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DRD1 Rabbit pAb

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Catalog # AP52160

Product Information

Application	IHC-P, IHC-F, IF
Primary Accession	P21728
Reactivity	Rat, Human
Predicted	Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	49293
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human DRD1
Epitope Specificity	101-200/446
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Cell membrane; Multi-pass membrane protein. Endoplasmic reticulum membrane; Multi-pass membrane protein.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene encodes the D1 subtype of the dopamine receptor. The D1 subtype is the most abundant dopamine receptor in the central nervous system. This G-protein coupled receptor stimulates adenylyl cyclase and activates cyclic AMP-dependent protein kinases. D1 receptors regulate neuronal growth and development, mediate some behavioral responses, and modulate dopamine receptor D2-mediated events. Alternate transcription initiation sites result in two transcript variants of this gene. [provided by RefSeq, Jul 2008]

Additional Information

Gene ID	1812
Other Names	D(1A) dopamine receptor, Dopamine D1 receptor, DRD1
Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,Flow-Cyt=1 □g/Test
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	DRD1 {ECO:0000303|PubMed:33571432, ECO:0000312|HGNC:HGNC:3020}
Function	G protein-coupled receptor for dopamine, a catecholamine neurotransmitter hormone that functions as the brain's 'reward chemical', driving motivation, reinforcement learning and pleasure (PubMed:11500503, PubMed:33571431, PubMed:33571432, PubMed:33750903, PubMed:34083522, PubMed:35676276, PubMed:35687690, PubMed:37221270). Dopamine binding causes a conformation change that triggers signaling via guanine nucleotide-binding proteins (G proteins) and modulates the activity of downstream effectors, such as adenylate cyclase (PubMed:33571431, PubMed:33571432, PubMed:33750903, PubMed:34083522, PubMed:35676276, PubMed:35687690). Dopamine receptors can be classified in two categories: (1) DRD1 (together with DRD5) is a D1-type receptor and is coupled to G(s) G proteins, mediating activation of adenylate cyclase activity, while D2-type receptors (DRD2, DRD3 and DRD4) are coupled to G(i)/G(o) G proteins and promote inhibition of adenylate cyclase activity (PubMed:33571431, PubMed:33571432, PubMed:33750903, PubMed:34083522, PubMed:35676276, PubMed:35687690, PubMed:7782330). D1- and D2-type dopamine receptors have antagonistic effects, particularly in the brain's striatum, where they govern voluntary movement and reward: D1-type receptors generally stimulate neural activity and promotes action, while D2-type receptors tend to inhibit neural activity and suppress movement (By similarity). DRD1 acts as an essential regulator of reward, motor activity and cognition in the central nervous system and play beneficial roles in peripheral tissues including inhibiting inflammatory reactions and maintaining cardiovascular and kidney homeostasis (PubMed:33571431, PubMed:33571432). DRD1 and DRD2 are the most abundant dopamine receptors in the central nervous system, especially in the basal ganglia and the prefrontal cortex (PubMed:33571431, PubMed:33571432). DRD1 can also couple with G(q) by forming a heteromer with the ghrelin receptor GHSR in hippocampal neurons independently of ghrelin (By similarity). Following DRD1 activation by dopamine, GHSR acts as a coreceptor promoting DRD1 coupling to G(q) at the expense of G(s), initiating hippocampal synaptic plasticity involved in memory and learning (By similarity). Forms heterotetramers with DRD3 to potentiate beta-arrestin recruitment and mediate locomotor activity (By similarity). Also acts as a receptor for D-lysergic (LSD) psychedelic drug (PubMed:39094559).
Cellular Location	Postsynaptic cell membrane; Multi-pass membrane protein. Cell projection, dendritic spine membrane {ECO:0000250|UniProtKB:Q61616}; Multi-pass membrane protein. Cell projection, cilium membrane; Multi-pass membrane protein. Endoplasmic reticulum membrane {ECO:0000250|UniProtKB:P18901}; Multi-pass membrane protein Note=Transport from the endoplasmic reticulum to the cell surface is regulated by interaction with DNAJC14. {ECO:0000250|UniProtKB:P18901}
Tissue Location	Detected in caudate, nucleus accumbens and in the olfactory tubercle.

Background

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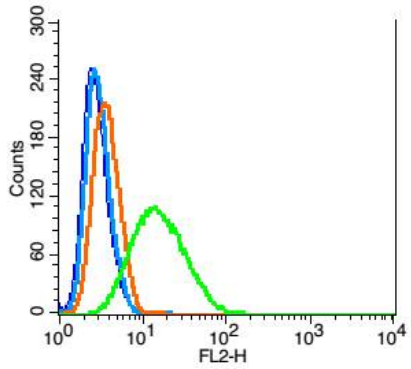
References

Dearry A.,et al.Nature 347:72-76(1990).
Zhou Q.-Y.,et al.Nature 347:76-80(1990).
Sunahara R.K.,et al.Nature 347:80-83(1990).

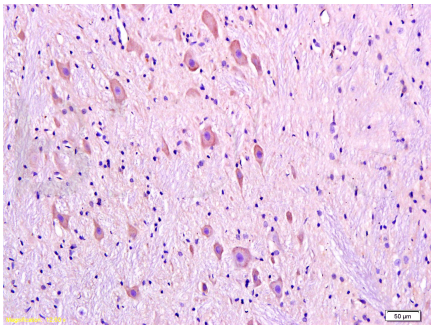
Ohara K.,et al.Neuropsychopharmacology 8:131-135(1993).
Suwa M.,et al.Submitted (JUL-2001) to the EMBL/GenBank/DDBJ databases.

Images



Blank control: Hela(blue). Primary Antibody:Rabbit Anti-Dopamine Receptor D1 antibody(AP52160), Dilution: 1ug in 100 ul 1X PBS containing 0.5% BSA; Isotype Control Antibody: Rabbit IgG(orange) ,used under the same conditions ; Secondary Antibody: Goat anti-rabbit IgG-PE(white blue), Dilution: 1:200 in 1 X PBS containing 0.5% BSA.

Protocol
The cells were fixed with 2% paraformaldehyde (10 min) , then permeabilized with 90% ice-cold methanol for 30 min on ice. Antibody (AP52160, 1ug /1x10^6 cells) were incubated for 30 min on the ice, followed by 1 X PBS containing 0.5% BSA + 10% goat serum (15 min) to block non-specific protein-protein interactions. Then the Goat Anti-rabbit IgG/PE antibody was added into the blocking buffer mentioned above to react with the primary antibody of AP52160 at 1/200 dilution for 30 min on ice. Acquisition of 20,000 events was performed.



Tissue/cell: rat brain tissue; 4% Paraformaldehyde-fixed and paraffin-embedded;
Antigen retrieval: citrate buffer (0.01M, pH 6.0), Boiling bathing for 15min; Block endogenous peroxidase by 3% Hydrogen peroxide for 30min; Blocking buffer (normal goat serum,C-0005) at 37℃ for 20 min;
Incubation: Anti-DRD1 Polyclonal Antibody, Unconjugated(AP52160) 1:300, overnight at 4∑C, followed by conjugation to the secondary antibody(SP-0023) and DAB(C-0010) staining

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