Symphony S6SE: Laser and filter configuration

Symphony S6SE

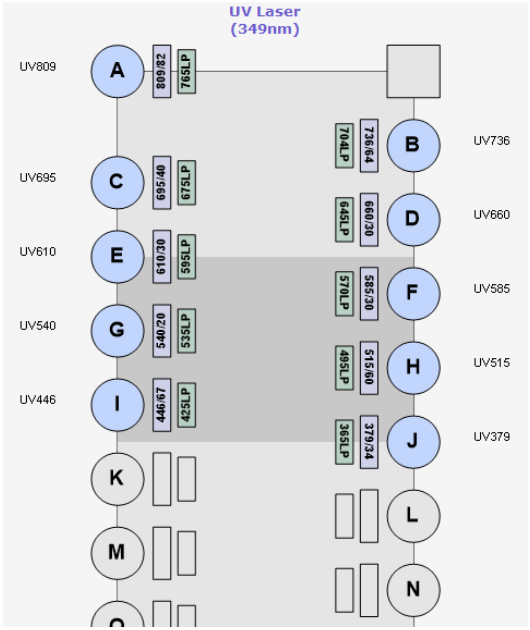
Laser	LP	BP	Parameter	Peak channel
349 nm 60 mW	365 LP	379/34	UV379	BUV395, Indo-1 (Ca2+ bound)
	425 LP	446/67	UV446	DAPI, Live/Dead blue, Zombie UV
	495 LP	515/60	UV515	BUV496, Live/dead aqua, Indo-1
	535 LP	540/20	UV540	
	570LP	585/30	UV585	BUV563
	595 LP	610/30	UV610	BUV615
	645 LP	660/30	UV660	BUV661
	675 LP	695/40	UV695	
	704 LP	736/64	UV736	BUV737
	765 LP	809/82	UV809	BUV805
405 nm 200 mW	415 LP	427/25	V427	BV421
	430 LP	450/40	V450	Pacific blue, eFluor 450, SB436, BFP
	465 LP	470/15	V470	BV480
	495 LP	510/40	V510	Horizon V500
	530 LP	540/20	V540	BV510
	570 LP	576/20	V576	BV570
	585 LP	595/30	V595	BV605, SB600
	605 LP	615/25	V615	
	645 LP	660/30	V660	BV650, SB645
	665 LP	680/30	V680	
	690 LP	710/40	V710	BV711, SB702
	730 LP	750/40	V750	BV750
	765 LP	785/50	V785	BV786, SB780
	810 LP	845/70	V845	

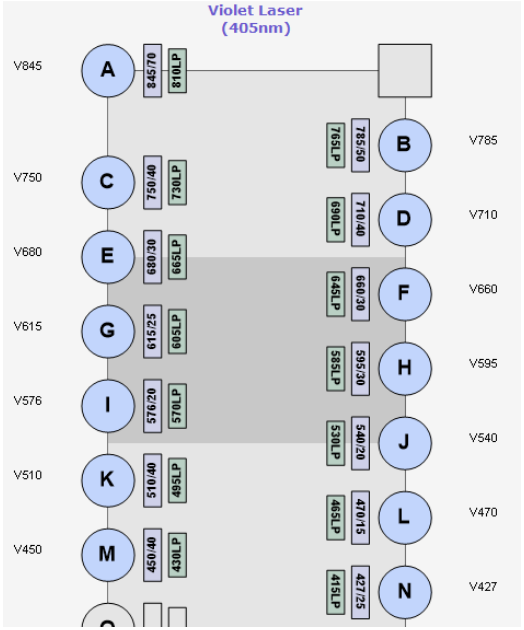
Laser	LP	BP	Parameter	Peak channel
488 nm 150 mW	500 LP	510/20	B510	FITC, BB515, GFP
	520 LP	537/32	B537	AF488, YFP, mVenus, Spark blue 550
	570 LP	576/20	B576	
	585 LP	602/40	B602	BB630
	645 LP	660/30	B660	BB660
	665 LP	675/20	B675	PerCP
	685 LP	710/50	B710	BB700, PerCP-e710, PerCP-Cy5.5
	724 LP	750/60	B750	BB755
	770 LP	810/79	B810	BB790
561 nm 150 mW	570 LP	585/30	YG585	PE, TdTomato, DsRed
	595 LP	602/40	YG602	PE-CF594, PE-Dazzle594, PE-e610, PI, mCherry
	645 LP	660/30	YG660	PE-Cy5, 7-AAD
	665 LP	670/20	YG670	
	680 LP	695/40	YG695	PE-Cy5.5
	699 LP	730/50	YG730	
	735 LP	750/40	YG750	
	750 LP	780/60	YG780	PE-Cy7
	800 LP	825/49	YG825	PE-Fire810
637 nm 140 mW	645 LP	660/30	R660	APC, TO-PRO-3
	665 LP	675/20	R675	AF647, DRAQ-7
	680 LP	680/30	R680	DRAQ-5
	699 LP	710/25	R710	AF700, APC-R700
	720 LP	730/50	R730	
	750 LP	780/60	R780	APC-Cy7, APC-H7, APC-e780, Live/Dead NIR

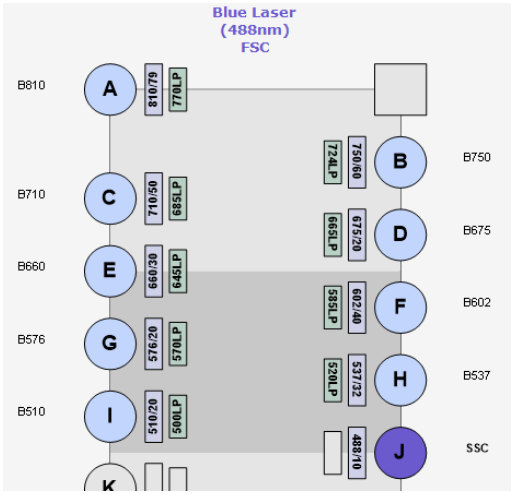
*PI and/or 7-AAD may be problematic depending on the panel

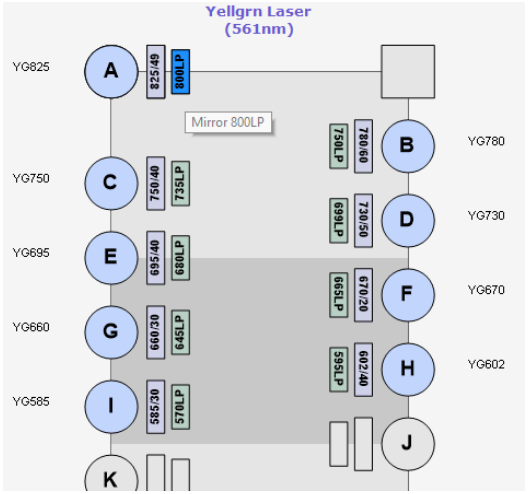
**Do not combine PerCP-Cy5.5 and PE-Cy5.5 in compensation mode

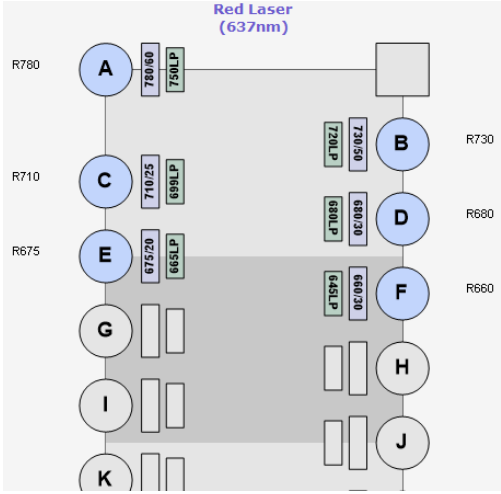
Symphony S6SE: Laser and filter configuration diagram



