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DusQ 1 amidite, 5'-terminal

http://www.lumiprobe.com/p/dusq1-amidite-terminal

DusQ® 1 is a fluorescence quencher with the most effective absorption in the range of 480–580 nm, the maximum absorption is at 522 nm.

As it was demonstrated for a complete analogue of this quencher, both dynamic (FRET) and static fluorescence quenching can be described [1-2]. For this reason, DusQ 1 can be used in hybridization probes such as TaqMan, Molecular Beacon, Scorpion to quench the fluorescence of a wide range of fluorophores including FAM, JOE, VIC, R6G, HEX, TET.

The use of nonfluorescent quenchers as FRET pair acceptors has many advantages compared to the use of fluorophores as quenchers. As part of the probe, the DusQ 1 chromophore more efficiently absorbs the fluorescence of the FRET-pair donor, which makes it possible to significantly reduce the background fluorescence of the probe and, thus, increase the signal-to-noise ratio and increase the dynamic range of the signal.

Probes based on DusQ 1 are conveniently used in multiplex analysis, since this quencher, unlike fluorescent FRET acceptors, does not possess its own fluorescence and does not «occupy» the detecting channels available to the researcher.

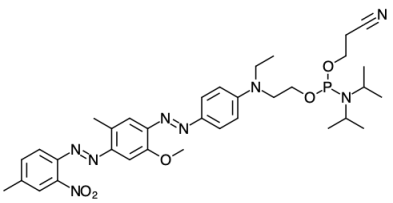
Usage

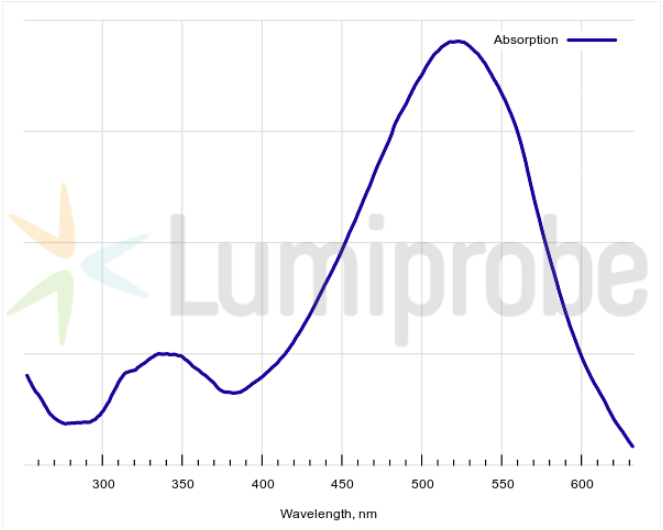
Coupling: 4 minutes

Deprotection: 2 hours at room temperature using concentrated ammonia or 10 min at 65 °C using AMA mixture, concentrated aqueous ammonia/40% methylamine (1:1).

[1] Johansson MK, Fidder H, Dick D, Cook RM. Intramolecular dimers: a new strategy to fluorescence quenching in dual-labeled oligonucleotide probes. J Am Chem Soc. 2002 Jun 19;124(24):6950-6. doi: 10.1021/ja025678o. PMID: 12059218.

[2] Johansson MK. Choosing reporter-quencher pairs for efficient quenching through formation of intramolecular dimers. Methods Mol Biol. 2006;335:17-29. doi: 10.1385/1-59745-069-3:17. PMID: 16785617.





Absorption spectrum of DusQ 1

General properties

Appearance:	dark colored solid
Molecular weight:	676.75
Molecular formula:	$C_{34}H_{45}N_8O_5P$

Solubility:	good in acetonitrile
Quality control:	NMR ^{1}H, ^{31}P, HPLC-MS (95%), coupling test
Storage conditions:	Storage: 12 months after receival at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Avoid prolonged exposure to light. Desiccate.
Legal statement:	This Product is offered and sold for research purposes only. It has not been tested for safety and efficacy in food, drug, medical device, cosmetic, commercial or any other use. Supply does not express or imply authorization to use for any other purpose, including, without limitation, in vitro diagnostic purposes, in the manufacture of food or pharmaceutical products, in medical devices or in cosmetic products.

Spectral properties

Excitation/absorption maximum, nm:	522
ε, $L \cdot mol^{-1} \cdot cm^{-1}$:	27300
CF_{260}:	0.17
CF_{280}:	0.10

Oligo synthesis details

Diluent:	dry acetonitrile (dissolve to a concentration of 0.1 M, storage of the ready-made solution - 3 days).