HYALURONAN FAQs

1. What is HA?

Hyaluronan (hyaluronic acid, HA) is a type of sugar polymer called a polysaccharide (other common polysaccharides include cellulose from wood, or starch from food). The chemical structure of HA is a chain of two different simple sugars (N-acetylglucosamine and glucuronic acid) repeated over and over (a-b-a-b-a-b-a-b-etc.). In nature, the length of the polymer chains ranges from hundreds to thousand of sugars units.

2. What is the medical importance of HA?

HA is found in many organs of the human body. HA plays roles both as a cellular signal and as a building block. Cells can change their behavior (for example, start or stop cell movement or growth) depending on the amount and the size of HA molecules in their immediate environment. The eye, joint synovium, and skin contain substantial amounts of this polymer. Current medical applications for long HA chains include supplementing or augmenting these particular tissues with purified HA polysaccharide. Short HA chains promise to be important in future medical applications as agents that prevent cancer metastasis, boost certain immune responses, or trigger new blood vessel growth. Hyalose has novel technologies to produce both small and large HA molecules. Interestingly, certain pathogenic bacteria form a surface coating of HA that serves the bacteria as molecular camouflage during infection. Group A Streptococci (the causative agent of "strep" throat, rheumatic & scarlet fever, "flesh-eating"necrotizing fascitis) and Type A Pasteurella multocida (the causative agent of fowl cholera & shipping fever in domestic animals, or sepsis in humans after animal bites) are 100-to 10,000-fold more deadly due to the presence of a hyaluronan capsule. The host defenses face a dilemma since the same molecule is used as part of the ground substance of the animal body. Hyalose will employ a similar strategy in which HA coatings are utilized to camouflage or protect implanted devices or drugs.

3. What is a HA synthase?

HA synthases are the specialized enzymes (proteins that function as catalysts) that make the HA polysaccharide in living cells. The HA synthases join the two sugars together in an efficient, rapid, and specific manner. HA synthases from humans, bacteria, and a virus are now identified and the genes have been cloned. Many of these enzymes were first cloned by the scientists of Hyalose.

4. What narrow size distributions are available for Select-HA?

Select-HA™ 50 = 25kDa -75kDa	Select-HA ™ 500 = 400kDa - 600kDa
Select-HA ™ 150 = 100kDa - 200kDa	Select-HA ™ 1000 = 800kDa - 1200kDa

5. How are the molecular masses of Select-HA products determined?

Values are determined by Multi-angle Laser Light Scattering-Size Exclusion Chromatography (MALLS-SEC). With this method, a light scattering detector is coupled with size exclusion chromatography (SEC) a fractionation technique that can separate macromolecules based on their physical properties.

6. How can I learn more about the science and health benefits of HA?

For many basic science and applied science articles on HA by experts from around the world visit:
http://www.glycoforum.gr.jp/science/hyaluronan/hyaluronanE.html