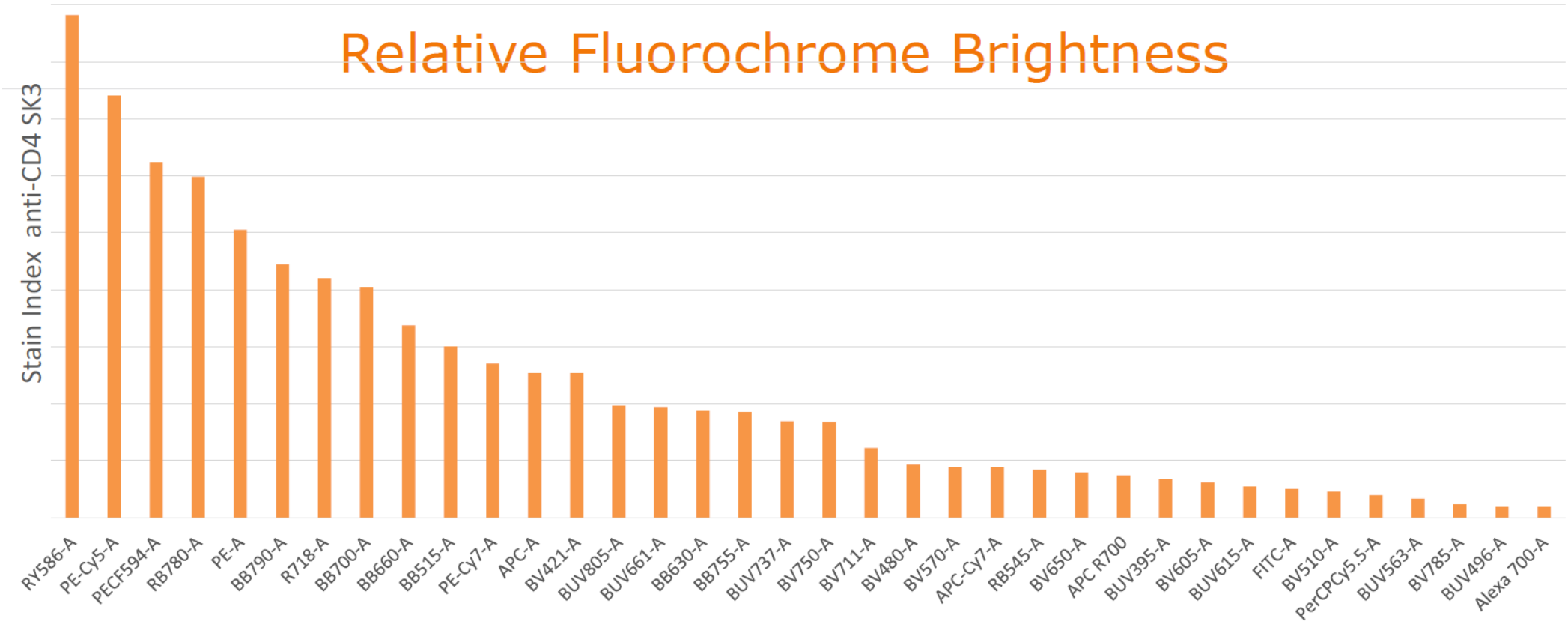








Symphony S6SE: Ranking of fluorochrome brightness



Stain indices and spread matrices were calculated by staining human PBMCs with anti-human CD4 (SK3 clone) conjugated to each of the fluors indicated at the optimal voltage settings in spectral mode. Voltage settings were optimized by voltration of unstained PBMCs.

SSM (Spillover Spread Matrix)

