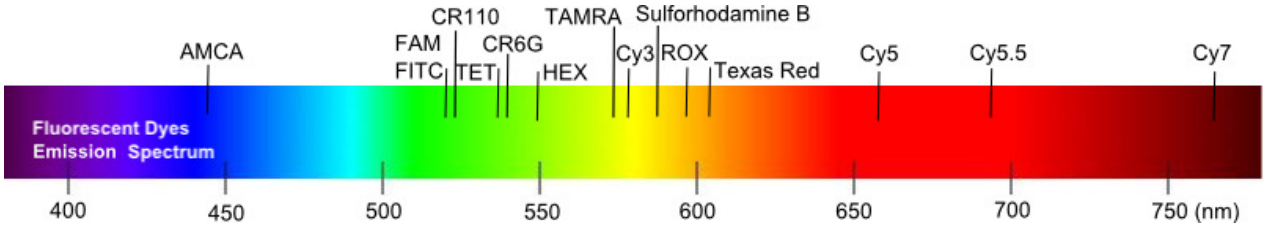
TENOVA PHARMACEUTICALS

NOVEMBER 2013

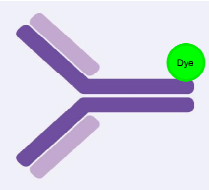
Fluorescent Labeling Reagents & Fluorescent Probes

Fluorescent Dyes and Fluorescent Probes:

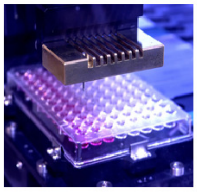
NIR Fluorescent Dyes **Click Chemistry Dyes** **Classic Fluorescent Dyes** **Fluorescent Labeled Peptides**



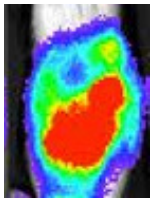
For Bioimaging Applications:



Protein Labeling

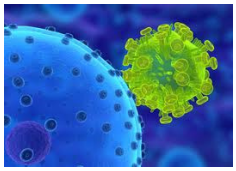


High-throughput Screening



In vivo Imaging

DNA Sequencing



Biosensing

Contents

Bioimaging Reagents from Tenova

At Tenova Pharmaceuticals, we strive to provide cost effective high quality products and services for biomedical research. The company is located in Sorrento Mesa area of San Diego, California. Current products include bioimaging reagents such as fluorescent labeling reagents and fluorescent probes:

Fluorescent Labeling Reagents:
- *NIR Fluorescent Dyes*
- *Click Chemistry Dyes*
- *Classic Fluorescent Dyes*

Fluorescent Probes
- *Fluorescent Labeled Peptides*
- *Fluorescent Labeled Small Molecules*

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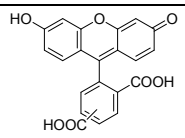
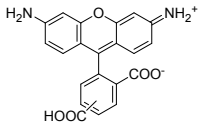
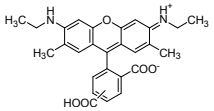
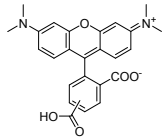
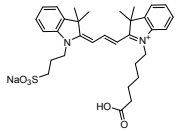
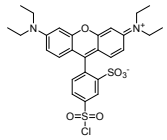
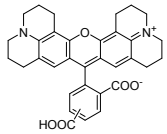
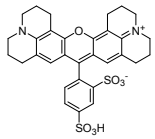
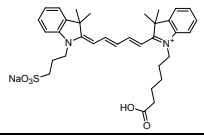
Classic Fluorescent Dyes: Structure and Properties

Listed below are some classic fluorescent dyes for labeling biomolecules:

Dye	Structure	Chemical Class	Ex(nm)	Em(nm)	solvent	Alterative Dyes
5(6)-FAM		Fluorescein	494	519	DMF	Alexa Fluro 488 Dylight 488
5(6)-CR110		Rhodamine	498	521	DMF	Alexa Fluro 488 Dylight 488
5(6)-CR6G		Rhodamine	519	544	DMSO	N/A
5(6)-TAMRA		Rhodamine	541	565	DMF	Alexa Fluro 546 Alexa Fluro 555 Dylight 550
Cy3 carboxylic acid		Cyanine	555	570	DMF	Alexa Fluro 546 Alexa Fluro 555 Dylight 550
Sulforhodamine B sulfonyl chloride		Sulforhodamine	568	584	DMF	Alexa Fluro 568
5(6)-ROX		Rhodamine	570	592	DMF	Alexa Fluro 568
Sulforhodamine 101 sulfonyl chloride (Texas Red)		Sulforhodamine	588	601	DMF	Alexa Fluro 594 Dylight 594
Cy5 carboxylic acid		Cyanine	645	665	DMF	Alexa Fluro 647 Dylight 650

