



Advanced Fluorescent Dyes and Tandems for Multicolor Flow Cytometry

Highly bright and stable fluorochromes with narrow excitation and emission profiles

Multicolor Flow Cytometry is a powerful technique for simultaneously measuring **multiple parameters** on individual cells, providing detailed immunophenotyping and functional analysis from a single sample of a cell population. Flow cytometers differentiate cells based on their size, internal complexity, and **fluorescence signatures**.

SETA BioMedicals provides proprietary, **bright**, and **extremely stable** fluorochromes with **variable Stokes' shifts** for a **wide spectral range** for Multicolor Flow Cytometry: these are covalent labels and non-covalent probes based on small-molecular-weight dyes and tandem dyes with fluorescent proteins (PE and APC).

If you do not see the dye, probe, label, or tandem for your next experiment in this summary, please let us know and we will **custom-synthesize** it for you.

Laser Line [nm]	Fluorochromes Used†				Superior Seta Replacements				
	Fluorochrome (Free dye)	$\lambda_{\max}$ Ab [nm]	$\lambda_{\max}$ FI [nm]	Brightness at excitation laser line [M ⁻¹ cm ⁻¹]	Free dye / Ab conjugate† in phosphate buffer pH 7.4	$\lambda_{\max}$ Ab [nm]	$\lambda_{\max}$ FI [nm]	Brightness at excitation laser line [M ⁻¹ cm ⁻¹]	Advantage and specific feature
380	Hoechst 34580	380	438	n.a. [§]	Seta-375 / IgG (D/P = 5)	372/372	476/480	20,500/50,000	Larger Stokes shift
					SeTau-380 / BSA	381/383	480/468	900/3,000	Larger Stokes shift
					Seta-385 / IgG (D/P = 4)	384/387	508/505	19,400/34,700	Larger Stokes shift
405	Pacific Blue	401	452	21,000	Seta-400 / IgG (D/P = 4)	399/401	576/569	8,000/15,100	Larger Stokes shift
	Pacific Orange	400	551	n.a. [§]	Seta-405 / IgG (D/P = 3)	401/404	452/453	20,800/49,900	Pacific Blue analog
	AmCyan	468	498	1,900	SeTau-405 / IgG (D/P = 2)	405/405	518/518	11,000/6,900	Shorter Stokes shift
436	CCVJ	440	505	n.a. [§]	Seta-470 / Glycerol:Water 10 cP, +65 °C / 700 cP, -6 °C	460/460/460	521/525/525	560/n.d.* / n.d.*	~6× Brighter. Larger Stokes shift
	Pacific Orange	400	551	n.a. [§]	SeTau-425 / BSA (D/P = 2)	425/427	545 /532	1,500/1,000	Viscosity sensitive
	AmCyan	468	498	5,100	Seta-PerCP-680	481	676	79,000	Shorter Stokes shift
488	FITC	488	491	67,000	SeTau-488 / IgG (D/P = 2)	486/484	532/530	22,800/71,600	~15× Brighter. Stokes shift
	Alexa 488	496	519	65,000					
	Cy3	555	569	3,400	SeTau-500 / IgG (D/P = 2)	502/500	568/563	31,200/53,100	~9× and ~14× brighter than Cy3 and Alexa 555, respectively. Larger Stokes shift. More photo- and oxidatively stable
	Alexa 555	553	568	2,200					
	BDP FL	502	511	n.a. [§]	Seta-470 / Glycerol:Water 10 cP, +65 °C / 700 cP, -6 °C	460/460/460	521/525/525	560/n.d.* / n.d.*	Viscosity sensitive
	R-PE	565	573	988,000	R-PE	565	573	988,000	Identical
	R-PE – Cy5	565	666	285,800	Seta-R-PE-670	565	671	340,000	20% Brighter
	R-PE – Cy5.5	565	671	234,400					
	R-PE – Cy7	565	778	148,000	Seta-R-PE-775	565	774	148,000	45% Brighter
	PerCP	477	678	162,400	PerCP	477	678	162,400	R-PE – Cy7 analog
	PerCP – Cy5.5	488	678	80,500	Seta-PerCP-680	481	676	88,800	Identical

