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TO1-3PEG-Biotin Fluorophore

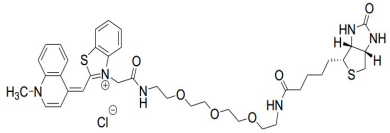
Fluorophore for the RNA Mango System

Cat. No.	Description	Quantity
G955	TO1-3PEG-Biotin Fluorophore	0.5 mg/ml (500 µl)

Description

TO1-3PEG-Biotin is a small bifunctional fluorophore that has very low unbound fluorescence. When bound to the Mango series of RNA aptamers it becomes 1000-fold brighter[1]. The bound fluorescent complex of Mango I and TO1-3PEG-Biotin has high specificity compared to other aptamer fluorophore systems such as Spinach[2,3]. TO1-3PEG-Biotin exhibits peak excitation maxima of 510 nm (with additional excitation when bound at 260 nm)and peak fluorescence emission of 535 nm when bound to Mango I.

Product Specifications

Structure	
Molecular Mass	749.3150
Formula	$C_{38}H_{49}N_6O_6S_2^+$
Purity	>95% (by HPLC)
Form	0.5 mg/ml in DMF
Solubility	DMF, DMSO, 10% Acetonitrile or MeOH-CH_2Cl_2
Storage	Store at -20°C. Protect from light.
Shelf life	1 year from date of shipment

Properties of the Fluorophore-Aptamer Complex

Quantum Yield for the Mango I complex	Φ_{bound} = 0.14
Binding Affinity to Mango I Aptamer	3 nM (KCl required)
Fluorescent Enhancement when Bound to Mango I Aptamer	~1000
Extinction coefficent when Bound to Mango I Aptamer	ε_{510} = 77,500 M^{-1} cm^{-1}
Brightness when Bound to Mango I Aptamer	B_{535} = 11,000 M^{-1} cm^{-1}

Patent Provisional Patent Application Number 62489346

References

1. Dolgosheina, E.V., and Unrau, P.J. (2016). Fluorophore-binding RNA aptamers and their applications: Fluorophore-binding RNA aptamers. Wiley Interdiscip. Rev. RNA. **2.** Jeng, S.C.Y., *et al.* (2016). Fluorophore ligand binding and complex stabilization of the RNA Mango and RNA Spinach aptamers. RNA 22, 1884–1892. **3.** Trachman III, R.J., *et al.* (2017). Structural basis for high-affinity fluorophore binding and activation by RNA Mango. Nat. Chem. Biol.13(7): 807-813.