Fluorescent dyes conjugated Tetrazine conjugates – for Click chemistry

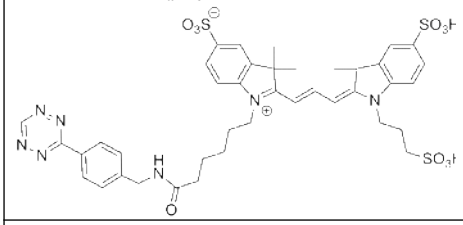
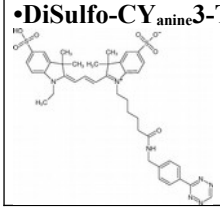
Products Description

CY_{anine}3/5/5.5/7 dyes are classic fluorescent dyes used in a variety of detection techniques. They are provided activated by **Tetrazine** functional group to perform easy conjugation of biomolecules (proteins, peptides, amino-modified DNAs and oligos).

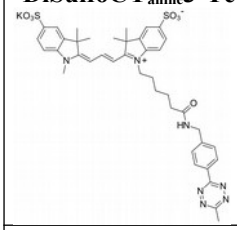
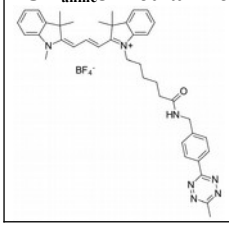
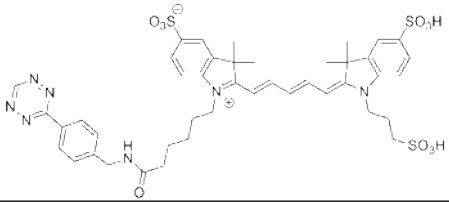
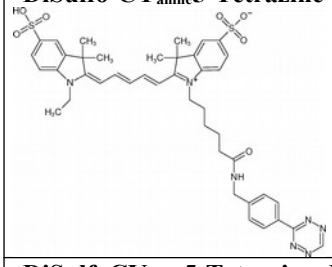
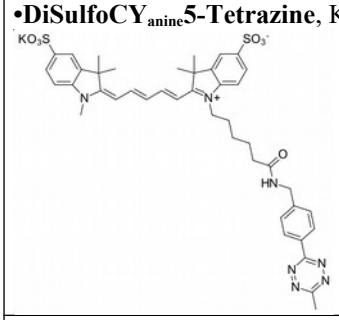
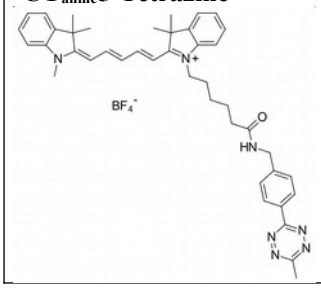
Tetrazines demonstrate exceptionally fast cycloaddition kinetics (up to 30 000 M^{-1} s^{-1}) with *trans*-cyclooctenes (TCO) as the dienophile, the fastest kinetics ever reported for any bioorthogonal reaction. In addition, inverse-Electron-Demand Diels-Alder reaction of tetrazines *trans*-cyclooctene forms a stable covalent bond and does not require Cu-catalyst or elevated temperatures. In applications such as in vivo cancer imaging or pre-targeted cell labeling studies where rapid reaction kinetics are desired, a faster hydrogen substituted CY_{anine} Tetrazine probe would be a probe of choice.
Actually, tetrazines react not only with trans-cyclooctenes, but also with (methyl)cyclopropenes and strained non-benzo-fused cycloalkynes.

Directions for use Scientific and technical information Related products

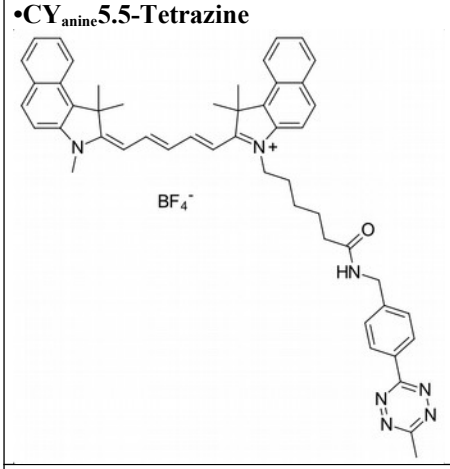
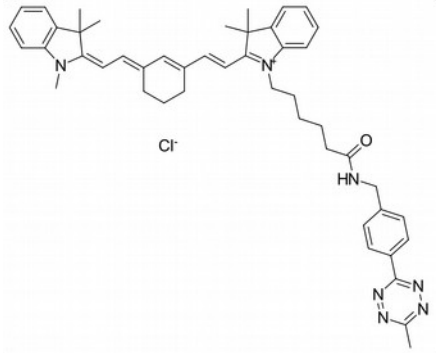
- **Tetrazine** *for conjugation to trans-cyclooctenes (TCO) modified biomolecules via Click Chemistry :*

Fluorescent dye conjugate	Cat.number	MW	$\lambda_{Abs./Em.}$ (nm)	EC	QY	Store
•TriSulfo-CY_{anine}3-Tetrazine 	FP-AW2NI0, 1mg Spectrally similar to AF555, A555, CF555, DL555 Soluble in Water, DMSO, DMF	894.05	550/570 nm	150 000		(M)
•DiSulfo-CY_{anine}3-Tetrazine 	FP-WXS720, 0.5mg 3-(p-Benzylamino)-1,2,4,5-tetrazine - Cy3	799.96	550/570 nm	150 000		(J)

