

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Carbonic Anhydrase II/CA2 in direct ELISAs and Western blots. In direct ELISAs, approximately 5% cross-reactivity with recombinant human (rh) Carbonic Anhydrase I, III, and XIII is observed and less than 1% cross-reactivity with rhCarbonic Anhydrase IV, VIII, IX, X, XII, and XIV is observed.
Source	Polyclonal Sheep IgG
Purification	Antigen Affinity-purified
Immunogen	<i>E. coli</i> -derived recombinant human Carbonic Anhydrase II/CA2 Ser2-Lys260 Accession # P00918
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 as a 0.2 µm filtered solution in PBS.

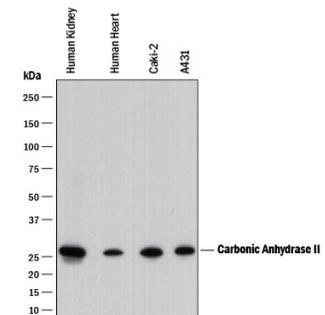
APPLICATIONS

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	1 µg/mL	See Below
Immunohistochemistry	5-15 µg/mL	Immersion fixed paraffin-embedded sections of human brain (cerebellum) and spinal cord
Immunoprecipitation	25 µg/mL	Conditioned cell culture medium spiked with Recombinant Human Carbonic Anhydrase II (Catalog # 2184-CA), see our available Western blot detection antibodies
Simple Western	10 µg/mL	See Below

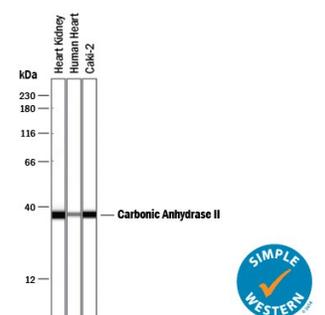
DATA

Western Blot



Detection of Human Carbonic Anhydrase II/CA2 by Western Blot.
Western blot shows lysates of human heart tissue, human kidney tissue, Caki-2 human clear cell carcinoma epithelial cell line, and A431 human epithelial carcinoma cell line. PVDF membrane was probed with 1 µg/mL of Sheep Anti-Human Carbonic Anhydrase II/CA2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF2184) followed by HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). A specific band was detected for Carbonic Anhydrase II/CA2 at approximately 27 kDa (as indicated). This experiment was conducted under reducing conditions and using Immunoblot Buffer Group 1.

Simple Western



Detection of Human Carbonic Anhydrase II/CA2 by Simple Western™.
Simple Western lane view shows lysates of human kidney tissue, human heart tissue, and Caco-2 human colorectal adenocarcinoma cell line, loaded at 0.2 mg/mL. A specific band was detected for Carbonic Anhydrase II/CA2 at approximately 37 kDa (as indicated) using 10 µg/mL of Sheep Anti-Human Carbonic Anhydrase II/CA2 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF2184) followed by 1:50 dilution of HRP-conjugated Anti-Sheep IgG Secondary Antibody (Catalog # HAF016). This experiment was conducted under reducing conditions and using the 12-230 kDa separation system.



PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 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 style="list-style-type: none"> ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

BACKGROUND

Carbonic Anhydrase (CA) catalyzes the reversible reaction of $\text{CO}_2 + \text{H}_2\text{O} = \text{HCO}_3^- + \text{H}^+$, which is fundamental to many processes such as respiration, renal tubular acidification and bone resorption (1). Topics in the CA meeting (6th International Conference on the CAs, June 20-25, 2003, Slovakia) ranged from use of CAs as markers for tumor and hypoxia in the clinic, as nutritional supplement in milk, and as a tool for CO_2 removal and mosquito control in industry. CA2 is a cytosolic enzyme with the highest activity among all known CAs. Mutations in the CA2 gene result in the CA II deficiency syndrome, an autosomal recessive disorder that produces osteopetrosis, renal tubular acidosis and cerebral calcification (2).

References:

1. Hewett-Emmett, D. and R.E. Tashian (1996) Mol. Phylogenet. Evol. **5**:50.
2. Shah, G.N. *et al.* (2004) Hum. Mutat. **24**:272.