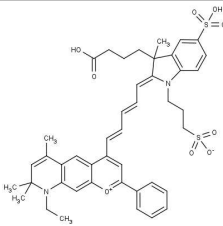
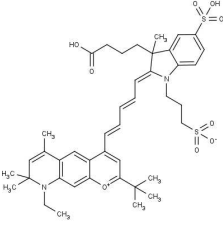
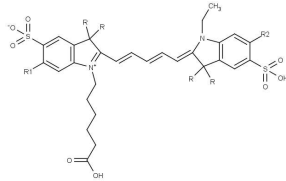
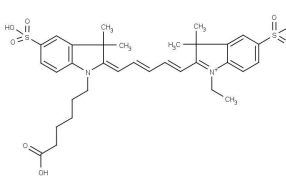
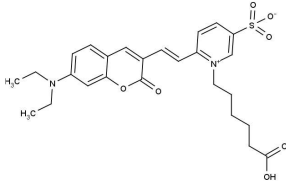
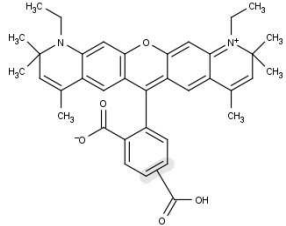
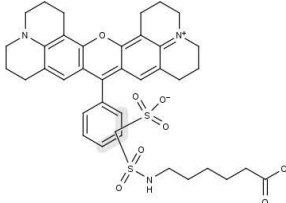
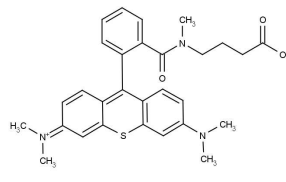
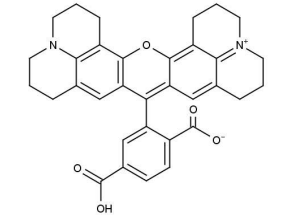


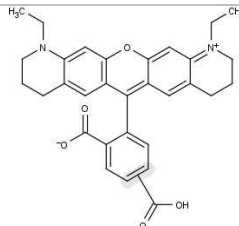
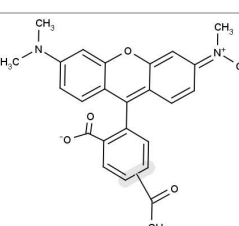
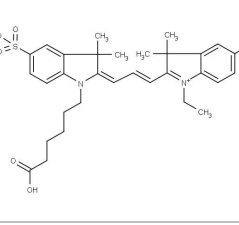
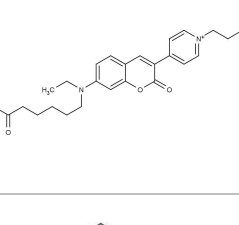
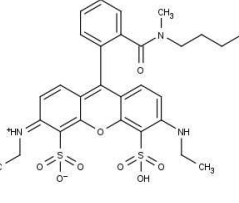
Properties of Fluorescent Dyes and Quenchers

Fluorescent Color	Dye	Structure	MW (free acid) [g/mol]	λ_{abs} [nm]	λ_{em} [nm]	ϵ_{max} [L [*] mmol ⁻¹ cm ⁻¹]	Isomers	Notes/Advantages
Near-IR	DY-776		813	771	793	120	pure	Spectrum similar to LICOR IRD 800RS
Near-IR	DY-751		793	751	779	270	pure	
Near-IR	ATTO 740	undisclosed	467	740	764	120	pure	
Red	ATTO 700	undisclosed	565	700	719	120	pure	Substitute for Cy5.5
Red	ATTO 680	undisclosed	525	680	700	125	pure	Substitute for Cy5.5; spectroscopic properties similar to LICOR IRD 700
Red	ATTO 665	undisclosed	622	663	684	160	pure	Suitable for STED applications
Red	ATTO 655	undisclosed	527	663	684	125	two	Substitute for Cy5, but better since no triplet behavior
Red	OYSTER-656		737	656	674	200	pure	Higher photostability compared to Cy5
Red	Cy5		658	649	670	250	pure	
Red	ATTO 647N	undisclosed	645	644	669	150	two	Substitute for Alexa Fluor 647 and Cy5; base stable
Red	ATTO 633	undisclosed	551	629	657	130	pure	Emission maximum of He-Ne laser, base stable, less hydrophilic
Red	ATTO Rho14	undisclosed	783	625	646	140	pure	

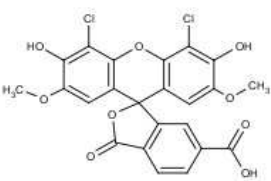
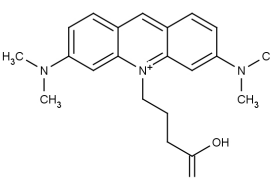
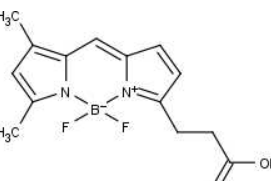
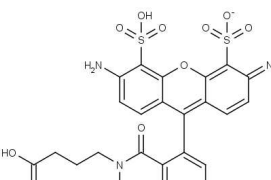
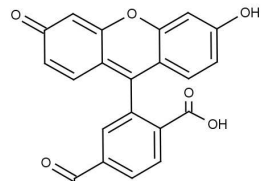
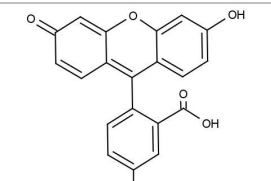
Properties of Fluorescent Dyes and Quenchers

