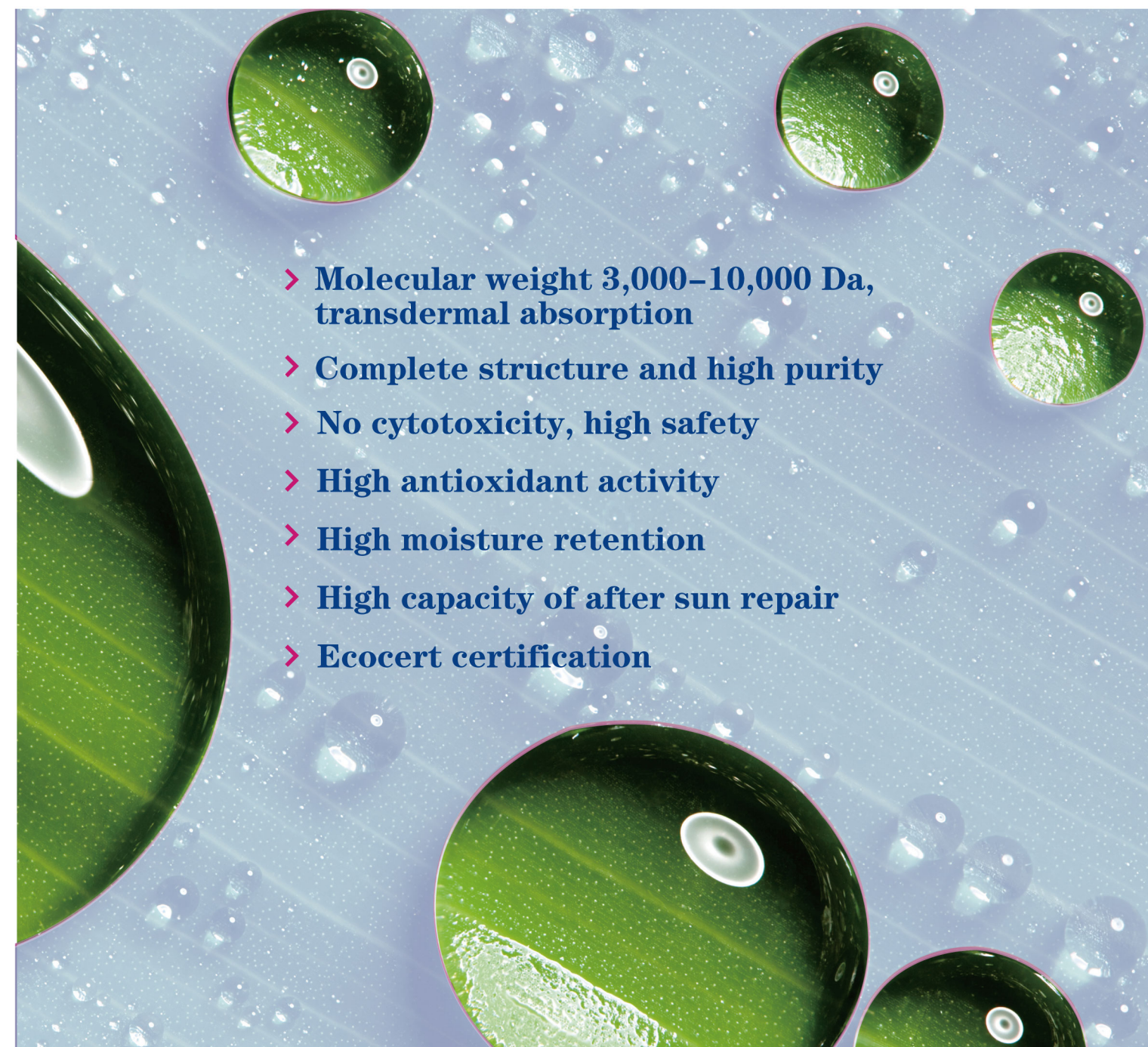
Good solubility, good stability in any process of manufacture.

Add: No. 678 Tianchen St., High-Tech Development Zone, Jinan, China 250101
Tel: +86 531 82685998 82685996 Fax: +86 531 82685988
Email: customer@fredabiopharm.com.cn
www.fredabiopharm.com.cn
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miniHA™

NEW GENERATION OLIGO SODIUM HYALURONATE



- > Molecular weight 3,000–10,000 Da, transdermal absorption
- > Complete structure and high purity
- > No cytotoxicity, high safety
- > High antioxidant activity
- > High moisture retention
- > High capacity of after sun repair
- > Ecocert certification

BLOOMAGE FREDA BIOPHARM CO., LTD.

The Science of Beauty

miniHA™ Bloomage Freda Biopharm's newest innovation in the sodium hyaluronate industry



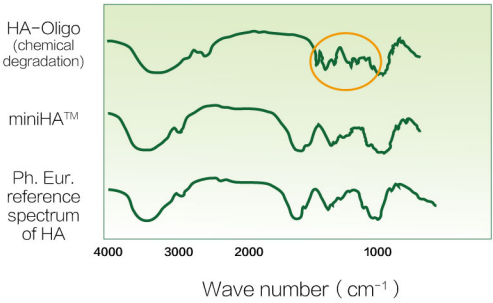
Our new enzymatic degradation method takes the place of chemical degradation to produce oligo sodium hyaluronate for the first time in the world.

