abcam

ab55051

Anti-GABA B Receptor 1 antibody [2D7]

Anti-GABA B Receptor 1 antibody [2D7] (ab55051) is a mouse monoclonal antibody detecting GABA B Receptor 1 in **Western Blot, Flow Cytometry, IHC-Fr, ICC/IF**. Suitable for **Human, Mouse, Rat**.

- Over 60 publications
- Trusted since 2007

Key facts

Isotype	IgG2a
Host species	Mouse
Storage buffer	pH: 7.4 Constituents: 91% Water, 8% Sodium chloride, 0.6% Disodium hydrogenorthophosphate, 0.2% Potassium chloride, 0.2% Potassium phosphate monobasic
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human GABBR1 aa 50-200. The exact immunogen used to generate this antibody is proprietary information. Database link Q9UBS5
Clone number	2D7
Purity	Tissue culture supernatant
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	ab170191 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-FoFr

Expected

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

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-Fr

Expected

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

Target data

See full target information GABBR1

Function

Component of a heterodimeric G-protein coupled receptor for GABA, formed by GABBR1 and GABBR2 (PubMed:15617512, PubMed:18165688, PubMed:22660477, PubMed:24305054, PubMed:36103875, PubMed:9872316, PubMed:9872744). Within the heterodimeric GABA receptor, only GABBR1 seems to bind agonists, while GABBR2 mediates coupling to G proteins (PubMed:18165688). Ligand binding causes a conformation change that triggers signaling via guanine nucleotide-binding proteins (G proteins) and modulates the activity of down-stream effectors, such as adenylate cyclase (PubMed:10075644, PubMed:10773016, PubMed:10906333, PubMed:24305054, PubMed:9872744). Signaling inhibits adenylate cyclase, stimulates phospholipase A2, activates potassium channels, inactivates voltage-dependent calcium-channels and modulates inositol phospholipid hydrolysis (PubMed:10075644). Calcium is required for high affinity binding to GABA (By similarity). Plays a critical role in the fine-tuning of inhibitory synaptic transmission (PubMed:9844003). Pre-synaptic GABA receptor inhibits neurotransmitter release by down-regulating high-voltage activated calcium channels, whereas postsynaptic GABA receptor decreases neuronal excitability by activating a prominent inwardly rectifying potassium (Kir) conductance that underlies the late inhibitory postsynaptic potentials (PubMed:10075644, PubMed:22660477, PubMed:9844003, PubMed:9872316, PubMed:9872744). Not only implicated in synaptic inhibition but also in hippocampal long-term potentiation, slow wave sleep, muscle relaxation and

antinociception (Probable). Activated by (-)-baclofen, cgp27492 and blocked by phaclofen (PubMed:24305054, PubMed:9844003, PubMed:9872316). Isoform 1E may regulate the formation of functional GABBR1/GABBR2 heterodimers by competing for GABBR2 binding. This could explain the observation that certain small molecule ligands exhibit differential affinity for central versus peripheral sites.

Storage

Shipped at conditions	Blue Ice
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

Notes

What is this antibody validated in?
Anti-GABA B Receptor 1 antibody [2D7] (ab55051) is a mouse monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Flow Cyt), Immunohistochemistry (IHC-Fr), Immunocytochemistry/immunofluorescence (ICC/IF) in Human, Mouse, Rat samples.

What is the molecular weight of GABA B Receptor 1?
Anti-GABA B Receptor 1 [2D7] (ab55051) specifically detects a band for GABA B Receptor 1 (UniProt: Q9UBS5) at a molecular weight of 108kDa.

Trusted by the scientific community
Anti-GABA B Receptor 1 [2D7] (ab55051) was first used in a scientific publication in 2007 and has been cited over 60 times in peer-reviewed journals.

Reviewed by scientists
Anti-GABA B Receptor 1 [2D7] (ab55051) has over 5 independent reviews from customers.

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

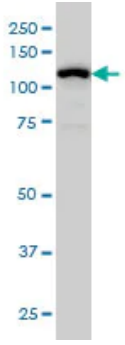
We do not recommend this combination. It is not covered by our product promise.

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.

7 product images



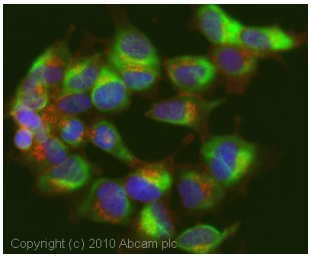
Western blot - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Western blot staining using mouse Anti-GABA B Receptor 1 antibody

GABA B Receptor 1 antibody (ab55051) at 1ug/lane + IMR-32 cell lysate at 25ug/lane.
This image was generated using the ascites version of the product.

