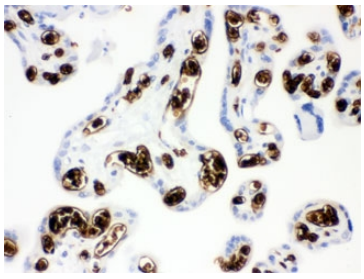
Band 3 Antibody / Anion Exchange Protein 1 Antibody (R31868)

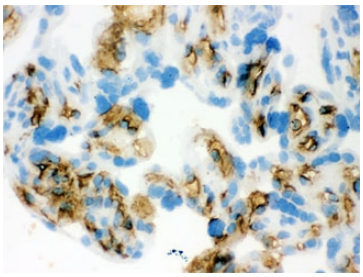
Catalog No.	Formulation	Size
R31868	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

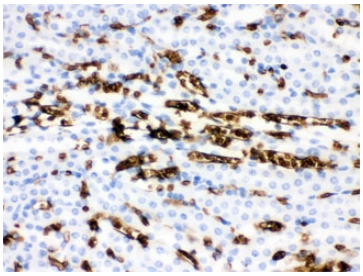
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P02730
Localization	Cytoplasmic, membrane
Applications	Immunohistochemistry (Frozen): 0.5-1ug/ml Immunohistochemistry (FFPE): 0.5-1ug/ml Immunofluorescence (FFPE): 1-2ug/ml
Limitations	This Band 3 Antibody / Anion Exchange Protein 1 Antibody is available for research use only.



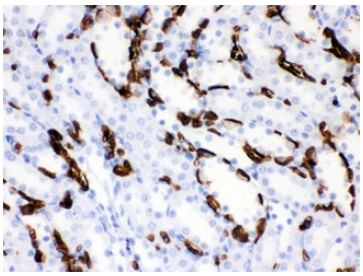
Band 3 Antibody Human Placenta IHC. Immunohistochemical staining of FFPE human placenta tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates strong membranous and cytoplasmic HRP-DAB brown staining within placental trophoblast cell populations. Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that mediates transmembrane ion transport and contributes to maintenance of acid-base balance and cellular ionic homeostasis. In addition to its well-established role in erythrocyte membrane physiology, Band 3 family proteins participate in transport processes that support cellular metabolism and physiologic homeostasis in specialized epithelial tissues. The observed placental staining pattern is consistent with expression of anion transport machinery involved in regulation of bicarbonate and chloride exchange. HIER: boil paraffin sections in pH 6, 10 mM citrate buffer for 20 minutes and allow to cool prior to staining.



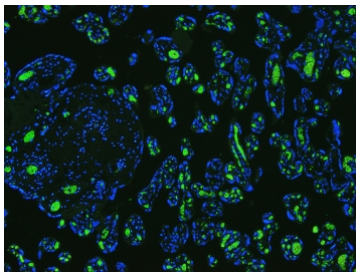
Band 3 Antibody Human Placenta Frozen IHC. Immunohistochemical staining of frozen human placenta tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates distinct membranous and cytoplasmic staining within placental trophoblast cell populations. Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that regulates transmembrane ion transport and contributes to maintenance of cellular acid-base balance and ionic homeostasis. While best known as a major erythrocyte membrane protein, AE1-related transport activity is also associated with specialized epithelial cells that require tightly regulated bicarbonate and chloride exchange. The observed trophoblast-associated staining pattern is consistent with expression of membrane transport proteins involved in placental physiology, ion balance, and cellular homeostasis.



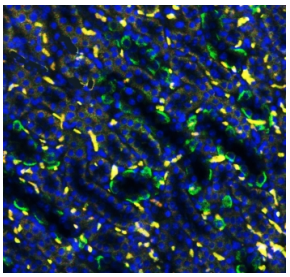
Band 3 Antibody Mouse Kidney IHC. Immunohistochemical staining of FFPE mouse kidney tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates strong membranous and cytoplasmic HRP-DAB brown staining within renal tubular epithelial cells. Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that plays an important role in bicarbonate transport, acid-base regulation, and maintenance of cellular ionic homeostasis. In the kidney, AE1 contributes to physiologic mechanisms that regulate systemic acid-base balance through coordinated ion exchange and bicarbonate handling. The observed tubular staining pattern is consistent with the established role of Anion Exchange Protein 1 in renal epithelial transport processes and kidney physiology. HIER: boil paraffin sections in pH 6, 10 mM citrate buffer for 20 minutes and allow to cool prior to staining.



Band 3 Antibody Rodent Kidney IHC. Immunohistochemical staining of FFPE rat kidney tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates strong membranous and cytoplasmic HRP-DAB brown staining within renal tubular epithelial cells. Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that plays a critical role in bicarbonate transport, acid-base regulation, and maintenance of cellular ionic homeostasis. In addition to its well-established function in erythrocyte membranes, AE1 is expressed in specialized renal epithelial cells where it contributes to physiologic acid-base balance through regulation of bicarbonate and chloride exchange. The observed tubular staining pattern is consistent with the established role of Band 3 family proteins in kidney ion transport and maintenance of renal homeostasis. HIER: boil paraffin sections in pH 6, 10 mM citrate buffer for 20 minutes and allow to cool prior to staining.