SSM	B510-A	B537-A	B602-A	B660-A	B710-A	B750-A	B810-A	R675-A	R710-A	R730-A	R780-A	UV379-A	UV515-A	UV585-A	UV610-A	UV660-A	UV736-A	UV809-A	V427-A	V470-A	V510-A	V576-A	V615-A	V660-A	V710-A	V750-A	V785-A	YG585-A	YG602-A	YG660-A	YG780-A	
BB515		0.680278	0.458693	0.210537	0.15379	0.243198	0.15891	0.168675	0.198965	0.164129	0.04575	0	0	0	0.061817	0	0	0	0.091596	0	0.072772	0.002337	0.19851	0.121605	0.00112	0	9.02693E-4	0.221915	0.455645	0.11369	0	BB515
FITC		1.09415	0.515675	0.337535	0.335674	0.466525	0.313719	0	0	0.302543	0	0	0.010453	0	0.358068	0	0.25947	0.001642	0.206901	0	0.329719	0	0.311612	0.187043	0.278766	0.230502	0.002927	0	0.327145	0	0.193823	FITC
RB545	0.22452		0.780263	0.60141	0.44587	0.826759	0.469038	0.512824	1.05447	0.524392	0	0	0	0.222886	0.26903	0.135213	0	0.187262	0.324949	0	0.004273	0.159892	0.418772	0.296143	0.305914	0.247752	0.145591	0.830861	0.949867	0.155292	0	RB545
BB630	0.075108	0.136166		0.972562	1.28015	1.76261	1.26348	0.809725	1.40271	0.918389	0.098342	0	0	0.196749	0.885221	0.432825	0.450757	0.404194	0.397325	0.158136	0.327844	0.172906	2.36091	1.38422	0.543766	0.680189	0.339606	1.91546	2.82542	2.35596	0.713361	BB630
BB660	0.091593	0	0		1.7291	1.73558	1.70953	4.33421	7.78063	4.98508	0.370531	0	0.187082	0.113909	0	1.30376	0.512448	0.325344	0.334563	0	0	0.145547	0.294533	1.13934	0.546872	1.0164	0.706125	0.238211	0.485289	6.17959	0.932018	BB660
BB700	0.075742	0.075761	0.214423	0.421785		2.86648	1.90349	1.09385	5.81795	3.86193	0.482504	0	0	0.065637	0.133188	0.196823	1.0447	0.545488	0.419801	0.109758	0	0.067513	0.116471	0.142166	1.31414	0.93392	0.760687	0.159747	0.182275	1.26759	0.558964	BB700
Percpcy5.5	0.428282	0	0.321485	0.300281		2.51243	1.69494	1.10634	6.50711	4.64609	0.524232	0	0.290962	0.210655	0.210655	0.189165	0.872763	0.539115	0.37704	0.254219	0.338508	0.398818	0.181436	0.353005	0.917692	1.44154	0.737685	0.757209	0	0.960525	1.65877	Percpcy5.5
BB755	0.340318	0.254347	0.188164	0.170784	0.45208		1.44241	0.262413	1.72428	1.81712	0.361185	0	0	0	0.107703	0.067312	0.471239	0.517892	0.077528	0	0	0.114289	0.156392	0.20463	0.192306	1.72424	0.716792	0	0.385423	0.183098	0.417356	BB755
BB790	0	0.061624	0.170227	0.161325	0.480278		1.59092	0.255105	1.73158	1.82884	0.360755	0	0	0	0.107575	0.067232	0.456444	0.489232	0.004308	0	0	0.114147	0.174255	0.186332	0.192077	1.7906	0.702462	0	0.384951	0.161352	0.395488	BB790
RB780	0.059942	0.156584	0.24542	0.197147	0.338694	2.65068		0.239806	0.805328	0.600396	0.41864	0.00171	0	0.08716	0.129093	0.108822	0.341858	0.953028	0.256041	0.107503	0.10027	0.051934	0.19275	0.050315	0.153363	0.769133	1.9713	0.334839	0.289036	0.13649	0.572106	RB780
APC	0	0	0	0.988897	0.639539	0.439501	0.727187		6.22132	4.91678	0.482861	0	0	0.089514	0.002164	0.428488	0.394275	0.241416	0.089654	0	0	0	5.79116E-4	0.332808	0.243988	0.305359	0.243987	0	0.142577	3.47361	1.13297	APC
APC R700	0	0	0	0.116795	0.252418	0.359577	0.608304	0.789958		7.10728	0.702753	0.001898	0.140493	0	0.077875	0.070187	0.46767	0.284609	0.108205	0.115827	0	0	0	0.046681	0	0.219208	0.296691	0.177675	0.223677	0.180735	0.443996	1.02396	APC R700
R718	0	0	0	0.051738	0.490525	0.875325	2.95547	1.30719		50.1178	5.96961	0	0.128046	0	0.11812	0.059359	0.649424	0.279687	0.461853	0.114096	0.07599	0.142566	3.81965E-4	0.085608	1.47383	0.647398	0.398702	0.466139	0.360016	0.335828	5.81069	R718
AF700	0.100465	0	0	0.145751	0.277549	0.442245	0.524138	0.541487	8.05926		0.689005	0	0.244269	0	0.229334	0.115262	0.437353	0.214969	0.008383	0	0	0	0	0.001016	0	0.229299	0.503819	0.360788	0.600675	0.666901	0.005137	0.732341	AF700
APCCy7	0.100411	0.00178	0	0.365123	0.288444	0.39341	1.03063	8.17889	3.93237	2.44742		0.125277	0.246255	0.195164	0.171507	0.086932	0.275989	0.825532	0.0046	0	0	0	0	0.156073	0.12971	0.366672	0.597881	0.270285	0.556201	1.22399	2.57363	APCCy7
BUV395	0	0	0	8.80658E-4	0	0.181927	0.177047	0.151262	0	0.43064	0.174657		0	0	0.339633	0.209926	0	0.139612	0	0	0	0	0	0.151273	0	0	0	0	0.782136	0	0.005535	BUV395
BUV496	0.402023	0.221785	0.422074	0	0	0	0.294545	0.798109	2.26911	1.79584	0	0.622239		0.866094	0.967925	0.713091	0.582764	0	0.496696	0.759698	0	0	0	0.530194	0	0.726024	0	3.85752	2.05325	0	0.005158	BUV496
BUV563	0.002671	0.633834	0.794654	0.708545	0.527216	0.871119	0.606392	1.14476	1.08879	1.68596	0.174561	0.544341	0.325861		2.1091	1.07133	0.729683	0.491974	0.576764	0	0	0.446174	0.656002	0.586779	0.006134	0	0	4.6475	5.37842	2.14042	0.421394	BUV563
BUV615	0	0	0.921095	0.870748	0.504061	0.673937	0.920274	0.730416	1.98951	2.31716	0.10295	0.134554	0.574942	0.479677		1.05736	1.41782	0.697012	0	0	0	0.147868	0.5607	0.411957	0.423864	0.558505	0.356798	2.19293	3.66291	3.17775	1.14076	BUV615
BUV661	0.069312	0	0	0.928105	0.714752	0.650314	0.739608	3.33627	6.69209	5.85607	0.577493	0.081428	0.348031	0.002201	0.263688		1.41552	1.0312	0.086926	0	0	0.128416	0.072545	0.425884	0.294917	0.471408	0.349222	0.374471	0.662808	4.00265	1.06618	BUV661
BUV737	0	0	0.231933	0.156547	0.2408	1.61913	1.28871	0.328706	6.24537	5.44756	0.690982	0.078574	0.423754	0.120417	0.116822	0.105291		0.967564	0	0	0	0.153946	0.14887	0.109281	0.247754	0.919321	0.468466	0.251699	0.335524	0.149606	0.712276	BUV737
BUV805	0	0.106642	0.097814	0	0	0.208392	0.385828	0.24428	0	0.311318	0.481433	0.272847	0.511177	0.192905	0.159957	0.080377	0.11589		0	0.154484	0	0.136467	0.077085	0.083522	0.001623	0.147563	0.3329	0.704646	0	0.132575	0.41771	BUV805
BV421	9.338E-4	0	0	0	0	0.132373	0.235063	0.138061	0.715913	0.286735	0.061027	0	0.2333	0	0.17268	0	0	0		0.731878	0.377343	0.18255	0.128185	0	0.167518	0.13575	0	0.254913	0.543005	0	0	BV421
BV480	0.370661	0.133195	0.006215	0.087486	0	0.222672	0	0.150194	0.783296	0.168976	0	0.00251	0.154242	0.240922	0.265627	0.241706	0.241711	0.173817	0.24117		1.04245	0.749945	0.310945	0.187272	0.257922	0.364182	0.193586	1.59974	1.11447	0	0	BV480
BV510	0	0.002372	0.287097	0.261132	0.171008	0.294381	0	0.54264	1.49447	0.930976	0	0.255058	0.251818	0	0.855066	0.526519	0.526477	0.426453	0.395548	0.768171		0.853647	0.701976	0.583961	0.515117	0.779543	0.47014	2.10653	2.18406	0.447571	0	BV510
BV570	0	0	0.612105	0.616015	0.59192	0.473901	0.80153	0.531768	1.44421	0.912039	0	0	0.673676	0.645049	0.565172	0.514465	0.514378	0.295927	0.513136	0	0.279883		0.862763	0.758302	0.779676	0.710244	0.610122	3.74972	2.52907	1.51972	0.628044	BV570
BV605	0	0.133273	0.504732	0.740245	0.516282	0.637156	0.698036	0.882105	2.79278	1.66285	0	0	0.458273	0.348908	0.98392	0.831201	0.831349	0.620234	0.521266	0	0	0.358548		0.945372	0.837025	1.14064	0.901199	2.88018	2.78413	1.89337	1.14195	BV605
BV650	0	0	0.158402	0.773851	0.463017	0.536647	0.721813	1.79575	5.88861	3.94957	0.299664	0	0.286077	0.003795	0.419725	0.885351	1.10501	0.811584	0.693061	0	0	0.006794	0.526852		1.03349	1.39363	0.865443	0.802493	1.17849	2.341	1.24498	BV650
BV711	0.083226	0	0.158558	0.144142	0.95216	1.67358	1.21344	0.629135	7.70706	5.72934	0.749471	0	0	0	0	0.090803	1.58562	0.886802	0.627141	0.252312	0	0.107544	0	0.198995		2.43638	1.1719	0	0.236125	0.417552	0.942335	BV711
BV750	0	0	0	0	0.154307	0.935114	0.672522	0.154275	2.69227	1.94216	0.348471	0	0.250344	0.002049	0	0.070423	0.814029	0.903772	0.169321	0.003957	0	0.083463	0	0.001812	0.341598		1.12501	0.139407	0.127835	0	0.414237	BV750
BV786	0	0	0.143001	0.08353	0	0.419462	0.989962	0.183006	1.14527	1.06921	0.571566	0.001652	0.208311	0.001922	0.154041	0.066042	0.420265	2.0337	0.485287	0.126698	0.153545	0	0.063346	0.068644	0.102313	2.14203		0.29687	0.484446	0.075851	0.630582	BV786
PE	0	0.094981	0.737043	0.516654	0.387394	0.521207	0.346384	0.42781	0.290314	0.274333	0.039958	0	0.152862	0.198631	0.240694	0.102578	0.116712	0.067148	0.302368	0	0	0.456471	0.342563	0.262115	0.124536	0.175892	0.075109		1.66491	0.92821	0.370145	PE
RY586	0.138873	0	0.502557	0.365199	0.344601	0.213763	0.33464	0.157017	0.407179	0.14865	0	9.48068E-4	0.058346	0.111425	0.16491	0.111677	0.101724	0.052519	0.001837	0.050987	0.048572	0.151689	0.17071	0.148819	0.085808	0.111221	0.073126		2.62416	1.37778	0.48953	RY586
PECF594	0	0.060637	0.854531	0.626292	0.648613	0.910061	0.561989	0.48879	0.627008	0.376227	0.037683	0	0.07029	0.052514	0.147112	0.134659	0.179355	0.130232	0.052649	0	0.001445	0.096342	0.455615	0.336275	0.189373	0.273762	0.155152	0.905406		1.80322	0.625807	PECF594
PECy5	0	0.046795	0.061549	1.03006	0.989211	2.22214	1.27814	3.4704	4.46094	3.5673	0.290892	0	0.002049	0	0.056438	0.451058	0.276698	0.173932	0.106721	0.067935	0	0.041753	0.081955	0.420968	0.375567	0.649702	0.271957	0.254115	0.201944		1.19897	PECy5
PECy7	0	0.030329	0	0.031881	0.096439	1.33747	2.02886	0.086618	0.459265	0.372517	0.385156	0	0.050758	0	0	0	0.123483	0.443394	0	0	0	0	0.046149	0.0649	0	0.517768	0.832502	1.0532	0.241097	0.196906		PECy7
	B510-A	B537-A	B602-A	B660-A	B710-A	B750-A	B810-A	R675-A	R710-A	R730-A	R780-A	UV379-A	UV515-A	UV585-A	UV610-A	UV660-A	UV736-A	UV809-A	V427-A	V470-A	V510-A	V576-A	V615-A	V660-A	V710-A	V750-A	V785-A	YG585-A	YG602-A	YG660-A	YG780-A	