- No corrosive chemicals such as hydrochloric acid, sodium hydroxide, hydrogen peroxide
- Moderate reaction conditions, neutral pH
- Environment friendly

The advantages of miniHA™

1 Complete structure

The infrared spectrum of miniHA™ was confirmed with the Ph. Eur. reference spectrum of sodium hyaluronate (HA), while that of HA-Oligo (chemical degradation) was obviously different. It shows that miniHA™ has a complete molecular structure compared with HA-Oligo (chemical degradation).



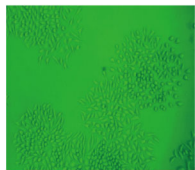
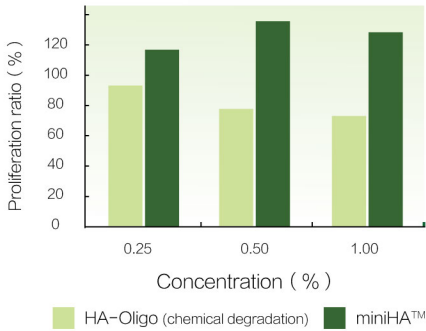
2 High purity

Determination of purity:
HPLC method.
miniHA™ is purer compared with HA-Oligo (chemical degradation).

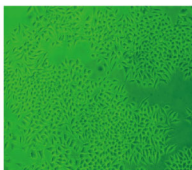
Sample	Degradation method	Purity/%
miniHA™-1	Hyaluronidase	97.66
miniHA™-2	Hyaluronidase	98.02
HA-Oligo-1	Chemical	62.35
HA-Oligo-2	Chemical	67.65

3 High safety

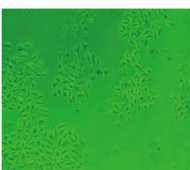
The results of cytotoxicity test and skin patch test verify that miniHA™ is a safer cosmetic ingredient.



Complete medium



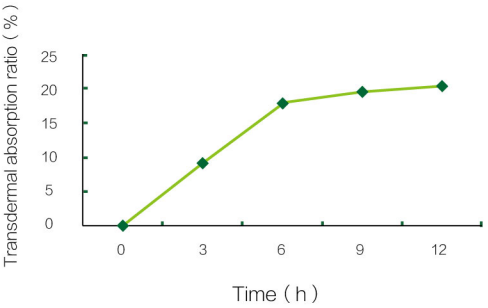
Complete medium + miniHA™



Complete medium + HA-Oligo (chemical degradation)

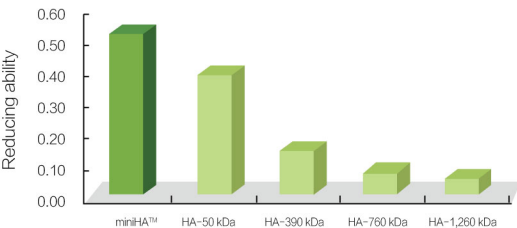
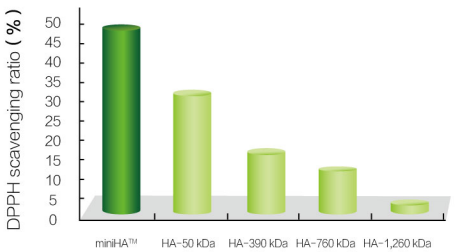
4 Transdermal absorption

The molecular weight of miniHA™ is 3,000–10,000 Da. The molecular size of miniHA™ is small (less than 25 nm) enough to penetrate into human skin and nourish skin deeply.



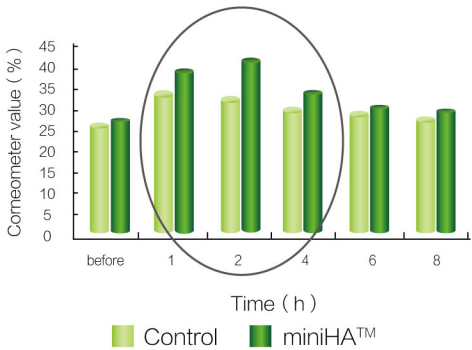
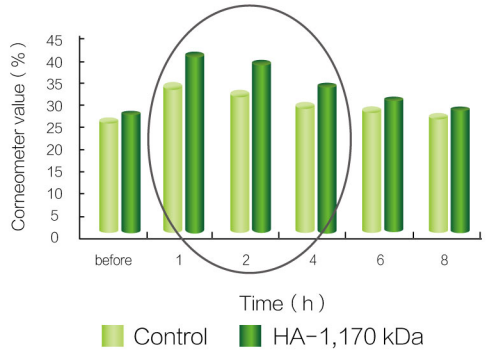
5 High antioxidant activity

The antioxidant activity of miniHA™ is higher than that of common HA by measuring free radical scavenging activity and its reducing ability.



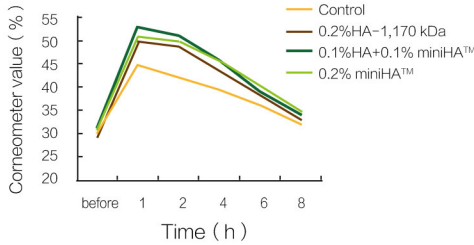
6 High moisture retention

(1) Moisture retention of miniHA™



miniHA™ has the same capacity of moisture retention as high molecular weight HA. You do not feel stickiness even after sweating, because it can penetrate into the skin.

(2) Moisture retention of miniHA™ used together with common HA



When miniHA™ is used in cosmetics formulation together with high molecular weight HA, the moisturizing effect is better because of their synergetic effect.