

# DAT (6-8D6): sc-32259

## 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.  $\beta$ -adrenergic receptor bound to adrenaline activates adenylyl cyclase, while  $\alpha_2$ -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

- Cotecchia, S., et al. 1990. Multiple second messenger pathways of  $\alpha$ -adrenergic receptor subtypes expressed in eukaryotic cells. *J. Biol. Chem.* 265: 63-69.
- 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.

## CHROMOSOMAL LOCATION

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

## SOURCE

DAT (6-8D6) is a rat monoclonal antibody raised against amino acids 180-218 corresponding to the second extracellular loop of DAT of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

DAT (6-8D6) is available conjugated to agarose (sc-32259 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-32259 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-32259 PE), fluorescein (sc-32259 FITC), Alexa Fluor® 488 (sc-32259 AF488), Alexa Fluor® 546 (sc-32259 AF546), Alexa Fluor® 594 (sc-32259 AF594) or Alexa Fluor® 647 (sc-32259 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-32259 AF680) or Alexa Fluor® 790 (sc-32259 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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## STORAGE

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

## APPLICATIONS

DAT (6-8D6) is recommended for the detection of the DAT of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

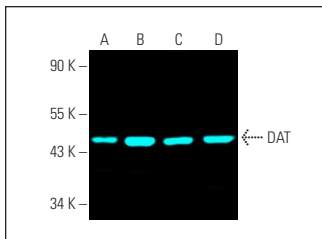
Suitable for use as control antibody for DAT siRNA (h): sc-41936, DAT siRNA (m): sc-41937, DAT shRNA Plasmid (h): sc-41936-SH, DAT shRNA Plasmid (m): sc-41937-SH, DAT shRNA (h) Lentiviral Particles: sc-41936-V and DAT shRNA (m) Lentiviral Particles: sc-41937-V.

Molecular Weight of non-glycosylated DAT: 50 kDa.

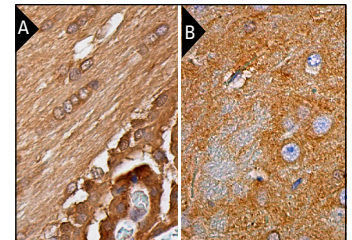
Molecular Weight of glycosylated DAT: 80 kDa.

Positive Controls: SK-N-SH cell lysate: sc-2410, HeLa whole cell lysate: sc-2200 or U-87 MG cell lysate: sc-2411.

## DATA



DAT (6-8D6) Alexa Fluor® 647: sc-32259 AF647. Direct fluorescent western blot analysis of DAT expression in SK-N-SH (A), U-87 MG (B), SUP-T1 (C) and HeLa (D) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



DAT (6-8D6) HRP: sc-32259 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded rat brain tissue showing cytoplasmic and membrane staining of substantia nigra cells (A). Direct immunoperoxidase staining of formalin fixed, paraffin-embedded mouse brain tissue showing neuropil staining (B).

## SELECT PRODUCT CITATIONS

- Hohmann, S., et al. 2011. Differential expression of neuronal dopamine and serotonin transporters DAT and SERT in megakaryocytes and platelets generated from human MEG-01 megakaryoblasts. *Cell Tissue Res.* 346: 151-161.
- Shah, S., et al. 2019. Nitrosative stress is associated with dopaminergic dysfunction in the HIV-1 transgenic rat. *Am. J. Pathol.* 189: 1375-1385.
- Jung, D.H., et al. 2020. Therapeutic effects of anodal transcranial direct current stimulation in a rat model of ADHD. *Elife* 9: e56359.
- Niu, M., et al. 2021. VPS35 D620N knockin mice recapitulate cardinal features of Parkinson's disease. *Aging Cell* 20: e13347.
- Araújo de Lima, L., et al. 2022. Effects of vitamin D (VD3) supplementation on the brain mitochondrial function of male rats, in the 6-OHDA-induced model of Parkinson's disease. *Neurochem. Int.* 154: 105280.

## RESEARCH USE

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