

# FLUORESCENT DYES

DYE	ABS	EM	QUENCHER
AMCA	353	420	
Alexa Fluor 405	401	421	
DY-405	400	423	
DY-350	354	433	
Alexa Fluor 350	346	442	
Pacific Blue	416	451	
Eterneon-350/455	350	455	
Marina Blue	362	459	
Coumarin 343	445	463	
DY-415	418	467	
DY-370XL	368	473	
DEAC (Aqua 431)	427	478	
Atto 390	390	479	
Eterneon-384/480	384	480	
Cyan 500	436	481	
Atto 425	436	484	
Eterneon-394/507	394	507	
Atto 465	453	508	
BDP FL	503	509	
DY-380XL	381	510	
Cyanine 2	492	510	
Abberior STAR 440SXP	432	511	
Oregon Green 488	490	514	
DY-490	491	515	
Dansyl X	335	518	
BMN-488	495	519	
Alexa Fluor 488	495	519	
Fam	494	520	
DY-495	495	520	
FITC	490	522	
Eterneon-393/523	393	523	
Atto 488	501	523	
BMN-505	507	524	
Abberior STAR 488	501	524	
Alexa Fluor 500	502	525	
Oregon Green 514	506	526	
Atto 495	495	527	
DY-505	505	530	
Abberior STAR 512	512	530	
Rhodamin 110 (CR 110)	504	532	
Rhodamin Green X	504	532	
Atto 514	511	533	
Thiazol Orange	514	533	
Tet	521	536	
Atto 520	516	538	
NBD-X	467	539	
Alexa Fluor 430	434	541	
Alexa Fluor 514	517	542	
CAL Fluor Gold 540	522	544	
Atto 430LS	433	547	
DY-485XL	485	547	
Joe	520	548	
Yakima Yellow	526	548	
BDP R6G	530	548	
DY-376XL	387	549	
Rhodamin 6G	524	552	
BMN-536	536	553	
Atto 532	532	554	
Alexa Fluor 532	532	554	
VIC	538	554	
Hex	535	556	
Sima	535	556	
Atto 542	542	557	
CAL Fluor Orange 560	538	559	
Atto Rho 6G	535	560	
DY-530	539	561	
Alexa Fluor 555	555	565	
Quasar 570	548	566	
BDP TMR	545	570	
Cyanine 3	550	570	
Cyanine 3B	559	570	
DY-396XL	392	572	
DY-395XL	396	572	
DY-556	548	573	
Alexa Fluor 546	556	573	
DY-547P1	550	575	
NED	553	575	
Tamra	546	576	
DY-550	553	578	
DY-560	559	578	
BMN-562	562	578	
Atto 550	554	579	
DY-555	555	580	
Rhodamin Red-X	560	580	
DY-510XL	509	590	
CAL Fluor RED 590	569	591	
Atto 565	563	592	
BDP 581/591	585	594	
PET	558	595	

BMN-Q460, DabcyI, DDCQ-I (400-530)

BMN-Q535, BMN-Q1, BHQ-1, TQ2 (480-580)

BMN-Q2, BHQ-2, TQ3 (550-650)

BMN-Q620, BMN-Q650, BBQ-650 (550-720)

