

PRODUCT INFORMATION



ALKBH5 (human, recombinant)

Item No. 43294

Overview and Properties

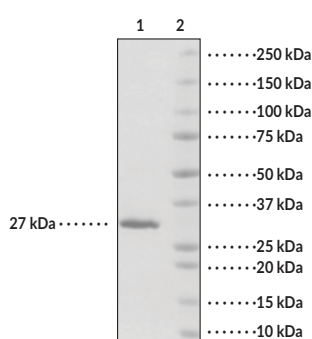
Synonyms: ABH5, Alkylated DNA Repair Protein alkB Homolog 5, Alpha-ketoglutarate-dependent Dioxygenase alkB Homolog 5, OFOX1
Source: Active recombinant human N-terminal DYKDDDDK-tagged ALKBH5 expressed in insect cells
Amino Acids: 66-292
Uniprot No.: Q6P6C2
Molecular Weight: 27 kDa
Storage: -80°C (as supplied)
Stability: ≥6 months
Purity: ≥90% estimated by SDS-PAGE
Supplied in: 40 mM Tris-HCl, pH 8.0, 110 mM sodium chloride, 2.2 mM potassium chloride, with 20% glycerol, 3 mM DTT, and 100 µg/ml DYKDDDDK peptide

Protein

Concentration: *batch specific* mg/ml

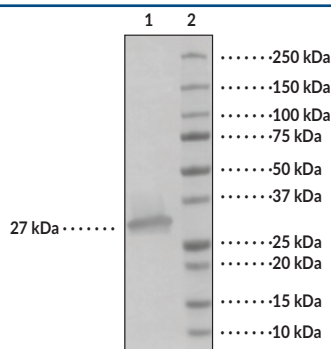
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



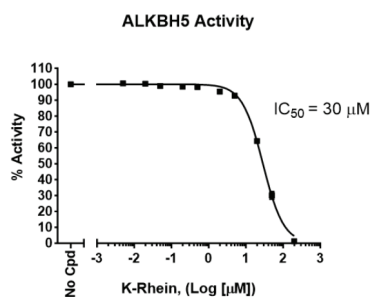
Lane 1: ALKBH5
Lane 2: MW Markers

SDS-PAGE Analysis of ALKBH5.



Lane 1: ALKBH5
Lane 2: MW Markers

WB of ALKBH5.



ALKBH5 Activity. ALKBH5 inhibition curve using a chemiluminescent assay.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 04/18/2025

CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM

PRODUCT INFORMATION



Description

Alpha-ketoglutarate-dependent dioxygenase alkB homolog 5 (ALKBH5) is an oxidoreductase and member of the ALKBH family of nucleic acid dioxygenases.^{1,2} It is composed of an N-terminal nucleotide recognition motif, a substrate specificity motif, a central double-stranded β -helix fold that contains cofactor binding- and active sites, and a disordered C-terminal arginine-serine-rich domain.¹ ALKBH5 is ubiquitously expressed with higher levels found in the lungs, testes, pancreas, spleen, and ovaries.¹ It functions as a monomer in nuclear paraspeckles and catalyzes 2-oxoglutarate- and ferrous iron-dependent demethylation of N⁶-methyladenosine (m⁶A) in messenger-, micro-, and long noncoding RNA, which impacts transcript splicing, nuclear export, translation, and cytoplasmic decay in a transcript-dependent manner.¹⁻³ The disordered C-terminal domain of ALKBH5 is involved in forming nuclear paraspeckles with other nuclear proteins, including splicing factor proline-glutamine-rich (SFPQ) and non-POU domain-containing octamer-binding protein (NONO), and nuclear paraspeckle assembly transcript 1 (NEAT1) long noncoding RNA.⁴ The levels of ALKBH5 are increased by hypoxia-inducible factor-1 α (HIF-1 α) in response to hypoxia in cancer cells.⁵ ALKBH5 is activated by acetylation at lysine 235 (K²³⁵), and the levels of acetylated ALKBH5 are increased in primary liver and gastric tumors.⁶ Cayman's ALKBH5 (human, recombinant) protein can be used for enzyme activity and Western blot (WB) applications.

References

1. Aik, W., Scotti, J.S., Choi, H., *et al.* Structure of human RNA N⁶-methyladenine demethylase ALKBH5 provides insights into its mechanisms of nucleic acid recognition and demethylation. *Nucleic Acids Res.* **42**(7), 4741-4754 (2014).
2. Chen, X.-Y., Zhang, J., and Zhu, J.-S. The role of m⁶A RNA methylation in human cancer. *Mol. Cancer* **18**(103), (2019).
3. Liu, J., Yue, Y., and He, C. Preparation of human nuclear RNA m⁶A methyltransferases and demethylases and biochemical characterization of their catalytic activity. *Methods Enzymol.* **560**, 117-130 (2015).
4. Qin, X., Long, Y., Bai, X., *et al.* The disordered C terminus of ALKBH5 promotes phase separation and paraspeckles assembly. *J. Biol. Chem.* **299**(8), 105071 (2023).
5. Thalhammer, A., Bencokova, Z., Poole, R., *et al.* Human AlkB homologue 5 is a nuclear 2-oxoglutarate dependent oxygenase and a direct target of hypoxia-inducible factor 1 α (HIF-1 α). *PLoS One* **6**(1), e16210 (2011).
6. Zhang, X.L., Chen, X.H., Xu, B., *et al.* K235 acetylation couples with PSPC1 to regulate the m⁶A demethylation activity of ALKBH5 and tumorigenesis. *Nat. Commun.* **14**(1), 3815 (2023).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM