



CYTEK
TRANSCEND THE CONVENTIONAL

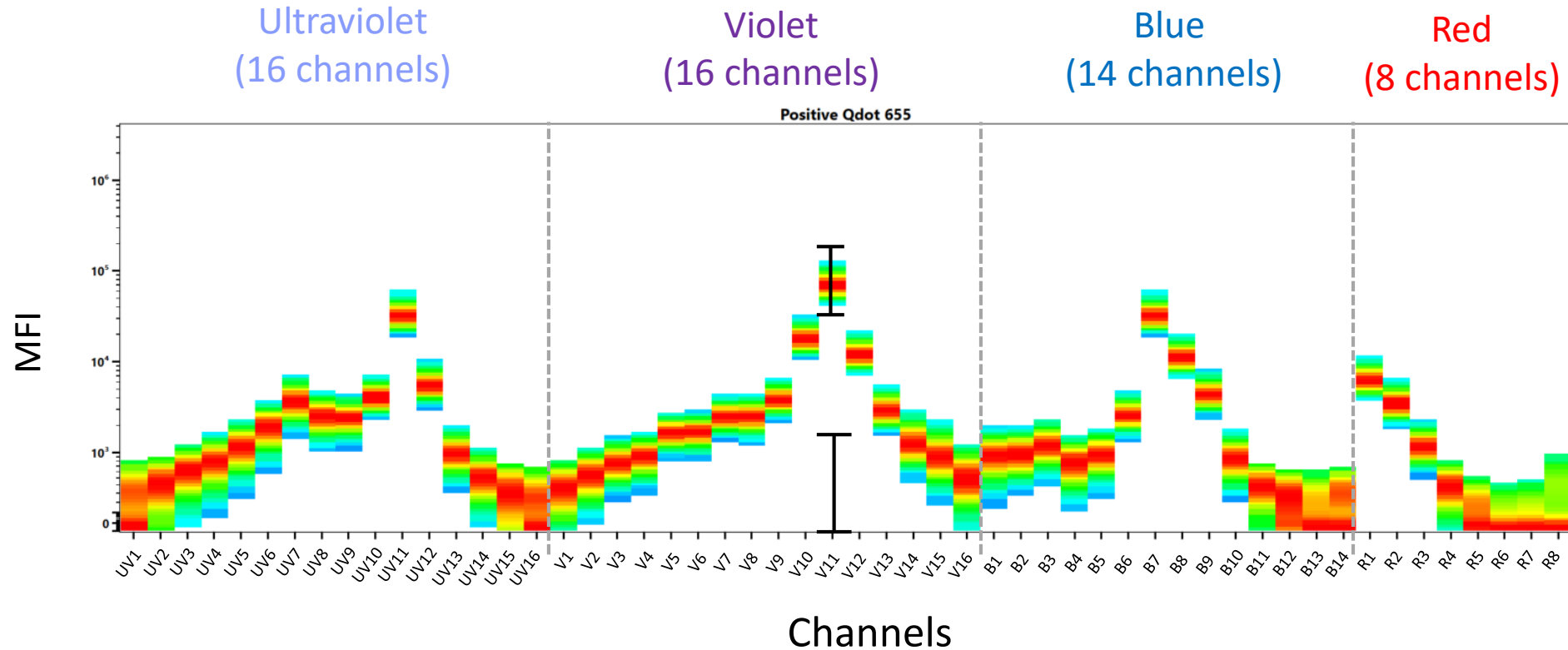
Cytek® Aurora Fluorochrome Selection Guidelines 4 Laser 16UV-16V-14B-8R

Fluorochrome Signatures

Dyes can be used in combination if they have unique spectrum signatures.

Look for dyes with unique spectra and consider spread introduced by the dyes when designing multicolor panels (see slide 27).