Band 3 Antibody Human Placenta IF. Immunofluorescent staining of FFPE human placenta tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates strong green fluorescence within placental trophoblast cell populations, while nuclei are counterstained with DAPI (blue). Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that mediates transmembrane ion transport and contributes to maintenance of cellular acid-base balance and ionic homeostasis. Although best known as a major erythrocyte membrane protein, AE1-related transport mechanisms are also associated with specialized epithelial cells that require regulated bicarbonate and chloride exchange. The observed trophoblast-associated fluorescence pattern is consistent with expression of anion transport proteins involved in placental physiology, membrane transport, and cellular homeostasis. HIER: boil paraffin sections in pH 6, 10 mM citrate buffer for 20 minutes and allow to cool prior to staining.



Band 3 Antibody Renal Tubule IF. Immunofluorescent staining of FFPE rat kidney tissue using Band 3 Antibody / Anion Exchange Protein 1 Antibody demonstrates strong green fluorescence within renal tubular epithelial structures, while nuclei are counterstained with DAPI (blue). Band 3 (AE1/SLC4A1) is a chloride/bicarbonate exchanger that plays a critical role in bicarbonate transport, acid-base regulation, and maintenance of cellular ionic homeostasis. In the kidney, AE1 is expressed in specialized epithelial cell populations where it contributes to physiologic mechanisms responsible for systemic acid-base balance and bicarbonate handling. The observed tubular fluorescence pattern is consistent with the established role of Anion Exchange Protein 1 in renal ion transport and epithelial homeostasis. HIER: boil paraffin sections in pH 6, 10 mM citrate buffer for 20 minutes and allow to cool prior to staining.

Description

Band 3 antibody is useful for studying Band 3, also known as Anion Exchange Protein 1 (AE1) or Solute Carrier Family 4 Member 1 (SLC4A1), a membrane transport protein that mediates chloride and bicarbonate exchange across the plasma membrane. Band 3 is one of the most abundant membrane proteins in erythrocytes and plays a critical role in carbon dioxide transport, acid-base regulation, and maintenance of cellular ionic balance. Through these functions, AE1 contributes to efficient respiratory gas exchange and systemic physiologic homeostasis.

Band 3 belongs to the SLC4 family of bicarbonate transporters and functions by exchanging intracellular bicarbonate ions for extracellular chloride ions. This transport process facilitates movement of carbon dioxide from peripheral tissues to the lungs while helping maintain physiologic pH balance. Because bicarbonate transport is essential for cellular metabolism and normal organ function, Band 3 occupies a central position in pathways governing ion transport and acid-base regulation.

In addition to its transport activity, Band 3 serves as an important structural component of the erythrocyte membrane. The protein interacts with cytoskeletal and membrane-associated proteins that help maintain red blood cell shape, membrane integrity, and mechanical flexibility during circulation. These structural functions contribute to erythrocyte stability and support normal blood cell physiology.

Although most commonly associated with erythrocytes, AE1 expression has also been identified in specialized epithelial cell populations, particularly within the kidney, where it participates in acid-base homeostasis and bicarbonate transport. These functions highlight the broader physiologic importance of Band 3 beyond red blood cell biology and make the protein a valuable target in studies of membrane transport and cellular homeostasis.

Band 3 has become an important target in hematology, nephrology, membrane transport research, and studies of cellular ion regulation. Analysis of Band 3 expression can provide insight into erythrocyte membrane organization, bicarbonate transport mechanisms, acid-base balance, and physiologic processes that depend upon coordinated ion exchange. Because these pathways are fundamental to normal cellular function, Band 3 remains a widely studied protein in both basic and translational research.

Band 3 antibodies are commonly used in immunohistochemistry, western blotting, immunofluorescence, flow cytometry, and related protein detection applications. These reagents support investigations of erythrocyte membrane biology, bicarbonate transport, kidney physiology, acid-base regulation, cellular ion homeostasis, and membrane-associated transport mechanisms.

Learn more about SLC4A1-mediated bicarbonate transport, erythrocyte membrane organization, acid-base regulation, and cellular ion homeostasis on our SLC4A1 Antibody page.

Application Notes

Optimal dilution of the Band 3 Antibody / Anion Exchange Protein 1 Antibody should be determined by the researcher.

Immunogen

Amino acids 28-365 of human Band 3 were used as the immunogen for the Band 3 antibody.

Storage

After reconstitution, the Band 3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

AE1 Antibody, SLC4A1 Antibody, Anion Exchange Protein 1 Antibody, Chloride Bicarbonate Exchanger Antibody, Band 3 Anion Transporter Antibody, CD233 Antibody

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