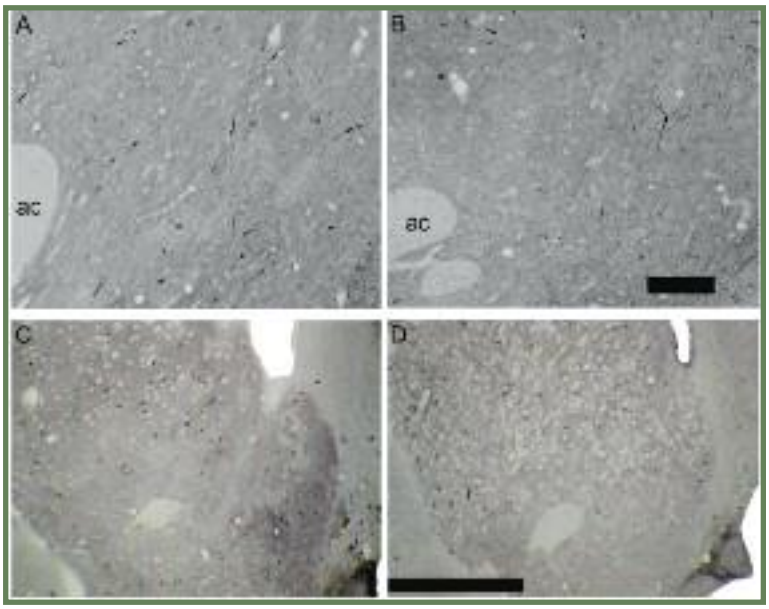
Targeting Tools: Featured Products

Anti-ChAT-SAP

Choline acetyltransferase (ChAT) catalyzes the synthesis of the neurotransmitter acetylcholine (ACh) from choline and acetyl-CoA in cholinergic neurons. ChAT serves as a specific marker for cholinergic neurons in both peripheral and central nervous systems. Evidence shows that ChAT exists in two forms inside cholinergic nerve terminals, a soluble hydrophilic form and the membrane-associated amphiphilic form.[1-2] Membrane-bound ChAT has served as the feature condition that allows specific targeting with an affinity-purified antibody to ChAT conjugated to saporin to specifically target and eliminate those specific cells. Anti-ChAT-SAP is made with an antibody using a 22-amino acid peptide from porcine ChAT.

The targeted toxin has been shown in several papers to eliminate cholinergic neurons in the rat brain[3-6] (also see Cover Article) and is expected to cross-react with mouse, and many other species.



Representative sections of ChAT-immunostained tissues of N.Acc. from rats that (A and C) received an intra-accumbens micro-injection of Rabbit IgG-SAP (Cat. #IT-35; 250 ng; control), and (B and D) received an intra-accumbens micro-injection of Anti-ChAT-SAP (250 ng). Administration of Anti-ChAT-SAP reduced significantly the amount of cholinergic interneurons at the injection site while sparing adjacent areas. Scales A and B = 200 µm; C and D = 1 mm; ac: anterior commissure.
François LaPlante. Targeting Trends, 2013. 14(1): p. 1,6.

References

1. Gabrielle P1, Jeana M, Lorenza EC.Laplante F, Dufresne MM, Ouboudinar J, Ochoa-Sanchez R, Sullivan RM. (2013) Cytosolic choline acetyltransferase binds specifically to cholinergic plasma membrane of rat brain synaptosomes to generate membrane-bound enzyme. *Neurochem Res* 28(3-4):543-549.
2. Smith CP, Carroll PT. (1980) A comparison of solubilized and membrane bound forms of choline-O-acetyltransferase (EC 2.3.1.6) in mouse brain nerve endings. *Brain Res* 185(2):363-371.
3. Aoki S, Liu AW, Zucca A, Zucca S, Wickens JR. (2015) Role of striatal cholinergic interneurons in set-shifting in the rat. *J Neurosci* 35(25):9424-9431.
4. Laplante F, Dufresne MM, Ouboudinar J, Ochoa-Sanchez R, Sullivan RM. (2013) Reduction in cholinergic interneuron density in the nucleus accumbens attenuates local extracellular dopamine release in response to stress or amphetamine. *Synapse* 67(1):21-29.
5. Laplante F, Zhang ZW, Huppe-Gourgues F, Dufresne MM, Vaucher E, Sullivan RM. (2012) Cholinergic depletion in nucleus accumbens impairs mesocortical dopamine activation and cognitive function in rats. *Neuropharmacology* 63(6):1075-1084.
6. Laplante F, Lappi DA, Sullivan RM (2011) Cholinergic depletion in the nucleus accumbens: Effects on amphetamine response and sensorimotor gating. *Prog Neuropsychopharmacol Biol Psychiatry* 35(2):501-509.

NEW Beta Product

PACAP-SAP

targets cells expressing VPAC1, VPAC2, or PAC1 receptors

Pituitary adenylate cyclase-activating polypeptide (PACAP) is involved in a wide range of nervous system functions including development, differentiation, stress responses, and various aspects of learning and memory. PACAP binds with high affinity to PAC1, VPAC1 and VPAC2 receptors.

Beta Products have not been characterized or reported in scientific literature. This provides researchers with special Beta-pricing and the opportunity to be the first to publish using the material. The researcher who first publishes data will receive a $500 credit for use on ATS products.

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