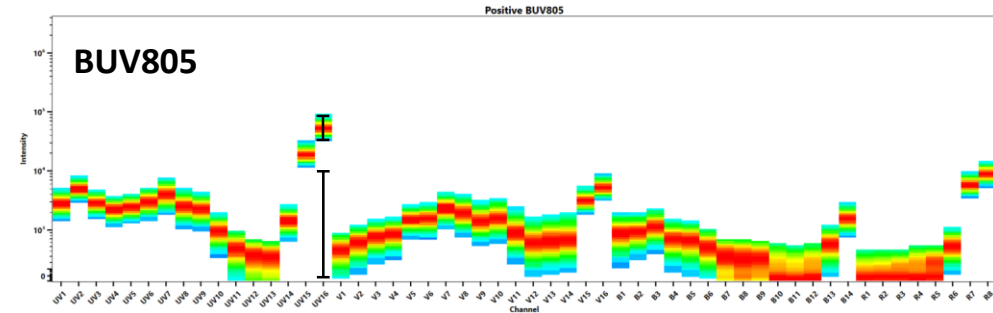
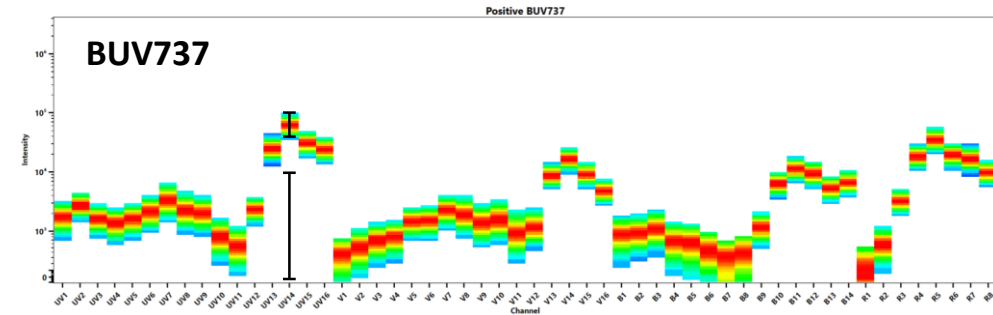
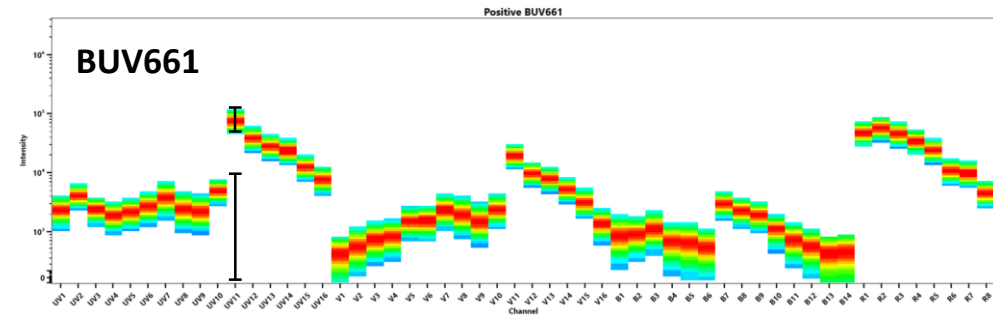
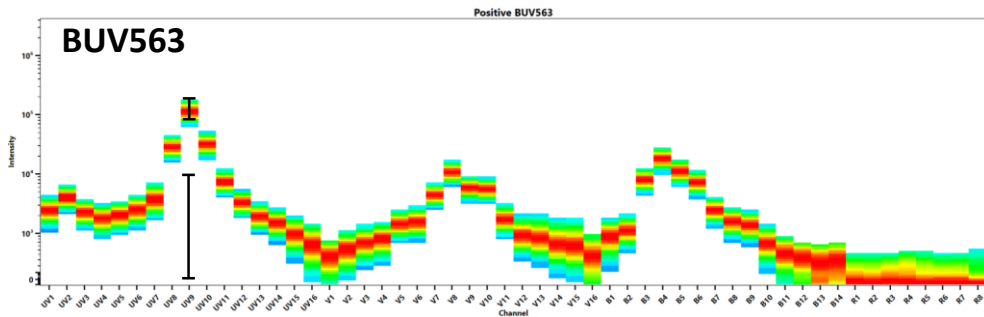
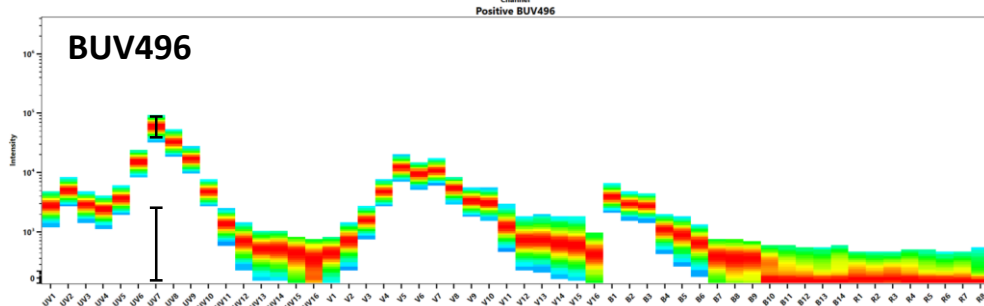
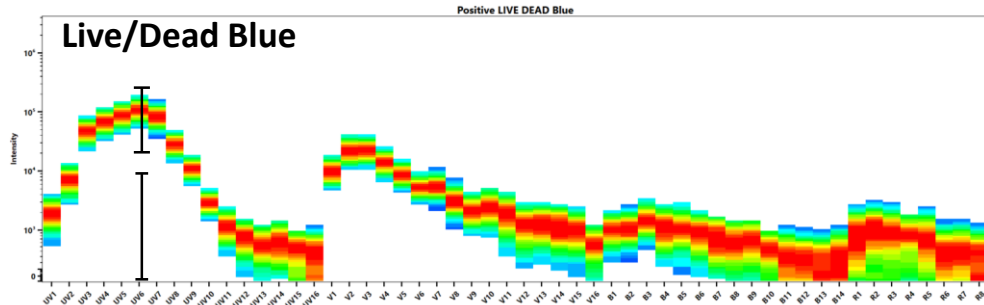
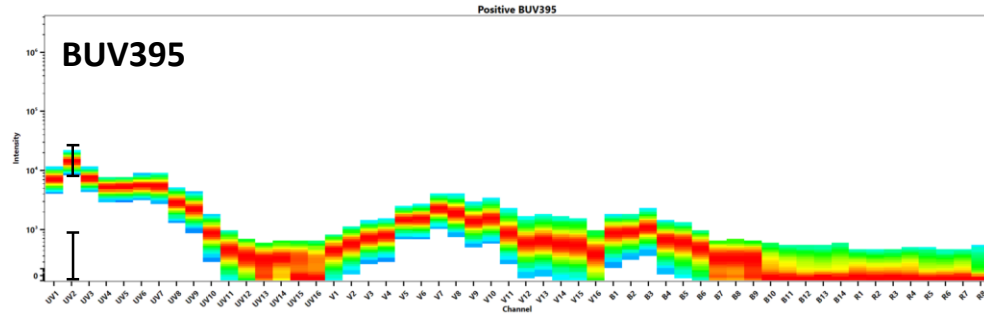
How to Read Full Spectrum Fluorochrome Signatures



This dye is excited by all 5 lasers. The peak channel (indicated by the black bar) is in channel V11, and it has secondary emission in channels UV11, B7, and R1. Based on this information, expect this dye to introduce spread into dyes emitting at similar wavelengths.

Dyes Primarily Excited by the Ultraviolet Laser

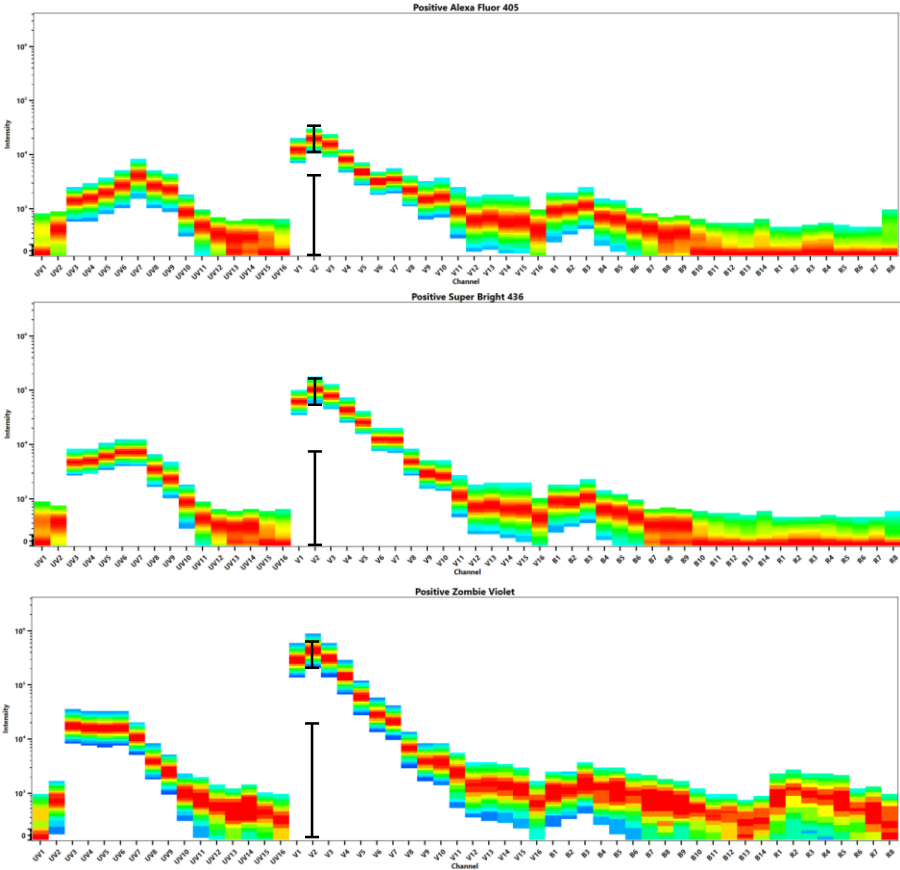
Ultraviolet Laser Excitable Dyes with Unique Signatures



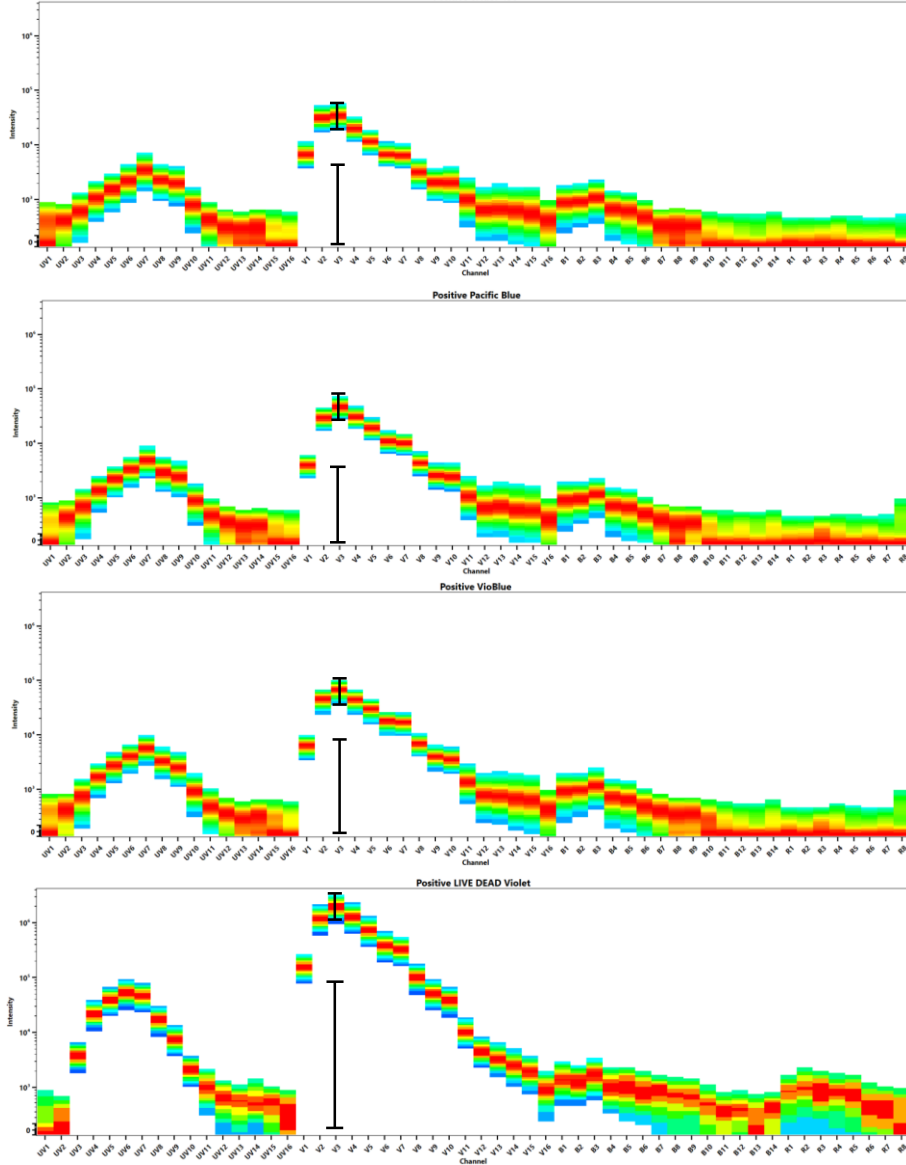
Dyes Primarily Excited by the Violet Laser

