SANTA CRUZ BIOTECHNOLOGY, INC.

DAT (K-20): sc-7514

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The members of the G protein-coupled receptor family are distinguished by their slow transmitting response to ligand binding. These seven transmembrane proteins include the adrenergic, serotonin and dopamine receptors. The effect of the signaling molecule can be excitatory or inhibitory, depending on the type of receptor to which it binds. β-adrenergic receptor bound to adrenaline activates adenylyl cyclase, while α2-adrenergic receptor bound to adrenaline inhibits adenylyl cyclase. The dopamine receptors are divided into two classes, D1 and D2, which differ in their functional characteristics in that D1 receptors stimulate adenylyl cyclase, while D2 receptors inhibit adenylyl cyclase activity. Five different subtypes of dopamine receptor have been described to date. D1DR and D5DR belong to the D1 subclass, while D2DR, D3DR and D4DR belong to the D2 subclass of dopamine receptors. The dopamine transporter, DAT, is a sodium and chloride-dependent dopamine transporter. DAT also can transport dopamine neurotoxins and has been implicated in the selective vulnerability of nigrostriatal dopaminergic neurons in major models of Parkinson's disease.

REFERENCES

1. Cotecchia, S., et al. 1990. Multiple second messenger pathways of α-adrenergic receptor subtypes expressed in eukaryotic cells. J. Biol. Chem. 265: 63-69.
2. Senogles, S.E. 1994. The D2 dopamine receptor isoforms signal through distinct $G_{\alpha i}$ proteins to inhibit adenylyl cyclase. A study with site-directed mutant $G_{\alpha i}$ proteins. J. Biol. Chem. 269: 23120-23127.
3. Barak, L.S., et al. 1995. The conserved seven-transmembrane sequence NP(X)2,3Y of the G protein-coupled receptor superfamily regulates multiple properties of the β 2-adrenergic receptor. Biochemistry 34: 15407-15414.
4. Ng, G.Y., et al. 1995. Agonist-induced desensitization of dopamine D1 receptor-stimulated adenylyl cyclase activity is temporally and biochemically separated from D1 receptor internalization. Proc. Natl. Acad. Sci. USA 92: 10157-10161.
5. Ogawa, N. 1995. Molecular and chemical neuropharmacology of dopamine receptor subtypes. Acta Med. Okayama 49: 1-11.
6. Nirenberg, M.J., et al. 1996. The dopamine transporter is localized to dendritic and axonal plasma membranes of nigrostriatal dopaminergic neurons. J. Neurosci. 16: 436-447.

CHROMOSOMAL LOCATION

Genetic locus: SLC6A3 (human) mapping to 5p15.33; Slc6a3 (mouse) mapping to 13 C1.

SOURCE

DAT (K-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a C-terminal cytoplasmic domain of DAT of human origin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-7514 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DAT (K-20) is recommended for detection of DAT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DAT (K-20) is also recommended for detection of DAT in additional species, including equine, canine and bovine.

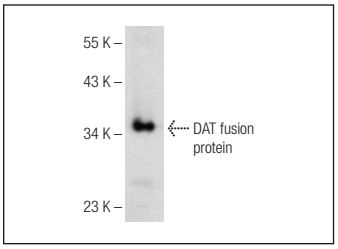
Suitable for use as control antibody for DAT siRNA (h): sc-41936, DAT siRNA (m): sc-41937, DAT shRNA Plasmid (h): sc-41936-SH, DAT shRNA Plasmid (m): sc-41937-SH, DAT shRNA (h) Lentiviral Particles: sc-41936-V and DAT shRNA (m) Lentiviral Particles: sc-41937-V.

Molecular Weight of non-glycosylated DAT: 50 kDa.

Molecular Weight of glycosylated DAT: 80 kDa.

Positive Controls: mouse kidney extract: sc-2255, SH-SY5Y cell lysate: sc-3812 or SK-N-SH cell lysate: sc-2410.

DATA



DAT (K-20): sc-7514. Western blot analysis of human recombinant DAT fusion protein.

SELECT PRODUCT CITATIONS

1. Frankhauser, P., et al. 2006. Characterization of the neuronal dopamine transporter DAT in human blood platelets. Neurosci. Lett. 399: 197-201.

RESEARCH USE

For research use only, not for use in diagnostic procedures.