

# Fluoroskan Ascent and Fluoroskan Ascent FL: Recommended filter pairs for different fluorochromes



**Note!** The spectral peaks may shift as a function of e.g. temperature, pH, solvent and coupling chemistry. The spectra are often measured at some certain pH in the solvent which is not necessarily the same as what is used in the actual assay.

Fluorochrome	Ex filter	Em filter	Prod. No	Peak, Ex/Em (nm)	Note
HPPA (3-p-hydroxyphenyl-propionic acid)	320	405	1423202/1424052		HRP substrate, fluorescent endproduct is measured
cGDP	320	405	1423202/1424052	300/410	Fluorescent derivative of NAD surrogate NGD
Cis-parinaric acid	320	420	1423202/142420220	320/416	
4-MeU (4-methylumbelliferone, 7-hydroxy-4-methylcoumarin)	320	460	1423202/1424602	322/448	4-MeU at neutral or acidic pH
Saxitoxin	335	405	1423352/1424052	333/390	PSP (paralytic shellfish poisoning) marker
N-(1-Pyrene)iodoacetamide	340	380	142340210/1423802	339/384	
2,3-diaminonaphthalene (DAN)	340	380	142340210/1423802	340/377	Weak fluorescence with DAN alone
NADH	340	460	1423402/1424602	340/464	Specific to NADH, NAD not fluorescent
Indo-1, Ca-indicator	340	405/485	142340210/1424052 and 1424852	free	
Pyrenyl-Actin	350	405	142350220/1424052	366/384	Measure of actin polymerisation
2,3-diaminonaphthalene (DAN), 1H-naphthotriazole derivatives	350	415	142350220/142415210	365/415	DAN/Nitrite complex
Alexa Fluor 350	350	440	142350220/142440210	346/442	
mantGDP	355	440	1423552/142440210	356/440	
6,8-difluoro-7-hydroxy-4-methylcoumarin	355	450	1423552/1424502	358/450	
6-(7-amino-4-methylcoumarin-3-acetyl)amino)hexanoic acid (MCA)	355	450	1423552/1424502	353/442	ref: Caspase1-9.pdf
DAPI + DNA	355	460	1423552/1424602	359/461	
Hoechst 33258 (bisbenzimidazole H33258)	355	460	1423552/1424602	345/478	DNA dye, ref: 3500245.pdf
Hoechst 33342 (bisbenzimidazole H33342)	355	460	1423552/1424602	343/483	DNA dye
4-MeU (4-methylumbelliferone, 7-hydroxy-4-methylcoumarin)	355	460	1423552/1424602	360/448	Alkaline pH, (pH 9), refs: FEBSLett2001SSbg.pdf, ELISA.pdf
Histamine	355	460	1423552/1424602	360/450	Using o-phthalaldehyde reaction
2,3-diaminonaphthalene (DAN), benzoquinolaxaline derivatives	355	538	1423552/1425382	365/540	DAN/alpha-ketoaldehyde complex
6-aminoquinoline (6-AQ)	355	544	1423552/1425442	355/550	Fluorescent end product
7-amino-4-methylcoumarin (7-AMC)	355	444 or 460	1423552/1424442 or 1424602	351/430	Caspase substrate, 355/444 should be preferred. Refs: Lake sediment.pdf, Caspase. pdf, coagulation.pdf, Tryptase inhibition.pdf
Thiochrome	370	440	142370212/142440210	370/440	Derivative used for Vitamin B1 (Thiamin) assay
Munana	370	444	142370212/1424442	365/445	2'-(4-Methylumbelliferyl)-alpha-D-N-acetylneuraminic acid, neuroaminidase substrate
BioWhittaker PyroGene Endotoxin kit	380	440	1423802/142440210	380/440	Fluorogenic enzyme substrate
1,8-ANS (1-anilinonaphthalene-8-sulfonic acid)	380	480	1423802/1424802	375/479	Can be used only in non-aqueous solutions (EtOH, MeOH)
CPM	390	460	143902/1424602		
Phenylalanine/Ninhydrin reaction	390	485	1423902/1424852		
Monobromobimane (mBCI)	390	490	1423902/1424902	390/-	Fluorescent when bound to glutathione in cells
Monochlorobimane (mBCI)	390	490	1423902/1424902	380/-	Fluorescent when bound to glutathione in cells
7-amino-trifluoromethylcoumarin (AFC)	390	510	1423902/1425102	400/505	e.g. Caspase substrate
7-hydroxy-4-trifluoromethylcoumarin (HFC)	390	510	1423902/1425102	385/502	
Sapphire GFP	390	510	1423902/1425102	390/511	
