

TO1-3PEG-Biotin Fluorophore

Catalog
TBS6106

Unit
100 uL

Description

RNA Mango technology is based on the specific binding of the RNA Mango Aptamer and a Thizole Orange (TO) bi-functional dye. Features of this technology are the tight binding between the dye and aptamer ($KD \approx 3nM$), and the strong $\sim 1000X$ enhancement of the dye's fluorescence when bound to the Mango aptamer (Fluorescent enhancement $FE=1,100$). The TO dye has a number of other desirable properties including:

- small size
- lack of toxicity
- plasma and nuclear membrane permeability
- short intracellular half-life
- the accessibility of a broad wavelength range simply via substitutions and alterations to the TO structure

TO1-biotin is the standard variety of TO dye for in vitro and in vivo RNA Mango and RNA Peach experiments.

Component

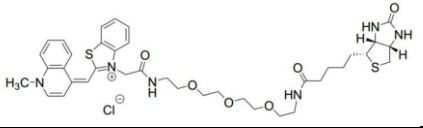
Product	Quantity
TO1-3PEG-Biotin Fluorophore	250 μM (100 μl)

Store at $-20^{\circ}C$. Protect from light.

Applications

Application	Recommended Final Concentration of RNA Mango Dye
In Vitro Fluorescence Assays	100 nM – 200 nM
In Vivo Cellular Imaging	100 nM – 200 nM
In Vitro Transcription (IVT) and RNA Purification	50 nM – 200 nM
FRET Assay	50 nM – 500 nM

Product Specifications

Structure	
Molecular Mass	749.3150
Formula	$C_{38}H_{49}N_6O_6S_2^+$
Purity	>95% (by HPLC)
Form	Liquid, in DMF
Solubility	DMF, DMSO, 10% Acetonitrile or MeOH- CH_2-Cl_2
Shelf Life	Three (3) months from receipt.
General Notes	Do not store in water. May break down in water.

Properties of the Fluorophore-Aptamer Complex

Quantum Yield for the Mango I Complex	$\Phi_{bound} = 0.14$
Binding Affinity to Mango I Aptamer	3 nM (KCL required)
Fluorescent Enhancement when Bound to Mango I Aptamer	~ 1000
Extinction Coefficient when Bound to Mango I Aptamer	$\epsilon_{510} = 77,500 M^{-1}cm^{-1}$
Brightness when Bound to Mango I Aptamer	$B_{535} = 11,000 M^{-1}cm^{-1}$

Patent

US11434490B2

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