PRODUCT INFORMATION

Calcineurin A α Isoform (human, recombinant)

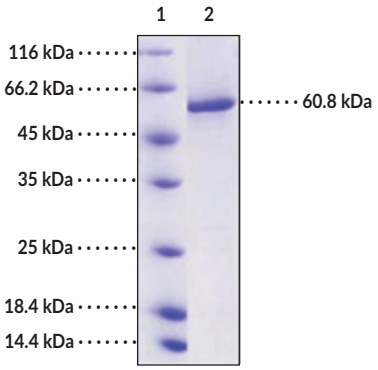
Item No. 34630

Overview and Properties

Synonyms:	Calmodulin-dependent Calcineurin A Subunit α Isoform, CALNA1, CAM-PRP Catalytic Subunit, CCN1, CNA1, PPP2B, PPP3CA, Protein Phosphatase 2B, Serine/threonine-Protein Phosphatase 2B Catalytic Subunit α Isoform
Source:	Active recombinant human N-terminal His-tagged calcineurin A expressed in insect cells
Amino Acids:	2-521 (full length)
Uniprot No.:	Q08209
Molecular Weight:	60.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥94% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile 20 mM Tris, pH 8.0, with 500 mM sodium chloride and 10% glycerol
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	Using the Octet Red System, the affinity constant (K_d) of human PPP3CA-His bound to human PPIA-His was 0.9 nM.

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Calcineurin A α Isoform

SDS-PAGE Analysis of Calcineurin A α Isoform. This protein has a calculated molecular weight of 60.8 kDa.

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Description

Calcineurin A is the catalytic subunit of calcineurin, a serine/threonine phosphatase with roles in T cell activation, cardiac function, learning and memory, apoptosis, and cell cycle regulation.[1,2] Calcineurin A has three isoforms, α, β, and γ, which are encoded by *PPP3CA*, *PPP3CB*, and *PPP3CC*, respectively. Calcineurin A α is composed of an N-terminal catalytical domain, binding regions for the regulatory subunit calcineurin B (Item No. 34631) and the binding partner calmodulin, and a C-terminal autoinhibitory domain.[3,4] It is ubiquitously expressed and associates with calcineurin B and calmodulin in a calcium-dependent manner.[5,6] Calcineurin A α has roles in kidney development and function, as well as Tau dephosphorylation, but is dispensable for T cell development.[6] Calcineurin A α-null mice exhibit impaired kidney function, failure to thrive, and shortened lifespan. Brain calcineurin A α levels are inversely correlated with disease severity in patients with Alzheimer's disease.[7] Cayman's Calcineurin A α Isoform (human, recombinant) protein can be used for binding assays. This protein consists of 538 amino acids and has a calculated molecular weight of 60.8 kDa.

References

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2. Mansuy, I. Calcineurin. *xPharm: The Comprehensive Pharmacology Reference*. Enna, S.J. and Bylund, D.B., editors, *Elsevier* (2007).
3. Gooch, J.L. An emerging role for calcineurin Aα in the development and function of the kidney. *Am. J. Physiol. Renal. Physiol.* **290(4)**, F769-F776 (2006).
4. Li, H., Rao, A., and Hogan, P.G. Interaction of calcineurin with substrates and targeting proteins. *Trends Cell Biol.* **21(2)**, 91-103 (2011).
5. Nolze, A., Köhler, C., Ruhs, S., *et al.* Calcineurin (PPP3CB) regulates angiotensin II-dependent vascular remodelling by potentiating EGFR signalling in mice. *Acta Physiol. (Oxf.)* e13715 (2021).
6. Williams, C.R., and Gooch, J.L. Calcineurin inhibitors and immunosuppression - a tale of two isoforms. *Expert Rev. Mol. Med.* **14**, e14 (2012).
7. Karch, C.M., Jeng, A.T., and Goate, A.M. Calcium phosphatase calcineurin influences tau metabolism. *Neurobiol. Aging* **34(2)**, 374-386 (2013).

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