All lanes:
Western blot - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

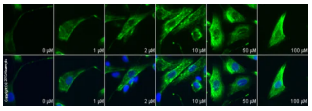
Predicted band size: 108 kDa



Immunocytochemistry/ Immunofluorescence - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-GABA B Receptor 1 antibody

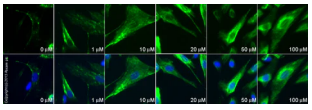
ICC/IF image of ab55051 stained SHSY5Y cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab55051, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.
This image was generated using the ascites version of the product.



Immunocytochemistry/ Immunofluorescence - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-GABA B Receptor 1 antibody

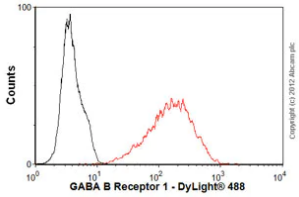
ab55051 staining GABA B receptor 1 in SK-N-SH cells treated with NMDA (ab120052), by ICC/IF. Internalization of GABA B receptor 1 correlates with increased concentration of NMDA, as described in literature.
The cells were incubated at 37°C for 30 minutes in media containing different concentrations of ab120052 (NMDA) in DMSO, fixed with 4% formaldehyde for 10 minutes at room temperature and blocked with PBS containing 10% goat serum, 0.3 M glycine, 1% BSA and 0.1% tween for 2h at room temperature. Staining of the treated cells with ab55051 (1 µg/ml) was performed overnight at 4°C in PBS containing 1% BSA and 0.1% tween. A DyLight 488 goat anti-mouse polyclonal antibody (ab96879) at 1/250 dilution was used as the secondary antibody. Nuclei were counterstained with DAPI and are shown in blue.
This image was generated using the ascites version of the product.



Immunocytochemistry/ Immunofluorescence - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-GABA B Receptor 1 antibody

ab55051 staining GABA B receptor 1 in SK-N-SH cells treated with L-Glutamate (ab120049), by ICC/IF. Internalization of GABA B receptor 1 correlates with increased concentration of L-Glutamate, as described in literature.
The cells were incubated at 37°C for 30 minutes in media containing different concentrations of ab120049 (L-Glutamate) in DMSO, fixed with 4% formaldehyde for 10 minutes at room temperature and blocked with PBS containing 10% goat serum, 0.3 M glycine, 1% BSA and 0.1% tween for 2h at room temperature. Staining of the treated cells with ab55051 (1 µg/ml) was performed overnight at 4°C in PBS containing 1% BSA and 0.1% tween. A DyLight 488 goat anti-mouse polyclonal antibody (ab96879) at 1/250 dilution was used as the secondary antibody. Nuclei were counterstained with DAPI and are shown in blue.
This image was generated using the ascites version of the product.



Flow Cytometry - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Flow Cytometry staining using mouse Anti-GABA B Receptor 1 antibody

Overlay histogram showing SH-SY5Y cells stained with ab55051 (red line). The cells were fixed with 4% paraformaldehyde (10 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab55051, 0.5µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG2a [ICIGG2A] (ab91361, 1µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed. This antibody gave a positive signal in SH-SY5Y cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.
This image was generated using the ascites version of the product.

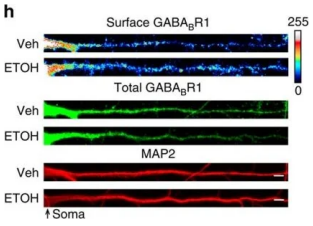


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Immunocytochemistry/ Immunofluorescence - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-GABA B Receptor 1 antibody

Immunocytochemistry-immunofluorescence using Anti-GABA B Receptor 1 antibody [2D7], ab55051. Publication image from Niere, F. et al., 2016, Nat Commun, 27666021. Legend direct from paper.

