

PRODUCT INFORMATION



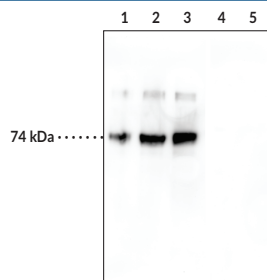
PAD3 Monoclonal Antibody (Clone 4E5)

Item No. 24377

Overview and Properties

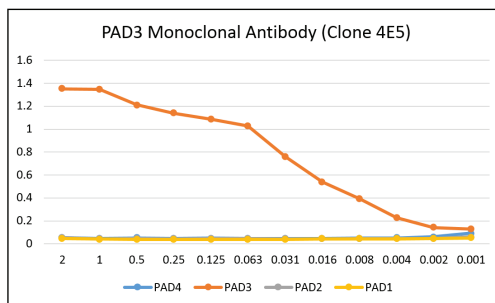
Contents: This vial contains 100 µg of protein G affinity-purified monoclonal antibody.
Synonyms: PADI3, PDI3, Peptidylarginine Deiminase 3, Protein Arginine Deiminase 3
Immunogen: Full length recombinant PAD3
Cross Reactivity: (+) PAD3; (-) PAD1, PAD2, PAD4
Species Reactivity: (+) Human
Uniprot No.: Q9ULW8
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥3 years
Storage Buffer: PBS, pH 7.2, 50% glycerol with 0.02% sodium azide
Clone: 4E5
Host: Mouse
Isotype: IgG1
Applications: ELISA, Immunofluorescence (IF), and Western blot (WB); the recommended starting dilution is 1:1,000 for ELISA and WB and 1:100 for IF. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images

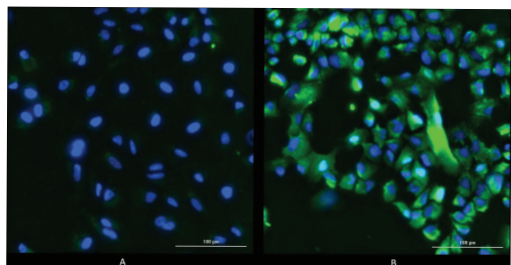


Lane 1: PAD3 (10 ng)
Lane 2: PAD3 (50 ng)
Lane 3: PAD3 (100 ng)
Lane 4: PAD2 (100 ng)
Lane 5: PAD4 (100 ng)

Western blot detection of PAD3 Monoclonal Antibody (Clone 4E5) against PAD proteins.



ELISA detection of PAD3 Monoclonal Antibody (Clone 4E5) against PAD proteins.



Immunofluorescence staining of A549 cells. A549 cells were fixed with 3.7% PFA and blocked with 1% FBS. Cells were probed with a secondary antibody alone (A) or the PAD3 Monoclonal Antibody (Clone 4E5) (Item No. 24377) (B) followed by Goat Anti-Mouse (IgG+IgM) FITC (Item No. 10006617) secondary antibody. Cell nuclei were stained with DAPI.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 12/11/2023

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION



Description

Protein arginine deiminase 3 (PAD3) catalyzes the conversion of arginine residues to citrulline within its cellular protein substrates, which include S100A3, trichohyalin, and filaggrin, resulting in the loss of a positive charge, which can alter protein structure and/or function.¹ It exists as a homodimer and is composed of a C-terminal catalytic domain and an N-terminal domain that contains two immunoglobulin G (IgG) subdomains.² PAD3 is primarily expressed by differentiated keratinocytes in the epidermis and hair follicles where it has roles in the shaping and mechanical strengthening of hair.^{2,3} It is also expressed by neural stem cells where it modulates cell death by regulating the nuclear translocation of apoptosis-inducing factor (AIF), in mammary glands where it citrullinates proteins during lactation, and cancer cells where it promotes cancer cell invasion.⁴⁻⁶ Mutations in *PADI3* are associated with uncombable hair syndrome. Cayman's PAD3 Monoclonal Antibody (Clone 4E5) can be used for ELISA, Immunofluorescence (IF), and Western blot (WB) applications. The antibody recognizes PAD3 at ~74 kDa from human samples.

References

1. van Beers, J.J.B.C., Zendman, A.J.W., Raijmakers, R., *et al.* Peptidylarginine deiminase expression and activity in PAD2 knock-out and PAD4-low mice. *Biochimie* **95**(2), 299-308 (2013).
2. Funabashi, K., Sawata, M., Nagai, A., *et al.* Structures of human peptidylarginine deiminase type III provide insights into substrate recognition and inhibitor design. *Arch. Biochem. Biophys.* **708**, 108911 (2021).
3. Basmanav, F.B.Ü., Cau, L., Tafazzoli, A., *et al.* Mutations in three genes encoding proteins involved in hair shaft formation cause uncombable hair syndrome. *Am. J. Cancer Res.* **99**(6), 1292-1304 (2016).
4. U, K.P., Subramanian, V., Nicholas, A.P., *et al.* Modulation of calcium-induced cell death in human neural stem cells by the novel peptidylarginine deiminase-AIF pathway. *Biochim. Biophys. Acta* **1843**(6), 1162-1171 (2014).
5. Li, G., Hayward, I.N., Jenkins, B.R., *et al.* Peptidylarginine deiminase 3 (PAD3) is upregulated by prolactin stimulation of CID-9 cells and expressed in the lactating mouse mammary gland. *PLoS One* **11**(1), e0147503 (2016).
6. Uysal-Onganer, P., D'Alessio, S., Mortoglou, M., *et al.* Peptidylarginine deiminase inhibitor application, using Cl-amidine, PAD2, PAD3 and PAD4 isozyme-specific inhibitors in pancreatic cancer cells, reveals roles for PAD2 and PAD3 in cancer invasion and modulation of extracellular vesicle signatures. *Int. J. Mol. Sci.* **22**(3), 1396 (2021).