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SP-CTA
(Substance P-Cholera Toxin A)
TARGETED TOXIN

Catalog Number: IT-39
Quantity: 25 micrograms, 100 micrograms, 250 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 toxins are powerful and specific lesioning agents used in the technique known as Molecular Surgery. As an alternative, the ability to stimulate neurons selectively can be just as powerful a tool. The catalytic A subunit of cholera toxin (CTA) is bound to a targeting agent (anything that is recognized on the cell surface and internalized). The targeted conjugate is administered to the cells (*in vitro* or *in vivo*). The targeting agent seeks out and binds to its target on the cell surface. The conjugate is internalized, CTA breaks away from the targeting agent, and activates the cAMP pathway within the cells by ribosylating adenylate cyclase. Cells which do not have the cell surface marker are not affected.

Specificity and Preparation:

This targeted toxin (molecular weight 30 kDa) recognizes cells substance-P receptor-expressing cells. SP-CTA is a chemical conjugate of the neuropeptide substance P and the catalytic A subunit of cholera toxin. This product is routinely tested by immunocytochemistry.

Usage and Storage:

SP-CTA stimulates cells expressing the substance P receptor. All other cells are left untouched. There may be a lot-to-lot variation in material; working dilutions must be determined by end user.

Centrifuge material at low speed in microfuge to ensure all of solution is at bottom of tube. Vortex gently. The material should be stored at -20°C in undiluted aliquots. Material should be aliquoted to a convenient volume and quantity to avoid repeated freezing and thawing that can damage the protein content. Thawing should be done at room temperature or on ice. The thawed solution should remain on ice until use.

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.

References:

1. Caudle, RM (2007) Sensitization of spinal cord nociceptive neurons with a conjugate of substance P and cholera toxin. *BMC Neuroscience* 8:30.

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.