Violet Laser Excitable Dyes with Similar Signatures

Alexa Fluor 405, SuperBright 436 and Zombie Violet

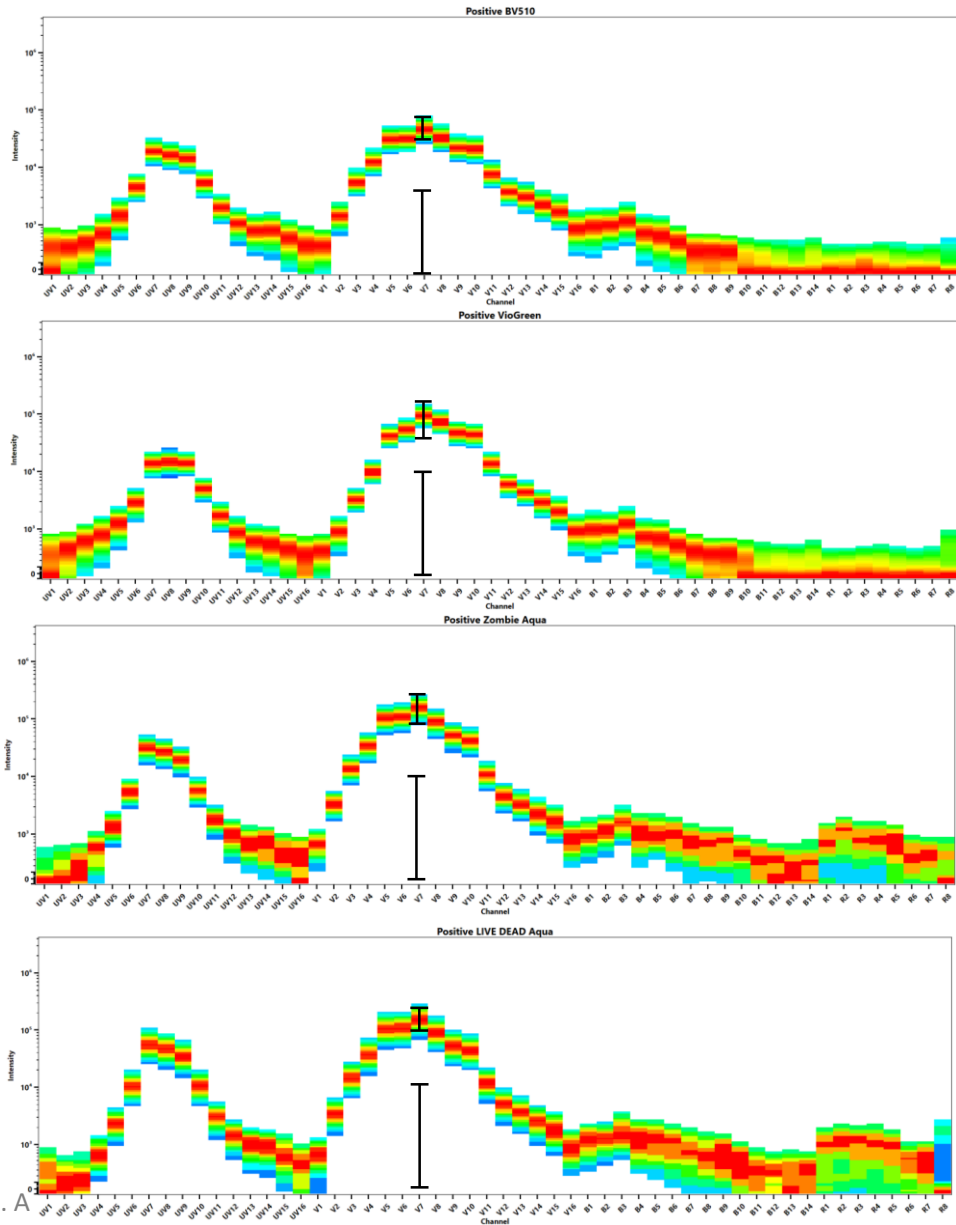


eFluor 450, Pacific Blue, VioBlue, and Live/Dead Violet

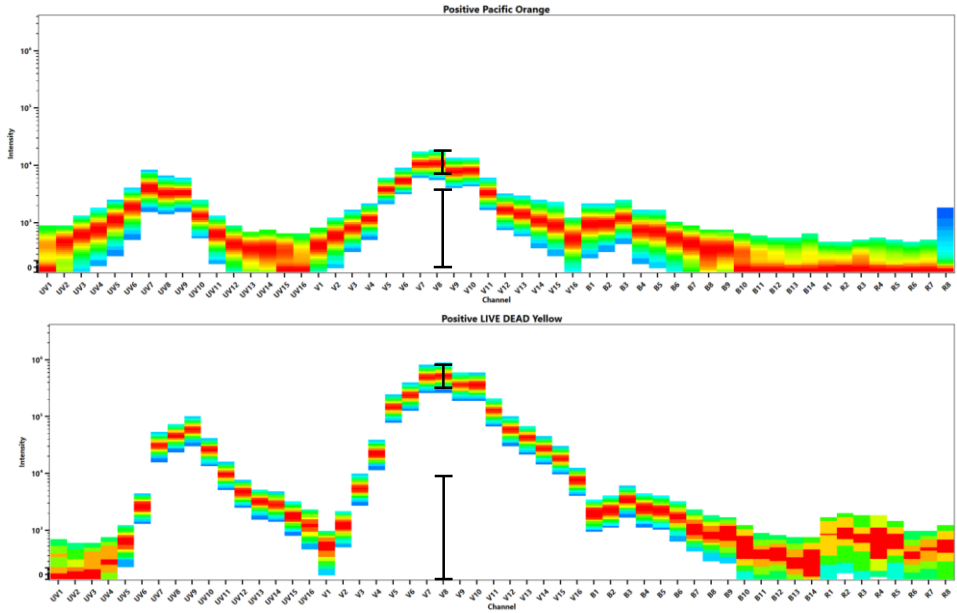


Violet Laser Excitable Dyes with Similar Signatures

BV510, VioGreen, Zombie Aqua and Live/Dead Aqua

