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LSD1 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP1218C

Product Information

Application	WB, IHC-P, IF, E
Primary Accession	O60341
Other Accession	Q6ZQ88
Reactivity	Human
Predicted	Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	92903
Antigen Region	819-852

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	This LSD1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 819-852 amino acids from the C-terminal region of human LSD1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 IF~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	LSD1 Antibody (C-term) 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.

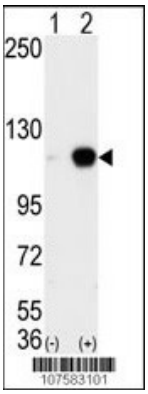
Background

LSD1 is a histone demethylase that specifically demethylates 'Lys-4' of histone H3, a specific tag for epigenetic transcriptional activation, thereby acting as a corepressor. LSD1 contains a SWIRM domain, a FAD-binding motif, and an amine oxidase domain. This protein is a component of several histone deacetylase complexes, though it silences genes by functioning as a histone demethylase. It acts by oxidizing the substrate by FAD to generate the corresponding imine that is subsequently hydrolyzed. LSD1 demethylates both mono- and tri-methylted 'Lys-4' of histone H3. This protein may play a role in the repression of neuronal genes. Alone, it is unable to demethylate H3 'Lys-4' on nucleosomes and requires the presence of RCOR1/CoREST to achieve such activity. It may also demethylate 'Lys-9' of histone H3, a specific tag for epigenetic transcriptional repression, thereby leading to derepression of androgen receptor target genes.

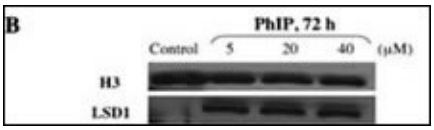
References

Forneris,F., et al. FEBS Lett. 579 (10), 2203-2207 (2005) Shi,Y., et al. Cell 119 (7), 941-953 (2004) Hakimi,M.A., et al. J. Biol. Chem. 278 (9), 7234-7239 (2003) Hakimi,M.A., et al. PNAS 99 (11), 7420-7425 (2002) Humphrey,G.W., et al. J. Biol. Chem. 276 (9), 6817-6824 (2001) Ota, T., et al., Nat. Genet. 36(1):40-45 (2004).

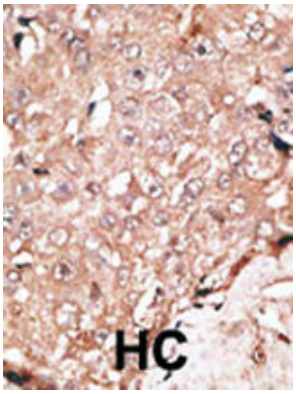
Images



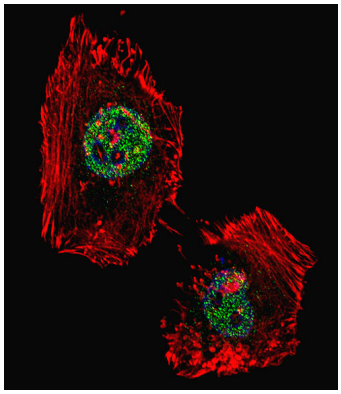
Western blot analysis of AOF2 (arrow) using LSD1 Antibody (C-term) (Cat.#AP1218c). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected with the AOF2 gene (Lane 2) (Origene Technologies).



Western immunoblot. Nuclear extracts of control and PhIP-treated HMEC. Proteins were transferred onto polyvinylidene difluoride and blotted with anti-LSD1 antibody. Nuclear LSD1 protein levels increased in carcinogen-treated HMEC compared with control HMEC.



Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by DAB staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.



Fluorescent confocal image of Hela cell stained with hLSD1-Y712(Cat#AP1218c). Hela cells were fixed with 4% PFA (20 min), permeabilized with Triton X-100 (0.1%, 10 min), then incubated with hLSD1 primary antibody (1:25, 1 h at 37°C). For secondary antibody, Alexa Fluor® 488 conjugated donkey anti-rabbit antibody (green) was used (1:400, 50 min at 37°C).Cytoplasmic actin was counterstained with Alexa Fluor® 555 (red) conjugated Phalloidin (7units/ml, 1 h at 37°C). Nuclei were counterstained with DAPI (blue) (10 μg/ml, 10 min). hLSD1 immunoreactivity is localized to nucleus significantly.

Citations

- Lysine-specific demethylase 1 (LSD1/KDM1A) contributes to colorectal tumorigenesis via activation of the Wnt/ □-catenin pathway by down-regulating Dickkopf-1 (DKK1).
- Gene amplification and overexpression of PRDM14 in breast cancers.