**To read this table: spread of fluor in the row impacts resolution of the fluor in the column. Red means the fluor in that row has significant spread into the dye in the column.

The SSM is independent of MFI (fluorochrome brightness and / or antigen density). MFI is normalized in the SSM formula, in order to assess instrument performance independent of MFI.

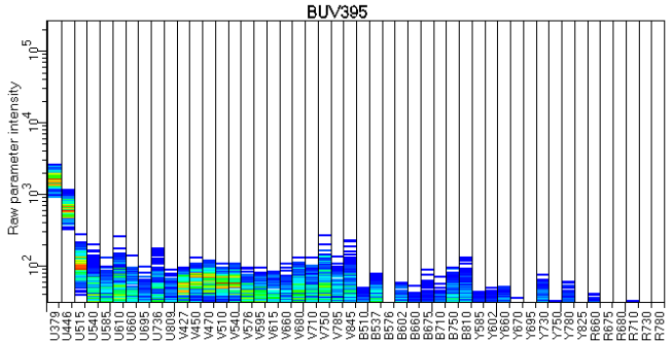
SSM was originally developed to monitor instrument performance (SSM=ΔrSD/√ Δ MFI).

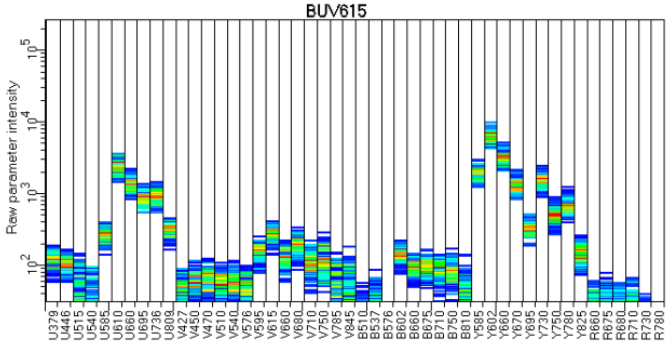
TSM (Total Spread Matrix)

