

TAMRA phosphoramidite, 5-isomer

<http://www.lumiprobe.com/p/tamra-phosphoramidite-5>

This phosphoramidite is used for synthesis of oligonucleotides 5'-labeled with TAMRA.

TAMRA (carboxytetramethylrhodamine) is a xanthene dye from the rhodamine family with emission in the orange spectrum range (maximum at 563 nm). This fluorophore is traditionally used as a FRET-acceptor (and a quencher) in a pair with fluorescein (FAM) due to significant overlapping of their spectra. Thus, this phosphoramidite is convenient for the synthesis of dual-labeled probes TaqMan, which contain 5'-terminal TAMRA and FAM in the middle of the sequence or at the 3'-end (using [Fluorescein dT Phosphoramidite](#) and [FAM CPG](#), respectively).

TAMRA 5'-labeled oligonucleotides are commonly used for quantitative PCR and fragment analysis (for example, for microsatellite marker analysis) because the equipment available has a detection channel for TAMRA frequently.

The TAMRA dye is not stable in the presence of ammonium and sterically non-hindered primary amines, so it is strongly recommended to follow specified conditions for labeled oligonucleotide deprotection.

Usage

Coupling: 7.5 min.

Deprotection: tert-butylamine : methanol : water 1 : 1 : 3 (v/v/v) («TAMRA cocktail») for 6 hours at 60 °C, then cool down to room temperature.

Due to complete and irreversible degradation of the TAMRA dye, do NOT use aqueous ammonium and AMA for deprotecting a modified oligonucleotide from the solid-phase support.



Structure of TAMRA phosphoramidite, 5-isomer



Absorption and emission spectra of 5-TAMRA

General properties

Appearance:	purple solid
Molecular weight:	727.83
Molecular formula:	C ₄₀ H ₅₀ N ₅ O ₆ P
Solubility:	good in acetonitrile, dichloromethane
Quality control:	NMR ¹ H, HPLC-MS (95%), coupling test
Storage conditions:	Storage: 12 months after receipt 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:	541
ε, L·mol ⁻¹ ·cm ⁻¹ :	84000
Emission maximum, nm:	567
CF ₂₆₀ :	0.32
CF ₂₈₀ :	0.19

Oligo synthesis details

Diluent:	acetonitrile
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