

Technology Offer

CSIC/AI/002

Production of hyaluronic acid oligosaccharides using a novel fungal enzyme



Technology based on a novel fungal enzymatic activity expressed in a tunable system, designed for the controlled production of hyaluronic acid oligosaccharides with defined structures and bioactive functionality.

Intellectual Property

Priority european patent application filed

Stage of development

Successfully validated in a laboratory environment

Intended Collaboration

Licensing and/or co-development

Contact

Ángel Ibáñez
Vice-presidency for
Innovation and Transfer
angel.ibanez@csic.es
comercializacion@csic.es



Market need

The biotechnology market demands sustainable and precise solutions for the production of hyaluronic acid oligosaccharides (HAOS), which are highly valued in both cosmetics and medicine. Current methods, based on animal or bacterial hyaluronidases, suffer from low yields, limited versatility, and poor control over the final product. There is a clear need for a safe, scalable, and animal-free enzymatic technology to meet the growing demand for functional HAOS.



Proposed solution

Enzymatic technology based on a novel fungal activity expressed in *Pichia pastoris* for the controlled production of hyaluronic acid oligosaccharides. The method enables the generation, within 2–3 hours and under mild conditions, of a mixture of saturated and unsaturated fragments with distinct bioactive properties, allowing for the molecular profile to be tailored through kinetic control of the process. Its design facilitates seamless integration into industrial processes.

Competitive advantages

- Rapid and efficient production of oligosaccharides within 2–3 hours, optimising both time and cost.
- Heterologous enzyme expressed in *Pichia pastoris*, ensuring scalability and industrial safety.
- Sustainable, animal-free process aligned with current ethical and regulatory demands.