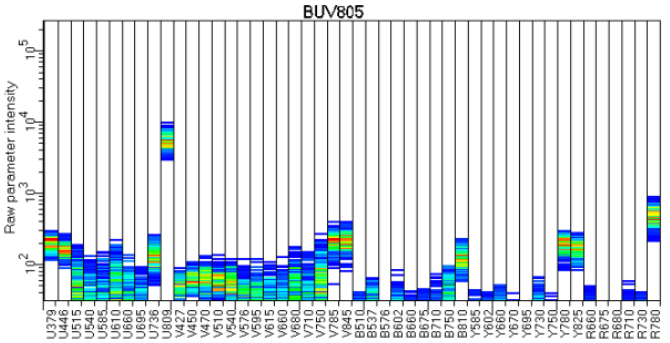
TSM	B510-A	B537-A	B602-A	B660-A	B710-A	B750-A	B810-A	R675-A	R710-A	R730-A	R780-A	UV379-A	UV515-A	UV585-A	UV610-A	UV660-A	UV736-A	UV809-A	V427-A	V470-A	V510-A	V576-A	V615-A	V660-A	V710-A	V750-A	V785-A	YG585-A	YG602-A	YG660-A	YG780-A	
BB515		78.6834	53.0541	24.3515	17.7879	28.1292	18.38	19.5095	23.013	18.9837	5.29159	0	0	0	7.15	0	0	0	10.5944	0	8.41708	0.270256	22.9604	14.0652	0.129588	0	0.104409	25.6675	52.7015	13.1498	0	BB515
FITC		39.0278	18.3939	12.0397	11.9734	16.6408	11.1902	0	0	10.7916	0	0	0.372862	0	12.7721	0	9.25518	0.05856	7.38009	0	11.7609	0	11.1151	6.67177	9.94349	8.2219	0.104409	0	11.6691	0	6.9136	FITC
RB545	10.6614		37.0512	28.5582	21.1724	39.2591	22.2725	24.3517	50.072	24.901	0	0	0	10.5839	12.775	6.42067	0	8.89221	15.4304	0	0.202898	7.59255	19.8856	14.0625	14.5265	11.7646	6.91345	39.4538	45.1049	7.37412	0	RB545
BB630	5.88112	10.6621		76.1542	100.239	138.017	98.934	63.4036	109.836	71.9122	7.70044	0	0	15.406	69.3151	33.8914	35.2955	31.6494	31.1116	12.3825	25.6711	13.539	184.865	108.388	42.5783	53.2605	26.592	149.986	221.237	184.478	55.8581	BB630
BB660	8.51371	0	0		160.723	161.326	158.904	402.872	723.224	463.373	34.4415	0	17.3896	10.588	0	121.187	47.633	30.2413	31.0982	0	0	13.5289	27.3774	105.904	50.8328	94.476	65.6356	22.1421	45.1085	574.404	86.6328	BB660
BB700	8.51282	8.51498	24.0996	47.4055		322.171	213.939	122.941	653.894	434.053	54.2299	0	0	7.37708	14.9693	22.1215	117.417	61.3089	47.1826	12.336	0	7.58792	13.0905	15.9784	147.7	104.966	85.4956	17.9544	20.4864	142.468	62.8234	BB700
Percpcy5.5	14.529	0	10.906	10.1867		85.2311	57.4988	37.5312	220.746	157.613	17.7839	0	9.87054	7.1462	7.1462	6.41718	29.6074	18.2888	12.7906	8.62406	11.4835	13.5294	6.15499	11.9753	31.1316	48.9025	25.0251	25.6874	0	32.5846	56.2716	Percpcy5.5
BB755	0	5.88299	16.251	15.4011	45.8505		151.879	24.354	165.309	174.594	34.4401	0	0	0	10.2698	6.41838	43.5752	46.7053	0.411315	0	0	10.8973	16.6356	17.7885	18.337	170.943	67.0617	0	36.75	15.4037	37.7559	BB755
BB790	8.51384	22.2403	34.8582	28.0018	48.1064	376.489		34.0608	114.385	85.2772	59.4614	0.242895	0	12.3798	18.3357	15.4565	48.5558	135.363	36.3667	15.2691	14.2419	7.37648	27.3772	7.14642	21.7829	109.244	279.994	47.5588	41.0532	19.3864	81.259	BB790
RB780	61.4025	59.9001	17.942	5.29166	17.7895	209.319		16.4863	77.4952	71.9715	34.4442	0	0	0	0	0.081083	18.9073	78.4306	19.4123	0	8.01387	0.193026	11.1154	6.66947	6.9136	51.797	77.6721	0.406827	34.4766	10.5837	49.5052	RB780
APC	0	0	0	81.4535	52.6776	36.2008	59.897		512.438	404.986	39.7723	0	0	7.37307	0.178263	35.2937	32.4757	19.885	7.38466	0	0	0	0	0.047701	27.4128	20.0968	25.1518	20.0967	0	11.7438	286.115	93.3203	APC
APC R700	0	0	0	15.4016	33.286	47.4169	80.2163	104.171		937.228	92.6711	0.250313	18.5266	0	10.2693	9.2554	61.6711	37.5309	14.2688	15.274	0	0	6.15573	0	28.9067	39.1242	23.4297	29.496	23.8332	58.5492	135.028	APC R700
R718	0	0	0	5.59438	53.0396	94.6473	319.57	141.344		5419.15	645.484	0	13.8454	0	12.7721	6.41838	70.2211	30.2421	49.9394	12.337	8.21669	15.4154	0.041301	9.25659	159.363	70.002	43.1109	50.4028	38.928	36.3125	628.3	R718
AF700	5.59502	0	0	8.11705	15.457	24.6291	29.1899	30.156	448.829		38.3714	0	13.6036	0	12.7719	6.41908	24.3567	11.9719	0.466844	0	0	0	0.056582	0	12.7699	28.0583	20.0927	33.4523	37.1405	0.286098	40.7849	AF700
APCCy7	7.70137	0.136537	0	28.0044	22.1232	30.1739	79.048	627.308	301.606	187.713		9.60852	18.8874	14.9688	13.1543	6.66754	21.1679	63.317	0.352835	0	0	0	0	11.9705	9.94853	28.1232	45.8565	20.7304	42.6597	93.878	197.393	APCCy7
BUV395	0	0	0	0.038827	0	8.02098	7.8058	6.66897	0	18.9864	7.70044		0	0	14.974	9.2554	0	6.15532	0	0	0	0	0	6.66947	0	0	0	0	34.4835	0	0.244019	BUV395
BUV496	10.6624	5.88214	11.1942	0	0	0	7.81187	21.1673	60.1809	47.629	0	16.5029		22.9704	25.6711	18.9125	15.456	0	13.1733	20.1486	0	0	0	14.0617	0	19.2555	0	102.308	54.4558	0	0.136798	BUV496
BUV563	0.080969	19.2141	24.0892	21.4789	15.9821	26.4072	18.3822	34.7024	33.0056	51.1085	5.29166	16.5012	9.87819		63.9356	32.4764	22.1197	14.9138	17.4841	0	0	13.5254	19.8861	17.7877	0.185943	0	0	140.885	163.042	64.8849	12.7742	BUV563
BUV615	0	0	47.3437	44.7559	25.9084	34.6399	47.3015	37.5429	102.26	119.1	5.29159	6.91598	29.5517	24.6551		54.3479	72.8748	35.826	0	0	0	7.60031	28.8196	21.1743	21.7864	28.7068	18.3392	112.715	188.271	163.334	58.6345	BUV615
BUV661	5.88172	0	0	78.7583	60.6533	55.1852	62.7626	283.113	567.886	496.942	49.0057	6.90993	29.5336	0.186763	22.3764		120.12	87.5072	7.37645	0	0	10.8973	6.1561	36.1402	25.0264	40.0034	29.6347	31.7773	56.2454	339.662	90.4753	BUV661
BUV737	0	0	20.3912	13.7634	21.1708	142.351	113.301	28.8994	549.084	478.942	60.7501	6.90808	37.2558	10.5869	10.2708	9.25701		85.0668	0	0	0	13.5347	13.0885	9.60783	21.7822	80.8254	41.1869	22.129	29.4988	13.1531	62.6222	BUV737
BUV805	0	8.51571	7.81072	0	0	16.6408	30.8095	19.5065	0	24.8597	38.4439	21.7877	40.819	15.4041	12.773	6.41838	9.25418		0	12.336	0	10.8973	6.15543	6.66947	0.129588	11.7833	26.5831	56.2681	0	10.5865	33.3554	BUV805
BV421	0.080969	0	0	0	0	11.478	20.3822	11.9712	62.0765	24.8627	5.29159	0	20.2293	0	14.973	0	0	0		63.4608	32.7193	15.8288	11.1149	0	14.5254	11.7708	0	22.1034	47.0837	0	0	BV421
BV480	23.7022	8.51728	0.39742	5.59436	0	14.2389	0	9.6043	50.0885	10.8053	0	0.160512	9.86312	15.406	16.9857	15.456	15.4564	11.1148	15.4218		66.6604	47.9558	19.8836	11.9753	16.493	23.2879	12.379	102.296	71.2654	0	0	BV480
BV510	0	0.092542	11.1997	10.1868	6.67102	11.4838	0	21.1684	58.2993	36.3174	0	9.94982	9.82345	0	33.3562	20.5395	20.5379	16.636	15.4304	29.9664		33.3008	27.3841	22.7804	20.0947	30.41	18.3402	82.1759	85.2002	17.4598	0	BV510
BV570	0	0	18.393	18.5105	17.7864	14.2401	24.0849	15.9789	43.3967	27.4056	0	0	20.2431	19.3829	16.9827	15.459	15.4564	8.89221	15.4191	0	8.41011		25.9249	22.786	23.4282	21.3419	18.3334	112.674	75.9953	45.6657	18.8719	BV570
BV605	0	5.88299	22.2801	32.6763	22.79	28.1257	30.8131	38.9383	123.281	73.4024	0	0	20.2293	15.4017	43.4327	36.6913	36.6978	27.3787	23.01	0	0	15.8272		41.7311	36.9484	50.3507	39.7812	127.138	122.899	83.578	50.4086	BV605
BV650	0	0	7.79462	38.0795	22.784	26.4072	35.5188	88.3649	289.765	194.35	14.7458	0	14.0772	0.186763	20.6537	43.5662	54.375	39.9362	34.104	0	0	0.334336	25.9252		50.8557	68.5774	42.5866	39.4889	57.991	115.196	61.2626	BV650
BV711	5.88172	0	11.2056	10.1868	67.2909	118.275	85.7562	44.4621	544.672	404.903	52.9665	0	0	0	0	6.41718	112.059	62.6719	44.3212	17.8314	0	7.60031	0	14.0634		172.183	82.8204	0	16.6874	29.5092	66.5966	BV711
BV750	0	0	0	0	14.0622	85.218	61.2877	14.0592	245.349	176.991	31.7566	0	22.8141	0.186763	0	6.41775	74.1834	82.3617	15.4304	0.360639	0	7.60602	0	0.165089	31.1302		102.524	12.7043	11.6497	0	37.7498	BV750
BV786	0	0	13.8964	8.11719	0	40.7621	96.2018	17.784	111.294	103.903	55.5432	0.160512	20.2431	0.186763	14.9693	6.41775	40.8402	197.629	47.1588	12.3121	14.9211	0	6.15573	6.67058	9.94245	208.157		28.849	47.0771	7.371	61.2782	BV786
PE	0	12.5782	97.6049	68.4194	51.3018	69.0223	45.8709	56.6539	38.4456	36.3293	5.29159	0	20.2431	26.3043	31.8745	13.5842	15.456	8.89221	40.0419	0	0	60.4494	45.3648	34.7113	16.492	23.293	9.94648		220.48	122.921	49.0175	PE
RY586	23.5119	0	85.0854	61.8299	58.3425	36.1911	56.6561	26.5837	68.9373	25.1672	0	0.160512	9.87819	18.8648	27.9201	18.9074	17.2223	8.89172	0.311016	8.63238	8.22339	25.6816	28.9021	25.1958	14.5276	18.8302	12.3806		444.283	233.264	82.8798	RY586
PECF594	0	8.51498	119.998	87.9472	91.0816	127.796	78.9175	68.6384	88.0477	52.8318	5.29159	0	9.87054	7.37431	20.6583	18.9096	25.186	18.2879	7.39328	0	0.202898	13.5289	63.9799	47.2215	26.5928	38.4431	21.7872	127.142		253.218	87.879	PECF594
PECy5	0	8.51498	11.1997	187.434	180.001	404.351	232.577	631.49	811.734	649.122	52.9319	0	0.372862	0	10.2698	82.0766	50.3492	31.6494	19.4195	12.3618	0	7.59762	14.9129	76.6013	68.3398	118.223	49.4866	46.2399	36.7467		218.17	PECy5
PECy7	0	5.59499	0	5.88129	17.7907	246.733	374.277	15.9789	84.7235	68.7206	71.0522	0	9.36372	0	0	0	22.7797	81.7958	0	0	0	0	8.51337	11.9725	0	95.516	153.577	194.29	44.4767	36.3245		PECy7
	B510-A	B537-A	B602-A	B660-A	B710-A	B750-A	B810-A	R675-A	R710-A	R730-A	R780-A	UV379-A	UV515-A	UV585-A	UV610-A	UV660-A	UV736-A	UV809-A	V427-A	V470-A	V510-A	V576-A	V615-A	V660-A	V710-A	V750-A	V785-A	YG585-A	YG602-A	YG660-A	YG780-A	
Total	201.1127	308.3561	722.4399	1079.62	1273.842	3127.217	2731.436	3141.766	7333.374	11585.23	1525.446	96.05887	426.7854	262.9204	603.956	691.1579	1300.563	1399.492	599.686	253.6328	219.1451	382.096	699.0457	785.2744	973.2415	1904.993	1466.871	1824.122	2470.724	3011.101	2524.202	54924.91

