

Dopamine receptor D1

Cat.No. 376 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For reconstitution add 200 µl H ₂ O, then aliquot and store at -20°C until use.
Applications	WB: not tested yet IP: not tested yet ICC: not tested yet IHC: 1 : 500 IHC-P/FFPE: 1 : 500
Immunogen	Recombinant protein corresponding to AA 353 to 446 from mouse DRD1 (UniProt Id: Q61616)
Reactivity	Reacts with: mouse (Q61616), rat (P18901). Other species not tested yet.
Specificity	Specific for dopamine receptor D1. The antibody may have a weak crossreactivity to dopamine receptor D5.

TO BE USED IN VITRO / FOR RESEARCH ONLY NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Dopamine receptors transduce the signal of the neurotransmitter dopamine. Dopamine regulates a variety of functions including locomotor activity, emotion, food intake, hormone secretion, learning and memory. The dysregulation of the dopaminergic system results in several neurological and neuropsychiatric diseases including Parkinson's disease, dystonia, and schizophrenia. Dopamine plays also an important role in the pathogenesis of hypertension by regulating epithelial sodium transport and by interacting with vasoactive hormones.

All five dopamine receptors belong to the 7-transmembrane domain, G protein-coupled receptor superfamily. They have been divided into two subfamilies: Two D1-like receptor subtypes (**D1** and **D5**) couple to the G protein Gs and activate adenylyl cyclase, increasing the intracellular concentration of the second messenger cAMP. The other receptor subtypes belong to the D2-like subfamily (**D2**, **D3**, and **D4**) and are prototypic of G protein-coupled receptors that inhibit adenylyl cyclase. Dopamine receptors can form heteromeric complexes with dopamine receptors from other subtypes or with receptors of other endogenous signaling ligands. These heteromeric complexes have functional properties distinct from the component receptors or are able to modulate the canonical signaling.

Dopamine receptor D1 is widely distributed throughout the brain with the highest expression in the striatum. In the periphery, the D1 receptor has been detected in the adrenal cortex, kidney and heart. Recently, it was shown that dopamine receptor D1 is expressed in breast cancer, thereby identifying this receptor as a novel therapeutic target in this disease. D1 receptor overexpression is associated with advanced breast cancer and poor prognosis.

Dopamine Receptor D2 is most abundant in the striatum where it is expressed in medium spiny

neurons. Functionally, the D1 and D2 Receptors have been implicated in the regulation of both locomotor and cognitive functions.

Selected General References

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