Recombinant JMJD2A / KDM4A protein

Catalog No: 31457, 31857
Expressed In: Baculovirus

Quantity: 20, 1000 µg
Concentration: 0.6 µg/µl
Source: Human

Buffer Contents: Full length recombinant JMJD2A / KDM4A protein was expressed in Sf9 cells and is supplied in 25 mM Hepes pH 7.5, 300 mM NaCl, 5% Glycerol, 0.04% Triton X-100, 0.2 mM TCEP.

Background: KDM4A (lysine (K)-specific demethylase 4A), also known as **JMJD2A (Jumonji Domain Containing 2A)** is a nuclear protein that functions as a histone demethylase that preferentially demethylates di- and trimethylated lysine 9 (K9me3) and lysine 36 (K36me3) residues of histone H3, converting these trimethylated histone residues to mono- or dimethylated form. JMJD2A / KDM4A has no activity for monomethylated H3K9 and H3K36. KDM4A functions as a transcriptional repressor, participating in transcriptional repression of ASCL2 and E2F-responsive promoters via the recruitment of histone deacetylases and NCOR1, respectively. An additional KDM4A isoform, KDM4A Isoform 2, that lacks the N-terminal demethylase domain is crucial for muscle differentiation in promoting transcriptional activation of the MyoG gene by directing the removal of repressive chromatin marks at its promoter.

Protein Details: Recombinant JMJD2A / KDM4A (accession number NP_055478.2) was expressed in Sf9 cells and contains an N-terminal FLAG-Tag with an observed molecular weight of 125.3 kDa. The recombinant protein is >85% pure by SDS-PAGE.

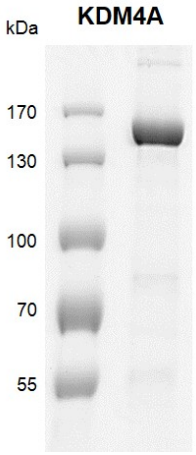
Application Notes: Recombinant JMJD2A / KDM4A is suitable for use in the study of enzyme kinetics, inhibitor screening, and selectivity profiling.

Histone Demethylase Assay Conditions: 50 mM HEPES pH 7.5, 0.02% Triton X100, 100 µM 2OG, 100 µM Ascorbate, 50 µM (NH4)2Fe(SO4)2·6H2O, 1 mM TCEP, 100 nM Recombinant JMJD2A / KDM4A protein, and 3.3 µM H3K9me3 (aa 1-21) peptide at 2 hours at room temperature. MALDI-TOF was used for detection.

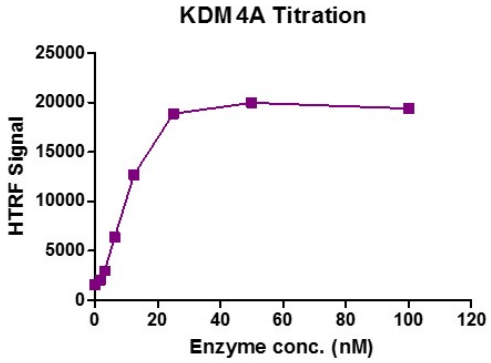
References: This protein is described in the following references:
Zhang D *et al.* (2005) Mol Cell Biol. 25:6404-6414
Gray SG *et al.* (2005) J Biol Chem. 280:28507-28518
Cell Death Dis. (2018). 9(10): 1038. PMID: 30305606.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.

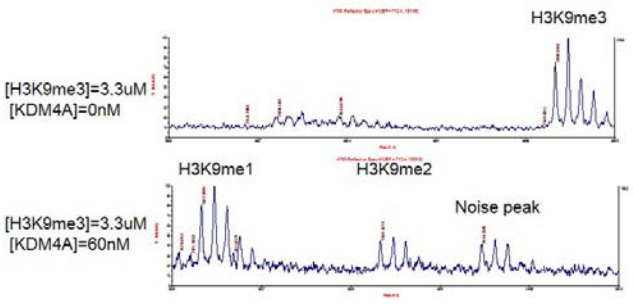
This product is for research use only and is not for use in diagnostic procedures.



Recombinant JMJD2A / KDM4A protein gel.
JMJD2A / KDM4A protein was run on a 8% SDS-PAGE gel and stained with Coomassie blue.



JMJD2A / KDM4A activity assay.
3.3 µM H3K9me3 peptide was incubated with JMJD2A / KDM4A in reaction buffer for 1 hour at room temperature. JMJD2A / KDM4A enzyme was used in a HTRF assay to determine enzyme linearity. Demethylated peptide (H3K9me2) was measured using H3K9me2-specific antibody.



JMJD2A / KDM4A activity assay.
3.3 µM H3K9me3 peptide was incubated with 60 nM JMJD2A / KDM4A in reaction buffer for 2 hours at room temperature. The reaction product was detected by MALDI-TOF. Single 3.3 µM H3K9me3 peptide was used as negative control.