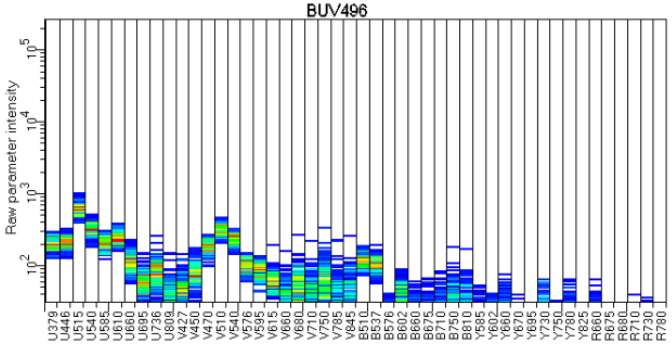
**The TSM provides the measurement of total spread and is dependent on MFI (fluorochrome brightness and / or antigen density). TSM was developed specifically to measure total spread and aid panel design (TSM=SSM*√ Δ MFI).
This TSM table was generated using CD4 stained single color.
The TSM value will increase or decrease for antigens expressed at higher or lower levels than CD4.
The same value across different rows will translate into the same amount of spread.

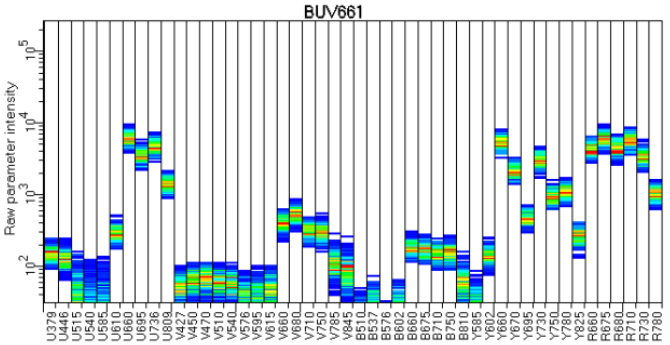
Fluors with primary **UV (349 nm)** excitation

