SANTA CRUZ BIOTECHNOLOGY, INC.

β-dystroglycan (4F7): sc-33702

BACKGROUND

Dystroglycan (DG) is a cell surface receptor for several extracellular matrix molecules including laminins, agrin and perlecan. Dystroglycan function is required for the formation of basement membranes in early development and the organization of laminin on the cell surface. α-dystroglycan is a membrane-associated, extracellular glycoprotein that is anchored to the cell-membrane by binding to the transmembrane glycoprotein β-dystroglycan to form an α/β-dystroglycan-complex. Additionally, dystroglycan is part of a multimolecular complex, where it associates with dystrophin, at the sarcolemma, to form the dystrophin-associated protein complex or with utrophin, at the neuromuscular junction, to form the utrophin-associated protein complex. Dystroglycan is also thought to participate in the clustering of nicotinic acetylcholine receptors at the neuromuscular junction.

CHROMOSOMAL LOCATION

Genetic locus: DAG1 (human) mapping to 3p21.31; Dag1 (mouse) mapping to 9 F2.

SOURCE

β-dystroglycan (4F7) is a mouse monoclonal antibody raised against the C-terminus of β-dystroglycan of human origin.

PRODUCT

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

β-dystroglycan (4F7) is available conjugated to agarose (sc-33702 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-33702 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-33702 PE), fluorescein (sc-33702 FITC), Alexa Fluor® 488 (sc-33702 AF488), Alexa Fluor® 546 (sc-33702 AF546), Alexa Fluor® 594 (sc-33702 AF594) or Alexa Fluor® 647 (sc-33702 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-33702 AF680) or Alexa Fluor® 790 (sc-33702 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

β-dystroglycan (4F7) is recommended for detection of β-dystroglycan of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for α/β-dystroglycan siRNA (h): sc-43488, α/β-dystroglycan siRNA (m): sc-43489, α/β-dystroglycan shRNA Plasmid (h): sc-43488-SH, α/β-dystroglycan shRNA Plasmid (m): sc-43489-SH, α/β-dystroglycan shRNA (h) Lentiviral Particles: sc-43488-V and α/β-dystroglycan shRNA (m) Lentiviral Particles: sc-43489-V.
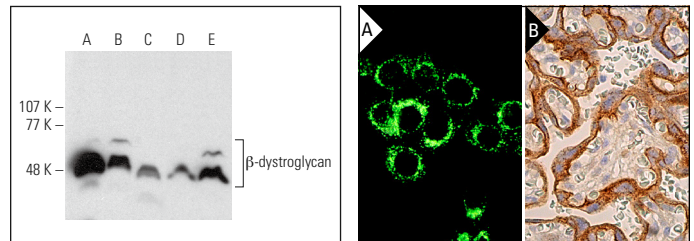
Molecular Weight of β-dystroglycan precursor: 97 kDa.

Molecular Weight of mature β-dystroglycan: 43 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, SK-BR-3 cell lysate: sc-2218 or C6 whole cell lysate: sc-364373.

STORAGE

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

DATA

β-dystroglycan (4F7) HRP: sc-33702 HRP. Direct western blot analysis of β-dystroglycan expression in C6 (**A**), L6 (**B**), SK-BR-3 (**C**), NIH/3T3 (**D**) and A-10 (**E**) whole cell lysates.

β-dystroglycan (4F7): sc-33702. Immunofluorescence staining of methanol-fixed L6 cells showing membrane localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing membrane and cytoplasmic staining of trophoblastic cells (**B**).

SELECT PRODUCT CITATIONS

1. Sumita, K., et al. 2007. Synaptic scaffolding molecule (S-SCAM) membrane-associated guanylate kinase with inverted organization (MAGI)-2 is associated with cell adhesion molecules at inhibitory synapses in rat hippocampal neurons. J. Neurochem. 100: 154-166.

2. Suvanto, M., et al. 2015. Podocyte proteins in congenital and minimal change nephrotic syndrome. Clin. Exp. Nephrol. 19: 481-488.

3. Yan, W., et al. 2016. β-dystroglycan cleavage by matrix metalloproteinase-2/-9 disturbs aquaporin-4 polarization and influences brain edema in acute cerebral ischemia. Neuroscience 326: 141-157.

4. Heng, S., et al. 2017. The significance of post-translational removal of α-DG-N in early stage endometrial cancer development. Oncotarget 8: 81942-81952.

5. Ly, P.T.T., et al. 2018. PTPα is required for Laminin-2-induced Fyn-Akt signaling to drive oligodendrocyte differentiation. J. Cell Sci. 131: jcs212076.

6. Njah, K., et al. 2019. A role of agrin in maintaining the stability of vascular endothelial growth factor receptor-2 during tumor angiogenesis. Cell Rep. 28: 949-965.e7.

7. Brescia, M., et al. 2020. High-capacity adenoviral vectors permit robust and versatile testing of DMD gene repair tools and strategies in human cells. Cells 9: 869.

8. Luan, P., et al. 2021. Urolithin A improves muscle function by inducing mitophagy in muscular dystrophy. Sci. Transl. Med. 13: eabb0319.

9. Figiel, I., et al. 2022. The cell adhesion protein dystroglycan affects the structural remodeling of dendritic spines. Sci. Rep. 12: 2506.

RESEARCH USE

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

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