FT-WXS720

Fluorescent dye conjugate	Cat.number	MW	$\lambda_{Abs./Em.}$ (nm)	EC	QY	Store
•**DiSulfoCY$_{anine}$3-Tetrazine**, K salt 	FP-0B8300, 0.5mg MW:838.05 () A/E: 548/563 nm; EC:162 000; QY:0.1; CF_{260}: 0.03 ; CF_{280}: 0.06	838.05				(M)
•**CY$_{anine}$3-Tetrazine** 	FP-AW2ND0, 0.5mg MW:727.64 (611.4 M+ increment) A/E: 550/570 nm; EC:150 000; QY:0.31; CF_{260}: 0.04 ; CF_{280}: 0.09	727.64				(M)
•**TriSulfo-CY$_{anine}$5-Tetrazine** 	FP-AS4K70, 1mg Spectrally similar to AF647, A647, CF647, DL649 Soluble in Water, DMSO, DMF	919.27	649/670nm	250 000		(M)
•**DiSulfo-CY$_{anine}$5-Tetrazine** 	FP-0B1770, 0.5mg 3-(p-Benzylamino)-1,2,4,5-tetrazine – Cy5	826.00	649/670nm	250 000		(J)
•**DiSulfoCY$_{anine}$5-Tetrazine**, K salt 	FP-AW2NH0, 0.5mg MW:838.05 () A/E: 646/662 nm; EC:271 000; QY:0.28; CF_{260}: 0.04 ; CF_{280}: 0.04	838.05				(M)
•**CY$_{anine}$5-Tetrazine** 	FP-AW2NE0, 51mg MW:811.84 (637.4 M+ increment) A/E: 646/662 nm; EC:250 000; QY:0.2; CF_{260}: 0.03 ; CF_{280}: 0.04	811.84				(M)

FT-WXS720

Fluorescent dye conjugate	Cat.number	MW	$\lambda_{Abs./Em.}$ (nm)	EC	QY	Store
•Tri-Sulfo-CY$_{anine}$5.5-Tetrazine	Inquire					(M)
•DiSulfo-CY$_{anine}$5.5-Tetrazine	Inquire					(J)
•CY$_{anine}$5.5-Tetrazine 	FP-AW2NF0, 5mg MW:911.96 (734.4 M+ increment) A/E: 684/710 nm; EC:209 000; QY:0.2-; CF_{260}: 0.07; CF_{280}: 0.03	911.96	684/710	209 000		(M)
•Tri-Sulfo-CY$_{anine}$7-Tetrazine	Inquire					
•DiSulfo-CY$_{anine}$7-Tetrazine	Inquire					
•CY$_{anine}$7-Tetrazine 	FP-AW2NG0, 5mg MW:877.94 (703.4 M+ increment) A/E: 750/773 nm; EC:199 000; QY:-; CF_{260}: 0.022 ; CF_{280}: 0.029 C47H54N7F6OP					

Inquire for other size (1mg size(0), 25mg(2); bulk)

Technical information

Tetrazine – CYanin products can not be stored in solution.
Dissolve the product in methanol, split into aliquots of sufficient amounts for one experiment and dry the product e.g. with a speedvac. Dried aliquots can be stored at -20°C and freshly dissolved immediately before use e.g. with DMSO.

Information on fluorescent labels:

● **CY$_{anine}$3** (Cy3) can replace Fluoresceins, A546 and DyLight 549&550 dyes. Alternative superior dye is FluoProbes547H.
Cy3 is one of the most broadly used fluorophore which can be detected by various fluorometers, imagers, and microscopes with a wavelength range of 530-555 nm. Due to inherently high extinction coefficient, this dye is also easily detected by naked eye on gels, and in solution.

● **CY$_{anine}$5** (Cy5) can replace TMR, A647, DyLight649&650, CF647, C645A, PF647. Alternative superior dye is FluoProbes647H.
Cy5 is excited maximally at 650 nm to about 98% of maximum with a krypton/argon laser (647 nm line) or to about 63% of maximum with a helium/neon laser (633 nm line). It fluoresce maximally at 670 nm, that has a lower autofluorescence of biological specimens than shorter wavelenghts. Cy5 can be used with a variety of other fluorophores for multiple labeling due to a wide separation of its emission from that of shorter wavelength-emitting fluorophores. However, emission cannot be seen well by eye, and Cy5 cannot be excited optimally with a mercury lamp. Therefore, this dye is not recommended for use with conventional epifluorescence microscopes. It is most

commonly visualized with a confocal microscope equipped with an appropriate laser for excitation and a far-red detector. Cy5 and FP547H is less expensive and equally bright alternative to Allophycocyanin conjugates for flow cytometry.

Protocols

See the literature

Related / associated products and documents

*Other fluorescent reagents:
• Superior **FluoProbes** dyes, activated by –Azide (protocol), i.e. FP488-Azide #YE4970
• **CYanine Dyes** (Cy3, Cy5, Cy5.5, Cy7…), activated by NHS(BB7493) , Maleimide(JO6660), Azide(EV0910), Alkyne (A6320), Amine (CY3AM), Carboxyl(CY3CA), dCTP(ZD0210),…
• **Conventional dyes** activated by Azide, i.e. FAM-Azide FP-EV0920, TAMRA-Azide,…

*Other Click Chemistry reagents:
• DBCO reagents #DQP580
• Pentynoic acid activator ZL5530 to modify amine containing biomolecules with an alkyne residue
• Copper(II)-TBTA complex FY2780 to catalyse the conjugation reaction by click chemistry.
• Alkyne Amidite, 5'-terminal ZL5500
• Alkyne Amidite, hydroxyprolinol ZL5510

*See BioSciences Innovations catalogue and e-search tool.

Ordering information

Catalog size quantities and prices may be found at http://www.interchim.com.
Please inquire for higher quantities (availability, shipment conditions).

For any information, please ask : Uptima / Interchim; Hotline : +33(0)4 70 03 73 06

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