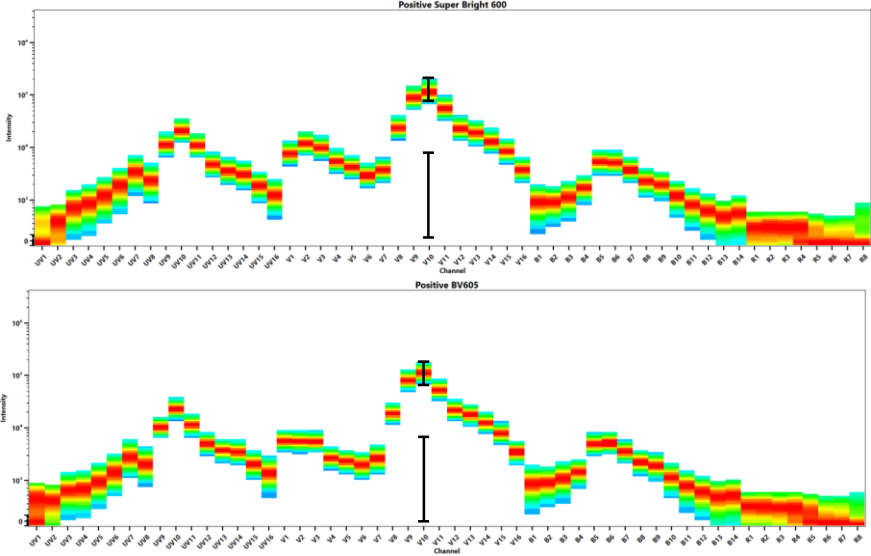


Pacific Orange and Live/Dead Yellow

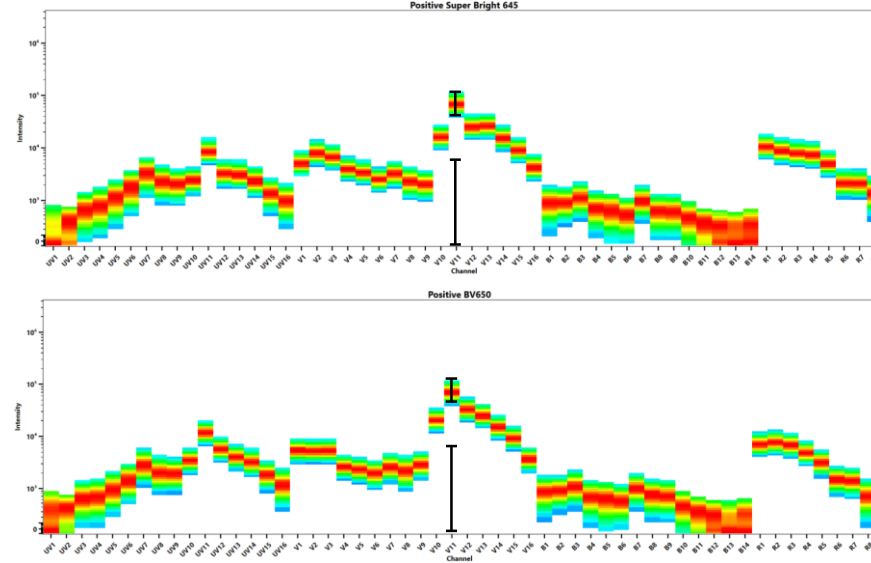


Violet Laser Excitable Dyes with Similar Signatures

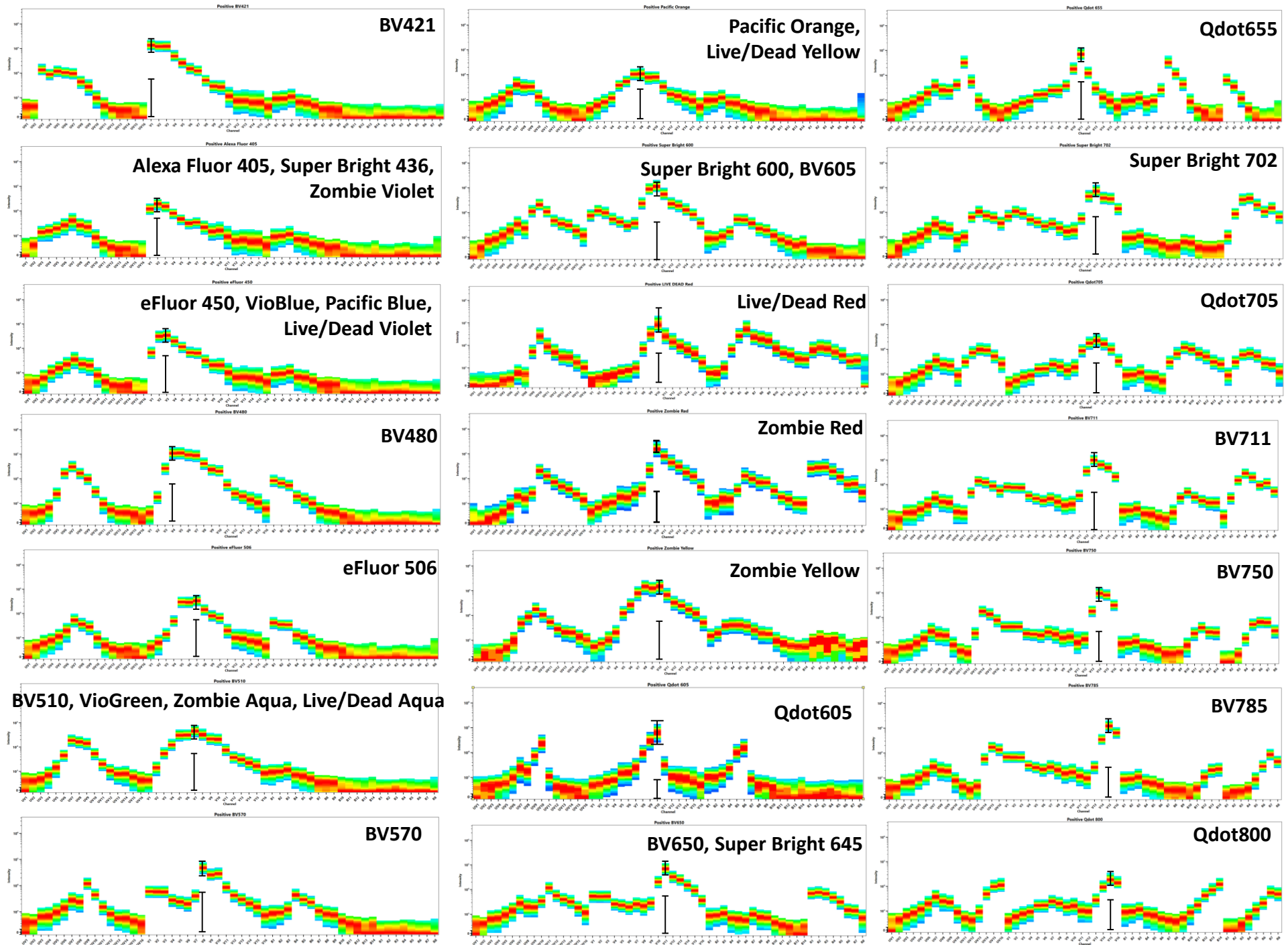
Super Bright 600 and BV605



Super Bright 645 and BV650



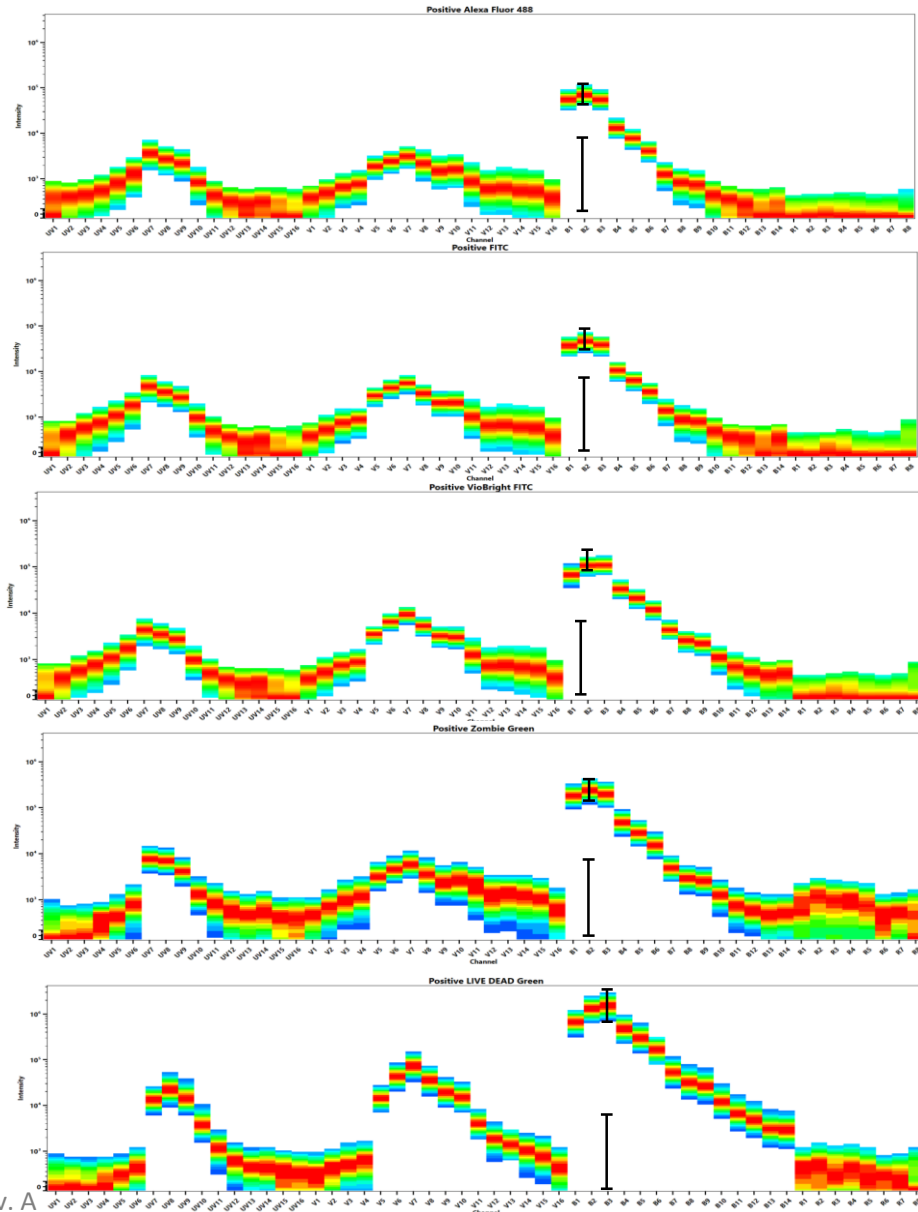
Violet Laser Excitable Dyes with Unique Signatures



