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LSD1 Antibody

Catalog # ASC11939

Product Information

Application	WB, IHC, E
Primary Accession	O60341
Other Accession	NP_001009999, 58761544
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	92903
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	LSD1 antibody can be used for detection of LSD1 by Western blot at 1 - 2 g/ml. Antibody can also be used for immunohistochemistry starting at 5 g/mL.

Additional Information

Gene ID	23028
Other Names	Lysine-specific histone demethylase 1A, 1.-.-.-, BRAF35-HDAC complex protein BHC110, Flavin-containing amine oxidase domain-containing protein 2, KDM1A, AOF2, KDM1, KIAA0601, LSD1
Target/Specificity	KDM1A; LSD1 antibody is human, mouse, and rat reactive. At least two isoforms of LSD1 are known to exist; this antibody detects both.
Reconstitution & Storage	LSD1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	LSD1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	KDM1A (HGNC:29079)
Function	Histone demethylase that can demethylate both 'Lys-4' (H3K4me) and 'Lys-9' (H3K9me) of histone H3, thereby acting as a coactivator or a corepressor, depending on the context (PubMed:15620353, PubMed:15811342, PubMed:16079794, PubMed:16079795, PubMed:16140033, PubMed:16223729, PubMed:27292636). Acts by oxidizing the substrate by FAD to generate the corresponding imine that is subsequently hydrolyzed (PubMed:15620353, PubMed:15811342, PubMed:16079794, PubMed:21300290). Acts as a corepressor by mediating demethylation of H3K4me, a specific tag for epigenetic transcriptional activation. Demethylates

	both mono- (H3K4me1) and di-methylated (H3K4me2) H3K4me (PubMed:15620353, PubMed:20389281, PubMed:21300290, PubMed:23721412). May play a role in the repression of neuronal genes. Alone, it is unable to demethylate H3K4me on nucleosomes and requires the presence of RCOR1/CoREST to achieve such activity (PubMed:16079794, PubMed:16140033, PubMed:16885027, PubMed:21300290, PubMed:23721412). Also acts as a coactivator of androgen receptor (AR)-dependent transcription, by being recruited to AR target genes and mediating demethylation of H3K9me, a specific tag for epigenetic transcriptional repression. The presence of PRKCB in AR-containing complexes, which mediates phosphorylation of 'Thr-6' of histone H3 (H3T6ph), a specific tag that prevents demethylation H3K4me, prevents H3K4me demethylase activity of KDM1A (PubMed:16079795). Demethylates di-methylated 'Lys- 370' of p53/TP53 which prevents interaction of p53/TP53 with TP53BP1 and represses p53/TP53-mediated transcriptional activation. Demethylates and stabilizes the DNA methylase DNMT1 (PubMed:29691401). Demethylates methylated 'Lys-42' and methylated 'Lys-117' of SOX2 (PubMed:29358331). Required for gastrulation during embryogenesis. Component of a RCOR/GFI/KDM1A/HDAC complex that suppresses, via histone deacetylase (HDAC) recruitment, a number of genes implicated in multilineage blood cell development (PubMed:16079794, PubMed:16140033). Facilitates epithelial-to-mesenchymal transition by acting as an effector of SNAI1-mediated transcription repression of epithelial markers E-cadherin/CDH1, CDN7 and KRT8 (PubMed:20562920, PubMed:27292636). Required for the maintenance of the silenced state of the SNAI1 target genes E-cadherin/CDH1 and CDN7 (PubMed:20389281). Required for the repression of GIPR expression (PubMed:34655521, PubMed:34906447).
Cellular Location	Nucleus. Chromosome. Note=Associates with chromatin
Tissue Location	Ubiquitously expressed.

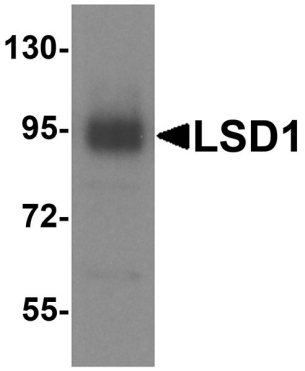
Background

Histone modifications mediate changes in gene expression by altering chromatin structure or by serving as a platform to recruit other proteins. LSD1 is a recently discovered amine oxidase that catalyzes the lysine-specific demethylation of histone proteins via an FAD-dependent oxidative reaction (1). Methylation on histone H3-K9 is thought to play an important role in heterochromatin formation, while methylation on arginine and some lysine residues (such as H3-K4) is associated with active transcription (2). LSD1 associates with various proteins, including HDAC1/2, CoREST, and BHC80, that act to regulate LSD1 activity in vivo, and in a histone H3-K4-specific methylase complex that is involved in transcriptional regulation (3,4). Experiments have shown that CoREST, a SANT domain-containing corepressor (5) acts to enhance LSD1 activity, while BHC80, a PHD domain-containing protein (6), inhibits CoREST/LSD1 activity in vitro (3). LSD1-mediated histone demethylation thus may have significant effects on gene expression.

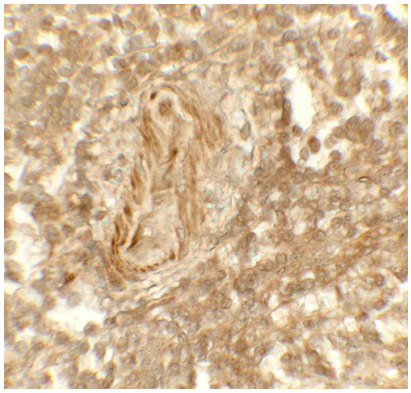
References

Shi Y, Lan F, Matson C, et al. Histone demethylation mediated by the nuclear amine oxidase homolog LSD1. Cell 2004; 119:941-53.
Kouzarides T. Histone methylation in transcriptional control. Curr. Opin. Genet. Dev. 2002; 12:198-209.
Shi YJ, Matson C, Lan F, et al. Regulation of LSD1 histone demethylase activity by its associated factors. Mol. Cell 2005; 19:857-64.
Nakamura T, Mori T, Tada S, et al. ALL-1 is a histone methyltransferase that assembles a supercomplex of proteins involved in transcriptional regulation. Mol. Cell 2002; 10:1119-28.

Images



Western blot analysis of LSD1 in A549 cell lysate with LSD1 antibody at 1 µg/ml.



Immunohistochemistry of LSD1 in human spleen tissue with LSD1 antibody at 5 µg/mL.