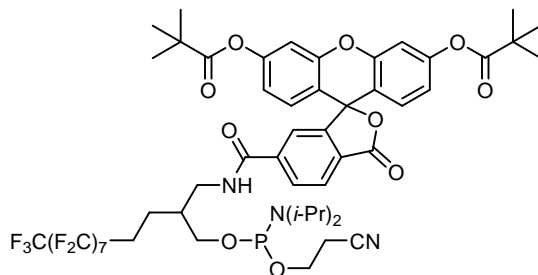


Fluorous 5'-fluorescein CEP
Product No. FL 1710
Product Information



$C_{53}H_{55}F_{17}N_3O_{10}P$
Mol. Wt.: 1247.96

Useful for the introduction of fluorescein and a permanently-attached fluorous tail which allows the isolation of all oligonucleotides that bear the fluorescein moiety.

Introduction. Highly fluorinated organic compounds are both hydrophobic and lipophobic, preferring instead to associate with other fluorinated substances. Organic molecules that have both an organic domain and a perfluoroalkyl domain (e.g., a linear perfluoroalkyl "ponytail") are known as *fluorous molecules*,¹ (not to be confused with *fluorescent* molecules!) and may be separated from non-fluorous molecules by interaction with fluorinated separation media such as Fluoro-Pak columns.^{2,3} Fluorous-fluorous interactions are strong and selective ("like dissolves like").

We have previously introduced Fluorous Affinity Purification of Oligonucleotides, a higher affinity alternative to DMT-on reversed-phase cartridge purification.² It relies on the strong interaction of fluorous-tagged oligonucleotides with the fluorous adsorbent in Fluoro-Pak columns. The fluorous tag took the form of a fluorous dimethoxytrityl (FDMT) group, which was installed using the appropriate FDMT-bearing nucleoside phosphoramidite. After fluorous purification on Fluoro-Pak columns with on-column detritylation, high recoveries of oligonucleotides were obtained, free from failure sequences, even with 100-mers.² The FDMT group also facilitates RP-HPLC purification.⁴

Dyes such as fluorescein are often introduced into oligonucleotides using a non-DMT-bearing phosphoramidite such as 5'-Fluorescein CEP ("6-FAM", BA 0054), which places a 6-carboxyfluorescein residue at the 5'-terminus and does not allow further extension. We now offer Fluorous 5'-fluorescein CEP ("Fluorous 6-FAM", FL 1710), where a permanently-attached fluorous tail is present, allowing the isolation of all oligonucleotides that bear a fluorescein moiety using fluorous or reversed-phase adsorbents. The fluorous tail may also enhance contact quenching with hydrophobic quenchers, especially those that have fluorous tails.

Using Fluorous 5'-Fluorescein CEP: For oligonucleotide synthesis, the phosphoramidite should be diluted with dry acetonitrile at concentrations recommended by the synthesizer manufacturer. In our hands, standard coupling times were not sufficient, but ~90% yield could be obtained with extended coupling (i.e. 15 min).

Note: Fluorous 5'-fluorescein CEP (FL 1710) is from our Experimental Grab Bag. The compounds in this unique collection have met all Berry and Associates' purity standards, but have not been validated for any particular purpose. We hope that you may find them interesting for your research.

Literature:

(1) *Handbook of Fluorous Chemistry*; Gladysz, J. A.; Curran, D. P.; Horváth, I. T., Eds.; Wiley-VCH: Weinheim, **2004**.

(2) Pearson, W. H.; Berry, D. A.; Stoy, P.; Jung, K.-Y.; Sercel, A. D. *J. Org. Chem.* **2005**, *70*, 7114-7122.

(3) Fluoro-Pak is a trademark of Berry & Associates, Inc. Products for fluorous affinity purification and fluorous tagging of oligonucleotides are subject to patent applications filed by Berry & Associates, Inc. Further, the use of these products is licensed under U.S. Patents 6,673,539, 6,156,896; 5,859,247; and 5,777,121 and one or more pending patents owned or controlled by Fluorous Technologies, Inc.

(4) Fluorous-tagged oligonucleotides are highly retained on both fluorous and traditional reversed-phase adsorbents, allowing easy separation from non-fluorous-tagged oligos and by-products.