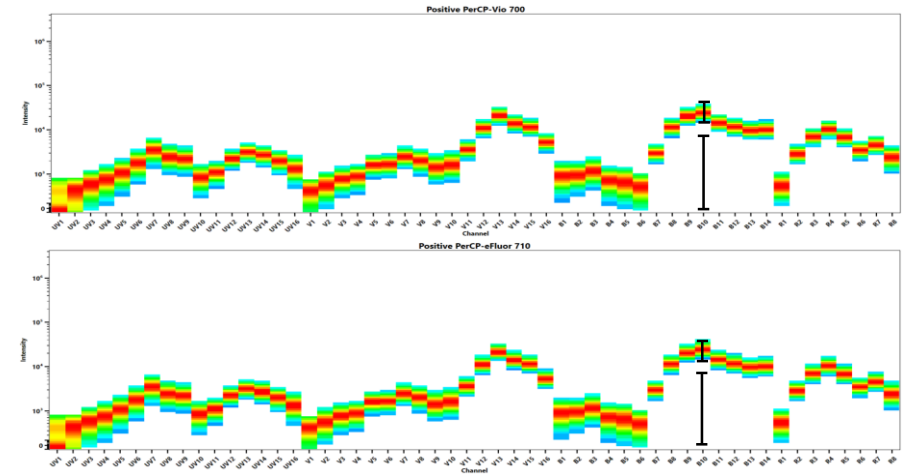
Dyes Primarily Excited by the Blue Laser

Blue Laser Excitable Dyes with Similar Signatures

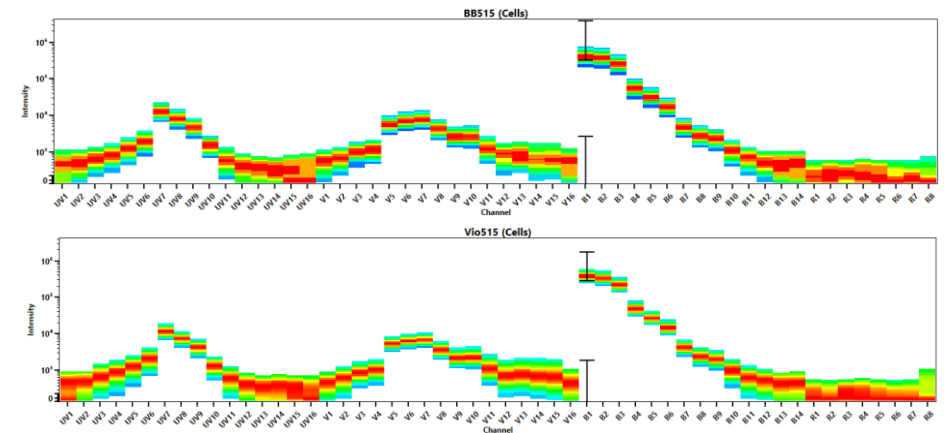
Alexa Fluor 488, FITC, VioBright FITC, Zombie Green and Live Dead Green



