10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

PAD4 Antibody (C-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2546b

Product Information

Application	WB, E
Primary Accession	Q9UM07
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	74079
Antigen Region	512-544

Additional Information

Gene ID	23569
Other Names	Protein-arginine deiminase type-4, HL-60 PAD, Peptidylarginine deiminase IV, Protein-arginine deiminase type IV, PADI4, PADI5, PDI5
Target/Specificity	This PAD4 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 512-544 amino acids from the C-terminal region of human PAD4.
Dilution	WB~~1:1000 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	PAD4 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	PADI4 {ECO:0000303|PubMed:12833157, ECO:0000312|HGNC:HGNC:18368}
Function	Catalyzes the citrullination/deimination of arginine residues of proteins such as histones, thereby playing a key role in histone code and regulation of stem cell maintenance (PubMed:15339660, PubMed:15345777, PubMed:16567635, PubMed:19153223, PubMed:21245532, PubMed:25622091). Citrullinates histone H1 at 'Arg-54' (to form H1R54ci),

	histone H3 at 'Arg-2', 'Arg-8', 'Arg-17' and/or 'Arg-26' (to form H3R2ci, H3R8ci, H3R17ci, H3R26ci, respectively) and histone H4 at 'Arg-3' (to form H4R3ci) (PubMed:15339660, PubMed:15345777, PubMed:16567635, PubMed:21245532). Acts as a key regulator of stem cell maintenance by mediating citrullination of histone H1: citrullination of 'Arg-54' of histone H1 (H1R54ci) results in H1 displacement from chromatin and global chromatin decondensation, thereby promoting pluripotency and stem cell maintenance (PubMed:15339660, PubMed:15345777, PubMed:16567635, PubMed:21245532). Promotes profound chromatin decondensation during the innate immune response to infection in neutrophils by mediating formation of H1R54ci (PubMed:18209087). Citrullination of histone H3 prevents their methylation by CARM1 and HRMT1L2/PRMT1 and represses transcription (PubMed:15345777). Involved for the formation of neutrophil extracellular traps (NETs) by mediating citrullination of histone H3 and initiating decondensation of chromatin and nuclear membrane rupture (PubMed:19153223, PubMed:25622091, PubMed:28574339, PubMed:32170015). NETs are mainly composed of DNA fibers and are released by neutrophils to trap pathogens during inflammation (PubMed:19153223). Citrullinates EP300/P300 at 'Arg-2142', which favors its interaction with NCOA2/GRIP1 (PubMed:15731352).
Cellular Location	Cytoplasm. Nucleus. Cytoplasmic granule. Note=Cytoplasmic granules of eosinophils and neutrophils.
Tissue Location	Expressed in eosinophils and neutrophils, not expressed in peripheral monocytes or lymphocytes

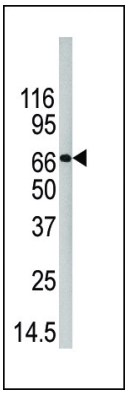
Background

PAD4 is a member of a family of enzymes responsible for the conversion of arginine residues to citrulline residues via catalyzation of the deimination of the arginine residues. PAD4 down-regulates histone H3 and H4 arginine methylation, both by preventing arginine methylation by CARM1 and HRMT1L2/PRMT1 and by converting methylarginine to citrulline. This protein may play a role in granulocyte and macrophage development leading to inflammation and immune response.

References

Nakayama-Hamada, M., et al., Biochem. Biophys. Res. Commun. 327(1):192-200 (2005).
Wang, Y., et al., Science 306(5694):279-283 (2004).
Arita, K., et al., Arthritis Rheum. 11(8):777-783 (2004).
Barton, A., et al., Arthritis Rheum. 50(4):1117-1121 (2004).
Suzuki, A., et al., Nat. Genet. 34(4):395-402 (2003).

Images



Western blot analysis of anti-PAD4 Pab (Cat. #AP2546b) in 293 cell line lysate. PAD4(arrow) was detected using the purified Pab.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.