ADVANCED TARGETING SYSTEMS

10451 ROSELLE STREET, #300, SAN DIEGO, CA 92121
TELEPHONE (858) 642-1988 • FAX (858) 642-1989
WWW.ATSBIO.COM • ATS@ATSBIO.COM

Orexin-B-SAP

TARGETED SAP CONJUGATE

Rat/Mouse sequence of the Orexin-B peptide-saporin

Catalog Number: IT-20
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.
The orexin 1 and orexin 2 receptors are found in the perifornical area/latero-posterior hypothalamus, and projections from this area cover much of the brain. These receptors have been implicated in various neurophysiological and neuropsychological disorders such as narcolepsy, insomnia, drug addiction, anxiety, and migraine headaches. The orexin-B-SAP conjugate consists of the rat/mouse orexin-B peptide conjugated to saporin. Orexin-B binds to the orexin-2 receptor with approximately 5X greater affinity than to the orexin-1 receptor.

Specificity and Preparation:
This targeted toxin recognizes cells that express the orexin 2 receptor. Orexin-B-SAP is a bonded toxin between orexin-B and the ribosome-inactivating protein, saporin.

Usage and Storage:
Orexin-B-SAP eliminates cells expressing the orexin 2 receptor. 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-SAP

References:

1. Schwartz MD, Nguyen AT, Warrier DR, Palmerston JB, Thomas AM, Morairty SR, Neylan TC, Kilduff TS. (2016) Locus Coeruleus and Tuberomammillary Nuclei Ablations Attenuate Hypocretin/Orexin Antagonist-Mediated REM Sleep. *eNeuro* 3(2).

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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