PerCP-Vio 700 and PerCP-eFluor 710

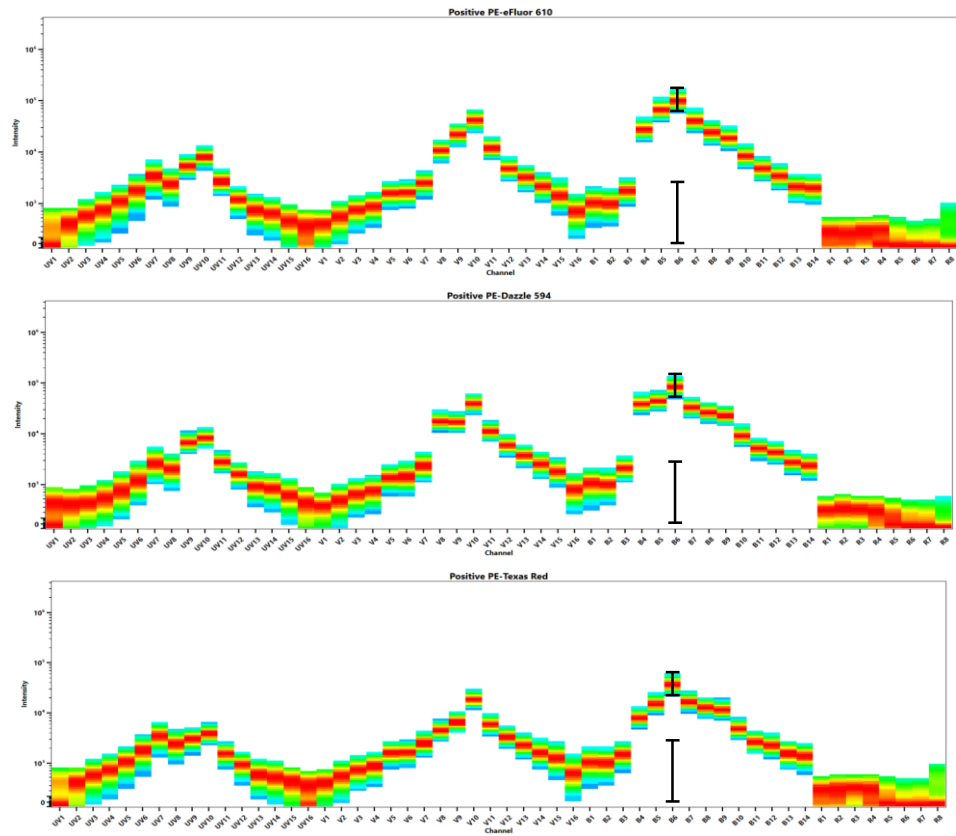


BB515 and Vio515

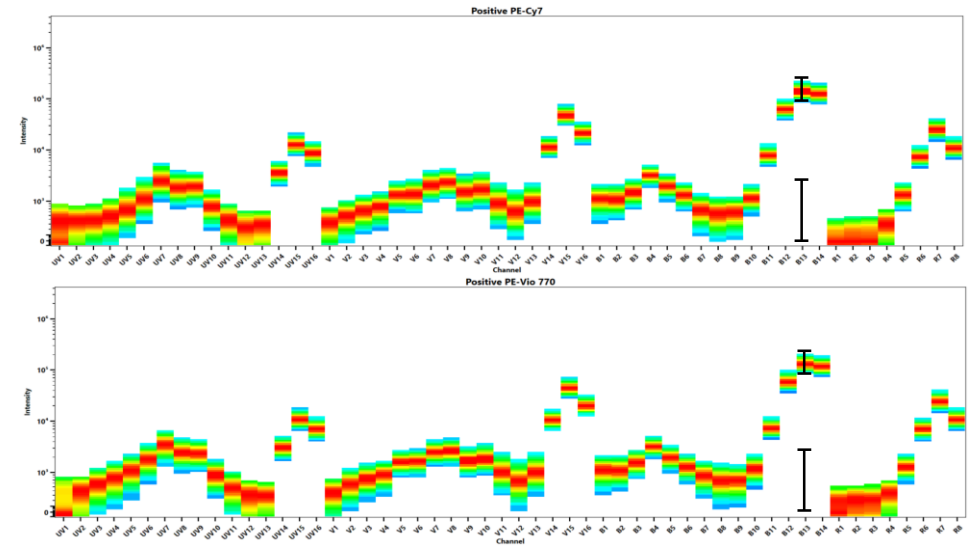


Blue Laser Excitable Dyes with Similar Signatures

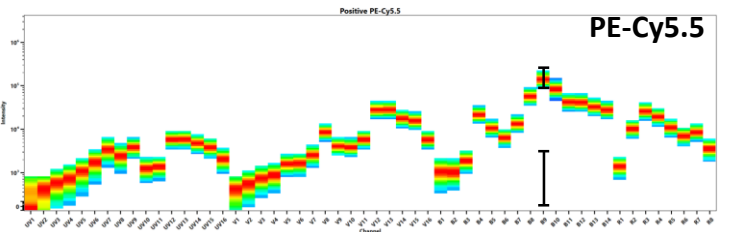
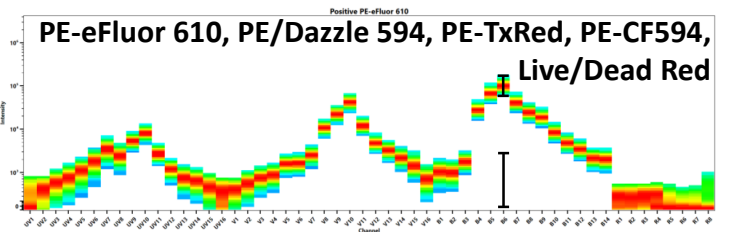
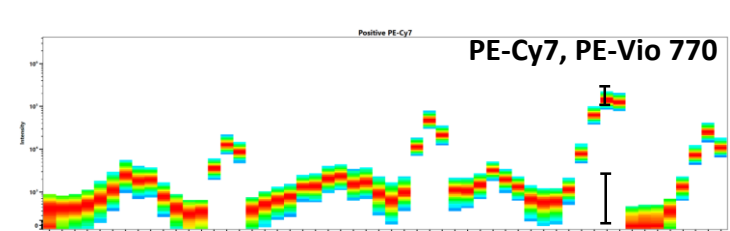
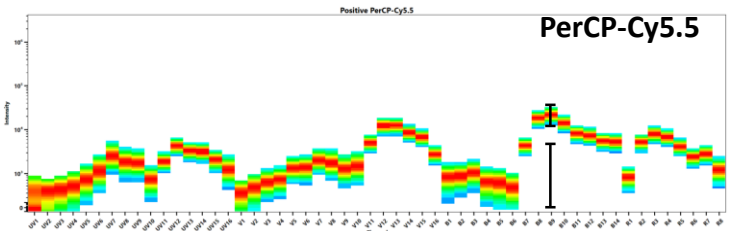
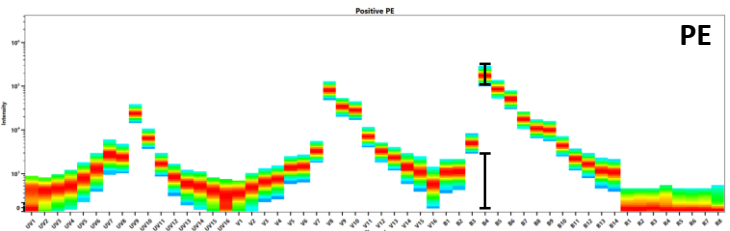
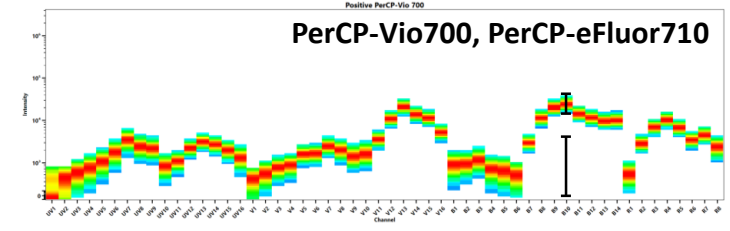
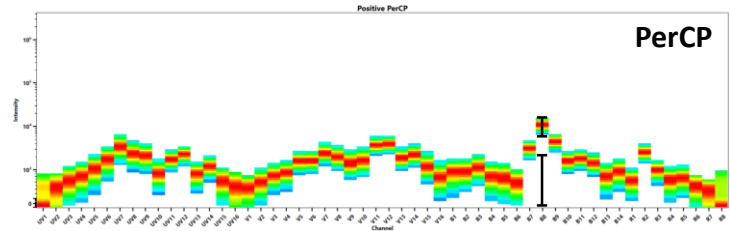
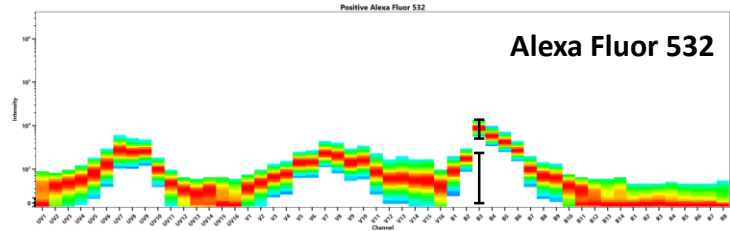
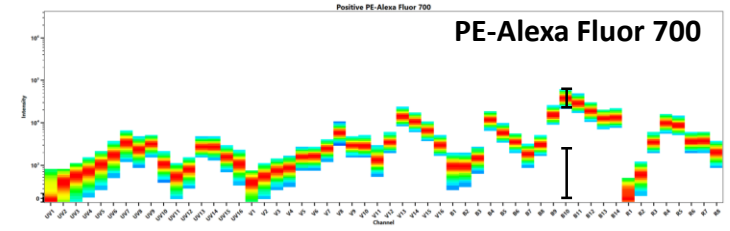
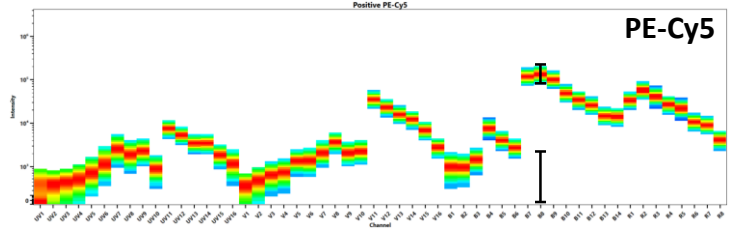
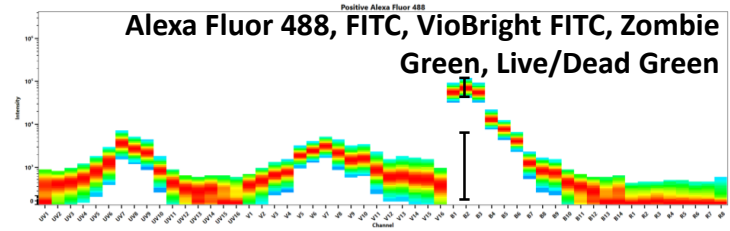
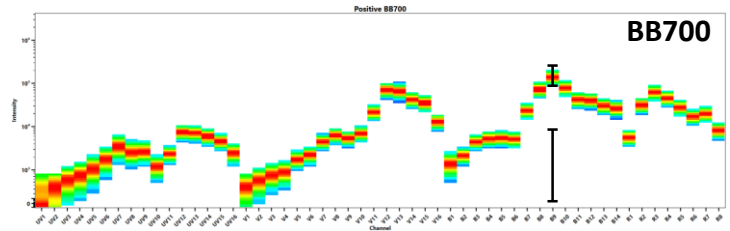
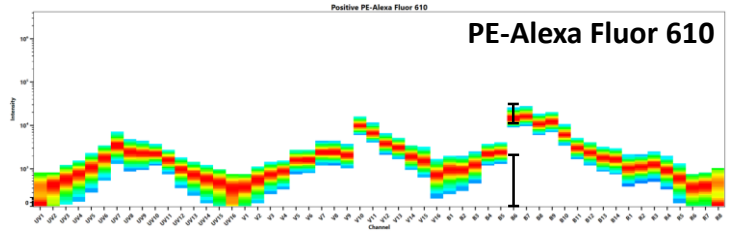
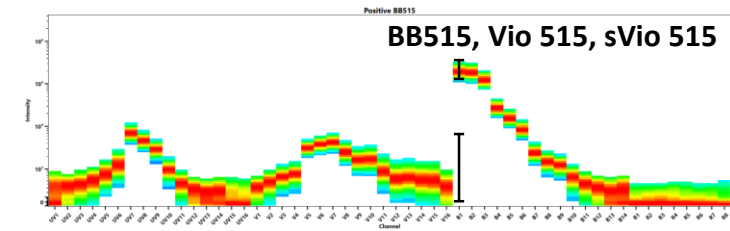
PE-eFluor 610, PE/Dazzle 594, PE-CF594, PE-Texas Red