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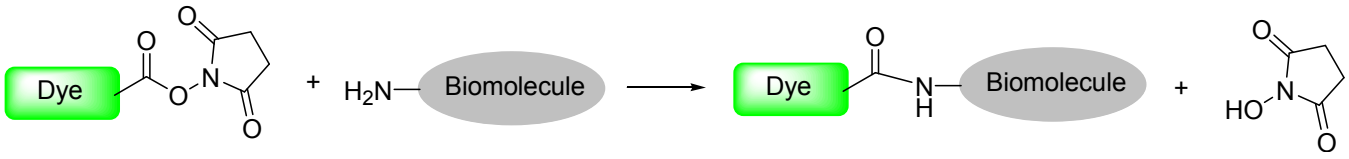
Amine Reactive Dyes: NHS Esters

Amine-reactive fluorescent dyes are widely used to modify amino acids, peptides, proteins (in particular, antibodies), oligonucleotides, nucleic acids, carbohydrates and other biological molecules. NHS esters (ie, succinimidyl esters) are proven to be the best reagents for amine modifications because the amide bonds formed are as stable as the natural peptide bonds, and the resulting fluorescent biocojugates are generally more stable than fluorescent conjugates using FITC (fluorescein isothiocyanate).

NHS esters react with primary amines in physiologic to slightly alkaline conditions (pH 7.2 to 9) to yield stable amide bonds, and releases *N*-hydroxysuccinimide (NHS).



The corresponding carboxylic acids of these NHS esters are also available at Tenova. Please check our website for details.

Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
5(6)-FAM, SE	494	519	T01022-100mg	$99
5-FAM, SE	494	519	T01023-10mg	$79
6-FAM, SE	494	519	T01024-10mg	$79
5-FAM-X, SE	494	521	T01054-5mg	$79
5(6)-CR110, SE	498	521	T01010-5mg	$149
5-CR110, SE	498	521	T01011-5mg	$199
6-CR110, SE	498	521	T01012-5mg	$199
5-(and-6)-carboxyl-2',7'-dichlorofluorescein, SE	504	529	T01049-25mg	$99
5(6)-CR6G, SE	522	550	T01016-10mg	$129
5-CR6G, SE	522	550	T01017-5mg	$149
6-CR6G, SE	522	550	T01018-5mg	$149
5(6)-TAMRA, SE	546	575	T01034-25mg	$99
5-TAMRA, SE	546	575	T01035-5mg	$99
6-TAMRA, SE	546	575	T01036-5mg	$99
5(6)-TAMRA-X, SE	544	572	T01040-5mg	$99
5-TAMRA-X, SE	544	572	T01041-1mg	$99
6-TAMRA-X, SE	544	572	T01042-1mg	$99
Cy3, SE	555	570	T01126-1mg	$99
5(6)-ROX, SE	576	601	T01028-25mg	$149
5-ROX, SE	576	601	T01029-5mg	$149
6-ROX, SE	576	601	T01030-5mg	$149
Cy5, SE	645	665	T01127-1mg	$99

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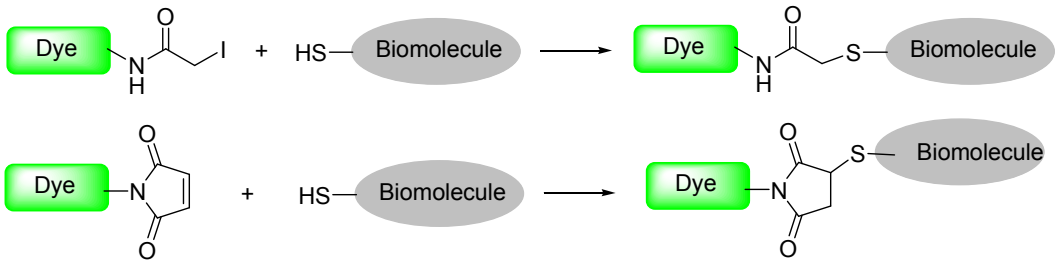
Thiol Reactive Dyes

Thiol-reactive dyes are used to prepare fluorescent peptides, proteins and oligonucleotides for probing biological structures, functions and interactions. Iodoacetamides and maleimides are two types of popular thiol-reactive moieties. They readily react with thiol moieties in biomolecules to form thioether conjugates.



Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
5-IAF [5-Iodoacetamidofluorescein]	492	515	T01059-25mg	$129
6-IAF [6-Iodoacetamidofluorescein]	483	517	T01060-25mg	$169
5-Fluorescein Maleimide	493	515	T01095-25mg	$129
5(6)-TMARA C2 maleimide	544	572	T01110-25mg	$109
5-TMARA C2 maleimide	544	572	T01109-5mg	$109
6-TMARA C2 maleimide	544	572	T01114-5mg	$109
5-TAMRA maleimide	540	567	T01111-5mg	$109
5(6)-TAMRA maleimide	544	571	T01112-25mg	$199
6-TAMRA maleimide	542	568	T01113-5mg	$199
Cy3 maleimide	555	570	T01170-5mg	$199
Sulforhodamine 101 C2 maleimide	588	601	T01105-5mg	$99
Cy5 maleimide	645	665	T01172-5mg	$199

Amino Dyes

Amine-containing dyes such as fluorescent labeled cadaverine and lysine derivatives are used to modify biomolecules through the formation of Schiff base or reductive amination. They can also be used for preparing fluorescent labeled drugs, natural toxins and biological ligands.

Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
5-FITC cadaverine	492	516	T01057-5mg	$99
5-FAM cadaverine	494	521	T01052-10mg	$149
5-FAM lysine	494	521	T01053-10mg	$149
5(6)-TAMRA cadaverine	544	570	T01031-10mg	$129
5-TAMRA cadaverine	544	570	T01032-5mg	$79
6-TAMRA cadaverine	544	570	T01033-5mg	$79
5-TAMRA Lysine	545	575	T01043-5mg	$149
Lisaamine Rhodamine B ethylenediamine	560	581	T01096-10mg	$149
Sulforhodamine 101 cadaverine	583	601	T01106-5mg	$149
Sulforhodamine 101 lysine	583	600	T01107-5mg	$169

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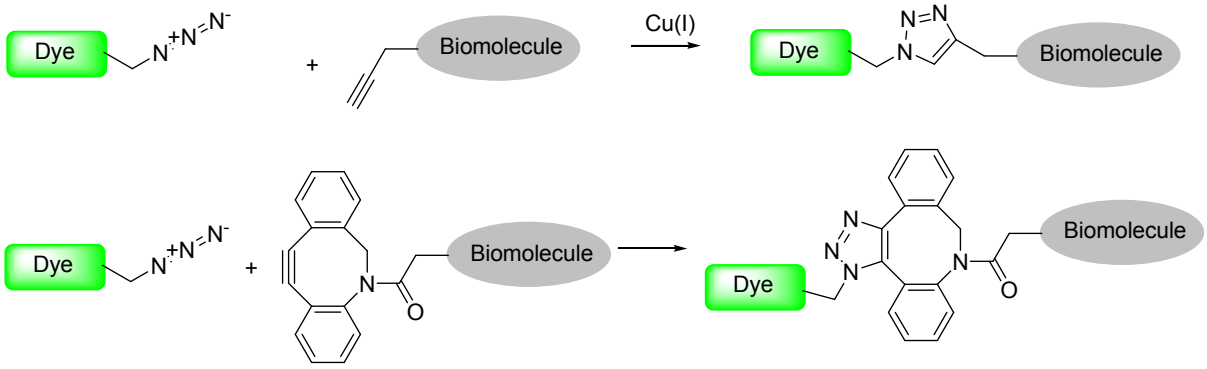
Click Chemistry Dyes: Azides

Click Chemistry has emerged as a convenient, versatile, and reliable method for biomolecule labeling. One of the most popular click chemistry reactions is the Cu(I)-catalyzed 1,3-dipolar Huisgen cycloaddition of alkynes and azides. This reaction proceeds with great efficiency and selectivity in aqueous media at room temperature to yield a triazole moiety. Another popular click chemistry reaction for bioconjugation and labeling is the strain-promoted copper-free [2+3] cycloaddition. The reaction uses strained cyclooctynes to react with an azide without Cu(I) catalyst at low temperatures with great efficiency. The azide-containing fluorescent dyes can be use for both applications.



Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
5(6)-FAM azide	494	521	T01134-25 mg	$109
5-FAM azide	494	521	T01135-10 mg	$109
6-FAM azide	494	521	T01136-10 mg	$109
5(6)-TAMRA PEG3 azide	547	573	T01130-5mg	$149
5(6)-FAM PEG3 azide	494	521	T01138-25 mg	$149
5(6)-FAM PEG3 azide protected	492	517	T01140-25 mg	$149
5(6)-CR110 azide	496	520	T01144-5mg	$149
5-CR110 azide	496	520	T01145-1mg	$149
6-CR110 azide	496	520	T01146-1mg	$149
5(6)-CR110 PEG3 azide	510	525	T01148-5mg	$149
5(6)-TAMRA azide	547	573	T01121-25mg	$149
5-TAMRA azide	547	573	T01122-5mg	$109
6-TAMRA azide	547	573	T01123-5mg	$109
Cy3 azide	555	570	T01165-5mg	$199
Sulforhodamine B azide	568	584	T01162-5mg	$149
Sulforhodamine B PEG3 azide	568	584	T01164-5mg	$149
5(6)-ROX azide	570	591	T01152-25mg	$169
5-ROX azide	570	591	T01153-5mg	$169
6-ROX azide	570	591	T01154-5mg	$169
5(6)-ROX PEG3 azide	570	591	T01156-5mg	$149
Sulforhodamine 101 azide	584	603	T01158-5mg	$149
Sulforhodamine 101 PEG3 azide	584	603	T01160-5mg	$149
Cy5 azide	645	665	T01168-5mg	$199

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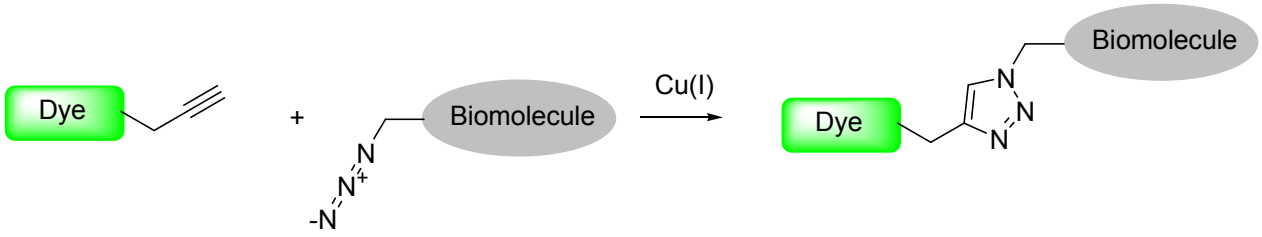
Click Chemistry Dyes: Alkynes

Compared with other traditional crosslinking methods used in biological research, one of the biggest advantages about click chemistry method is high selectivity. The Cu(I)-catalyzed 1,3-dipolar Huisgen cycloaddition of alkynes and azides is a bio-orthogonal reaction. Neither alkynes nor azides occur in cells, and they react only with each other, resulting in minimal background or side reactions. The following alkyne-containing fluorescent dyes can be used in the Cu(I)-catalyzed click chemistry reaction of alkynes and azides.



Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
5(6)-FAM alkyne	494	521	T01131-25 mg	$109
5-FAM alkyne	494	521	T01132-10 mg	$109
6-FAM alkyne	494	521	T01133-10 mg	$109
5(6)-FAM PEG3 alkyne	494	521	T01137-25 mg	$149
5(6)-FAM PEG3 alkyne protected	492	517	T01139-25 mg	$149
5(6)-CR110 alkyne	496	520	T01141-5mg	$149
5-CR110 alkyne	496	520	T01142-1mg	$149
6-CR110 alkyne	496	520	T01143-1mg	$149
5(6)-CR110 PEG3 alkyne	510	525	T01147-5mg	$149
5(6)-TAMRA alkyne	547	573	T01118-25mg	$149
5-TAMRA alkyne	547	573	T01119-5mg	$109
6-TAMRA alkyne	547	573	T01120-5mg	$109
5(6)-TAMRA PEG3 alkyne	547	573	T01129-5mg	$149
Cy3 alkyne	555	570	T01165-5mg	$199
Sulforhodamine B alkyne	568	584	T01161-5mg	$149
Sulforhodamine B PEG3 alkyne	568	584	T01163-5mg	$169
5(6)-ROX alkyne	570	591	T01149-25mg	$169
5-ROX alkyne	570	591	T01150-5mg	$169
6-ROX alkyne	570	591	T01151-5mg	$169
5(6)-ROX PEG3 alkyne	570	591	T01155-5mg	$149
Sulforhodamine 101 alkyne	584	603	T01157-5mg	$149
Sulforhodamine 101 PEG3 alkyne	584	603	T01159-5mg	$149
Cy5 alkyne	645	665	T01167-5mg	$199

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Fluorescent Labeled Peptides

Fluorescent labeled peptides are powerful tools for the investigation of biological relevant interactions like receptor-ligand binding, protein structures, and enzyme activity. Listed below are some commonly used fluorescent labeled peptides. For products details, larger quantities, and complete list of fluorescent labeled peptides available at Tenova, please check our website.

