abcam

ab231693

Anti-Glycogen synthase 1/GYS1 antibody [EP817Y] - BSA and Azide free

Recombinant | RabMAb | KO Validated

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EP817Y
Purification technique	Affinity purification Protein A
Concentration	0.995 - 1.016 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	-

Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information GYS1

Function Glycogen synthase participates in the glycogen biosynthetic process along with glycogenin and glycogen branching enzyme. Extends the primer composed of a few glucose units formed by glycogenin by adding new glucose units to it. In this

context, glycogen synthase transfers the glycosyl residue from UDP-Glc to the non-reducing end of alpha-1,4-glucan.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab231693 is the carrier-free version of ab40810.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Glycogen synthase 1 (GYS1) also known as muscle glycogen synthase catalyzes the synthesis of glycogen from glucose. It adds glucose units from UDP-glucose to the non-reducing ends of glycogen chains facilitating glycogen elongation. The molecular mass of GYS1 is approximately 85 kDa. It is predominantly expressed in skeletal muscle tissue providing energy storage primarily in the form of glycogen. GYS1 is regulated through phosphorylation wherein it undergoes inactive to active conformational changes.
Biological function summary	This enzyme plays a critical role in the energy storage mechanism of muscle tissues. GYS1 functions as a part of the glycogen synthase complex interacting with various glycogen-associated proteins to modulate its activity. These interactions control the enzyme's affinity for its substrate and its susceptibility to regulatory signals like phosphorylation affecting glycogen synthesis efficiency. Through its activity GYS1 ensures a readily available reserve of glucose in muscle tissues for rapid energy production when required.
Pathways	Glycogen synthase 1 is a central component of the glycogen metabolism pathway. It acts alongside other enzymes such as glycogen phosphorylase which catalyzes glycogen breakdown. The balance between GYS1 and glycogen phosphorylase determines the rate of glycogen turnover within cells. GYS1 is further regulated by the insulin signaling pathway where insulin promotes glycogen synthesis by altering GYS1 activity alongside proteins like AKT influencing glucose homeostasis and energy management in tissues.
Associated diseases and disorders	Dysregulation of GYS1 activity often associates with glycogen storage diseases notably Type 0 where deficiencies in glycogen storage lead to episodes of low blood sugar and reduced exercise capacity. Furthermore aberrations in GYS1 function contribute to insulin resistance and Type 2 diabetes conditions linked with impaired glucose metabolism. Altered GYS1 activity impacts proteins like glycogen phosphorylase affecting overall glycogen metabolism balance and contributing to metabolic disorders.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

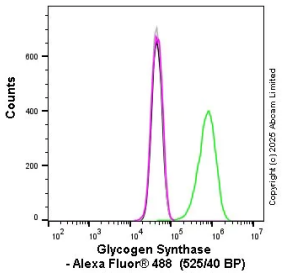
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

2 product images



Flow Cytometry (Intracellular) - Anti-Glycogen synthase 1/GYS1 antibody [EP817Y] - BSA and Azide free (ab231693)

Glycogen synthase 1/GYS1 Flow Cytometry (Intracellular) staining using rabbit Anti-Glycogen synthase 1/GYS1 antibody

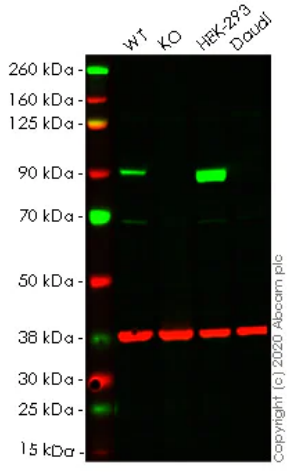
This data was developed using ab40810, the same antibody clone in a different buffer formulation.

Flow cytometry overlay histogram showing wild-type HeLa (green line) and GYS1 knockout HeLa stained with ab40810 (magenta line). The cells were fixed with 4% formaldehyde (10 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS containing 10% normal goat serum to block non-specific protein-protein interaction followed by the antibody (ab40810) (1x 10^6 in 100µl at 0.04 µg/ml (1/15800)) for 30min at 22°C.
The secondary antibody Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed was incubated at 1/4000 for 30min at 22°C.

Isotype control antibody was Recombinant Rabbit IgG, monoclonal [EPR25A] - Isotype Control in HeLa WT cells (black line) and HeLa-GYS1 KO cells (grey line), used at the same concentration and conditions as the primary antibody.

Acquisition of >5000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

This antibody gave a positive signal in wild-type HeLa fixed with 80% methanol (5 min) and then permeabilised with 0.1% PBS-Triton X-100 for 15 min under the same conditions.



Western blot - Anti-Glycogen synthase 1/GYS1 antibody [EP817Y] - BSA and Azide free (ab231693)

This data was developed using the same antibody clone in a different buffer formulation (ab40810).
Lanes 1-4: Merged signal (red and green). Green - ab40810 observed at 80 kDa. Red - loading control ab8245 observed at 37 kDa.

ab40810 Recombinant Anti-Glycogen synthase 1/GYS1 antibody [EP817Y] was shown to specifically react with Glycogen synthase 1/GYS1 in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab265388 (knockout cell lysate ab257462) was used. Wild-type and Glycogen synthase 1/GYS1 knockout samples were subjected to SDS-PAGE. ab40810 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated overnight at 4°C at 1 in 10000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:

Western blot - Anti-Glycogen synthase 1/GYS1 antibody [EP817Y] (ab40810) at 1/10000 dilution

Lane 1:
Wild-type HeLa lysate at 20 µg

Lane 2:
Glycogen synthase 1/GYS1 knockout HeLa lysate at 20 µg

Lane 2:
Western blot - Human GYS1 (Glycogen synthase 1) knockout HeLa cell line (ab265388)

Lane 3:
HEK-293 lysate at 20 µg

Lane 4:
Daudi lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 84 kDa

Observed band size: 80 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.