abcam

ab204001

Alexa Fluor® 488 Anti-GLUD1 + GLUD2 antibody [EPR11370]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR11370
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-

Notes	-

Target data

See full target information GLUD1

Function	Mitochondrial glutamate dehydrogenase that catalyzes the conversion of L-glutamate into alpha-ketoglutarate. Plays a key role in glutamine anaplerosis by producing alpha-ketoglutarate, an important intermediate in the tricarboxylic acid cycle (PubMed:11032875, PubMed:11254391, PubMed:16023112, PubMed:16959573). Plays a role in insulin homeostasis (PubMed:11297618, PubMed:9571255). May be involved in learning and memory reactions by increasing the turnover of the excitatory neurotransmitter glutamate (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle, Store in the dark

Notes

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.

Alexa Fluor® is a registered trademark of Molecular Probes, Inc, a Thermo Fisher Scientific Company. The Alexa Fluor® dye included in this product is provided under an intellectual property license from Life Technologies Corporation. As this product contains the Alexa Fluor® dye, the purchase of this product conveys to the buyer the non-transferable right to use the purchased product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). As this product contains the Alexa Fluor® dye the sale of this product is expressly conditioned on the buyer not using the product or its components, or any materials made using the product or its components, in any activity to generate revenue, which may include, but is not limited to use of the product or its components: in manufacturing; (ii) to provide a service, information, or data in return for payment (iii) for therapeutic, diagnostic or prophylactic purposes; or (iv) for resale, regardless of whether they are sold for use in research. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, 5781 Van Allen Way, Carlsbad, CA 92008 USA or outlicensing@thermofisher.com.

Supplementary info

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

Activity summary	GLUD1 and GLUD2 also known as glutamate dehydrogenases are enzymes that play roles in amino acid metabolism. GLUD1 enzyme weighs approximately 56 kDa. These enzymes convert glutamate to α-ketoglutarate and ammonia thereby regulating amino acid turnover and nitrogen metabolism. GLUD1 and GLUD2 are expressed in mitochondria across numerous tissues but are highly represented in the liver and brain tissues. Mouse GLUD1 is often studied to understand these functions through model organisms.
Biological function summary	These enzymes participate in critical processes like neurotransmitter regulation and energy production. GLUD1 and GLUD2 provide ammonia and α-ketoglutarate necessary for the Krebs cycle connecting amino acid catabolism to energy production. Although not typically part of a larger complex their activity modulates key metabolic pathways essential for cellular energy.
Pathways	GLUD1 and GLUD2 play central roles in nitrogen and tricarboxylic acid (TCA) cycles. Within these cycles they facilitate interactions with proteins like AMPK linking amino acid metabolism to cellular energy sensing. They influence energy homeostasis by modulating NADH and NADPH production further integrating with metabolic control pathways like gluconeogenesis.
Associated diseases and disorders	GLUD1 and GLUD2 have associations with hyperinsulinism/hyperammonemia syndrome and neurodegenerative disorders such as Alzheimer's disease. In the context of hyperinsulinism faulty regulation of GLUD1 can lead to excessive insulin production. In neurodegenerative conditions these proteins by altering neurotransmitter levels possibly interact with proteins such as amyloid-β contributing to disease pathology.

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.

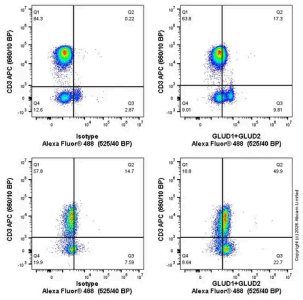
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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



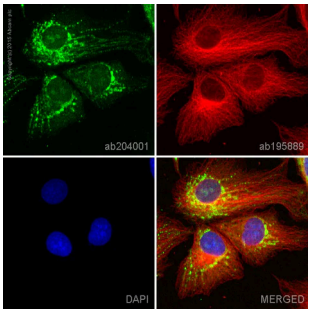
Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-GLUD1 + GLUD2 antibody [EPR11370] (ab204001)

GLUD1 + GLUD2 Flow Cytometry (Intracellular) staining of Human peripheral mononuclear cells (PBMCs) using rabbit Anti-GLUD1 + GLUD2 antibody

Flow cytometry scatter plots showing untreated human peripheral mononuclear cells (PBMCs) (top) and PBMCs activated with 5 µg/ml PHA for 18h (bottom), either stained with ab204001 (right) or isotype control (left). The cells were fixed using BD CytoFix/CytoPerm™ (20 min). The cells were incubated in 1x PBS containing 10 µg/ml human IgG and 10% normal goat serum to block FC receptors and non-specific protein-protein interaction followed by the antibody (ab204001) (1x 10^6 in 100µl at 5 µg/ml (1/100)) for 30min on ice. Isotype control antibody was Recombinant Alexa Fluor® 488 Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab199091). The cells were simultaneously stained with CD3.

Acquisition of >30000 events were collected using a 50 mW Blue laser (488nm) and 525/40 bandpass filter.

This data was acquired using a Beckman Coulter CytoFlexLX flow cytometer.



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-GLUD1 + GLUD2 antibody [EPR11370] (ab204001)

GLUD1 + GLUD2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GLUD1 + GLUD2 antibody

ab204001 staining GLUD1 in HepG2 cells. The cells were fixed with 100% methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal

goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab204001 at 1/100 dilution (shown in green) and ab195889, Mouse monoclonal to alpha Tubulin (Alexa Fluor® 594), at 1/250 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

This product also gave a positive signal under the same testing conditions in HepG2 cells fixed with 4% formaldehyde (10 min).

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