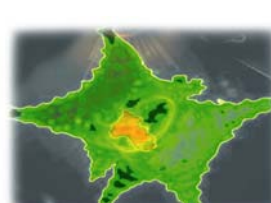
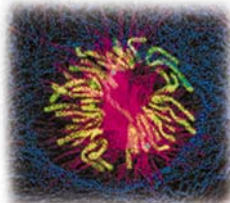
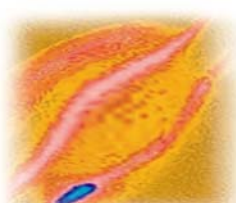
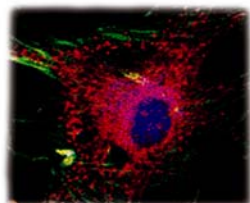


Fluorescence Color-Coded Selection Guide of Reactive Dyes for Conjugations of Biopolymers and Small Molecules

Catalog Number	Fluorophore	Spectral Properties of Adducts ¹		Conjugation Conditions		
		λ_{ab} (in nm)	λ_{em} (in nm)	Reactive Group ²	Solvents to Dissolve Dye ³	Optimal pH ⁴
81202	Fluorescamine	384	485	Amine-reactive	DMF/DMSO	9.0-10.0
81206	7-Hydroxycoumarin-3-carboxylic acid, SE	386	448	Amine-reactive	DMF/DMSO	9.0-10.0
81208	AMCA-X, SE	354	442	Amine-reactive	DMF/DMSO	9.0-10.0
81408	SBD-Cl	374	500 (SH) ⁵	Thiol-reactive	DMF/DMSO	8.5-9.5
81409	SBD-F	374	500 (SH) ⁵	Amine- & Thiol-reactive	DMF/DMSO	7.5-8.5
81401	ABD-F	376 (SH) ⁵ 425 (NH ₂) ⁵	510 (SH) ⁵ 570 (NH ₂) ⁵	Amine- & Thiol-reactive	DMF/DMSO	7.5-8.5 8.5-9.5
81003	5-FAM	492	518	Carboxy group	DMF/DMSO	
81004	6-FAM	492	515	Carboxy group	DMF/DMSO	
81007	5-FAM, SE	494	522	Amine-reactive	DMF/DMSO	8.0-9.0
81008	6-FAM, SE	494	520	Amine-reactive	DMF/DMSO	8.0-9.0
81005	5-FITC	493	517	Amine-reactive	DMF/DMSO	9.0-10.0
81010	6-FITC	494	518	Amine-reactive	DMF/DMSO	9.0-10.0
81406	5-IAF	491	516	Thiol-reactive	DMF/DMSO	8.5-9.5
81405	Fluorescein-5-maleimide	492	517	Thiol-reactive	DMF/DMSO	8.5-9.5
81001	5-DTAF	493	519	Amine-reactive	DMF/DMSO	8.5-9.5
81012	6-DTAF	494	520	Amine-reactive	DMF/DMSO	8.5-9.5
81502	5-FAM cadaverine	494	521	Amino group	DMF/DMSO	
81503	5-FAM lysine	494	521	Amino group	DMF/DMSO	
81504	5-FITC cadaverine	494	522	Amino group	DMF/DMSO	
81505	5-FTSC	492	516	Amino group	DMF/DMSO	
81201	Dansyl chloride	333	518	Amine-reactive	DMF	9.0-10.0
81501	Dansyl cadaverine	333	518	Amino group	DMF/DMSO	
81203	NBD-Cl	466 (NH ₂) 520 (SH)	533 (NH ₂) 520 (SH)	Amine- & Thiol-reactive	DMF/DMSO	8.5-9.5
81204	NBD-F	466 (NH ₂) 520 (SH)	533 (NH ₂) 520 (SH)	Amine- & Thiol-reactive	DMF/DMSO	7.5-8.5
81102	5-CR 6G	520	546	Carboxy group	DMF/DMSO	
81103	6-CR 6G	518	543	Carboxy group	DMF/DMSO	
81105	5-CR 6G, SE	521	545	Amine-reactive	DMF/DMSO	8.0-9.0
81106	6-CR 6G, SE	518	544	Amine-reactive	DMF/DMSO	8.0-9.0
81121	5-TAMRA	542	568	Carboxy group	DMF/DMSO	
81122	6-TAMRA	540	564	Carboxy group	DMF/DMSO	
81125	5-TAMRA, SE	546	574	Amine-reactive	DMF/DMSO	8.0-9.0
81126	6-TAMRA, SE	544	571	Amine-reactive	DMF/DMSO	8.0-9.0
81410	5-TMRIA	544	568	Thiol-reactive	DMF/DMSO	7.5-8.5
81411	6-TMRIA	543	568	Thiol-reactive	DMF/DMSO	7.5-8.5
81507	5-TMR cadaverine	545	576	Amino group	DMF/DMSO	

81508	6-TMR cadaverine	544	575	Amino group	DMF/DMSO	
81509	5-TMR lysine	545	577	Amino group	DMF/DMSO	
81111	5-ROX	567	591	Carboxy group	DMF/DMSO	
81112	6-ROX	570	591	Carboxy group	DMF/DMSO	
81114	5-ROX, SE	571	597	Amine-reactive	DMF/DMSO	8.0-9.0
81115	6-ROX, SE	473	598	Amine-reactive	DMF/DMSO	8.0-9.0
81108	Lissamine™ Rhodamine B	560	581	Amine-reactive	DMF	9.0-10.0
81130	Sulforhodamine 101 sulfonyl chloride (*Texas Red®)	582	600	Amine-reactive	DMF	9.0-10.0
81510	Sulforhodamine 101 sulfonamide cadaverine (*Texas Red® cadaverine)	583	601	Amino group	DMF/DMSO	
81511	Sulforhodamine 101 sulfonamide lysine (*Texas Red® lysine)	583	600	Amino group	DMF/DMSO	

Notes: 1) Glycine is used to prepare the amine adducts and cysteine is used to prepare the thiol adducts. For consistency, all the spectral properties are obtained in methanol unless specified in the notes. 2) CA = cadaverine; DMF = N,N-dimethylformamide; DMSO = dimethylsulfoxide; DTA = dichlorotriazine; ITC = isothiocyanate/amine-reactive; NBD = 7-nitrobenzofurazan; SC = sulfonyl chloride/amine-reactive; SE = succinimidyl ester/amine-reactive; λ_{ab} = maximum absorption wavelength; λ_{em} = maximum emission wavelength. 3) Fresh DMF is preferred since long stored DMF may release dimethylamine that readily reacts with SC, SE, NBD, and SBD compounds. In some cases, N,N-dimethylacetamide can be used instead of DMF. 4) The recommended pH is only for reference purpose. In a specific conjugation experiment, some modifications are needed. In general, bicarbonate or carbonate buffers are recommended for use to prepare peptide and protein conjugates, and borate buffers are preferred for nucleotide and nucleic acid conjugates. 5) The fluorescence of SBD and ABD adducts with thiol compounds is strongly dependent on the surrounding environments. In polar solvent (such as water), they give red-shifted fluorescence. Their spectral data are obtained in aqueous buffer solutions with pH = 7.5. *Other chemical names. **Lissamine™ and Texas Red® are trademarks of Imperial Chemical Industries and Molecular Probes, Inc., respectively.



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