Product Name	Ex(nm)	Em(nm)	Catalog Number	Price
Abltide - TAMRA labeled	547	573	T02010-1mg	189
Angiotensin II (human) - FAM labeled	494	521	T02011-1mg	129
Angiotensin II (human) - TAMRA labeled	547	573	T02012-1mg	129
BAD (103 - 127) (human) - FAM labeled	494	521	T02013-1mg	299
Bak BH3 - TAMRA labeled	547	573	T02014-1mg	299
Bid BH3 Peptide II - TAMRA labeled	547	573	T02015-1mg	129
Bombesin -FAM labeled	494	521	T02016-1mg	129
Botulinum Neurotoxin (BoNT) B Substrate Modification (amide) - FITC labeled	492	516	T02017-1mg	339
CDK5 Substrate - (5-FAM) labeled	494	521	T02018-1mg	159
CDK5 Substrate - (5-TAMRA) labeled	547	573	T02019-1mg	189
CDK7tide derived peptide - (5-FAM) labeled	494	521	T02020-1mg	169
CDK7tide - (5-TAMRA) labeled	547	573	T02021-1mg	209
CREBtide - (5-FAM) labeled	494	521	T02023-1mg	259
CSK tide - (5-FAM) labeled	494	521	T02024-1mg	159
EGF Protein Tyrosine Kinase Substrate - (5-FAM) labeled	494	521	T02026-1mg	169
ERK 1/2 /MAP Kinase Substrate - (5-FAM) labeled	494	521	T02027-1mg	179
Erktide - (5-FAM) labeled	494	521	T02028-1mg	169
Exendin 4 - FAM labeled	494	521	T02029-1mg	509
Galanin (human) - FAM labeled	494	521	T02030-1mg	299
Galanin Lys (Biotin)(human) - FAM labeled	494	521	T02031-1mg	299
Gastrin derived peptide - (5-FAM) labeled	494	521	T02032-1mg	179
Glucagon (1 - 29)(bovine, human, porcine) - FAM labeled	494	521	T02033-1mg	179
Glucagon Like Peptide 1 (GLP-1, amide, human) - FAM labeled	494	521	T02034-1mg	339
Glycogen Synthase derived peptide - (5-TAMRA) labeled	547	573	T02035-1mg	179
Histone H1 derived Peptide - (5-FAM) labeled	494	521	T02036-1mg	169
Histone H1 derived Peptide - (5-TAMRA) labeled	547	573	T02037-1mg	179
Histone H3 (1 - 21) (K4 dimethylated) - FAM labeled	494	521	T02038-1mg	259
IP3 peptide (Lys) - TAMRA labeled	547	573	T02039-1mg	159
Kemptide - (5-FAM) labeled	494	521	T02040-1mg	159
Kemptide - (5-TAMRA) labeled	547	573	T02041-1mg	199
Lyn/Syk Peptide Substrate - (5-FAM) labeled	494	521	T02042-1mg	179
MARCKS Protein (154 - 165) - (5-TAMRA) labeled	547	573	T02043-1mg	209
Neurogranin (28 - 43) - (5-FAM) labeled	494	521	T02045-1mg	229
Parathyroid Hormone (1 - 34) (human) - FAM labeled	494	521	T02046-1mg	389
Phosphorylated Histone H1 - derived peptide - (5-FAM) labeled	494	521	T02047-1mg	229
Pro-apoptotic Peptide - (5-FAM) labeled	494	521	T02048-1mg	179
Protein Tyrosine Phosphatase 1B Substrate - (5-FAM) labeled	494	521	T02049-1mg	179
RS domain derived peptide - (5-FAM) labeled	494	521	T02050-1mg	159
SAM PEP 1 - (5-FAM) labeled	494	521	T02051-1mg	239
Substance P - FAM labeled	494	521	T02052-1mg	159
Synapsin I (3 - 13) - (5-FAM) labeled	494	521	T02053-1mg	169
Tyrosine Kinase Peptide 1 - (5-FAM) labeled	494	521	T02054-1mg	249
VIP (human, porcine, rat) - FAM labeled	494	521	T02055-1mg	499

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