

PRODUCT INFORMATION



PAD4 Polyclonal Antibody

Item No. 33914

Overview and Properties

Contents:	This vial contains 100, 200, or 400 µl of protein A-purified polyclonal antibody.
Synonyms:	PADI4, PADI5, Peptidylarginine Deiminase 4, Protein Arginine Deiminase Type 4, Protein Arginine Deiminase Type IV
Immunogen:	Recombinant human PAD4 protein
Cross Reactivity:	(+) PAD4
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-80°C (as supplied)
Stability:	≥1 year
Storage Buffer:	0.2 µm filtered solution in PBS
Host:	Rabbit
Isotype:	IgG
Applications:	ELISA; the recommended starting dilution is 1:1,000-1:2,000. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Description

Protein arginine deiminase 4 (PAD4) 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 expressed in neutrophils, as well as a variety of tissues, including the brain, liver, lung, and kidney.¹⁻³ PAD4 has a key role in NETosis, a lytic form of cell death characterized by the release of neutrophil extracellular traps (NETs).¹ Upon neutrophil activation, PAD4 translocates to the nucleus where it citrullinates histones, initiating chromatin decondensation and the release of NETs.^{2,4,5} Neutrophils isolated from *Pad4*^{-/-} mice exhibit decreased citrullination of histone H3 under both basal and LPS-stimulated conditions and are defective for NET formation in response to stimulation with LPS, phorbol 12-myristate 13-acetate (PMA; Item No. 10008014), or hydrogen peroxide.⁴ *Pad4*^{-/-} mice exhibit larger lesions than wild-type mice in a model of necrotizing fasciitis induced by M1 group A *S. pyogenes* lacking the extracellular DNase Sda1. *Pad4*-deficient mice also exhibit reduced infarct size in a model of myocardial ischemia-reperfusion injury and reduced tumor growth in a Lewis lung carcinoma model.^{2,6} *PADI4* SNPs, including G55S, V82A, and G112A, are associated with rheumatoid arthritis in humans.⁷ Cayman's PAD4 Polyclonal Antibody can be used for ELISA.

References

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4. Li, P., Li, M., Lindberg, M.R., *et al. J. Exp. Med.* **207**(9), 1853-1862 (2010).
5. Thiam, H.R., Wong, S.L., Qiu, R., *et al. Proc. Natl. Acad. Sci. USA* **117**(13), 7326-7337 (2020).
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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.

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