wtGFP	390	510	1423902/1425102	395/509	
7-hydroxycoumarin	405	444	142405210/1424442	407/447	FRET pair with fluorescein
3-cyano-7-hydroxycoumarin (CHC)	405	460	142405210/1424602	408/450	
3-cyano-7-ethoxycoumarin (CEC)	405	460	142405210/1424602	408/450	CytochromeP450 substrate, enzymatic conversion to CHC
mGFPm	430	475	142430210/142475210	433/475	GFP variant
Alexa Fluor 430	430	538	142430210/1425382	431/541	
Lucifer yellow	430	538	142430210/1425382	428/540	430/485 should be preferred
ECFP, cyan fluorescent protein	430	485 or 490	142430210/1424852 or 1424902	434/477	
StarBright Green	444	510	1424442/1425102	450/505	ref: HPSA-sigma.pdf
AttoPhos	444	555	1424442/1425552	430-440/560	
Chlorophyll	444	680	1424442/1426802	appr. 440/683	Viable cells, not for FL with standard PMT
Thioflavin T	450	485	1424502/1424852	450/482	See ref. Thioflavin T 14999.pdf, Amyloid 702.pdf, Thioflavin T a-LA-fibrils.pdf, Thioflavin T 4621.pdf
hrGFP (Stratagene)	485	510	1424852/1425102	500/506	
Fluo-4	485	518	1424852/1425182	494/516	Ca <sup>2+</sup> probe, single wavelength
Rhodamine 110	485	518	1424852/1425182	497/520	
Sytox Green	485	527	1424852/1425272	504/524	DNA dye, when bound
Acridine Orange	485	538	1424852/1425382	502/526	Bound to DNA (dsDNA)
Alexa Fluor 488	485	538	1424852/1425382 or 1425382	495/519	485/518 should be preferred
BCECF (high pH)	485	538	1424852/1425382	501/527	Used as cell permeant AM-ester
Fluorescein diacetate	485	538	1424852/1425382		
OilGreen	485	538	1424852/1425382	498/518	
RiboGreen	485	538	1424852/1425382	500/525	Bound to nucleic acid
Acridine Orange	485	538	1424852/1425382	500/526	Ref: biofilm.pdf
Nano Orange	485	590	1424852/1425902	478/570	Protein Quantitation assay
Calcein	485	518 or 538	1424852/1425182 or 1425382	493/517	
Carboxy Fluorescein (FAM)	485	518 or 538	1424852/1425182 or 1425382	494/518	Ref: melting point. pdf
SYBR Green I and II	485	518 or 538	1424852/1425182 or 1425382	492/513	Nucleic acid stain
EGFP, GFP-S65	485	527 or 520	1424852/1425272 or 1425202	489/508	
EYFP, yellow fluorescent protein	485	527(or 538)	1424852/1425272 (or 1425202)	513/527	
FITC (Fluorescein isothiocyanate)	485	538 or 518	1424852/1425382 or 1425182	493/517	
Fluorescein	485	538 or 518	1424852/1425382 or 1425182	493/517	detected at pH 9, Ref: Peptide. pdf
Fluo-3	485	538 or 527	1424852/1425382 or 1425272	506/527	Ca <sup>2+</sup> probe, single wavelength, Refs: Graff 2003 AB Fluo3 FL.pdf, Calcium. pdf, Texas CA2.pdf, Calcium Fluo-3. pdf, Ca with FA. pdf, Cytosolic free calcium.pdf
Rhodamine 123	485	538 or 527	1424852/1425382 or 1425272	507/529	
PicoGreen	485	538/518	1424852/1425382 or 1425182	502/523	Bound to nucleic acid
FAM (carboxyfluorescein)	492	518	1424922/1425182	492/518	
5-chloromethylfluorescein diacetate	492	518	1424922/1425182	492/518	
DAF-FM-DA	492	518	1424922/1425182	495/515	Nitric Oxide Indicator
CoroNa Green	492	518	1424922/1425182	492/516	Sodium channel indicator
BODIPY FL	492	518	1424922/1425182	502/511	
DCF (Dichlorodihydrofluorescein)	492	527	1424922/1425272	504/525	Ref: DCF ROS.pdf
R-phycoerythrin	492	575	1424922/1425752	495/578	
Sodium Green	510	542	1425102/1425422	507/532	Sodium channel indicator
6-carboxyrhodamine	515	555	1425152/1425552	525/547	
6-JOE/IC	515	555	1425152/1425552	520/548	
TBARs (Thiobarbituric acid)	515	555	1425152/1425552	539/553	Monitoring lipid peroxidation, oxidative stress marker
Dihydroethidium (DHE) bound to DNA	517	604	1425172/14256042	518/605	ROS assays, Ref: DHE ROS Ascent.pdf