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	Fluorochrome (Free dye)	λ_{max} Ab [nm]	λ_{max} FI [nm]	Brightness at excitation laser line [$\text{M}^{-1}\text{cm}^{-1}$]	Free dye / Ab conjugate [‡] in phosphate buffer pH 7.4	λ_{max} Ab [nm]	λ_{max} FI [nm]	Brightness at excitation laser line [$\text{M}^{-1}\text{cm}^{-1}$]	Advantage and specific feature
532	Alexa 555	553	568	7,800	Seta-555 / IgG (D/P = 2)	555/556	570/571	3,400/n.d.*	
	Cy3	555	569	11,700	Seta-580 / BSA (D/P = 1)	578/585	602/609	15,900/4,300	~2× Brighter
	5(6)-ROX	578	602	15,900					~40% Brighter
	mCherry	587	610	5,700					5(6)-ROX analog
	R-PE	565	573	1,317,000	R-PE	565	573	1,317,000	Identical
	R-PE – Cy5	565	666	412,800	Seta-R-PE-670	565	671	435,900	R-PE – Cy5 analog
	R-PE – Cy5.5	565	671	324,600					~30% Brighter
	R-PE – Cy7	565	778	190,500	Seta-R-PE-775	565	774	190,500	R-PE – Cy7 analog
	PerCP – Cy5.5	488	679	76,500	Seta-PerCP-680	481	676	57,000	
594	5(6)-ROX	578	602	21,900	Seta-580 / BSA (D/P = 1)	578/585	602/599	21,900/6,000	5(6)-ROX analog
	mCherry	587	610	13,600	Seta-640 / IgG (D/P = 2)	636/640	646/650	4,600/19,900	Ab conjugate is ~50% brighter than mCherry
	cl-APC	652	660	263,100	cl-APC	652	660	263,100	Identical
635	Cy5	647	665	50,300	Zy5 / IgG (D/P = 2)	647/647	665/665	50,300/70,800	Identical
	Alexa 647	650	671	60,600	SeTau-647 / IgG (D/P = 2)	649/648	695/694	74,000/128,600	Larger Stokes shift. ~20% Brighter
	Alexa 700	702	723	23,100	Seta-650 / IgG (D/P = 2)	651/654	671/673	35,100/80,200	~50% Brighter
					Seta-660 / IgG (D/P = 2)	661/665	672/675	4,900/38,900	
	cl-APC	650	660	367,000	cl-APC	650	660	367,000	Identical
	cl-APC – Cy7	650	779	68,900	Seta-APC-780	650	780	116,700	~70% Brighter
650	cl-APC – Alexa 700	650	719	132,500	Seta-APC-705	655	681	384,000	~3× Brighter
	Cy5	650	665	67,500	SeTau-647 / IgG (D/P = 2)	649/648	695/694	122,000/210,700	~80% and ~40% brighter than Cy5 and Alexa 647, respectively, and 3-4 orders more stable towards 2% H ₂ O ₂ . Larger Stokes shift. ~12× More photostable.
	Alexa 647	650	671	89,100					
					SeTau-660 / IgG (D/P = 2)	663/663	694/694	94,400/162,400	~80% Brighter when conjugated to Ab. More stable to light and oxidizers.
	Cy5.5	676	694	23,500	Seta-650 / IgG (D/P = 2)	651/654	671/673	56,000/128,4000	~2× Brighter
					Seta-660 / IgG (D/P = 2)	661/665	672/675	10,700/83,800	~4× Brighter when conjugated to Ab.
					SeTau-665 / IgG (D/P = 2)	664/662	712/716	47,900/54,200	~2× Brighter. More stable to light and oxidizers
					Seta-670 / IgG (D/P = 1)	667/673	688/693	7,300/12,500	
					SeTau-670 / IgG (D/P = 4)	673/672	694/693	39,600/61,600	~70% Brighter. More stable to light and oxidizers
	CypHer5E	643	660	7,000	Square-650-pH at pH 5.6 / pH 9.0	653/535	671/663	20,900/260 (3,600 at $\lambda^* = 532$ nm)	pH sensitive. ~3× Brighter. Suitable for ratiometry
	cl-APC	650	660	496,000	cl-APC	650	660	496,000	Identical

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	cl-APC – Alexa 700	650	719	175,000	Seta-APC-705	655	681	574,000	~3× Brighter. Larger Stokes shift. More photo- and oxidatively stable
	cl-APC–Cy7	651	779	91,000	Seta-APC-780	651	756	208,000	~2× Brighter
680	Cy5.5	676	694	50,400	Zy5.5 / IgG (D/P = 2)	676/683	694/698	50,400/43,800	Identical
					SeTau-670 / IgG (D/P = 4)	673/672	694/693	97,300/110,400	~2× Brighter. More stable to light and oxidizers
					Seta-680 / IgG (D/P = 2)	678/680	698/701	47,500/103,000	Ab conjugate is brighter than for Cy5.5.
	Alexa 680	681	704	65,900	SeTau-680 / IgG (D/P = 2)	683/682	705/703	122,300/244,600	~2× Brighter. More stable to light and oxidizers
	cl-APC – Alexa 700	650	719	126,000	Seta-APC-705	655	681	651,500	~5× Brighter
700	Cy7	756	779	8,400	Zy7	749	774	8,400	Identical
	Alexa 700	696	719	50,200	Seta-700 / IgG (D/P = 2)	687/705	703/715	7,200/7,200	Seta version
	Alexa 750	752	776	16,700	Seta-750 / IgG (D/P = 2)	753/756	780/783	9,600/20,500	Seta version
750	Cy7	756	779	26,000	Zy7	749	774	26,000	Identical
	Alexa 750	752	776	34,800	Seta-750 / IgG (D/P = 2)	753/756	780/783	31,600/68,700	Ab conjugate is ~2× brighter than for Alexa 750
780	Cy7	756	779	7,400	Zy7	749	774	7,400	Identical
	Alexa 790	782	805	n.a. [§]	Seta-780	777	807	2,600	Seta version
	APC–Cy7	651	779	70,300	Seta-APC-780	651	756	195,700	~3× Brighter

† Most of these data were obtained from <https://www.aatbio.com>

‡ Fluorochrome conjugated to an antibody (protein). D/P is the dye-to-protein ratio

§ Not available—brightness, extinction coefficient, and/or fluorescence quantum yield has not been reported in the literature

* Not determined

Contact us about these and other products or if you are interested in obtaining a sample for testing	1-217-417-2160 or support@setabiomedicals.com
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