

# Human Carbonic Anhydrase IV/CA4 Antibody

Monoclonal Mouse  $IgG_{2B}$  Clone # 310415

Catalog Number: MAB21861

DESCRIPTION			
Species Reactivity	Human		
Specificity	Detects human Carbonic Anhydrase IV/CA4 in direct ELISAs and Western blots. In direct ELISAs, no cross-reactivity with recombinant human CA1, -2, -3, -5a, -5b, -7, 8, -9, or -10 is observed.		
Source	Monoclonal Mouse IgG <sub>2B</sub> Clone # 310415		
Purification	Protein A or G purified from hybridoma culture supernatant		
Immunogen	Mouse myeloma cell line NS0-derived recombinant human Carbonic Anhydrase IV/CA4 Ala19-Lys283 Accession # P22748		
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied either lyophilized or as a 0.2 µm filtered solution in PBS.		

### APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.

	Recommended Concentration	Sample
Western Blot	2 μg/mL	See Below

# Western Blot | Page |

Detection of Human Carbonic Anhydrase IV/CA4 by Western Blot. Western blot shows lysates of Jurkat human acute T cell leukemia cell line and human lung tissue. PVDF Membrane was probed with 2 μg/mL of Mouse Anti-Human Carbonic Anhydrase IV/CA4 Monoclonal Antibody (Catalog # MAB21861) followed by HRP-conjugated Anti-Mouse IgS Secondary Antibody (Catalog # HAF007). A specific band was detected for Carbonic Anhydrase IV/CA4 at approximately 35 kDa (as indicated). This experiment was conducted under non-reducing conditions and using Immunoblot Buffer Group 1.

PREPARATION .	AND STORAGE

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Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.	
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C	
Stability & Storage	Use a manual defrost freezer and avoid repeated freeze-thaw cycles.	
	<ul> <li>12 months from date of receipt, -20 to -70 °C as supplied.</li> <li>1 month, 2 to 8 °C under sterile conditions after reconstitution.</li> </ul>	
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• 6 months, -20 to -70 °C under sterile conditions after reconstitution.

## BACKGROUND

Carbonic Anhydrase (CA) catalyzes the reversible reaction of CO<sub>2</sub> + H<sub>2</sub>O = HCO<sub>3</sub><sup>-</sup> + H<sup>+</sup>, which is fundamental to many processes such as respiration, renal tubular acidification and bone resorption (1). Topics in a CA meeting (6<sup>th</sup> International Conference on the CAs, June 20-25, 2003, Slovakia) ranged from the use of CAs as markers for tumor and hypoxia in the clinic, as a nutritional supplement in milk, and as a tool for CO<sub>2</sub> removal and mosquito control in industry. CA4 is a GPI-anchored membrane enzyme expressed on the luminal surfaces of pulmonary (and certain other) capillaries and of proximal renal tubules. It functions as the principal CO<sub>2</sub> taste sensor (2). In addition, a genetic mutation (Arg 14 to Trp in the signal peptide) of CA4 was found to co-segregate with the RP17 form of retinitis pigmentosa in two large families and was not found in 36 unaffected family members or 100 controls (3).

## References:

- 1. Hewett-Emmett, D. and R.E. Tashian (1996) Mol. Phylogenet. Evol. 5:50.
- 2. Chandrashekar, J. et al. (2009) Science 326:443.
- 3. Rebello, G. et al. (2004) Proc. Natl. Acad. Sci. USA 101:6617.

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