Advanced Targeting Systems

1930 KELLOGG AVENUE
CARLSBAD, CA 92008 USA
01.858.642.1988 • WWW.ATSBIO.COM

Alkyne-ZAP

ZAP CONJUGATE

[alkyne group]-saporin

Catalog Number: BETA-052
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.
Host: Goat

Background: Saporin containing a terminal alkyne group can be combined with an azido-containing molecule in a click chemistry reaction. Click chemistry describes a class of chemical reactions that uses bio-orthogonal or biologically unique moities to label and detect a molecule of interest using a two-step procedure. The two-step click reaction involves a copper-catalyzed triazole formation from an azide and an alkyne. The azide and alkyne moieties can be used interchangeably; either one can be used to tag the molecule of interest, while the other is used for subsequent detection. The azides and alkynes are biologically unique, stable, and extremely small.

Click chemistry can be used when methods such as direct labeling or the use of antibodies are not applicable or efficient. The click chemistry label is small enough that tagged molecules (e.g., nucleotides, sugars, and amino acids) are acceptable substrates for the enzymes that assemble these building blocks into biopolymers. The small size of click detection molecules allows them to easily penetrate complex samples, including intact, supercoiled DNA, with only mild permeabilization required.

The characteristics of click reactions include:

• Efficiency—the reaction between the detection moieties is complete in less than 1 hour and does not require extreme temperatures or solvents.
• Stability—the reaction product contains an irreversible, covalent bond.
• Biologically inert—the components of the reaction do not undergo any side reactions.
• Specificity—the reaction between the label and detection tag is selective and specific.

The click chemistry-labeled molecules can be applied to complex biological samples and easily detected with high sensitivity and low background, unlike traditional chemical reactions that use succinimidyl esters or maleimides that target amines and sulfhydryls, which are not unique functional groups.

Specificity & Preparation: This targeted toxin recognizes molecules containing a free azido group. Alkyne-ZAP is a terminal alkyne group and the ribosome-inactivating protein, saporin.

Usage: Alkyne-ZAP eliminates molecules containing a free azido group. All other cells are left untouched. It is not suitable for retrograde transport. **There may be lot-to-lot variation in material; working dilutions must be determined by the end user. End users 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. 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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Scan to view all product references.

Control(s): Blank-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.