

GGA1 (D-6): sc-271927

BACKGROUND

The GGA family of proteins (Golgi-localized, γ -adaptin ear-containing, ARF-binding proteins) are ubiquitous coat proteins that facilitate the trafficking of soluble proteins from the *trans*-Golgi network (TGN) to endosomes/lysosomes by means of interactions with TGN-sorting receptors, ARF (ADP-ribosylation factor) and Clathrin. Members of the GGA family, GGA1, GGA2 (also known as VEAR) and GGA3, are multidomain proteins that bind mannose 6-phosphate receptors (MPRs). GGAs have modular structures with an N-terminal VHS (VPS-27, Hrs and STAM) domain followed by a GAT (GGA and TOM1) domain, a connecting hinge segment and a C-terminal GAE (γ -adaptin ear) domain. The amino-terminal VHS domains of GGAs form complexes with the cytoplasmic domains of sorting receptors by recognizing acidic-cluster di-leucine (ACLL) sequences. GGA1 and GGA2 do not associate with each other, but they do colocalize on perinuclear membranes. The cytosolic domain of memapsin 2, but not that of memapsin 1, binds the VHS domains of GGA1 and GGA2. The human GGA1 gene maps to chromosome 22 and encodes a protein that shares 45% sequence identity with GGA2 and GGA3.

REFERENCES

- Hirst, J., et al. 2000. A family of proteins with γ -adaptin and VHS domains that facilitate trafficking between the *trans*-Golgi network and the vacuole/lysosome. *J. Cell Biol.* 149: 67-80.
- Shiba, T., et al. 2002. Structural basis for recognition of acidic-cluster dileucine sequence by GGA1. *Nature* 415: 937-941.
- Doray, B., et al. 2002. Cooper-ation of GGAs and AP-1 in packaging MPRs at the *trans*-Golgi network. *Science* 297: 1700-1703.

CHROMOSOMAL LOCATION

Genetic locus: GGA1 (human) mapping to 22q13.1.

SOURCE

GGA1 (D-6) is a mouse monoclonal antibody raised against amino acids 286-500 mapping within an internal region of GGA1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

GGA1 (D-6) is available conjugated to agarose (sc-271927 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271927 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271927 PE), fluorescein (sc-271927 FITC), Alexa Fluor® 488 (sc-271927 AF488), Alexa Fluor® 546 (sc-271927 AF546), Alexa Fluor® 594 (sc-271927 AF594) or Alexa Fluor® 647 (sc-271927 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271927 AF680) or Alexa Fluor® 790 (sc-271927 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

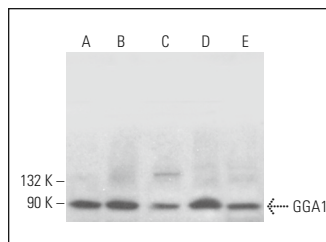
GGA1 (D-6) is recommended for detection of GGA1 of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (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 GGA1 siRNA (h): sc-41167, GGA1 shRNA Plasmid (h): sc-41167-SH and GGA1 shRNA (h) Lentiviral Particles: sc-41167-V.

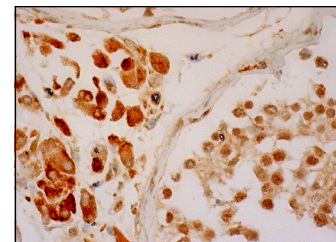
Molecular Weight of GGA1: 85 kDa.

Positive Controls: MDA-MB-231 cell lysate: sc-2232, Jurkat whole cell lysate: sc-2204 or MCF7 whole cell lysate: sc-2206.

DATA



GGA1 (D-6): sc-271927. Western blot analysis of GGA1 expression in Jurkat (A), MDA-MB-231 (B), MCF7 (C), Hep G2 (D) and HeLa (E) whole cell lysates.



GGA1 (D-6): sc-271927. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts and Leydig cells.

SELECT PRODUCT CITATIONS

- Raphemot, R., et al. 2019. Discovery of druggable host factors critical to plasmodium liver-stage infection. *Cell Chem. Biol.* 26: 1253-1262.e5.
- Obata, Y., et al. 2023. Golgi retention and oncogenic KIT signaling via PLC γ 2-PKD2-PI4KIII β activation in gastrointestinal stromal tumor cells. *Cell Rep.* 42: 113035.
- Ma, L., et al. 2024. GGA1 interacts with the endosomal Na⁺/H⁺ exchanger NHE6 governing localization to the endosome compartment. *J. Biol. Chem.* 300: 107552.

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.