

PRODUCT INFORMATION



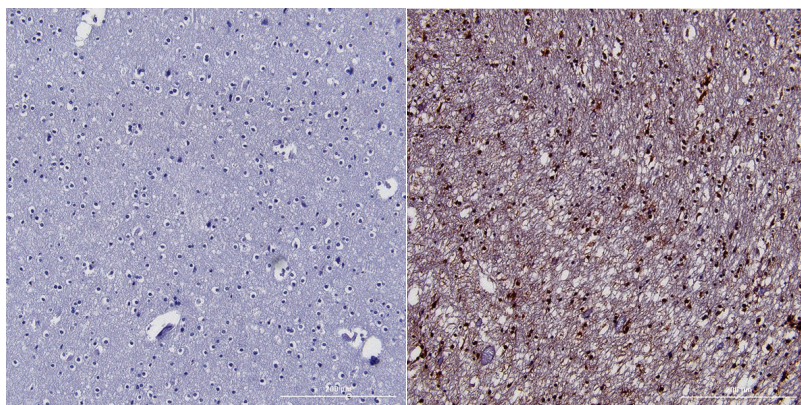
PAD2 Monoclonal Antibody (Clone 9F7)

Item No. 19822

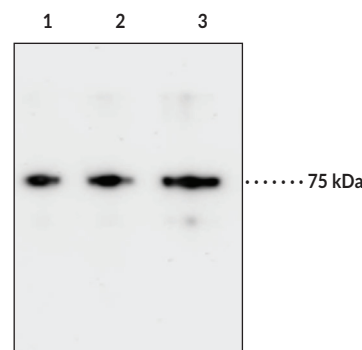
Overview and Properties

Contents:	This vial contains 100 µg of protein G-purified antibody
Synonyms:	PADI2, PAD-H19, Peptidylarginine Deiminase 2, Protein-Arginine Deiminase 2
Immunogen:	Full length recombinant human PAD2
Cross Reactivity:	(+) PAD2
Species Reactivity:	(+) Human; other species not tested
Molecular Weight:	75 kDa
Uniprot No.:	Q9Y2J8
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥3 years
Storage Buffer:	PBS, pH 7.2, with 50% glycerol, 0.1% BSA, and 0.02% sodium azide
Clone:	9F7
Host:	Mouse
Isotype:	IgG1
Applications:	ELISA, Immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution is 1:1,000 for ELISA and WB and 1:100 for IHC. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Immunohistochemical staining of formalin-fixed and paraffin-embedded (FFPE) human brain tissue after heat-induced antigen retrieval in pH 6.0 citrate buffer, after incubation with PAD2 Monoclonal Antibody (Clone 9F7) (Item No. 19822) at a dilution of 1:100 (left panel, secondary alone).



Lane 1: PAD2 Recombinant Protein (10 ng)
Lane 2: PAD2 Recombinant Protein (25 ng)
Lane 3: PAD2 Recombinant Protein (50 ng)

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.

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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.¹⁻⁵ 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 9F7) can be used for ELISA, immunohistochemistry (IHC), and Western blot (WB) applications. The antibody recognizes PAD2 at 75 kDa from human samples.

References

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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).
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