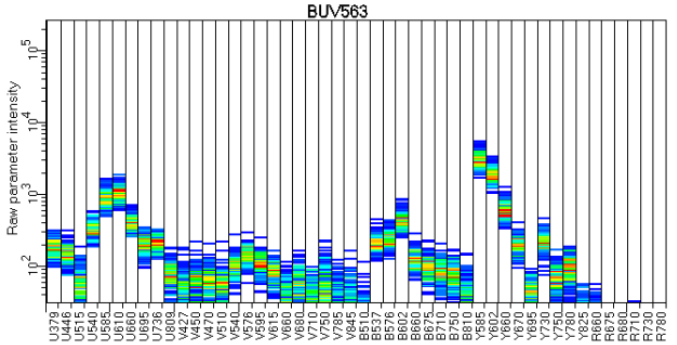


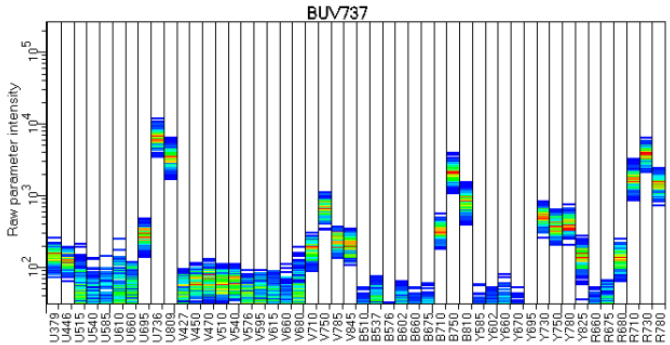




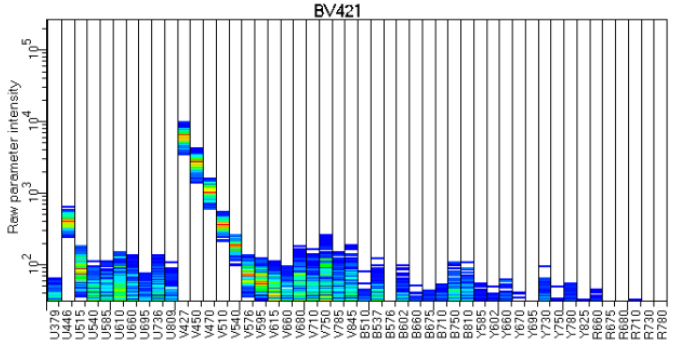


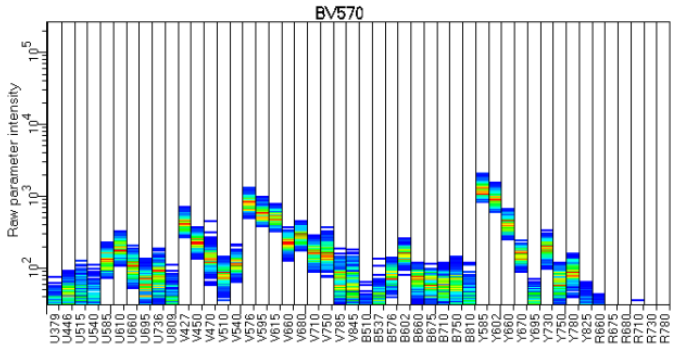


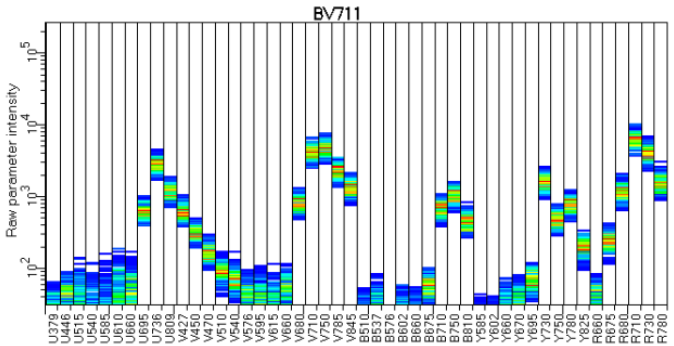


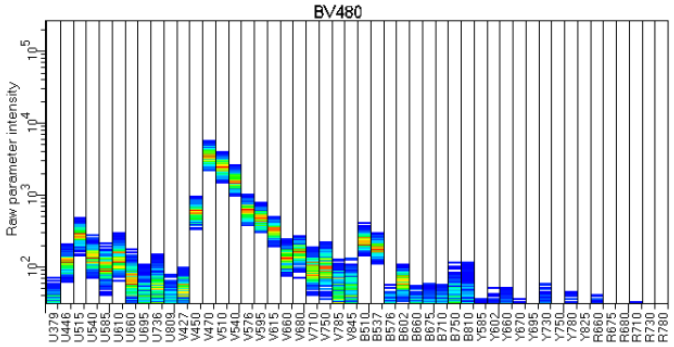


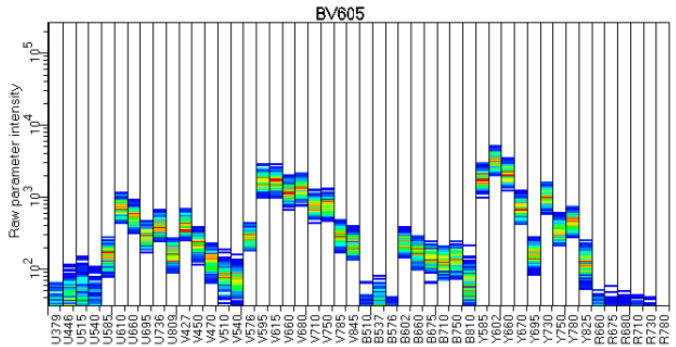
Fluors with primary **Violet (405 nm)** excitation

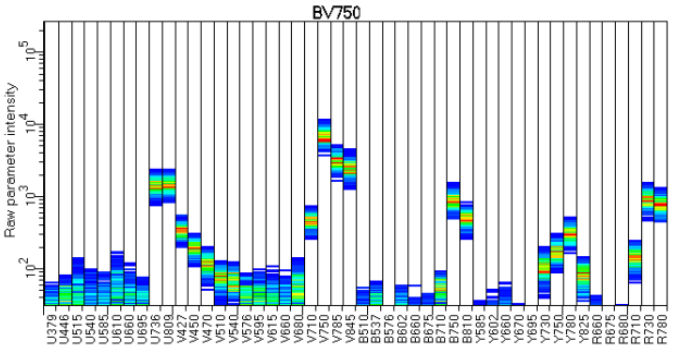


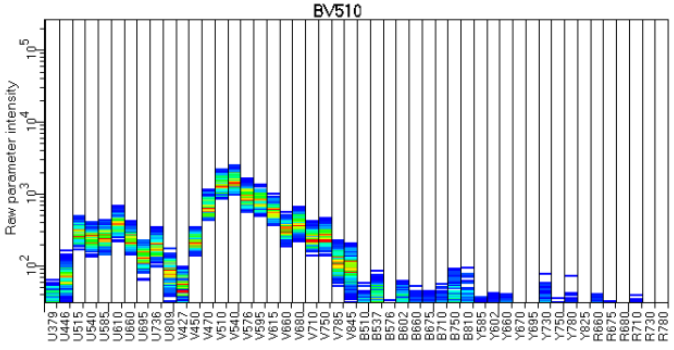


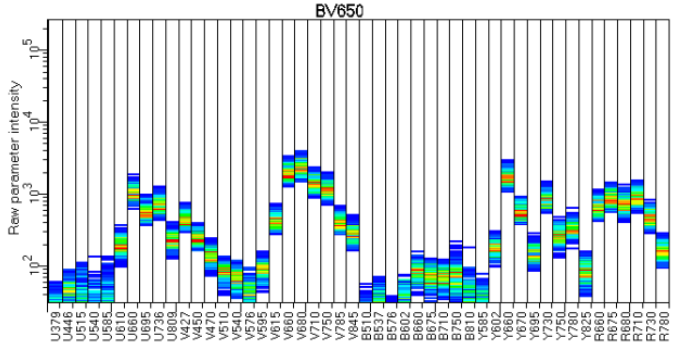


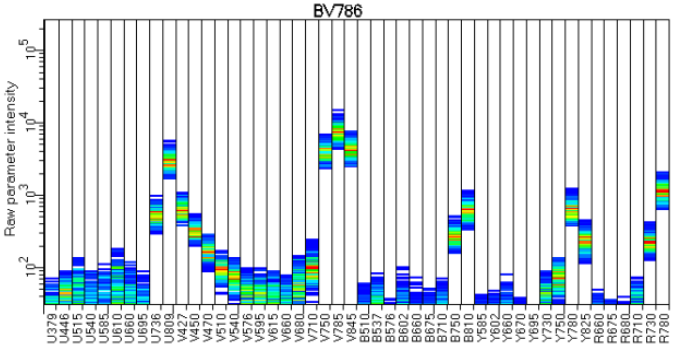




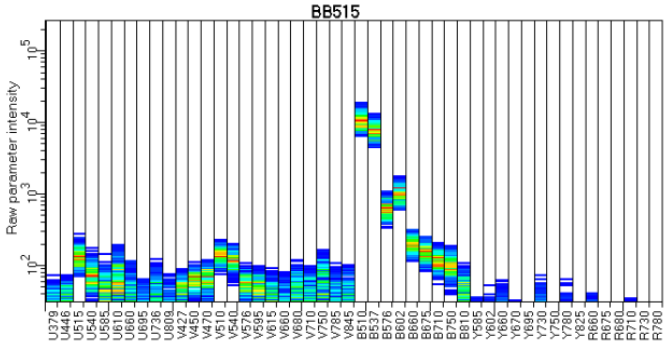


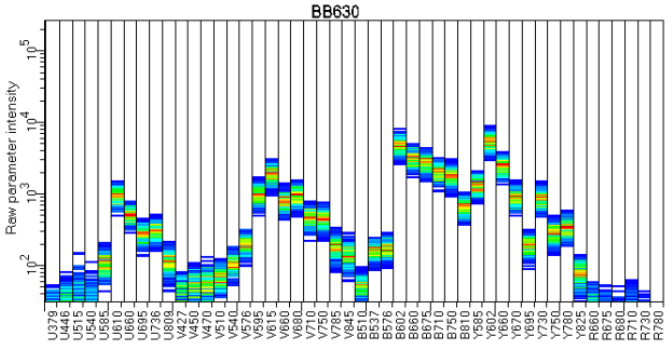


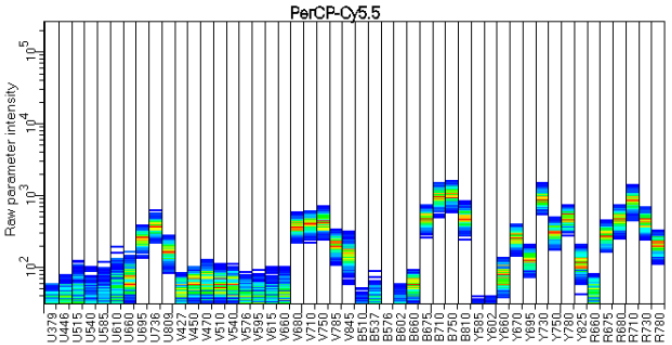


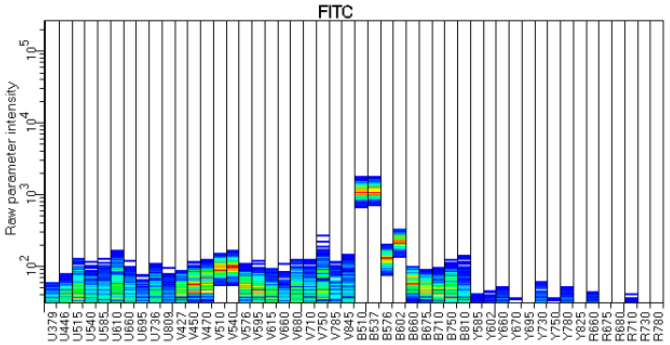


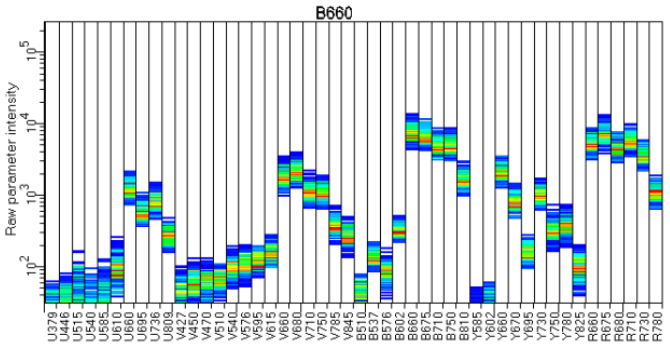
Fluors with primary **Blue (488 nm)** excitation

