PRODUCT INFORMATION

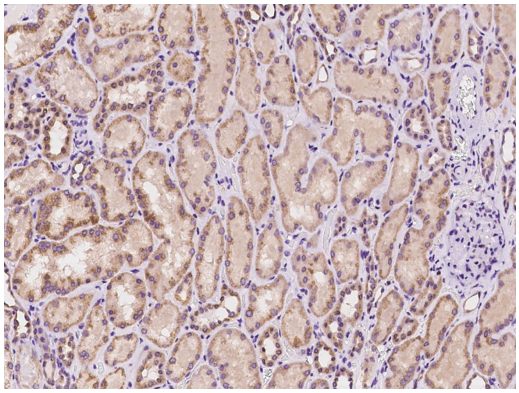
PAD3 Polyclonal Antibody

Item No. 33913

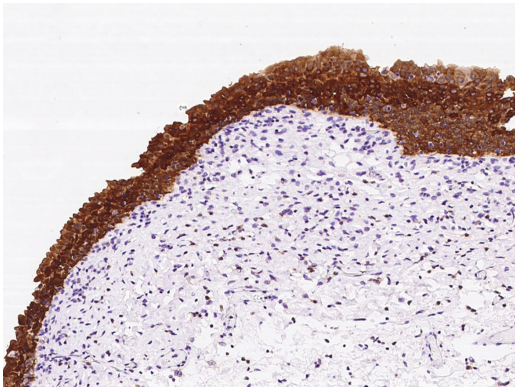
Overview and Properties

Contents:	This vial contains 50, 100, or 200 µl of protein A-purified polyclonal antibody.
Synonyms:	PADI3, PDI3, Peptidylarginine Deiminase 3, Protein Arginine Deiminase 3
Immunogen:	Human PAD3 fragment expressed in *E. coli*
Cross Reactivity:	(+) PAD3
Species Reactivity:	(+) Human; other species not tested
Form:	Liquid
Storage:	-80°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.0, with 0.03% ProClin™ 300
Clone:	Polyclonal
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC); the recommended starting dilution is 1:50-1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Immunohistochemical staining of formalin-fixed and paraffin-embedded human PAD3 in human kidney tissue using PAD3 Polyclonal Antibody at a 1:100 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human PAD3 in human urinary bladder tissue using PAD3 Polyclonal Antibody at a 1:100 dilution.

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.[2,5] 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.[3,4,6] Mutations in *PADI3* are associated with uncombable hair syndrome. Cayman's PAD3 Polyclonal Antibody can be used for immunohistochemistry (IHC). The antibody recognizes PAD3 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. 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).
4. 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).
5. 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).
6. 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).

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