SANTA CRUZ BIOTECHNOLOGY, INC.

band 3 (A-6): sc-133190

BACKGROUND

band 3, also designated AE1, is an erythrocyte membrane glycoprotein that contributes to cell stuctural integrity and mediates exchange of chloride and bicarbonate across the phospholipid bilayer. The diverse functions of the approximately 900 amino acid protein are mediated by two distinct domains. The amino-terminal domain, also known as cdb3 for cytoplasmic domain of erthrocyte membrane band 3, acts as an attachment site for the erythrocyte skeleton by binding ankyrin. The carboxy-terminal, membrane-associated domain carries out exchange transport of anions. Degradation of band 3 can generate an aging antigen known as senescent cell antigen, or SCA, which is expressed on old cells and marks them for removal by the immune system. An isoform of band 3, which lacks the first 65 amino acids and does not bind ankryin, is expressed in kidney.

CHROMOSOMAL LOCATION

Genetic locus: SLC4A1 (human) mapping to 17q21.31.

SOURCE

band 3 (A-6) is a mouse monoclonal antibody raised against amino acids 1-105 mapping at the N-terminus of band 3 of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

band 3 (A-6) is available conjugated to agarose (sc-133190 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-133190 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-133190 PE), fluorescein (sc-133190 FITC), Alexa Fluor® 488 (sc-133190 AF488), Alexa Fluor® 546 (sc-133190 AF546), Alexa Fluor® 594 (sc-133190 AF594) or Alexa Fluor® 647 (sc-133190 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-133190 AF680) or Alexa Fluor® 790 (sc-133190 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

band 3 (A-6) is recommended for detection of band 3 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for band 3 siRNA (h): sc-42735, band 3 shRNA Plasmid (h): sc-42735-SH and band 3 shRNA (h) Lentiviral Particles: sc-42735-V.

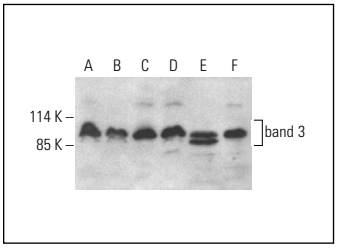
Molecular Weight of band 3: 95 kDa.

Positive Controls: CCRF-CEM cell lysate: sc-2225, HeLa whole cell lysate: sc-2200 or Caki-1 cell lysate: sc-2224.

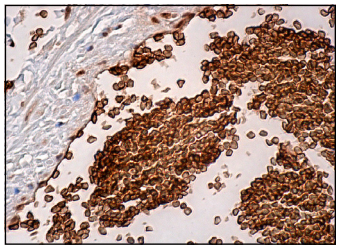
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



band 3 (A-6) HRP: sc-133190 HRP. Direct western blot analysis of band 3 expression in HeLa (**A**), Caki-1 (**B**), K-562 (**C**), CCRF-CEM (**D**), HL-60 (**E**) and MOLT-4 (**F**) whole cell lysates.



band 3 (A-6): sc-133190. Immunoperoxidase staining of formalin fixed, paraffin-embedded human blood vessel tissue showing membrane staining of erythrocytes.

SELECT PRODUCT CITATIONS

1. Furuya, T., et al. 2014. Reticulocytes from cryopreserved erythroblasts support *Plasmodium vivax* infection *in vitro*. Parasitol. Int. 63: 278-284.
2. Huang, N.J., et al. 2017. Genetically engineered red cells expressing single domain camelid antibodies confer long-term protection against botulinum neurotoxin. Nat. Commun. 8: 423.
3. King, R., et al. 2021. SEC23A rescues SEC23B-deficient congenital dyserythropoietic anemia type II. Sci. Adv. 7: eabj5293.
4. Pham, T.T., et al. 2023. Endocytosis of red blood cell extracellular vesicles by macrophages leads to cytoplasmic heme release and prevents foam cell formation in atherosclerosis. J. Extracell. Vesicles 12: e12354.
5. Vetter, L., et al. 2023. Starvation induces changes in abundance and small RNA cargo of extracellular vesicles released from *Plasmodium falciparum* infected red blood cells. Sci. Rep. 13: 18423.
6. Metthew Lam, L.K., et al. 2024. Human red blood cells express the RNA sensor TLR7. Sci. Rep. 14: 15789.
7. Tran, T.T.T., et al. 2024. Customised design of antisense oligonucleotides targeting EGFR driver mutants for personalised treatment of non-small cell lung cancer. EBioMedicine 108: 105356.
8. Martínez-Vieyra, I., et al. 2024. Oxidative stress and cytoskeletal reorganization in hypertensive erythrocytes. Antioxidants 14: 5.
9. Ferencz, Á., et al. 2025. The effect of a secondary stressor on the morphology and membrane structure of an already challenged maternal and foetal red blood cell population. Int. J. Mol. Sci. 26: 333.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.