

Targeting Tools: Featured Products

Targeting the Dopamine Transporter

Advanced Targeting Systems announces the availability of two monoclonal antibodies to the dopamine transporter (DAT). These antibodies have become a standard for work on DAT and have already played a prominent role in the characterization of the dopamine transporter. The two antibodies are rat monoclonals, so they can be excellent for multiple staining protocols.



AB-N18 Anti-DAT-NT 100 micrograms, \$250

The first antibody (anti-DAT-NT) is made to the amino terminus of the human dopamine transporter, residues 1-66, an intracellular sequence that is expressed as a fusion protein with glutathione-S-transferase (GST). It gives a very dark band with immunoblotting of the transfected dopamine transporter.¹ This antibody has been used extensively and definitively for immunohistochemistry of DAT, and gave such an excellent signal that it could be used even in cases in which transporter expression was sparse.² It gives excellent staining of processes that express DAT,¹ and performs well in staining detection by both light microscopy and electron microscopy.



AB-N17 Anti-DAT-ECD 100 micrograms, \$250

The second antibody, and one that has important properties, was raised to a GST fusion protein sequence from the second extracellular loop and is termed anti-DAT-ECD, emphasizing that it recognizes an extracellular domain. It also performs well in immunostaining,¹ though not as excellent as anti-DAT-NT. However, it is able to recognize DAT when injected *in vivo*.



Gangsta isn't usually on the fence about things; this must be about a decision over food, sleep or hassling his sister Ethel.

anti-DAT-SAP (Cat. # IT-25)
Available Individually and as a Kit (with unconjugated saporin, antibody, and control immunotoxin)

SPECIAL INTRODUCTORY PRICING

25 µg \$100 (\$250)
100 µg \$350 (\$650)
250 µg \$775 (\$1375)

Anti-DAT-ECD was used to create an immunotoxin that is highly specific for cells/neurons that express DAT. This immunotoxin is being released coincident with the first publication on its effects (see cover article). There are a number of advantages to using anti-DAT-SAP:

Absolute selectivity for mesencephalic dopamine neurons that express DAT (substantia nigra, pars compacta and ventral tegmental area). 6-OHDA is toxic to all types of catecholaminergic neurons and requires use of uptake inhibitors to minimize damage to noradrenergic and adrenergic neurons: this lesion exactly mimics the dopaminergic lesion of Parkinson's Disease. (There is also some neurochemical evidence that 6-OHDA and MPTP can damage serotonergic neurons.)

Much less traumatic. anti-DAT-SAP works best when injected intraventricularly, which does not involve disturbing the basal ganglia or mesencephalic structures, whereas 6-OHDA has to go directly into the target (substantia nigra or striatum).

The stability of anti-DAT-SAP is great, especially when compared to 6-OHDA which has to be made fresh with ascorbic acid, protected from light, and often kept under nitrogen.

These tools for the study of the dopamine transporter (one of the key proteins in neuronal systems) and dopaminergic neurons (one of the key neuronal subsets in brain systems biology and pathologies) will be important new additions to research and pharmaceutical toolboxes.

References:

1. Hersch SM, Yi H, Heilman CJ, Edwards RH, Levey AI (1997) Subcellular localization and molecular topology of the dopamine transporter in the striatum and substantia nigra. *J Comp Neurol* 388:211-227.
2. Sesack SR, Hawrylak VA, Matus C, Guido MA, Levey AI (1998) Dopamine axon varicosities in the prelimbic division of the rat prefrontal cortex exhibit sparse immunoreactivity for the dopamine transporter. *J Neurosci* 18:2697-2708.

AB-N12 Anti-GAD65 (B78)
AB-N13 Anti-GAD65 (B96)
AB-N14 Anti-TSHr (A7)
AB-N15 Anti-TSHr (A9)
AB-N16 Anti-TSHr (A10)