Fluorochrome	Ex filter	Em filter	Prod. No	Peak, Ex/Em (nm)	Note
Ethidium bromide + DNA	520	605	1425202/142605220	518/605	
d-R110	521	542	1425212/1425422	521/542	
6-HEX	521	555	1425212/1425552	533/559	
Ethidium homodimer + DNA	530	620	1425302/142620220	528/617	
Propidium Iodide+DNA	530	635	1425302/142635255	536/617	
Sytox Orange	540	570	142540210/142570210	547/570	DNA dye, when bound
B-phycoerythrin	540	575	142540210/1425752	543/572	
Dil	544	575	1425442/1425752	549/565	
Rhodamine B	544	590	1425442/1425902	543/564	
Tetramethylrhodamine	544	590	1425442/1425902	552/578	
AlamarBlue	544	590	1425442/1425902	560/590	Ref: Viability. pdf
Cy3	544	590	1425442/1425902	552/570	
dsRed (red fluorescent protein)	544	590	1425442/1425902	558/583	
Octadecyl Rhodamine B	544	590	1425442/1425902	538/595	
Resorufin	544	590	1425442/1425902	571/585	Reaction product
R-Phycoerythrin	544	590	1425442/1425902	480-565/578	
5-Tamra and 6-Tamra	544	590	1425442/1425902	542/568	
TRITC (Tetramethyl rhodamine isocyanate)	544	590	1425442/1425902	547/572	
Nile Red	544	635	1425442/142635255	553/637	
d-R6G	550	570	142550208/142570210	550/569	
DyLight547	550	570	142550208/142570210	557/570	
d-Tam	578	597	142578206/1425972	577/597	
Rhodamine Red-X	578	597	1423578206/1425972	571/591	
Rox	578	604	142578206/1426042	578/604	
Alexa Fluor 568	578	604 or 612	142578206/1426042 or 1426122	578/603	
BODIPY TR	584	612	1425842/1426122	588/616	
Sulforhodamine101	584	612	1425842/1426122	586/605	
Texas Red	584	612	1425842/1426122	596/615	
mCherry	584	612	1425842/1426122	587/610	dsRED derivative
Alexa Fluor 594	584	620	1425842/1426202 or 142620220	590/617	
mPlum	584	650	1425842/142650220	590/649	dsRED derivative
d-Rox	603	621	1426032/1426212	603/621	
SYTO-64	603	621	1426032/1426212	599/619	
Alexa Fluor 610	603	640	1426032/1426402	612/630	
C-Phycocyanine	603	640	1426032/1426402	603/645	Red algae pigment
Cal Fluor 635	604	646	1426042/1426462	616/637	
Cy5	646	678	1426462/142678210	649/670	Not for FL with standard PMT
3,3'-dipropylthiadicarbocyanine iodide (DiSC3(5))	646	678	1426462/142678210	651/675	Not for FL with standard PMT
DyLight647	646	678	1426462/142678210	652/673	
Alexa Fluor 660	646	700	1426462/1427002	663/690	Not for FL with standard PMT
Alexa Fluor 680	678	700	142678210/1427002	678/702	Not for FL with standard PMT
Fura-2 (high/low Ca <sup>2+</sup> )	340/380	510	1423402 and 1423802/1425102	335/505 (high) 363/512 (low)	Only slow Ca <sup>2+</sup> reactions, ratiometric measurement
<b>FRET Combinations</b>					
Label 1: 7-hydroxycoumarin	405	460	142405210/1424602	407/447	Used in Invitrogen's GeneBlazer kit family
Label 2: Fluorescein		538	142405210/1425382	493/517	
Label 1: ECFP	430	485	142430210/1424852	434/477	
Label 2: EYFP		527	142430210/1425272	513/527	Ref: FRET poster 2003.pdf
Label 1: FAM	485	538	1424852/1425382	494/518	
Label 2: TAMRA		590	1424852/1425902	542/568	Ref: BioTechniques 28: 754-765
<b>Multiplexing Combinations</b>					
Label 1: Alexa Fluor 350	350	440	142350220/142440210	346/442	
Label 2: FAM (carboxyfluorescein)	492	518	1424922/1425182	492/518	
Label 3: Rox	578	604	142578206/14226042	578/604	
Label 4: Cy5	646	678	1426462/142678210	649/670	
<b>Luminescence BRET sets</b>					
BRET2	Filter 1	Filter 2	Prod. No	Peaks (nm)	Note
	395	515	142395240/1425152	395/510	
<b>New definitions</b>					
IRDye700DX	620	700	142620220/1427002	680/700	
IRDye800, 800CW, 800RS	700	790	1427002/1427902	774,767,774/800,789,786	