

## DESCRIPTION

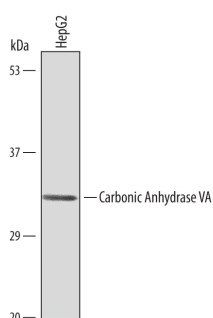
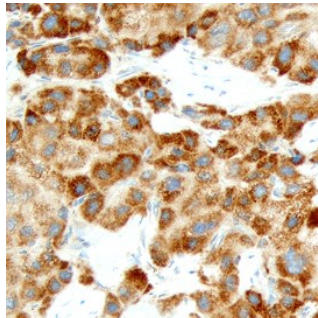
<b>Species Reactivity</b>	Human
<b>Specificity</b>	Detects human Carbonic Anhydrase VA/CA5A in direct ELISAs and Western blots. In direct ELISAs, approximately 4% cross-reactivity with recombinant human (rh) CA5B is observed and less than 1% cross-reactivity with rhCA2 and rhCA7.
<b>Source</b>	Polyclonal Sheep IgG
<b>Purification</b>	Antigen Affinity-purified
<b>Immunogen</b>	<i>E. coli</i> -derived recombinant human Carbonic Anhydrase VA/CA5A Ala40-Ser305 Accession # P35218
<b>Formulation</b>	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
<b>Western Blot</b>	1 µg/mL	See Below
<b>Immunohistochemistry</b>	5-15 µg/mL	See Below

## DATA

Western Blot	Immunohistochemistry
 <p><b>Detection of Human Carbonic Anhydrase VA/CA5A by Western Blot.</b> Western blot shows lysates of HepG2 human hepatocellular carcinoma cell line. PVDF Membrane was probed with 1 µg/mL of Goat Anti-Human Carbonic Anhydrase VA/CA5A Antigen Affinity-purified Polyclonal Antibody (Catalog # AF3049) followed by HRP-conjugated Anti-Goat IgG Secondary Antibody (Catalog # HAF109). A specific band was detected for Carbonic Anhydrase VA/CA5A at approximately 33 kDa (as indicated). This experiment was conducted under reducing conditions and using <a href="#">Immunoblot Buffer Group 8</a>.</p>	 <p><b>Carbonic Anhydrase VA/CA5A in Human Liver.</b> Carbonic Anhydrase VA/CA5A was detected in immersion fixed paraffin-embedded sections of human liver using Sheep Anti-Human Carbonic Anhydrase VA/CA5A Antigen Affinity-purified Polyclonal Antibody (Catalog # AF3049) at 10 µg/mL overnight at 4 °C. Before incubation with the primary antibody, tissue was subjected to heat-induced epitope retrieval using Antigen Retrieval Reagent-Basic (Catalog # CTS013). Tissue was stained using the Anti-Sheep HRP-DAB Cell &amp; Tissue Staining Kit (brown; Catalog # CTS019) and counterstained with hematoxylin (blue). Specific staining was localized to hepatocyte cytoplasm. View our protocol for <a href="#">Chromogenic IHC Staining of Paraffin-embedded Tissue Sections</a>.</p>

## PREPARATION AND STORAGE

<b>Reconstitution</b>	Sterile PBS to a final concentration of 0.2 mg/mL.
<b>Shipping</b>	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
<b>Stability &amp; Storage</b>	<p><b>Use a manual defrost freezer and avoid repeated freeze-thaw cycles.</b></p> <ul style="list-style-type: none"> <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> <li>● 6 months, -20 to -70 °C under sterile conditions after reconstitution.</li> </ul>

**BACKGROUND**

Carbonic Anhydrase 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 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  $\text{CO}_2$  removal and mosquito control in industry. Carbonic anhydrase VA encoded by the CA5A gene is a mitochondrial protein (2, 3). In comparison with another mitochondrial CA (CA5B), CA5A has different tissue distribution and chromosomal location (4, 5). Expression and inhibitor studies of different CAs in the rat pancreatic beta cells indicate that CA5A may be involved in the regulation of insulin secretion (6). CA5A may also participate in the detoxification of ammonia produced in the gastrointestinal tract by providing bicarbonate to carbamyl phosphate synthetase I (7). The amino acid sequence of recombinant human CA5A (residues 40 to 305) is 79%, 77%, and 76% identical to that of canine, bovine, and rat/mouse.

**References:**

1. Hewett-Emmett, D. and R.E. Tashian (1996) *Mol. Phylogenet. Evol.* **5**:50.
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3. Nagao, Y. *et al.* (1995) *Genomics* **28**:477.
4. Shah, G.N. *et al.* (2000) *Proc. Natl. Acad. Sci. USA* **97**:1677.
5. Fujikawa-Adachi, K. *et al.* (1999) *J. Biol. Chem.* **274**:21228.
6. Parkkila, A.K. *et al.* (1998) *J. Biol. Chem.* **273**:24620.
7. Saarnio, J. *et al.* (1999) *J. Histochem. Cytochem.* **47**:517.