

Histatin 5 TFA

Cat. No.:	HY-P0273A
Molecular Formula:	C ₁₃₅ H ₁₉₆ N ₅₁ F ₃ O ₃₅
Molecular Weight:	3150.31
Sequence:	Asp-Ser-His-Ala-Lys-Arg-His-His-Gly-Tyr-Lys-Arg-Lys-Phe-His-Glu-Lys-His-His-Ser-His-Arg-Gly-Tyr DSHAKRHHGYKRKFHEKHSHRGY (TFA salt)
Sequence Shortening:	DSHAKRHHGYKRKFHEKHSHRGY
Target:	MMP
Pathway:	Metabolic Enzyme/Protease
Storage:	Sealed storage, away from moisture Powder -80°C 2 years -20°C 1 year * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

SOLVENT & SOLUBILITY

In Vitro

H₂O : 100 mg/mL (31.74 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
	Concentration				
	1 mM		0.3174 mL	1.5871 mL	3.1743 mL
	5 mM		0.0635 mL	0.3174 mL	0.6349 mL
	10 mM		0.0317 mL	0.1587 mL	0.3174 mL

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

BIOLOGICAL ACTIVITY

Description

Histatin 5 TFA inhibits the activity of the host matrix metalloproteinases MMP-2 and MMP-9 with IC₅₀s of 0.57 and 0.25 μM, respectively.

IC₅₀ & Target

IC₅₀: 0.57 μM (MMP-2), 0.25 μM (MMP-9)

In Vitro

Histatin 5 is a member of a family of low-molecular-weight salivary proteins secreted by parotid, submandibular, and sublingual glands. Using biotinylated gelatin as a substrate, Histatin 5 is found to inhibit the activity of the host matrix metalloproteinases MMP-2 and MMP-9 with IC₅₀s of 0.57 and 0.25 μM, respectively. To localize the domain responsible for this inhibition, three peptides containing different regions of Histatin 5 are synthesized and tested as inhibitors of MMP-9. Peptides comprising residues 1 to 14 and residues 4 to 15 of Histatin 5 show much lower inhibitory activities (IC₅₀s, 21.4 and 20.5 μM, respectively), while a peptide comprising residues 9 to 22 showed identical activity to Histatin 5 against MMP-9. Kinetic analysis of the inhibition of the Arg-gingipain reveals that Histatin 5 is a competitive inhibitor, affecting only the Km with a Ki of 15 μM [1]. Histatin 5 is an inhibitor of mitochondrial respiration. The human salivary antifungal peptide Histatin 5

is taken up by *Candida albicans* cells and associates intracellularly with mitochondria. Histatin 5 inhibits respiration of isolated *C. albicans* mitochondria as well as the respiration of intact blastoconidia in a dose and time-dependent manner. Histatin 5 at a concentration of 33 μ M inhibits state 2 respiration^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Gusman H, et al. Salivary histatin 5 is an inhibitor of both host and bacterial enzymes implicated in periodontaldisease. *Infect Immun*. 2001 Mar;69(3):1402-8.

[2]. Helmerhorst EJ, et al. The human salivary peptide histatin 5 exerts its antifungal activity through the formation of reactive oxygen species. *Proc Natl Acad Sci U S A*. 2001 Dec 4;98(25):14637-42.

Caution: Product has not been fully validated for medical applications. For research use only.

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