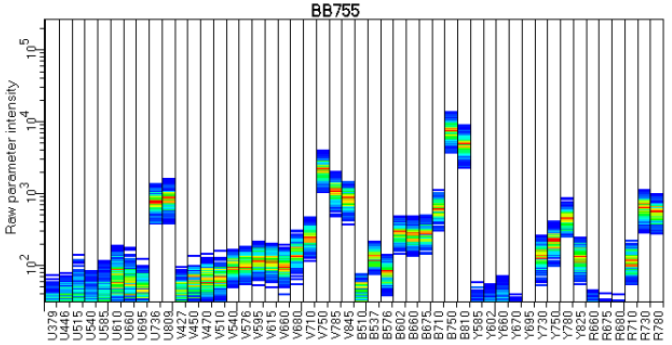


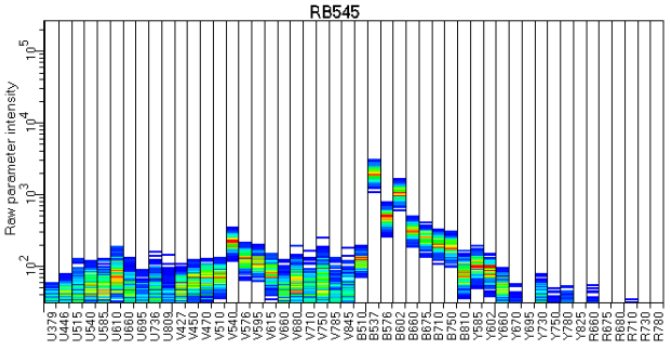


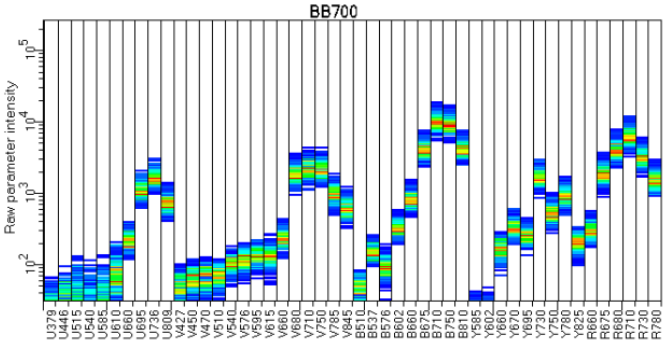


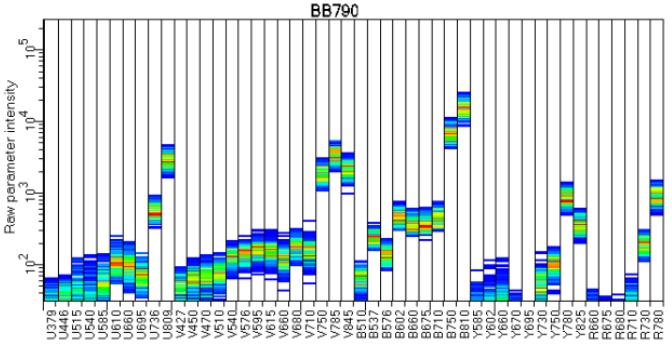




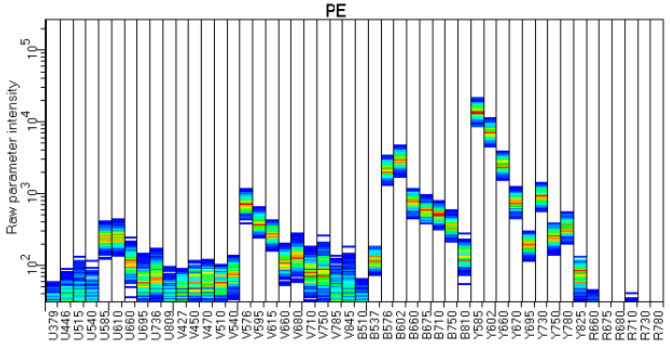


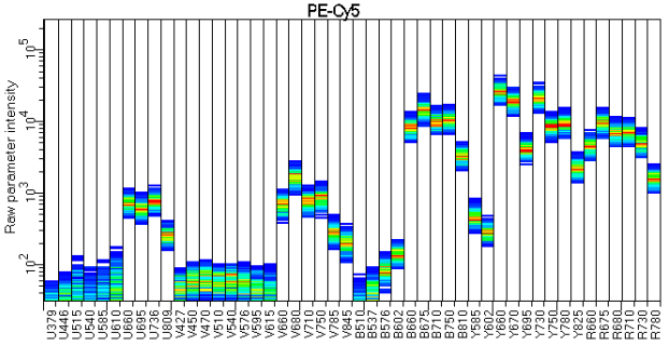


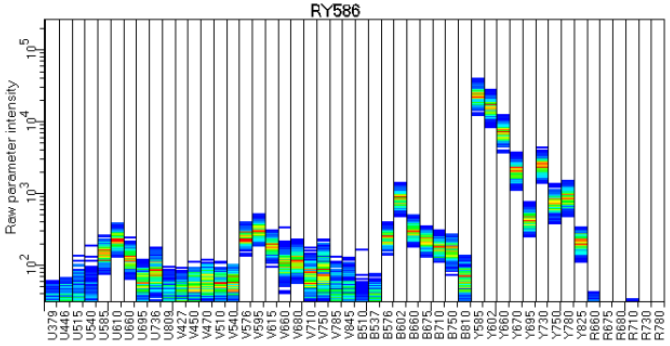


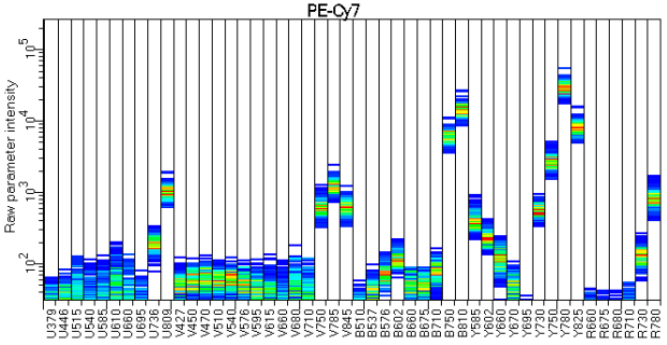


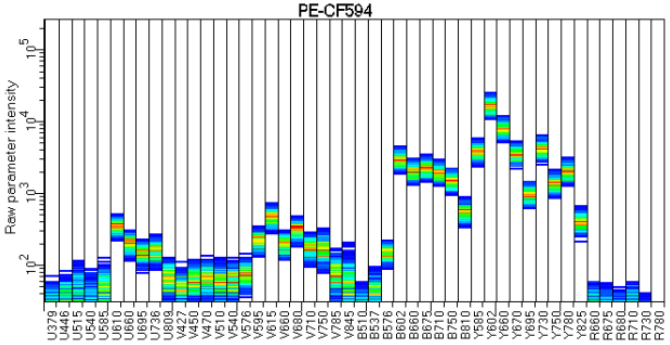
Fluors with primary **Yellow-green (561 nm)** excitation











Fluors with primary **Red (641 nm)** excitation