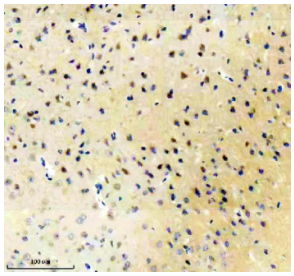
GRM1 Antibody / Metabotropic glutamate receptor 1 / mGluR1 [clone IGI-7] (FY13425)

Catalog No.	Formulation	Size
FY13425	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA	100 ul

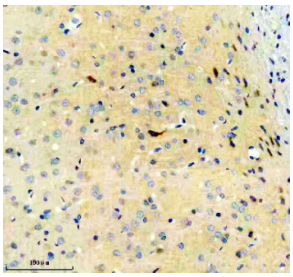
Recombinant RABBIT MONOCLONAL

Bulk quote request

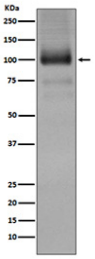
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Liquid
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	IGI-7
Purity	Affinity chromatography
Buffer	Rabbit IgG in phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol, 0.4-0.5mg/ml BSA.
UniProt	Q13255
Localization	Cell membrane
Applications	Western Blot : 1:500-1:2000 Immunohistochemistry : 1:50-1:200
Limitations	This GRM1 antibody is available for research use only.



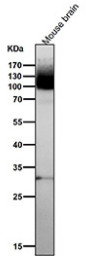
Immunohistochemical analysis of GRM1 using anti-GRM1 antibody. GRM1 is detected in a paraffin-embedded section of mouse brain tissue following heat-mediated antigen retrieval. Cell-associated staining is observed in neuronal populations and surrounding neuropil, consistent with reported expression patterns of Metabotropic glutamate receptor 1 in the brain.



Immunohistochemical analysis of GRM1 using anti-GRM1 antibody. GRM1 is detected in a paraffin-embedded section of rat brain tissue following heat-mediated antigen retrieval. Staining is observed in neuronal cell bodies and surrounding neuropil, consistent with known expression and localization patterns of Metabotropic glutamate receptor 1 in the rat brain.



Western blot analysis of GRM1 expression using anti-GRM1 antibody and mouse brain tissue lysate. GRM1 has a predicted molecular weight of ~132 kDa; however, a major band may be observed at ~100-110 kDa when the receptor is present as a less glycosylated form or as a processed species, which can migrate below the predicted size depending on tissue preparation and denaturation conditions.



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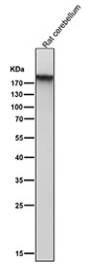

Western blot analysis of GRM1 expression using anti-GRM1 antibody in rat cerebellum tissue lysate. GRM1 has a predicted molecular weight of ~132 kDa; however, the mature receptor may be observed at higher apparent molecular weights, up to and above ~170 kDa, due to extensive N-linked glycosylation and the tendency of metabotropic glutamate receptors to form stable dimers or higher order complexes that can migrate above the predicted size on SDS-PAGE.

Description

GRM1 antibody targets Metabotropic glutamate receptor 1 (GRM1), a member of the metabotropic glutamate receptor family that mediates glutamate-dependent signaling in the nervous system. GRM1 is a class C G protein-coupled receptor characterized by a large extracellular ligand-binding domain and a seven-transmembrane signaling region. The receptor is primarily localized to the plasma membrane of neurons, where it functions as a modulatory glutamate sensor rather than a fast ion channel. Through this role, GRM1 contributes to fine control of synaptic transmission and neuronal responsiveness.

Upon activation by glutamate, GRM1 couples mainly to Gq and G11 proteins, triggering intracellular signaling pathways that involve phospholipase C activation, inositol trisphosphate production, and intracellular calcium mobilization. These signaling events influence neuronal excitability, synaptic strength, and activity-dependent gene regulation. GRM1 signaling operates on slower time scales than ionotropic receptors, allowing it to shape long-term changes in synaptic function and neuronal network behavior. A GRM1 antibody supports research focused on receptor-mediated signaling mechanisms that underlie synaptic modulation and plasticity.

GRM1 expression is highly enriched in the cerebellum, particularly within Purkinje neurons, where it plays a critical role in motor coordination and cerebellar development. Outside the cerebellum, GRM1 is also expressed in hippocampal and

cortical regions, contributing to learning, memory, and sensory integration. Its localization is often perisynaptic, positioning the receptor to respond to glutamate spillover during high synaptic activity. Analysis of GRM1 distribution and expression patterns provides insight into region-specific regulation of glutamatergic signaling in the brain.

From a disease and translational research perspective, GRM1 has been implicated in a range of neurological and neurodevelopmental conditions. Disruption of GRM1 signaling has been associated with movement disorders, ataxia, and cognitive dysfunction, reflecting its essential role in cerebellar and cortical circuits. GRM1 has also been studied in epilepsy and neuropsychiatric research, where altered glutamate signaling contributes to abnormal neuronal activity. In addition, aberrant GRM1 expression has been reported in certain cancers, highlighting broader roles for glutamate receptors outside the nervous system. Investigating GRM1 expression with a GRM1 antibody is therefore relevant to both neuroscience and disease-focused studies.

At the molecular level, the GRM1 gene encodes a large glycoprotein with a predicted core molecular weight of approximately 132 kDa. Due to extensive glycosylation and receptor dimerization, GRM1 is frequently observed at higher apparent molecular weights on SDS-PAGE. The receptor's extracellular domain is responsible for ligand recognition, while intracellular regions interact with scaffolding and signaling proteins that regulate receptor trafficking and signal specificity. A GRM1 antibody enables detection and analysis of GRM1 expression in research applications focused on glutamatergic signaling, synaptic regulation, and neurological disease mechanisms, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the GRM1 antibody should be determined by the researcher.

Immunogen

A synthesized peptide derived from human Metabotropic glutamate receptor 1 protein was used as the immunogen for the GRM1 antibody.

Storage

Store the GRM1 antibody at -20oC.