DYE	ABS	EM	QUENCHER
Atto Rho 11	571	595	
DY-590	580	599	
Rox	574	602	
Atto Rho 12	576	603	
Alexa Fluor 568	578	603	
Texas Red-X	583	603	
California Red	583	603	
Cyanine 3.5	588	604	
Sunnyvale Red	576	605	
Abberior STAR 580	583	605	
Atto Thio 12	582	607	
DY-350XL	349	610	
Atto Rho 101	586	610	
CAL Fluor Red 610	590	610	
LC Red 610	590	610	
BDP TR	589	616	
Alexa Fluor 594	590	617	
Atto 590	594	624	
Atto 594	601	627	
Abberior STAR 600	604	627	
Alexa Fluor 610	612	628	
DY-480XL	500	630	
DY-610	610	630	
Eterneon-480/635	480	635	
CAL Fluor Red 635	618	637	
LC Red 640	625	640	
DY-615	621	641	
BDP 630/650 X	628	642	
Atto 620	619	643	
Atto Rho 14	625	646	
Alexa Fluor 633	632	647	
DY-481XL	515	650	
Abberior STAR 635	634	654	
Abberior STAR RED	638	655	
LIZ	638	655	
Atto 633	629	657	
DY-630	636	657	
DY-632	637	657	
DY-633	637	657	
DY-634	635	658	
DY-631	637	658	
Atto 490LS	496	661	
DY-520XL	520	664	
Atto 647N	646	664	
Atto 643	643	665	
Alexa Fluor 647	650	665	
Quasar 670	647	667	
DY-521XL	523	668	
Cyanine 5	649	670	
Wellred D4	650	670	
LC Red 670	650	670	
DY-636	647	671	
DY-647P1	652	673	
SiR	652	674	
DY-649P1	655	676	
DY-651	653	678	
DY-665	662	680	
Atto 655	663	684	
Alexa Fluor 660	663	690	
Cyanine 5.5	675	694	
DY-679P1	679	697	
DY-676	674	699	
DY-675	674	699	
Atto 680	680	700	
IRDye 700Dx	689	700	
Alexa Fluor 680	679	702	
Wellred D3	685	706	
DY-681	691	708	
DY-682	690	709	
LC Red 705	680	710	
Atto 700	700	719	
Alexa Fluor 700	702	723	
DY-700	707	730	
DY-701	706	731	
DY-720	726	744	
Atto 725	725	752	
DY-730	732	758	
DY-732	736	759	
DY-731	736	760	
Atto 740	740	764	
Wellred D2	750	770	
Cyanine 7	750	773	
Alexa Fluor 750	749	775	
DY-750	747	776	
DY-751	751	779	
IRDye 800CW	774	789	
DY-776	771	793	
DY-782	782	800	
DY-781	783	800	

BMN-Q2, BHQ-2, TQ3 (550-650)

BMN-Q620, BMN-Q650, BBQ-650 (550-720)

DARK QUENCHER	ABS	QR
DabcyI	453	400 - 530
BMN-Q460	460	400 - 530
TQ2	520	480 - 580
BHQ-1	534	480 - 580
BMN-Q1	535	480 - 580
BMN-Q535	535	480 - 580
TQ3	570	550 - 650
BMN-Q2	580	500 - 650
BHQ-2	580	550 - 650
BMN-Q620	620	480 - 720
BMN-Q650	650	550 - 720
BBQ-650	650	550 - 720

