KDM8 Protein, Human (His)

Cat. No.:	HY-P701624
Synonyms:	KDM8; Bifunctional peptidase and arginyl-hydroxylase JMJD5; JmjC domain-containing protein 5; Jumonji C domain-containing protein 5; L-arginine (3R)-hydroxylase KDM8
Species:	Human
Source:	E. coli
Accession:	Q8N371 (T183-S416)
Gene ID:	79831
Molecular Weight:	

PROPERTIES

Appearance	Solution.
Formulation	Supplied as a 0.22 μm filtered solution of 50 mM Tris-HCl, pH7.5, 200 mM NaCl, 20% glycerol.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

DESCRIPTION

Background

The KDM8 protein is a multifunctional enzyme acting both as an endopeptidase and a 2-oxoglutarate-dependent monooxygenase. As an endopeptidase, it cleaves histone N-terminal tails at the carboxyl side of methylated arginine or lysine residues, generating 'tailless nucleosomes' that may trigger transcription elongation. This function is evident in its preference for cleaving monomethylated and dimethylated arginine residues of histones H2, H3, and H4, with subsequent digestion of histone tails through its aminopeptidase activity. In response to DNA damage, KDM8 targets the N-terminal tail of histone H3 at monomethylated lysine residues, particularly at 'Lys-9' (H3K9me1), with a major focus on the histone variant H3F3A. Additionally, KDM8 functions as a Fe(2+) and 2-oxoglutarate-dependent monooxygenase, catalyzing (R)-stereospecific hydroxylation at C-3 of 'Arg-137' of RPS6 and 'Arg-141' of RCCD1, though the biological significance of this activity is yet to be fully elucidated. It regulates mitosis by participating in the transcriptional repression of satellite repeats and potentially influencing H3K36 methylation in centromeric regions along with RCCD1. Together with RCCD1, it contributes to proper mitotic spindle organization and chromosome segregation. KDM8 also negatively regulates the cell cycle repressor CDKN1A/p21, required for G2/M phase cell cycle progression, and regulates the expression of CCNA1/cyclin-A1, impacting cancer cell proliferation. Furthermore, it plays a role in regulating alpha-tubulin acetylation and cytoskeletal microtubule stability involved in epithelial to mesenchymal transition. Additionally, KDM8 is involved in regulating circadian gene expression in the liver, repressing the transcriptional activator activity of the CLOCK-BMAL1 heterodimer, and negatively regulating the protein stability and function of CRY1, thereby contributing to AMPK-FBXL3-induced CRY1

	degradation.

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

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