

Recombinant Rat JMJD6 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52530

Size: 10ug, 100ug

Protein Name: Bifunctional arginine demethylase and lysyl-hydroxylase JMJD6 (EC 1.14.11.-) (Histone arginine demethylase JMJD6) (JmjC domain-containing protein 6) (Jumonji domain-containing protein 6) (Lysyl-hydroxylase JMJD6) (Peptide-lysine 5-dioxygenase JMJD6) (Phosphatidylserine receptor) (Protein PTDSR)

Synonym: Jmjd6, Ptdsr

UniProt ID: Q6AYK2

UniProt Link: www.uniprot.org/uniprotkb/Q6AYK2/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 403 AA

Molecular Weight: 47 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MNHKSKKRIREAKRSARPELKDSLWTRHNYYESYPLSPAAPVDNVERADALQLSVKEFVERYERP
YKPVVLLNAQEGWSAQEKWTLERLKRKYRNQKFKCGEDNDGYSVKMKMKYYIYMESTRDDSPY
IFDSSYGEHPKRRKLLDYKVPKFFTDLLFQYAGEKRRPPYRWFVMGPPRSGTGIHIDPLGTSAWN
ALVQGHKRWCLFPTNTPRELKVTREEGGNQQDEAITWFNVIYPRTQLPTWPPEFKPLEILQKPGET
VFVPGGWWHVVLNLDTTIAITQNFASSTNFPVWHKTVRGRPKLSRKWYRILKQEHPELAVLADAVD
LQESTGIASDSSSDSSSSSSSSSSSDSDSECESGSEGDGTTHRRKKRRTCSMVGNDDTTSQDDCVS
KERSSSR

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

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4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Bifunctional arginine demethylase and lysyl-hydroxylase JMJD6 (EC 1.14.11.-) (Histone arginine demethylase JMJD6) (JmjC domain-containing protein 6) (Jumonji domain-containing protein 6) (Lysyl-hydroxylase JMJD6) (Peptide-lysine 5-dioxygenase JMJD6) (Phosphatidylserine receptor) (Protein PTDSR) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Dioxygenase that can both act as an arginine demethylase and a lysyl-hydroxylase. Acts as a lysyl-hydroxylase that catalyzes 5-hydroxylation on specific lysine residues of target proteins such as U2AF2/U2AF65 and LUC7L2. Regulates RNA splicing by mediating 5-hydroxylation of U2AF2/U2AF65, affecting the pre-mRNA splicing activity of U2AF2/U2AF65. Hydroxylates its own N-terminus, which is required for homooligomerization (By similarity). Plays a role in the regulation of nucleolar liquid-liquid phase separation (LLPS) by post-translationally modifying LIAT1 at its lysine-rich domain which inhibits LIAT1 nucleolar targeting (By similarity). In addition to peptidyl-lysine 5-dioxygenase activity, may act as an RNA hydroxylase, as suggested by its ability to bind single strand RNA. Also acts as an arginine demethylase which preferentially demethylates asymmetric dimethylation. Demethylates histone H3 at 'Arg-2' (H3R2me) and histone H4 at 'Arg-3' (H4R3me), including mono-, symmetric di- and asymmetric dimethylated forms, thereby playing a role in histone code. However, histone arginine demethylation may not constitute the primary activity in vivo. In collaboration with BRD4, interacts with the positive transcription elongation factor b (P-TEFb) complex in its active form to regulate polymerase II promoter-proximal pause release for transcriptional activation of a large cohort of genes. On distal enhancers, so called anti-pause enhancers, demethylates both histone H4R3me2 and the methyl cap of 7SKsnRNA leading to the dismissal of the 7SKsnRNA:HEXIM1 inhibitor complex. After removal of repressive marks, the complex BRD4:JMJD6 attract and retain the P-TEFb complex on chromatin, leading to its activation, promoter-proximal polymerase II pause release, and transcriptional activation. Demethylates other arginine methylated-proteins such as ESR1. Has no histone lysine demethylase activity (By similarity). Required for differentiation of multiple organs during embryogenesis. Acts as a key regulator of hematopoietic differentiation: required for angiogenic sprouting by regulating the pre-mRNA splicing activity of U2AF2/U2AF65 (By similarity). Seems to be necessary for the regulation of macrophage cytokine responses (By similarity).

Subcellular Localization: Nucleus, nucleoplasm . Nucleus, nucleolus . Cytoplasm . Note=Mainly found throughout the nucleoplasm outside of regions containing heterochromatic DNA, with some localization in nucleolus. During mitosis, excluded from the nucleus and reappears in the telophase of the cell cycle.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.