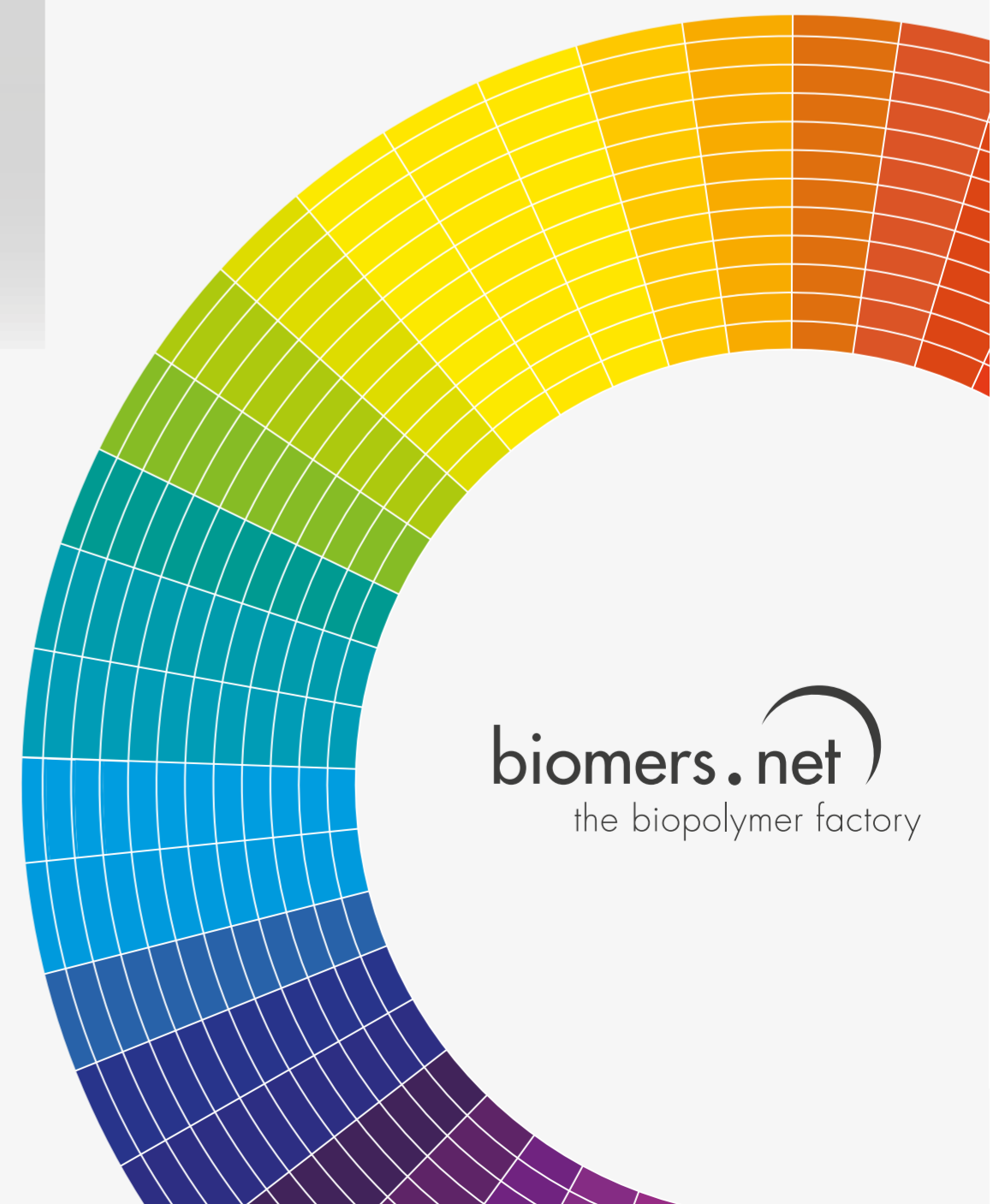
### FOR COMPARISON

DYE	ABS	EM
DAPI	358	461
SybrGreen	494	521
EvaGreen	495	525
GFP	475	509
Phycocerythrin	488	575
Chlorophyll	430	669

Dye black: available  
Dye grey: not available

ABS: Absorption (max. nm)  
EM: Emission (max. nm)  
QR: Quenching Range (nm)

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# ALTERNATIVE DYES

THERMO FISHER  
[ALEXA DYES]

ALTERNATIVE  
DYES

DYE	ABS	EM	DYE	ABS	EM
Alexa Fluor 350	346	442	DY-350	354	433
Alexa Fluor 405	401	421	DY-405	400	423
Alexa Fluor 430	434	541	Atto 430LS	433	547
Alexa Fluor 488	495	519	Atto 488	501	523
Alexa Fluor 500	502	525	Atto 488	501	523
Alexa Fluor 514	517	542	Atto 514	511	533
			Tet	521	536
			Joe	520	548
Alexa Fluor 532	532	554	Atto 532	532	554
Alexa Fluor 546	556	573	Cyanine 3	550	570
			Atto 550	554	579
Alexa Fluor 555	555	565	Cyanine 3	550	570
			Atto 550	554	579
Alexa Fluor 568	578	603	Cyanine 3.5	588	604
			Atto Rho12	576	603
Alexa Fluor 594	590	617	Atto 590	594	624
Alexa Fluor 610	612	628	Atto 594	601	627
			DY-610	610	630
Alexa Fluor 633	632	647	Atto 633	629	657
Alexa Fluor 647	650	665	Atto 647N	644	669
			Cyanine 5	649	670
Alexa Fluor 660	663	690	Atto 655	663	684
Alexa Fluor 680	679	702	Cyanine 5.5	675	694
			DY-681	691	708
			Atto 680	680	700
Alexa Fluor 700	702	723	Atto 700	700	719
			DY-700	707	730
Alexa Fluor 750	749	775	Cyanine 7	750	773
			DY-751	751	779
Alexa Fluor 790	784	814	DY-781	783	800

THERMO FISHER  
[ABI DYES]

ALTERNATIVE  
DYES

DYE	ABS	EM	DYE	ABS	EM
VIC	538	554	Yakima Yellow	526	548
			Atto 532	532	554
			Hex	535	556
NED	553	575	Cyanine 3	550	570
			Atto 550	554	579
PET	558	595	Atto 565	563	592
LIZ	638	655	Atto 633	629	657

BECKMAN  
[WELLRED DYES]

ALTERNATIVE  
DYES

DYE	ABS	EM	DYE	ABS	EM
Wellred D4	650	670	Atto 647N	644	669
			Cyanine 5	649	670
			DY-647P1	652	673
Wellred D3	685	706	Cyanine 5.5	675	694
			Atto 680	680	700
			DY-681	691	708
Wellred D2	750	770	Cyanine 7	750	773
			DY-751	751	779

ROCHE  
[LIGHTCYCLER DYES]

