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Produktinformation

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PRODUCT INFORMATION

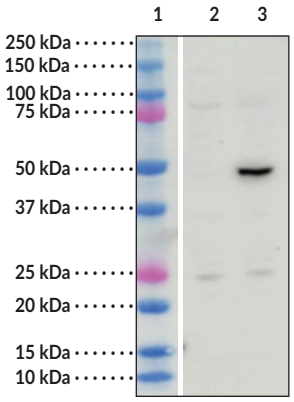
PPAD (*Porphyromonas gingivalis*) Polyclonal Antibody

Item No. 37598

Overview and Properties

Contents:	This vial contains 500 µg of protein A-purified polyclonal antibody.
Synonym:	*P. gingivalis* Peptidylarginine Deiminase
Immunogen:	Recombinant PPAD (*P. gingivalis*)
Cross Reactivity:	(+) PPAD; (-) Human PAD2, PAD3, PAD4, PAD6
Species Reactivity:	(+) *P. gingivalis*; other species not tested
Molecular Weight:	~62 kDa (expected)
Uniprot No.:	Q9RQJ2
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.2, containing 50% glycerol and 0.02% sodium azide
Host:	Rabbit
Applications:	ELISA and Western blot (WB); the recommended starting dilution is 1:200. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Image



Lane 1: MW Markers
Lane 2: Expi293™ cell lysate
Lane 3: Expi293™ cells overexpressing PPAD (*P. gingivalis*) Polyclonal Antibody (Item No. 37598). Note that the PPAD in the overexpressing cells are not a full length protein (~49 kD detection).

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PRODUCT INFORMATION

Description

Porphyromonas gingivalis (P. gingivalis) peptidyl arginine deiminase (PPAD) is a bacterial enzyme and virulence factor secreted by *P. gingivalis*, an oral bacterium involved in the progression of periodontal disease.[1,2] It is composed of a pro-peptide sequence, a catalytic domain, an immunoglobulin-like (Ig-like) domain, and a C-terminal domain, but the mature protein contains only the catalytic domain and Ig-like domain.[2] It is expressed on the bacterial outer membrane. PPAD and proteolytic enzymes, such as arginine gingipain (RgpB), are released from *P. gingivalis* to break down proteins, which it uses as an energy source.[1,2] RgpB cleaves proteins at arginine residues, and PPAD specifically deiminates the resulting C-terminal arginine residues of both bacterial and host proteins to citrulline, a process known as citrullination.[1-3] Unlike mammalian PADs, PPAD does not require calcium and can convert free L-arginine into L-citrulline in addition to deaminating these residues at the C-terminus of proteins and peptides.[4] A *ppad* deletion mutation (Δ8820) in *P. gingivalis* strain 381 increases biofilm formation, alters biofilm architecture, and induces the secretion of protein aggregates.[1] Mice infected with a PPAD deficient strain of *P. gingivalis* have reduced periodontal inflammation and similarly infected mice in a model of collagen-induced arthritis have reduced bone erosion.[5] Cayman's PPAD (*Porphyromonas gingivalis*) Polyclonal Antibody can be used for ELISA and Western blot (WB) applications. The expected WB detection size is approximately 62 kDa from *P. gingivalis* samples.

References

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3. Olsen, I., Singhrao, S.K., and Potempa, J. Citrullination as a plausible link to periodontitis, rheumatoid arthritis, atherosclerosis and Alzheimer's disease. *J. Oral Microbiol.* **10(1)**, 1487742 (2018).
4. Gómez-Bañuelos, E., Mukherjee, A., Darrah, E., *et al.* Rheumatoid arthritis-associated mechanisms of *Porphyromonas gingivalis* and *Aggregatibacter actinomycetemcomitans*. *J. Clin. Med.* **8(9)**, 1309 (2019).
5. Gully, N., Bright, R., Marino, V., *et al. Porphyromonas gingivalis* peptidylarginine deiminase, a key contributor in the pathogenesis of experimental periodontal disease and experimental arthritis. *PLoS One* **9(6)**, e100838 (2014).

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