Acute ethanol increases dendritic GABABRs in hippocampus.(a–c) Western blot analyses of GABABR1 and GABABR2 in isolated hippocampal synaptoneurosomes from ethanol-treated (ETOH; 2.5 g kg−1 i.p.), and vehicle-treated (Veh; saline i.p.) C57BL/6 male mice 30 min post injection. (a) Pseudocoloured representative western blots to show intensity with normalized optical density for each band indicated below blot (Lookup table, below western blot). No significant change was observed in b GABABR1, but a significant increase was found in c GABABR2 with ethanol treatment. Western blots were normalized to the loading control,α-Tubulin. GABABR1: Veh=1.00±0.11; ETOH=1.19±0.08. Experiment was repeated five times. GABABR2: Veh=1.00±0.07; ETOH=1.37±0.05. (d,e) Representative immunostaining images of GABABR1 and GABABR2 in cultured rat hippocampal dendrites normalized to microtubule associated protein 2 (MAP2) as volume control. There was no change in f GABABR1 and a significant increase in g GABABR2 in ethanol treated (30 mM, 2 h) compared with vehicle-treated (H2O, 2 h) dendrites: Total GABABR1: Veh=1.00±0.03, n=46 dendrites; ETOH=1.04±0.04, n=51 dendrites. Total GABABR2: Veh= 1.00±0.03, n=46 dendrites; ETOH=1.47±0.05, n=51 dendrites. (h,i) Immunofluorescence shows a significant increase in surface GABABR1 expression in dendrites of cultured rat hippocampal neurons treated with ethanol (30 mM, 2 h); (i) Surface expression of GABABR1 in vehicle-treated (H2O, 2 h) and ethanol-treated (30 mM, 2 h) dendrites. Veh=1.00±0.09, n=43 dendrites; ETOH=1.66±0.12, n=47 dendrites. Significance determined by Student's t-test. Values represent mean±s.e.m. Scale bars, 5 µm. Uncropped version of western blots, with size markers are available in Supplementary Fig. 7a.

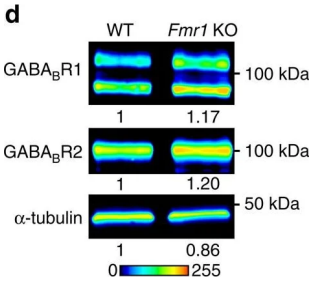


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Western blot - Anti-GABA B Receptor 1 antibody [2D7] (ab55051)

GABA B Receptor 1 Western blot staining using mouse Anti-GABA B Receptor 1 antibody

Western Blotting using Anti-GABA B Receptor 1 antibody [2D7], ab55051. Publication image from Niere, F. et al., 2016, Nat Commun, 27666021. Legend direct from paper.

GABABR1 and GABABR2 mRNAs are FMRP targets.(a,b) RNA immunoprecipitation (RIP) for FMRP was performed using brains from wild type (WT) and Fmr1 KO male mice. (a) Gels showing RT–qPCR amplified product of input sample, FMRP RIP, and IgG control for GABABR1 and GABABR2. (b) Relative fold-enrichment as determined by real-time qPCR relative to input control (δδCt=2−(Ct FMRP RIP−Ct IgG RIP)−(Ct FMRP input−Ct IgG input)). FMRP binds GABABR1, GABABR2, and the positive control CaMKIIα mRNA as detected in the RIP sample by real-time qPCR. Cacnα2δ2 served as a negative control and was not detected above background. WT: GABABR1=2.66±0.248, n=2; GABABR2=2.19±0.08, n=2; CaMKII=3.72±0.94, n=2; Cacnα2δ2=0.11±0.6, n=2. Fmr1 KO: GABABR1=0.01±0.0002, n=2; GABABR2=0.02±0.00006, n=2; CaMKII±0.04±0.01, n=2; Cacnα2δ2=0.012±0.005, n=2. (c–g) Western blot analysis of hippocampal synaptoneurosomes isolated from C57BL/6 WT and Fmr1 KO mice on a C57BL/6 background indicates the absence of (e) FMRP and increased protein expression of (f) GABABR1 and (g) GABABR2. Representative western blots are pseudocoloured to indicate intensity of bands, and the normalized optical density for each band is indicated below blot (Lookup table, below western blot). Western blots were normalized to the loading control,α-Tubulin. WT: FMRP=1.00±0.10; GABABR1=1.00±0.06; GABABR2=1.00±0.08. Fmr1 KO: FMRP=0.03±0.01; GABABR1=1.27±0.08; GABABR2=1.54±0.17. Experiment was repeated three times. Significance determined by Student's t-test. Values represent mean±s.e.m. Uncropped versions of qPCR gel, with size markers, are available in

Supplementary Fig. 7d. Uncropped version of western blots, with size markers are available in Supplementary Fig. 7b.

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