abcam

ab16478

Anti-PADI2 / PAD2 antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 1% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Purification technique	Affinity purification Immunogen
Specificity	ab16478 recognises a specific 75kDa band corresponding to PADI2, which is specifically blocked using the immunizing peptide in human colon, skeletal muscle and kidney lysates. There is a non-specific 18kDa band present in skeletal muscle lysates, which is attributed to cross-reactivity of the PADI2 antibody. Replenishment batches of ab16478 are tested in WB. Previous batches were additionally validated in ELISA, Flow Cyt, ICC/IF and IHC-P. These applications are still expected to work and are covered by our Abpromise guarantee.
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Expected

Species	Rat
Dilution info	-

Notes	ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Human
Dilution info	-
Notes	ab171870 - Rabbit polyclonal IgG, is suitable for use as an isotype control with this antibody.

ELISA

Expected

Species	Rat, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

IHC-P

Expected

Species	Rat, Human
Dilution info	Use at an assay dependent concentration.
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	5 µg/mL
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information PADI2

Function	Catalyzes the deimination of arginine residues of proteins.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	PADI2 also known as PAD2 or PADdeux is a protein that performs post-translational modification by converting arginine residues into citrulline residues in proteins through a process known as citrullination. This protein has an approximate mass of 75 kDa. PADI2 is expressed in many tissues but shows higher levels in the brain skeletal muscle and mammary gland. Within these tissues PADI2 plays a role in regulating various physiological processes by altering protein function through citrullination.
Biological function summary	PADI2 contributes significantly to the regulation of gene expression protein function and signal transduction. PADI2 does not exist as part of a larger protein complex yet it interacts with other proteins to regulate cellular processes. In particular it modifies histones which impacts chromatin structure and gene expression playing a role in cell differentiation and immune response modulation. Its activity can affect various cellular outcomes by regulating the function and interaction of different protein substrates.
Pathways	PADI2 takes part in gene regulation and cell differentiation processes by modifying histones and impacting chromatin structure. It is integral in pathways related to inflammation and immune responses such as the NF-kB signaling pathway enhancing its biological role. PADI2 interacts with multiple proteins including histones and other signaling molecules reinforcing its critical role in these pathways.
Associated diseases and disorders	PADI2 has been linked to rheumatoid arthritis and multiple sclerosis due to its role in immune modulation and inflammation. In rheumatoid arthritis aberrant citrullination by PADI2 contributes to the production of autoantibodies which are involved in the disease's pathogenesis. It also associates with abnormal neural processes in multiple sclerosis where citrullinated proteins potentially contribute to the demyelination process. In these conditions PADI2's function relates closely with other citrullinating proteins such as PADI4 highlighting the interconnectedness of these pathways in disease.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

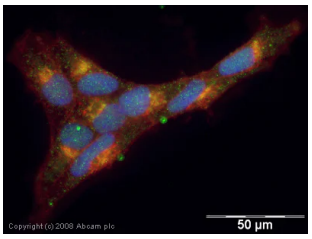
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

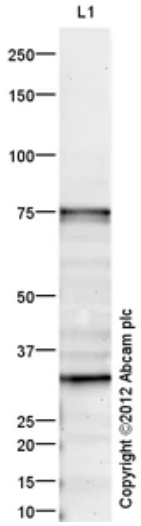
3 product images



Immunocytochemistry/ Immunofluorescence - Anti-PADI2 / PAD2 antibody (ab16478)

PADI2 / PAD2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-PADI2 / PAD2 antibody

ICC/IF image of ab16478 stained human Hek293 cells. The cells were PFA fixed (10 min), permabilised in 0.1% PBS-Tween (20 min) and incubated with the antibody (ab16478, 5µg/ml) for 1h at room temperature. 1%BSA / 10% normal goat serum / 0.3M glycine was used to block non-specific protein-protein interactions. The secondary antibody (green) was Alexa Fluor® 488 goat anti-rabbit IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red). DAPI was used to stain the cell nuclei (blue).



Western blot - Anti-PADI2 / PAD2 antibody (ab16478)

This blot was produced using a 10% Bis-tris gel under the MOPS buffer system. The gel was run at 200V for 50 minutes before being transferred onto a Nitrocellulose membrane at 30V for 70 minutes. The membrane was then blocked for an hour using 5% Bovine Serum Albumin before being incubated with ab16478 overnight at 4°C. Antibody binding was detected using an anti-rabbit antibody conjugated to HRP, and visualised using ECL development solution. The 75-kDa band observed is consistent with what has been described in the literature (PMID:18668562; 20668670; 16723463).

All lanes:
Western blot - Anti-PADI2 / PAD2 antibody (ab16478) at 1 µg/mL

All lanes:
Human kidney tissue lysate - total protein (ab30203) at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/10000 dilution

Developed using the ECL technique.

Performed under reducing conditions.

Predicted band size: 76 kDa

Observed band size: 34 kDa, 75 kDa

Exposure time: 20min

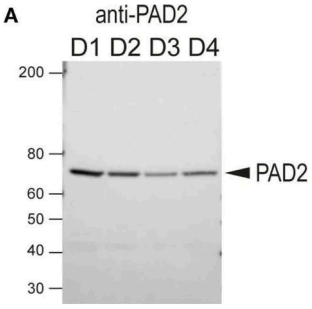


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Western blot - Anti-PADI2 / PAD2 antibody (ab16478)

PADI2 / PAD2 western blot using anti-PADI2 / PAD2 antibody ab16478. Publication image and figure legend from Zhou, Y., Chen, B., et al., 2017, Front Immunol, PubMed 28993780.

ab16478 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab16478 please see the product overview.

Western blot analysis of secreted PADs in neutrophil-conditioned media and determination of neutrophil PAD2/PAD4 extracellular activity. (A) Anti-PAD2 immunoblot of concentrated neutrophil-conditioned media from four different healthy donors (D1–D4). (B) Anti-PAD4 immunoblot of same samples with longer exposure time. (C) Characterization of the blocking anti-PAD2 and anti-PAD4 antibodies. Upper panel, anti-citrullinated histone H3 immunoblot of a reaction with recombinant PAD2 in the presence of control NIP228 IgG antibody (lane 1), blocking anti-PAD4 antibody (lanes 2–4), or a blocking anti-PAD2 antibody (lanes 5–7) at the indicated concentrations. Lower panel, similar reaction with recombinant PAD4 in the presence of the same antibodies. (D) Anti-citrullinated histone H3 immunoblot of the culture supernatant of human neutrophils incubated with histone H3 plus blocking anti-PAD2 or anti-PAD4 antibodies as indicated (lane 1–5); 2 mM EDTA was added to demonstrate the calcium-dependence of the reaction (lane 6); neutrophil-conditioned media, plus blocking antibodies as indicated (lanes 7–11). No antibodies were added in lanes 1 and 7, whereas control IgG NIP228 was added in lanes 2 and 8. (E) Anti-citrullinated fibrinogen immunoblot of the supernatant from the incubation of fibrinogen with neutrophils plus blocking antibodies. No antibodies were added in lane 1, whereas control IgG NIP228 was added in lane 2. Lower panel, Coomassie Brilliant blue staining as a loading control. All data are representative of five independent experiments with different donors.

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