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PADI4 Rabbit pAb

Catalog # AP98306

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	Q9UM07
Other Accession	Q9UM07
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Calculated MW	74079
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human PADI4
Epitope Specificity	401-500/663
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the protein arginine deiminase family.
Post-translational modifications	Autocitrullination at Arg-372 and Arg-374 inactivates the enzyme.
DISEASE	Rheumatoid arthritis (RA) [MIM:180300]: An inflammatory disease with autoimmune features and a complex genetic component. It primarily affects the joints and is characterized by inflammatory changes in the synovial membranes and articular structures, widespread fibrinoid degeneration of the collagen fibers in mesenchymal tissues, and by atrophy and rarefaction of bony structures. Note=The gene represented in this entry may be involved in disease pathogenesis. It could play a role in increasing citrullination of proteins in rheumatoid arthritis synovial tissues, leading, in a cytokine-rich milieu, to a break in tolerance to citrullinated peptides processed and presented in the appropriate HLA context.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	PADI4 (peptidyl arginine deiminase, type IV) catalyzes the deimination of arginine residues of proteins. Down-regulates histone H3 and H4 arginine methylation, both by preventing arginine methylation by CARM1 and HRMT1L2/PRMT1 and by converting methylarginine to citrulline. subcellular location at cytoplasmic granules. Belongs to the protein arginine deiminase family. This gene may play a role in granulocyte and macrophage development leading to inflammation and immune response.

Additional Information

Gene ID	23569
Other Names	PAD; PAD4; PADI5; PDI4; PDI5; PADI4_HUMAN; PADI4; HL-60 PAD; Peptidylarginine deiminase IV; Protein-arginine deiminase type IV; 3.5.3.15; peptidyl arginine deiminase 4; peptidyl arginine deiminase, type V; peptidyl

	arginine deiminase, type IV
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

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

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