

## Specification

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:<a href="http://www.uniprot.org/citations/15620353" target="\_blank">15620353</a>, PubMed:<a href="http://www.uniprot.org/citations/15811342" target="\_blank">15811342</a>, PubMed:<a href="http://www.uniprot.org/citations/16140033" target="\_blank">16140033</a>, PubMed:<a href="http://www.uniprot.org/citations/16079794" target="\_blank">16079794</a>, PubMed:<a href="http://www.uniprot.org/citations/16079795" target="\_blank">16079795</a>, PubMed:<a

[16223729](http://www.uniprot.org/citations/16223729)). Acts by oxidizing the substrate by FAD to generate the corresponding imine that is subsequently hydrolyzed (PubMed: [15620353](http://www.uniprot.org/citations/15620353), PubMed: [15811342](http://www.uniprot.org/citations/15811342), PubMed: [16079794](http://www.uniprot.org/citations/16079794), PubMed: [21300290](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/15620353), PubMed: [20389281](http://www.uniprot.org/citations/20389281), PubMed: [21300290](http://www.uniprot.org/citations/21300290), PubMed: [23721412](http://www.uniprot.org/citations/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: [16140033](http://www.uniprot.org/citations/16140033), PubMed: [16079794](http://www.uniprot.org/citations/16079794), PubMed: [16885027](http://www.uniprot.org/citations/16885027), PubMed: [21300290](http://www.uniprot.org/citations/21300290), PubMed: [23721412](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/29691401)). Demethylates methylated 'Lys-42' and methylated 'Lys-117' of SOX2 (PubMed: [29358331](http://www.uniprot.org/citations/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. Effector of SNAI1-mediated transcription repression of E-cadherin/CDH1, CDN7 and KRT8. Required for the maintenance of the silenced state of the SNAI1 target genes E-cadherin/CDH1 and CDN7 (PubMed: [20389281](http://www.uniprot.org/citations/20389281)).

### Cellular Location

Nucleus

### Tissue Location

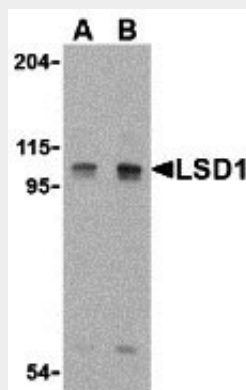
Ubiquitously expressed.

### LSD1 Antibody - Protocols

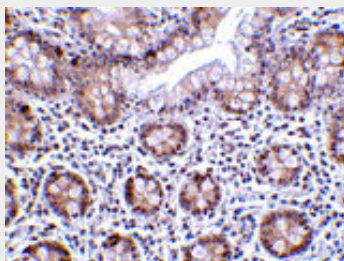
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

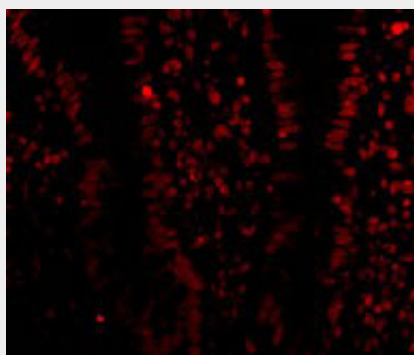
## LSD1 Antibody - Images



Western blot analysis of LSD1 in P815 cell lysate with LSD1 antibody at (A) 1 and (B) 2  $\mu$ g/mL.



Immunohistochemistry of LSD1 in human small intestine tissue with LSD1 antibody at 2  $\mu$ g/mL.



Immunofluorescence of LSD1 in Human Small Intestine cells with LSD1 antibody at 20  $\mu$ g/mL.

## LSD1 Antibody - Background

**LSD1 Antibody:** 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. 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. 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. Experiments have shown that CoREST, a SANT domain-containing corepressor acts to enhance LSD1 activity, while BHC80, a PHD domain-containing protein, inhibits CoREST/LSD1 activity in vitro. LSD1-mediated histone demethylation thus may have significant effects on gene expression.

## LSD1 Antibody - 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.