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# Anti-DRD1 Antibody

Catalog # ABO10886

## Product Information

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| **Application** | WB, IHC-P |
| **Primary Accession** | P21728 |
| **Host** | Rabbit |
| **Reactivity** | Human, Mouse, Rat |
| **Clonality** | Polyclonal |
| **Format** | Lyophilized |
| **Description** | Rabbit IgG polyclonal antibody for D(1A) dopamine receptor(DRD1) detection. Tested with WB, IHC-P in Human;Mouse;Rat. |
| **Reconstitution** | Add 0.2ml of distilled water will yield a concentration of 500ug/ml. |

## Additional Information

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| **Gene ID** | 1812 |
| **Other Names** | D(1A) dopamine receptor, Dopamine D1 receptor, DRD1 |
| **Calculated MW** | 49293 |
| **Application Details** | Immunohistochemistry(Paraffin-embedded Section), 0.5-1 □g/ml, Human, Rat, Mouse, By Heat<br><br>Western blot, 0.1-0.5 □g/ml, Human, Rat, Mouse |
| **Subcellular Localization** | Cell membrane ; Multi-pass membrane protein . Endoplasmic reticulum membrane ; Multi-pass membrane protein . Transport from the endoplasmic reticulum to the cell surface is regulated by interaction with DNAJC14. . |
| **Tissue Specificity** | Detected in caudate, nucleus accumbens and in the olfactory tubercle. . |
| **Source** | Eukaryota |
| **Protein Name** | D(1A) dopamine receptor |
| **Contents** | Each vial contains 5mg BSA, 0.9mg NaCl, 0.2mg Na2HPO4, 0.05mg Thimerosal, 0.05mg NaN3. |
| **Immunogen** | A synthetic peptide corresponding to a sequence in the middle region of human DRD1 (221-242aa AQKQIRRIAALERAAVHAKNCQ), different from the related rat and mouse sequences by one amino acid. |
| **Purification** | Immunogen affinity purified. |

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| **Cross Reactivity** | No cross reactivity with other proteins |
| **Storage** | At -20˚C for one year. After r˚Constitution, at 4˚C for one month. It˚Can also be aliquotted and stored frozen at -20˚C for a longer time.Avoid repeated freezing and thawing. |

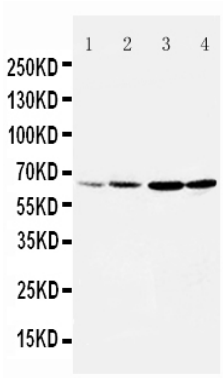
## Protein Information

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| **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. |

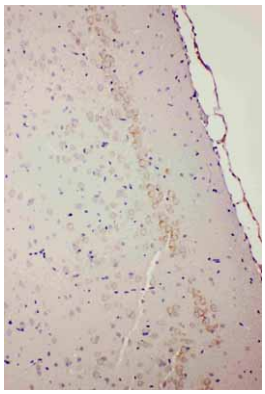
## Background

Dopamine receptor D1, also known as DRD1, is a human gene. It is the most highly expressed DA receptor subtype among the DA receptor family. Receptors for dopamine have been classified into two functional types, D1 and D2. They belong to the family of receptors acting through G(or guanine nucleotide-binding) proteins. D2 receptors inhibit adenylyl cyclase, but D1 receptors stimulate adenylyl cyclase and activate cyclic AMP-dependent protein kinases. Dopamine D1 and D2 receptors are targets of drug therapy in many psychomotor disorders, including Parkinson's disease and schizophrenia, and may also have a role in drug addiction and alcoholism. D1 receptors regulate neuron growth and differentiation, influence behaviour and modify dopamine D2 receptor-mediated events. And the presence of a D1 receptor gene restriction fragment length polymorphism will be helpful for future disease linkage studies. DRD1 also regulates the neurochemical architecture of the striatum and is critical for the normal expression of motor activity.

## Images




Anti-DRD1 antibody, ABO10886, Western blottingLane 1: Rat Testis Tissue LysateLane 2: Rat Brain Tissue LysateLane 3: U87 Cell LysateLane 4: HELA Cell Lysate



Anti-DRD1 antibody, ABO10886, IHC(P)IHC(P): Rat Brain Tissue

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