

# GGA2 (P-20): sc-19326

## BACKGROUND

A family of proteins, the GGAs (Golgi-localized,  $\gamma$ -adaptin ear-containing, ARF-binding proteins) sequences that showed significant homology to the carboxy-terminal "ear" domain of  $\gamma$ -adaptin. Members of the GGA family (GGA1, GGA2 (also known as VEAR or VHS domain and ear domain of  $\gamma$ -adaptin) and GGA3) are ubiquitous coat proteins that facilitate the trafficking of proteins between the *trans*-Golgi network and the lysosome. However, unlike  $\gamma$ -adaptin, the GGAs are not associated with Clathrin-coated vesicles or with any of the components of the AP-1 complex. GGA1 and GGA2 are also not associated with each other, although they co-localize on perinuclear membranes. GGA2 shares 45% amino acid sequence identity with GGA1 and 35% with GGA3. In addition to being involved in heterotypic vesicle/suborganelle interactions associated with the Golgi complex, GGA2 may have a tissue-specific function and is highly expressed in kidney, muscle and heart. Furthermore, the VHS domain of GGA2 binds to the acidic cluster-di-leucine motif in the cytoplasmic tail of the cation-independent mannose 6-phosphate receptor (CI-MPR) and this is important for lysosomal enzyme targeting.

## REFERENCES

- Hirst, J., et al. 2000. A family of proteins with  $\gamma$ -adaptin and VHS domains that facilitate trafficking between the *trans*-Golgi network and the vacuole/lysosome. *J. Cell Biol.* 149: 67-80.
- Poussu, A., et al. 2000. Vear, a novel Golgi-associated protein with VHS and  $\gamma$ -adaptin "ear" domains. *J. Biol. Chem.* 275: 7176-7183.
- Zhu, Y., et al. 2001. Binding of GGA2 to the lysosomal enzyme sorting motif of the mannose 6-phosphate receptor. *Science* 292: 1716-1718.
- Nielsen, M.S., et al. 2001. The sortilin cytoplasmic tail conveys Golgi-endosome transport and binds the VHS domain of the GGA2 sorting protein. *EMBO J.* 20: 2180-2190.
- He, X., et al. 2002. Memapsin 2 ( $\beta$ -secretase) cytosolic domain binds to the VHS domains of GGA1 and GGA2: implications on the endocytosis mechanism of memapsin 2. *FEBS Lett.* 524: 183-187.
- Zhu, G., et al. 2003. Crystal structure of GGA2 VHS domain and its implication in plasticity in the ligand binding pocket. *FEBS Lett.* 537: 171-176.
- LocusLink Report (LocusID: 606004). <http://www.ncbi.nlm.nih.gov/LocusLink/>

## CHROMOSOMAL LOCATION

Genetic locus: GGA2 (human) mapping to 16p12.2; Gga2 (mouse) mapping to 7 F2.

## SOURCE

GGA2 (P-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GGA2 of human origin.

## STORAGE

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

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-19326 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

GGA2 (P-20) is recommended for detection of GGA2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

GGA2 (P-20) is also recommended for detection of GGA2 in additional species, including equine and porcine.

Suitable for use as control antibody for GGA2 siRNA (h): sc-41169, GGA2 siRNA (m): sc-41170, GGA2 shRNA Plasmid (h): sc-41169-SH, GGA2 shRNA Plasmid (m): sc-41170-SH, GGA2 shRNA (h) Lentiviral Particles: sc-41169-V and GGA2 shRNA (m) Lentiviral Particles: sc-41170-V.

Molecular Weight of GGA2: 67 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, EB1 cell lysate: sc-24668 or Jurkat whole cell lysate: sc-2204.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## SELECT PRODUCT CITATIONS

- Ramirez-Montealegre, D. and Pearce, D.A. 2005. Defective lysosomal arginine transport in juvenile Batten disease. *Hum. Mol. Genet.* 14: 3759-3773.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.