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SIMA phosphoramidite, 6-isomer

http://www.lumiprobe.com/p/sima-phosphoramidite-6

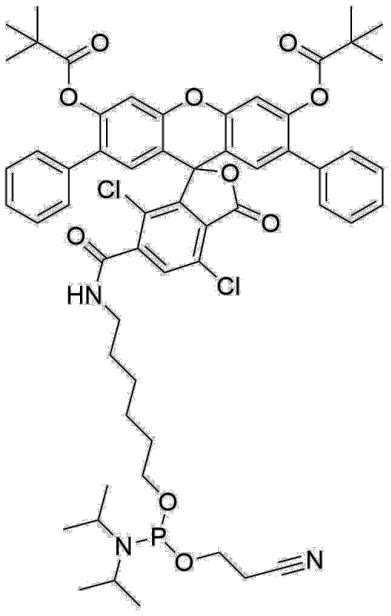
SIMA (dichloro-diphenyl-fluorescein) is a xanthene dye with spectral characteristics similar to those of HEX but with a higher quantum yield. SIMA has higher stability during deprotection under alkaline conditions, so deprotection can be run with aqueous ammonium hydroxide at higher temperatures or with AMA (1:1 mixture, concentrated aqueous ammonium hydroxide/40% aqueous methylamine) at room temperature for 2 h or 65°C for 10 min. When used for deprotection with aqueous ammonium hydroxide at 55°C overnight, oligonucleotide-bound SIMA does not degrade, while with HEX the fluorophore degrades by at least 10%.

SIMA phosphoramidite is used in oligonucleotide synthesis to produce fluorescently labeled primers and hybridization probes for quantitative PCR.

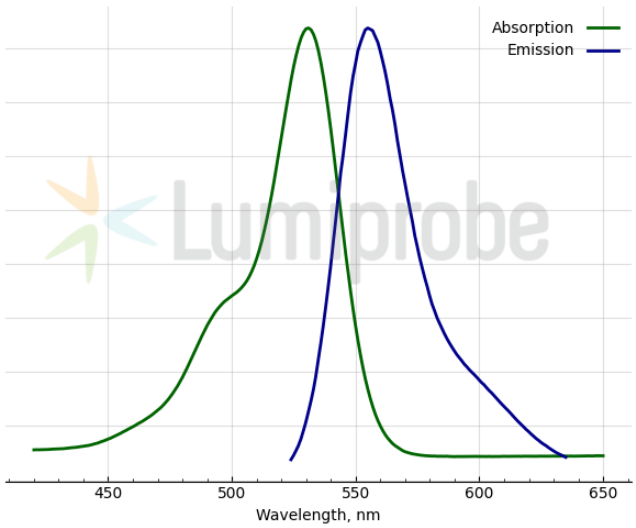
Recommendations for using the reagent:

Coupling: 3 min.

Deprotection: Standard conditions with 25% ammonium hydroxide; deprotection time depends on the composition of nucleic acids and their protective groups. AMA (1:1 mixture of concentrated aqueous ammonium hydroxide / 40% aqueous methylamine) can be used for 2 hours at room temperature or 10 min at 65°C.



Structure of SIMA phosphoramidite, 6-isomer



Absorption and emission spectra of SIMA

General properties

Appearance:	white powder
Mass spec M+ increment:	757.1
Molecular weight:	1065.02
CAS number:	1411797-05-1
Molecular formula:	$C_{58}H_{64}N_3Cl_2O_{10}P$
Solubility:	Good solubility in acetonitrile and DCM
Quality control:	NMR ^{1}H and ^{31}P, HPLC-MS (95%)
Storage conditions:	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.

Spectral properties

Excitation/absorption maximum, nm:	531
ε, $L \cdot mol^{-1} \cdot cm^{-1}$:	92300
Emission maximum, nm:	555
Fluorescence quantum yield:	0.63
CF_{260}:	0.57
CF_{280}:	0.18

Oligo synthesis details

Diluent:	Anhydrous Acetonitrile
Coupling conditions:	3 minute coupling time recommended
Deprotection conditions:	identical to protected nucleobases