ALTERNATIVE  
DYES

DYE	ABS	EM	DYE	ABS	EM
LC 480 Cyan 500	450	500	Atto 425	436	484
			Atto 465	453	508
LC Red 610	590	610	DY-590	580	599
			Rox	574	602
			Atto Rho 101	586	610
LC Red 640	625	640	Atto 620	619	643
LC Red 670	650	670	Atto 647N	644	669
			DY-647P1	652	673
			Cyanine 5	649	670
LC Red 705	680	710	Cyanine 5.5	675	694
			DY-681	691	708

LICOR  
[IRDYES]

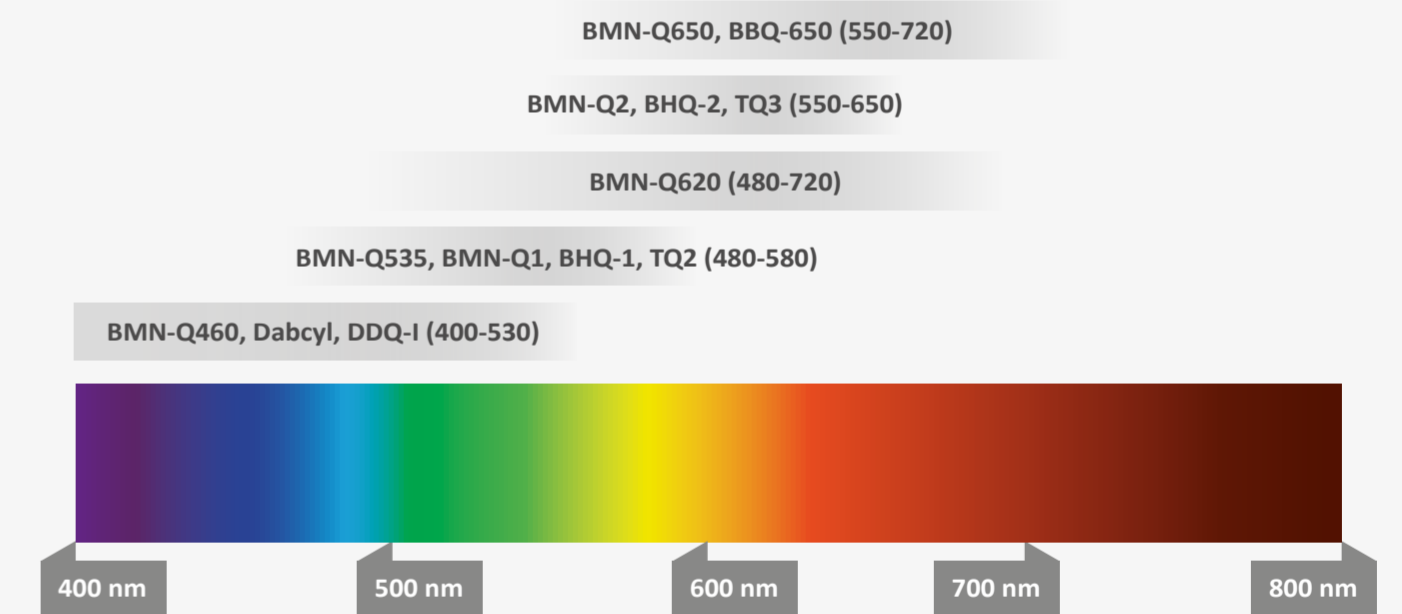
ALTERNATIVE  
DYE

DYE	ABS	EM	DYE	ABS	EM
IRDye 700	689	700	Atto 680	680	700
			DY-681	691	708
			DY-682	690	709
IRDye 800	774	789	DY-776	771	793
			DY-781	783	800
			DY-782	782	800

LARGE STOKES SHIFT DYES /  
MEGASTOKES DYES

DYE	ABS	EM	$\epsilon$
DY-370XL	368	473	13200
DY-380XL	381	510	22000
Atto 430LS	433	547	32000
DY-376XL	387	549	25400
DY-485XL	485	560	50000
DY-395XL	396	572	22000
DY-510XL	509	590	50000
DY-350XL	349	610	16000
DY-480XL	500	630	50000
DY-481XL	515	650	50000
Atto 490LS	496	661	40000
DY-520XL	520	664	50000
DY-521XL	523	668	50000

ABS = absorption maximum (nm)  
EM = emission maximum (nm)  
 $\epsilon$  = extinction coefficient ( $M^{-1}cm^{-1}$ )



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