

**GAT1-SAP**
TARGETED SAP CONJUGATE

*a tool for eliminating cells that express GABA-1 transporter in multiple species;
targeted via an affinity-purified rabbit polyclonal antibody against a GAT-1 peptide sequence, eliminated via
saporin*

Catalog Number: IT-32
Quantity: 25 micrograms, 100 micrograms, 250 micrograms, 1 milligram
Format: PBS (0.14 M Sodium Chloride; 0.003 M Potassium Chloride; 0.002 M Potassium Phosphate; 0.01 M Sodium Phosphate; pH 7.4), no preservative. Sterile-filtered.
Host: Rabbit

Background: Targeted SAP conjugates are powerful and specific lesioning agents used in the technique known as Molecular Surgery. The ribosome-inactivating protein, saporin (from the seeds of the plant, *Saponaria officinalis*) is bound to a targeting agent (anything that is recognized on the cell surface and internalized). The targeted conjugate is administered to cells (*in vitro* or *in vivo*). The targeting agent seeks out and binds to its target on the cell surface. The conjugate is internalized, saporin breaks away from the targeting agent, and inactivates the ribosomes which causes protein inhibition and, ultimately, cell death. Cells that do not have the cell surface marker are not affected.

GAT-1 is a sodium-coupled neurotransmitter transporter responsible for moving γ -aminobutyric acid (GABA) across cell membranes. GABA is the predominant inhibitory neurotransmitter in the mammalian central nervous system. GAT-1 is widely distributed in both the central and peripheral nervous systems. GAT-1 and GABA are present in numerous neuronal pathways, some of which are implicated in epilepsy, sleep disorders, neuropathic pain, and attention deficit disorders. GAT1-SAP recognizes cells that express the GABA-1 transporter, GAT-1 in rat. The peptide used as an antigen has 100% sequence homology between rat, human, mouse, and bovine GAT-1.

Specificity & Preparation: This targeted toxin recognizes cells that express the GABA-1 transporter, GAT-1. GAT1-SAP is a chemical conjugate of an affinity-purified rabbit polyclonal antibody against a GAT-1 peptide sequence and the ribosome-inactivating protein, saporin. This reagent has been tested in rat. The peptide used as an antigen has 100% sequence homology between rat, human, mouse, and bovine GAT-1.

Usage: GAT1-SAP specifically eliminates cells expressing GAT-1. All other cells are left untouched. It is useful in retrograde transport (see Wiley *et al*, 1989). **There may be lot-to-lot variation in material; working dilutions must be determined by end user. If this is a new lot, you must assess the proper working dilution before beginning a full experimental protocol.**

Storage: Gently spin down material 5-10 seconds in a microfuge before use. Store the material in undiluted aliquots at -20°C for 1-2 months. For longer term storage store the material at -80°C . Material should be aliquoted to a convenient volume and quantity to avoid repeated freezing and thawing that can damage the protein content. Under these conditions, the material has a very stable shelf-life. Thawing should be done at room temperature or on ice. The thawed solution should remain on ice until use. The material can be handled safely using normal laboratory precautions.

Do not use a reducing agent (such as dithiothreitol, beta-mercaptoethanol or ascorbic acid) with this material. It will inactivate the toxin.

For disposal: autoclave, or expose to 0.2 M NaOH, materials that come into contact with the toxin.



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Selected References:

1. McAuley J., Pang K (2007) Effects of NBM lesions on selective attention in an interval timing task. *Soc Neurosci Mtg, San Diego CA*. Abstract #742.9.
2. Wiley RG, Stirpe F, Thorpe P, Oelmann TN (1989) Neuronotoxic effects of monoclonal anti-Thy 1 antibody (OX7) coupled to the ribosome inactivating protein, saporin, as studied by suicide transport experiments in the rat. *Brain Res* 505:44-54.

Scan to view all product references.

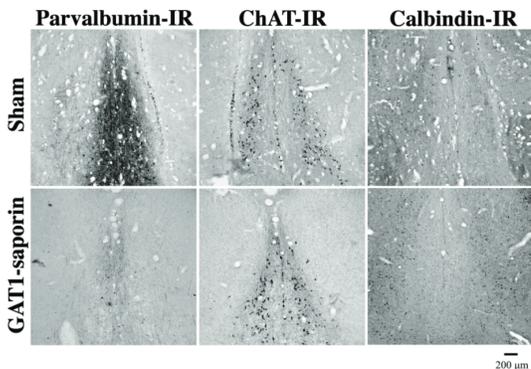
Control(s): Rabbit IgG-SAP

Safety:

Good laboratory technique must be employed for safe handling of this product. This requires observation of the following practices:

1. Wear appropriate laboratory attire, including lab coat, gloves and safety glasses.
2. Do not pipet by mouth, inhale, ingest or allow product to come into contact with open wounds. Wash thoroughly any part of the body which comes into contact with the product.
3. Avoid accidental autoinjection by exercising extreme care when handling in conjunction with any injection device.
4. This product is intended for research use by qualified personnel only. It is not intended for use in humans or as a diagnostic agent. Advanced Targeting Systems is not liable for any damages resulting from the misuse or handling of this product.

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Immunocytochemistry following sham surgery (top row) or administration of GAT1-saporin (bottom row, 325 ng/μl) into the medial septum-diagonal band of Broca (MSDB). Staining of parvalbumin-immunoreactive neurons in the MSDB was dramatically reduced following GAT1-saporin (left). Parvalbumin-ir neurons in the MSDB are GABAergic septohippocampal neurons. In contrast to parvalbumin-ir neurons, neither cholinergic neurons (ChAT-ir, middle) nor calbindin-ir neurons (right) were altered following GAT1-saporin in the MSDB. Scale bar - 200 μm.