Fluorescent Color	Dye	Structure	MW (free acid) [g/mol]	λ_{abs} [nm]	λ_{em} [nm]	ϵ_{max} [L [*] mmol ⁻¹ cm ⁻¹]	Isomers	Notes/Advantages
Red	ATTO 620	undisclosed	511	619	643	120	pure	Substitute for LightCycler Red 640; base stable
Red	DY-480XL		515	500	630	50	pure	Large Stokes Shift of 130 nm
Red	ATTO 594	undisclosed	805	601	627	120	pure	Substitute for Alexa Fluor 594, more hydrophilic than ATTO 590
Orange	ATTO Rho13	undisclosed	645	600	625	120	pure	
Orange	ATTO 590		590	594	624	120	two	Substitute for Texas Red, Alexa Fluor 594
Orange	ATTO Rho101	undisclosed	589	586	610	120	pure	
Orange	Texas Red		720	588	609	80	two	
Orange	ATTO Thio12		501	579	609	110	pure	
Orange	ATTO Rho12	undisclosed	649	576	601	120	three	
Orange	6-ROX		535	575	600	82	pure	

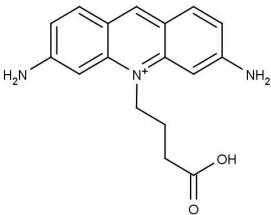
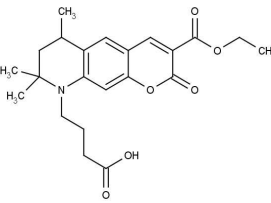
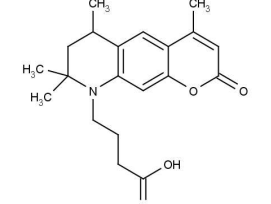
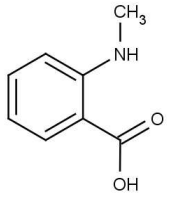
Properties of Fluorescent Dyes and Quenchers

Fluorescent Color	Dye	Structure	MW (free acid) [g/mol]	λ_{abs} [nm]	λ_{em} [nm]	ϵ_{max} [$\text{L}^*\text{mmol}^{-1}\text{cm}^{-1}$]	Isomers	Notes/Advantages
Orange	ATTO Rho11	undisclosed	565	571	595	120	pure	
Orange	ATTO 565		511	563	592	120	two	Substitute for Cy3, Alexa Fluor 546, Bodipy 558/568; better photostability
Yellow	ATTO 550	undisclosed	593	554	576	120	three 60%:22%:17%	Substitute for Cy3, Alexa Fluor 546, Bodipy 558/568; better photostability
Yellow	5/6-TAMRA		430	545	575	90	two	
Yellow	Cy3		631	550	570	150	pure	
Yellow-Green	ATTO Rho6G	undisclosed	513	535	560	115	pure	
Yellow-Green	DY-485XL		503	485	560	50	pure	Large Stokes Shift of 75 nm
Yellow-Green	ATTO 532		645	532	553	115	pure	Substitute for Alexa Fluor 532; Bodipy 530/550

Properties of Fluorescent Dyes and Quenchers

Fluorescent Color	Dye	Structure	MW (free acid) [g/mol]	λ_{abs} [nm]	λ_{em} [nm]	ϵ_{max} [$\text{L}^*\text{mmol}^{-1}\text{cm}^{-1}$]	Isomers	Notes/Advantages
Yellow-Green	6-JOE		505	520	548	75	pure	Substitute for VIC, HEX
Green	ATTO 495		351	495	527	80	pure	
Green	BDP-FL also known as BODIPY® FL		292	503	512	80	pure	Substitute for FITC, Alexa Fluor 488
Green	ATTO 488		589	501	523	90	pure	Substitute for FITC, Alexa Fluor 488, Cy2; identical to Alexa, much more photostable than Cy2 or FITC
Green	6-FAM		376	492	517	83	pure	
Green	5-FAM		376	492	517	83	pure	

Properties of Fluorescent Dyes and Quenchers

Fluorescent Color	Dye	Structure	MW (free acid) [g/mol]	λ_{abs} [nm]	λ_{em} [nm]	ϵ_{max} [$\text{L}^*\text{mmol}^{-1}\text{cm}^{-1}$]	Isomers	Notes/ Advantages
Blue-Green	ATTO 465		295	453	508	75	pure	Substitute for Cyan 500
Blue-Green	ATTO 425		401	436	484	45	pure	
Blue	ATTO 390		343	390	479	24	pure	
Blue	MANT		151	335	440	2,7	pure	