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5'-TFA-AMINO-MODIFIERS

INTRODUCTION

5'-Amino-Modifiers are designed for use in automated synthesizers to functionalize the 5'-terminus of a target oligonucleotide. The primary amine can be used to attach a variety of products to the oligonucleotide. The shorter carbon chain linkers may be used to attach compounds where proximity to the oligonucleotide poses no problem. The TFA-protected Amino-Modifiers are used when there is no need to purify the derived amino-modified oligonucleotide.

USE OF 5'-AMINO-MODIFIERS

Diluent: Anhydrous Acetonitrile

Add fresh diluent to product vial to recommended concentration and swirl vial occasionally over several minutes until product is completely dissolved. (Some oils may require between 5 and 10 minutes.) Use care to maintain anhydrous conditions. In case of transfer to alternate vial type, ensure recipient vial has been pre-dried. For more information, see:

http://www.glenresearch.com/Technical/TB_ABITransfer.pdf.

Coupling: No changes needed from standard method recommended by synthesizer manufacturer.

Deprotection: No changes needed from standard method recommended by synthesizer manufacturer.

Storage: Freezer storage, -10 to -30°C, dry

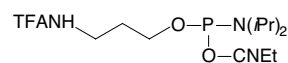
Stability in Solution: 2-3 days

DEPROTECTION

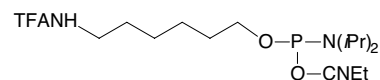
The trifluoroacetyl amino (TFA) group is base labile and thus is removed during deprotection leaving the 5'-amine.

Note: The greatest labeling efficiency of the resulting amino-modified oligonucleotide will be obtained by minimizing amine cyanoethylation and transamidation as follows:

FIGURE 1: STRUCTURES OF 5'-TFA-AMINO-MODIFIERS



10-1913: 5'-Amino-Modifier C3-TFA



10-1916: 5'-Amino-Modifier C6-TFA

Cyanoethylation:

First treat the newly synthesized oligo with 10% diethylamine (DEA) in acetonitrile while still on the support. A simple 5 minute treatment with 1 mL of 10% DEA in acetonitrile, followed by a rinse with acetonitrile will remove all acrylonitrile.

Transamidation:

The oligo is then cleaved and deprotected using ammonium hydroxide/methylamine in UltraFast conditions which minimizes transamidation. For more information, see:

http://www.glenresearch.com//Technical/TB_avoidaminealkylation.html

PURIFICATION

The primary amino group of the crude amino-modified oligonucleotide may be reacted with a labelling compound prior to purification. The labelled product is then purified using RP HPLC.