ADVANCED TARGETING SYSTEMS

6352 CORTE DEL ABETO, STE B
CARLSBAD, CA 92011 USA
01.858.642.1988 • WWW.ATSBIO.COM

PACAP-SAP

TARGETED SAP CONJUGATE

pituitary adenylate cyclase activating peptide-saporin

Catalog Number: IT-84
Quantity: 25 micrograms
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.

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.
Pituitary adenylate cyclase-activating polypeptide (PACAP) is a 38 amino acid neurotrophic factor that 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. The PACAP-specific PAC1 receptor is expressed in many places, including: the adrenal medulla, pancreatic acini, uterus, myenteric plexus, trigeminal ganglia, otic ganglia, superior cervical ganglia (pre junctional) and cerebral arteries (post junctional). PAC1 has also been shown to be expressed by non-squamous lung cancer and breast cancer cell lines, and plays a role in the regulation of growth and proliferation of these cells. VPAC receptors display comparable affinity for vasoactive intestinal peptide (VIP) and PACAP. The VPAC receptors are expressed in the central nervous system, pancreas, skeletal muscle, heart, kidney, adipose tissue, testis and stomach. PACAP-SAP eliminates cells that express PAC1, VPAC1, or VPAC2 receptors. PACAP-SAP can be used as an effective tool in your research to study the effects of the absence of these cells in circadian rhythm, heart failure, various aspects of the digestive system, neurological disorders such as PTSD, and paracrine and autocrine regulation of certain cell types.

Specificity and Preparation:
This targeted toxin recognizes cells that express VPAC1, VPAC2, or PAC1 receptors. PACAP-SAP is a bonded toxin between biotinylated pituitary adenylate cyclase activating peptide and the secondary conjugate Streptavidin-ZAP (IT-27) containing the ribosome-inactivating protein, saporin.

Usage and Storage:
PACAP-SAP eliminates cells expressing VPAC1, VPAC2, or PAC1 receptors. All other cells are left untouched. **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.**
Gently spin down material before use; 5-10 seconds in a microfuge should be adequate. Store the material in undiluted aliquots at –20°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.
Do not use a reducing agent (such as dithiothreitol, beta-mercaptoethanol or ascorbic acid) with this material. It will inactivate the toxin.
This material is an extremely potent cytotoxin. Handling should be done by experienced personnel. Gloves and safety glasses are required when handling this product. Care in disposal is mandatory; autoclaving or exposure to 0.2 M sodium hydroxide will inactivate the material. All labware that comes into contact with this material should be likewise treated.

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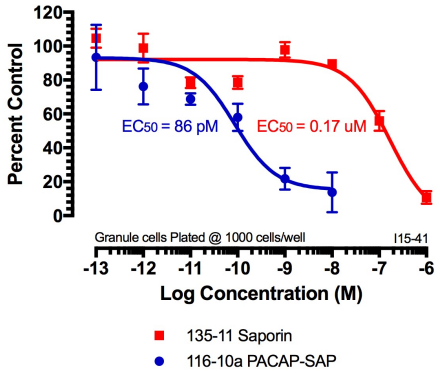
Available Control(s): Blank-Streptavidin-SAP

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.

To view protocol(s) for this and other products please visit: www.ATSbio.com/support/protocols



Rat cerebellar granule neuron primary cells are plated at 1000 cells/well and incubate overnight. PACAP-SAP and Saporin are then added in 10 ul volumes and the plates incubate for additional 72 hours. XTT/PMS mixture is added in 50 ul volumes to each well and plates are read at 450 nm. Data analysis done with Prism software (GraphPad, San Diego).