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Anti-SLC4A1/CD233/Band 3 Antibody Picoband™ (monoclonal, 5G2G7)

Catalog # ABO16565

Product Information

Application	WB, IHC, FC
Primary Accession	P02730
Host	Mouse
Isotype	Mouse IgG2b
Reactivity	Human
Clonality	Monoclonal
Format	Lyophilized
Description	Anti-SLC4A1 Antibody Picoband™ (monoclonal, 5G2G7) . Tested in Flow Cytometry, IHC, WB applications. This antibody reacts with Human.
Reconstitution	Adding 0.2 ml of distilled water will yield a concentration of 500 □g/ml.

Additional Information

Gene ID	6521
Other Names	Band 3 anion transport protein, Anion exchange protein 1, AE 1, Anion exchanger 1, Solute carrier family 4 member 1, CD233, SLC4A1 (HGNC:11027), AE1, DI, EPB3
Calculated MW	101792
Application Details	Western blot, 0.25-0.5 □g/ml, Human Immunohistochemistry(Paraffin-embedded Section), 2-5 □g/ml, Human Flow Cytometry, 1-3 □g/1x10^6 cells, Human
Source	Eukaryota
Contents	Each vial contains 4 mg Trehalose, 0.9 mg NaCl and 0.2 mg Na2HPO4.
Clone Names	Clone: 5G2G7
Immunogen	E.coli-derived human SLC4A1 (Position: E28-N365). Human SLC4A1 shares 75.7% and 74.5% amino acid (aa) sequence identity with and rat SLC4A1, respectively.
Purification	Immunogen affinity purified.
Storage	At -20°C for one year from date of receipt. After reconstitution, at 4°C for one month. It can also be aliquotted and stored frozen at -20°C for six months. Avoid repeated freezing and thawing.

Protein Information

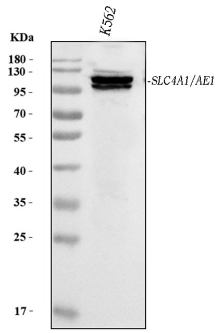
Name	SLC4A1 (HGNC:11027)
Synonyms	AE1, DI, EPB3
Function	Functions both as a transporter that mediates electroneutral anion exchange across the cell membrane and as a structural protein (PubMed:10926824, PubMed:14734552, PubMed:1538405, PubMed:16227998, PubMed:20151848, PubMed:24121512, PubMed:28387307, PubMed:35835865). Component of the ankyrin-1 complex of the erythrocyte membrane; required for normal flexibility and stability of the erythrocyte membrane and for normal erythrocyte shape via the interactions of its cytoplasmic domain with cytoskeletal proteins, glycolytic enzymes, and hemoglobin (PubMed:1538405, PubMed:20151848, PubMed:35835865). Functions as a transporter that mediates the 1:1 exchange of inorganic anions across the erythrocyte membrane. Mediates chloride-bicarbonate exchange in the kidney, and is required for normal acidification of the urine (PubMed:10926824, PubMed:14734552, PubMed:16227998, PubMed:24121512, PubMed:28387307).
Cellular Location	Cell membrane; Multi-pass membrane protein. Basolateral cell membrane; Multi-pass membrane protein. Note=Detected in the erythrocyte cell membrane and on the basolateral membrane of alpha-intercalated cells in the collecting duct in the kidney.
Tissue Location	Detected in erythrocytes (at protein level).

Background

Band 3 is also known as SLC4A1. The protein encoded by this gene is part of the anion exchanger (AE) family and is expressed in the erythrocyte plasma membrane, where it functions as a chloride/bicarbonate exchanger involved in carbon dioxide transport from tissues to lungs. The protein comprises two domains that are structurally and functionally distinct. The N-terminal 40kDa domain is located in the cytoplasm and acts as an attachment site for the red cell skeleton by binding ankyrin. The glycosylated C-terminal membrane-associated domain contains 12-14 membrane spanning segments and carries out the stilbene disulphonate-sensitive exchange transport of anions. The cytoplasmic tail at the extreme C-terminus of the membrane domain binds carbonic anhydrase II. The encoded protein associates with the red cell membrane protein glycophorin A and this association promotes the correct folding and translocation of the exchanger. This protein is predominantly dimeric but forms tetramers in the presence of ankyrin. Many mutations in this gene are known in man, and these mutations can lead to two types of disease: destabilization of red cell membrane leading to hereditary spherocytosis, and defective kidney acid secretion leading to distal renal tubular acidosis. Other mutations that do not give rise to disease result in novel blood group antigens, which form the Diego blood group system.

Images

Figure 1. Western blot analysis of SLC4A1 using anti-SLC4A1 antibody (M01146-1).
Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours.
The sample well of each lane was loaded with 30 ug of sample under reducing conditions.
Lane 1: human K562 whole cell lysates.
After electrophoresis, proteins were transferred to a



nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with mouse anti-SLC4A1 antigen affinity purified monoclonal antibody (Catalog # M01146-1) at 0.5 µg/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-mouse IgG-HRP secondary antibody at a dilution of 1:10000 for 1.5 hour at RT. The signal is developed using an Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1001) with Tanon 5200 system. A specific band was detected for SLC4A1 at approximately 102 kDa. The expected band size for SLC4A1 is at 102 kDa.

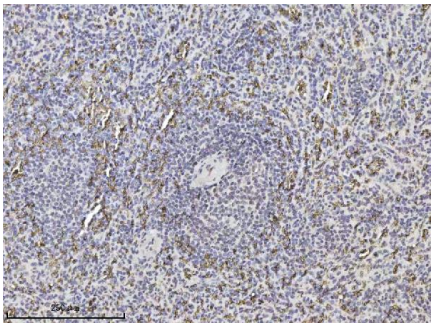


Figure 2. IHC analysis of SLC4A1 using anti-SLC4A1 antibody (M01146-1).
SLC4A1 was detected in a paraffin-embedded section of human spleen tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 µg/ml mouse anti-SLC4A1 Antibody (M01146-1) overnight at 4°C. Peroxidase Conjugated Goat Anti-mouse IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Mouse IgG Super Vision Assay Kit (Catalog # SV0001) with DAB as the chromogen.

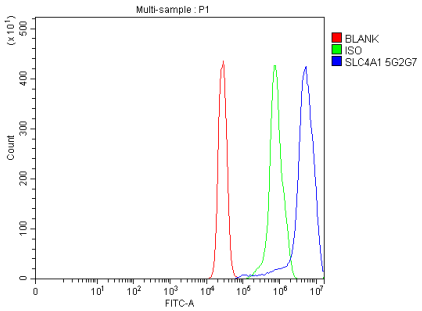


Figure 3. Flow Cytometry analysis of HepG2 cells using anti-SLC4A1 antibody (M01146-1).
Overlay histogram showing HepG2 cells stained with M01146-1 (Blue line). The cells were blocked with 10% normal goat serum. And then incubated with mouse anti-SLC4A1 Antibody (M01146-1, 1 µg/1x10^6 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-mouse IgG (BA1126, 5-10 µg/1x10^6 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was mouse IgG (1 µg/1x10^6) used under the same conditions. Unlabelled sample (Red line) was also used as a control.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.