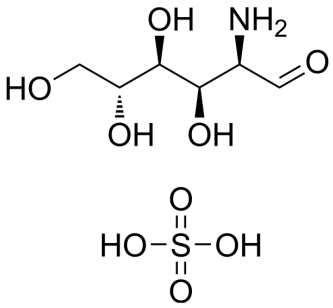
Glucosamine sulfate

Cat. No.:	HY-N0487
CAS No.:	29031-19-4
Molecular Formula:	$C_6H_{15}NO_9S$
Molecular Weight:	277.25
Target:	HIF/HIF Prolyl-Hydroxylase; Endogenous Metabolite; Reactive Oxygen Species; Autophagy
Pathway:	Metabolic Enzyme/Protease; Immunology/Inflammation; NF-κB; Autophagy
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 125 mg/mL (450.86 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.6069 mL	18.0343 mL	36.0685 mL
	5 mM	0.7214 mL	3.6069 mL	7.2137 mL
	10 mM	0.3607 mL	1.8034 mL	3.6069 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (360.69 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Glucosamine sulfate (D-Glucosamine sulfate) is an amino sugar and a prominent precursor in the biochemical synthesis of glycosylated proteins and lipids, is used as a dietary supplement. Glucosamine sulfate also is a natural constituent of glycosaminoglycans in the cartilage matrix and synovial fluid, which when administered exogenously, exerts pharmacological effects on osteoarthritic cartilage and chondrocytes[1].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

Glucosamine sulfate (D-Glucosamine sulfate) exhibits dose-dependent DPPH antioxidant activity[2].
Glucosamine sulfate treatment of Short-term (4 h) inhibits HIF-1α at the protein level, decreases phosphorylation of p70S6K and S6, translation-related proteins[3].
Glucosamine sulfate significantly decreases renal expression of α-smooth muscle actin, collagen I, and fibronectin in the obstructed kidneys and TGF-β1-treated renal cells[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Microbiome. 2019 Mar 20;7(1):43.
- Theranostics. 2021 Mar 24;11(12):5650-5674.
- Laurea Magistrale in Biomedical Engineering, Politecnico di Milano. 2019 Jun.

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REFERENCES

[1]. Bruyère O, et al. Efficacy and safety of glucosamine sulfate in the management of osteoarthritis: Evidence from real-life setting trials and surveys. Semin Arthritis Rheum. 2016 Feb;45(4 Suppl):S12-7.

[2]. Jamialahmadi K, et al. Protective effects of glucosamine hydrochloride against free radical-induced erythrocytes damage. Environ Toxicol Pharmacol. 2014 Jul;38(1):212-9.

[3]. Jo JR, et al. Short-term treatment with glucosamine hydrochloride specifically downregulates hypoxia-inducible factor-1α at the protein level in YD-8 human tongue cancer cells. Int J Oncol. 2014 May;44(5):1699-706.

[4]. Park J, et al. Glucosamine hydrochloride exerts a protective effect against unilateral ureteral obstruction-induced renal fibrosis by attenuating TGF-β signaling. J Mol Med (Berl). 2013 Nov;91(11):1273-84.

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