

PRODUCT INFORMATION



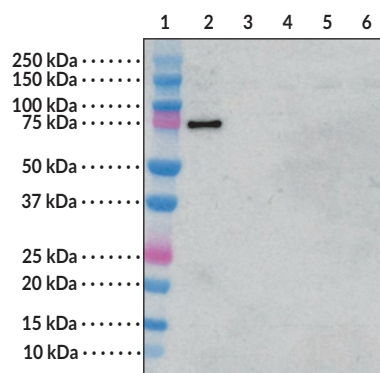
PAD2 Monoclonal Antibody (Clone 11C10)

Item No. 19820

Overview and Properties

Contents:	This vial contains 100 µg of protein G-purified monoclonal antibody.
Synonyms:	PADI2, PAD-H19, Peptidylarginine Deiminase 2, Protein-Arginine Deiminase 2
Immunogen:	Full-length recombinant human PAD2
Cross Reactivity:	(+) PAD2; (-) PAD1, PAD3, PAD4, PAD6
Species Reactivity:	(+) Human; other species not tested
Uniprot No.:	Q9Y2J8
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥3 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	11C10
Host:	Mouse
Isotype:	IgG1K
Applications:	ELISA and Western blot (WB); the recommended starting dilution is 1:1,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: MW Markers

Lane 2: PAD2 (human, recombinant) (Item No. 10785)

Lane 3: PAD1 (human, recombinant) (Item No. 10784)

Lane 4: PAD3 (human, recombinant) (Item No. 10786)

Lane 5: PAD4 (human, recombinant) (Item No. 10500)

Lane 6: PAD6 (human, recombinant) (Item No. 24615)

Western blot of PAD2 Monoclonal Antibody (Clone 11C10).

Samples were reduced and run on SDS-PAGE, transferred to nitrocellulose, blocked with non-fat dry milk, and probed with the PAD2 Monoclonal Antibody (Clone 11C10) (Item No. 19820) followed by a Goat Anti-Rabbit IgG HRP secondary antibody (Item No. 10004302).

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
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Description

Peptidyl arginine deiminase 2 (PAD2) catalyzes the conversion of arginine residues to citrulline within cellular protein substrates, resulting in the loss of a positive charge, which can alter protein structure and/or function.¹ It is composed of an α/β propeller domain, an IgG1 domain that contains calcium binding sites, and an IgG2 domain. PAD2 changes conformation upon calcium binding to the IgG1 domain, which activates PAD2 and allows its substrates to bind.² It is ubiquitously expressed with high expression in the brain, spleen, muscle, and spinal cord and is localized primarily to the cytoplasm but can translocate to the nucleus in response to calcium signaling.^{1,3,4,5} PAD2 citrullinates non-histone proteins, such as glial fibrillary acid protein (GFAP), myelin basic protein (MBP), and retinoic acid receptor-related orphan receptor γ (ROR γ), as well as histone H3 at arginine 26 (H3R26), to regulate diverse processes ranging from myelination to immune function.³ *PADI2*, the gene encoding PAD2, is highly expressed in tumors from patients with breast cancer and associated with poor prognosis. It is also overexpressed in a variety of other cancers, including castration-resistant prostate, ovarian, and lung cancers, among others. PAD2 has been found in the synovial fluid of patients with rheumatoid arthritis (RA), and anti-PAD2 antibodies are associated with less severe RA than patients with autoantibodies to PAD4.⁴ Cayman's PAD2 Monoclonal Antibody (Clone 11C10) can be used for ELISA and Western blot (WB) applications. The antibody recognizes PAD2 at approximately 77.3 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. Slade, D.J., Fang, P., Dreyton, C.J., *et al.* Protein arginine deiminase 2 binds calcium in an ordered fashion: Implications for inhibitor design. *ACS Chem. Biol.* **10**(4), 1043-1053 (2015).
3. Beato, M. and Sharma, P. Peptidyl arginine deiminase 2 (PADI2)-mediated arginine citrullination modulates transcription in cancer. *Int. J. Mol. Sci.* **21**(4), 1351 (2020).
4. Curran, A.M., Naik, P., Giles, J.T., *et al.* PAD enzymes in rheumatoid arthritis: Pathogenic effectors and autoimmune targets. *Nat. Rev. Rheumatol.* **16**(6), 301-315 (2020).
5. Zheng, L., Nagar, M., Maurais, A.J., *et al.* Calcium regulates the nuclear localization of protein arginine deiminase 2. *Biochemistry* **58**(27), 3042-3056 (2019).

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