Oligonucleotide BSA Conjugation Kit

Catalog Number: NA2034

For Research Use Only. Not for use in Diagnostic Procedures.

1. Intended Use

This kit provides a rapid, simple, and reliable method for producing oligonucleotide-BSA conjugates, which have a wide range of applications. For instance, these conjugates can be applied to nitrocellulose strips for detecting specific nucleotide sequences in samples or used in 96-well ELISA plates to capture target sequences. It can be used with any RNA or DNA oligonucleotides containing a primary amino group. The Oligonucleotide-BSA Conjugation Kit includes all the necessary materials for efficient and easy conjugate preparation.

2. Introduction

Oligonucleotide BSA conjugates have many useful applications in the capture and detection of target nucleotide sequences. Traditionally the production of these conjugates requires time consuming and laborious synthesis procedures. This kit provides preactivated materials for an efficient, simplified conjugation process. This kit provides materials to couple BSA to oligonucleotides containing a primary amino group. The amino group can be added to DNA or RNA oligonucleotides at the 5' end, the 3′ end, or at internal positions during chemical synthesis. The kit contains sufficient materials to produce four conjugates. The efficient procedure creates products that are ready to use for a number of important applications.

Oligonucleotide-BSA conjugates are valuable tools for capturing and detecting specific nucleotide sequences. Traditionally, producing these conjugates involves time-consuming and complex synthetic procedure. This kit streamlines the process by providing preactivated materials for efficient and simplified conjugation. It enables the coupling of BSA to oligonucleotides that contain a primary amino group, which can be introduced at the 5′ end, 3′ end, or internally during chemical synthesis of DNA or RNA. The kit includes enough reagents to prepare four conjugates, and the resulting products are ready to use in a variety of important applications.

The procedure uses stable, preactivated-BSA (NHS-BSA) to attach the amine oligonucleotides. The NHS-BSA is supplied in lyophilized form in single use vials. The user first dissolves the contents of the vial in Activation Buffer. After adding the oligonucleotide, the reaction mixture is incubated for

one hour at room temperature.

3. Kit Contents

Component Name	Quantity	Storage
Activated BSA (NHS-BSA)	4 vials	-20 °C
Activation Buffer	1.4 ml	-20 °C
Instruction booklet	1	--

4. Storage and Stability

- The kit should be stored at -20 °C until use.

5. Required Materials Not Supplied

- Nuclease-free water
- Nuclease-free 1.5mL microcentrifuge tubes and pipet tips
- DNA or RNA oligonucleotides containing a primary amino group.

6. Precautions

- Dissolve oligonucleotides in nuclease free water. Avoid Tris or other amine-containing buffers or salts.
- The lyophilized NHS-BSA is stable for extended periods in the refrigerator. After reconstitution with buffer, the activated NHS-BSA solution should be used right away.
- 40 nanomoles of oligonucleotide are used for each reaction. Ensure that the DNA/RNA synthesis scale is adequate to produce at least 60 nanomoles of oligonucleotide.

8. Procedure

Step 1. Dissolve amine-containing oligonucleotides to a concentration of 200 µM (200 picomoles/µl) in nuclease-free water.

Step 2. Dissolve contents of one vial in 100 µl of Activation Buffer. Immediately proceed to Step 3.

Step 3. Add 300 µl of 200 µM oligonucleotide to the vial. Mix gently.

Step 4. Incubate 90 minutes at room temperature. The conjugate can be used right away or frozen for later use.

9. Trouble Shooting

Problem: Low Conjugation Efficiency

Possible Causes:	Solutions:
Reaction contained primary amines	Use nuclease-free pipets to transfer liquids and ultrapure water to dissolve oligonucleotide.
Activated BSA was degraded.	Use the reagent immediately upon reconstitution.
Insufficient incubation period	Increase reaction time.
Degradation of oligonucleotide	Use nuclease-free ultrapure water to dissolve oligonucleotide and immediately freeze unused portion to prevent degradation.