Hyaluronic acid

Cat. No.: HY-B0633A

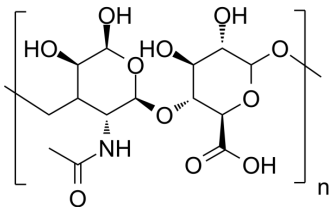
CAS No.: 9004-61-9

Molecular Formula: $C_{16}H_{27}NO_{11}$

Target: Endogenous Metabolite; Bacterial

Pathway: Metabolic Enzyme/Protease; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro	H_2O : 8.33 mg/mL (Need ultrasonic) DMSO : < 1 mg/mL (insoluble or slightly soluble)
In Vivo	1. Add each solvent one by one: PBS Solubility: 9.09 mg/mL (Infinity mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description	Hyaluronic acid (corn fermented) is a biopolymer composed of repeating units of disaccharides with various applications.
IC_{50} & Target	Human Endogenous Metabolite
In Vitro	Hyaluronic acid (HA) is widely used in aesthetic medicine due to its binding ability with a large number of water molecules. It improves tissue hydration and their resistance to mechanical damage. HA plays an important role in wound healing, ovulation, fertilization, signal transduction, and tumor physiology. HA is used in joint diseases such as osteoarthritis or rheumatoid arthritis. HA of a high molecular mass reduces the chemotaxis and migration of inflammatory cells which acts as a good barrier to the inflammatory process and protects against the effects of free radicals. HA is used in ophthalmology due to its lubricating properties for the corneal endothelium, and improves tissue hydration and cellular resistance to mechanical damage in aesthetic dermatology, and has marginal adverse effects. Several trials indicate its role in tumor markers, liver diseases, and in pharmaceuticals[1]. Hyaluronan plays an important role in cancer growth and metastasis. HA and HA fragment-tumor cell interaction could activate the downstream signaling pathways, promoting cell proliferation, adhesion, migration and invasion, and inducing angiogenesis, lymphangiogenesis, epithelial-mesenchymal transition, stem cell-like property, and chemoradioresistance in digestive cancers[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The impact of applied intra-articular HA has been proven in many studies in animals. Studies on HA have shown that it promotes the synthesis of cartilage matrix, prevents its degradation, reduces inflammation, stimulates the synthesis of endogenous HA, and improves the resilience and moisture of cartilage [1]. High molecular size HA preparations, applied topically, promote healing of fresh skin wounds. They also promote the healing of venous leg ulcers and are useful in the management of chronic wounds[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Immunity. 2021 May 11;54(5):962-975.e8.
- ACS Nano. 2023 Nov 21.
- Int J Biol Macromol. 2021 Jan 15;167:1006-1019.
- Oncogene. 2023 Sep 14.
- Biomed Pharmacother. 2024 Jan:170:116100.

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REFERENCES

[1]. Salwowska NM, et al. Physiochemical properties and application of hyaluronic acid: a systematic review. J Cosmet Dermatol. 2016 Dec;15(4):520-526.

[2]. Wu RL, et al. Hyaluronic acid in digestive cancers. J Cancer Res Clin Oncol. 2017 Jan;143(1):1-16.

[3]. Kogan G, et al. Hyaluronic acid: a natural biopolymer with a broad range of biomedical and industrial applications. Biotechnol Lett. 2007 Jan;29(1):17-25.

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