PE-Cy7 and PE-Vio 770



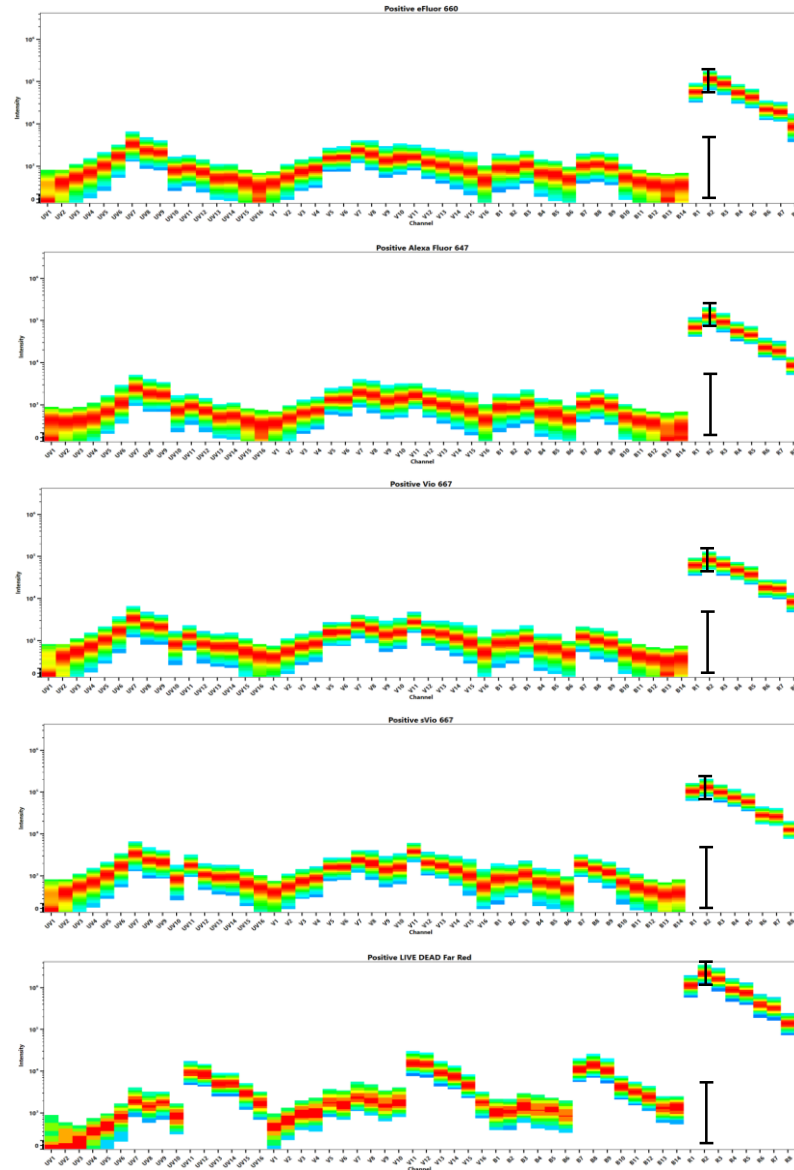
Blue Laser Excitable Dyes with Unique Signatures



Dyes Primarily Excited by the **Red Laser**

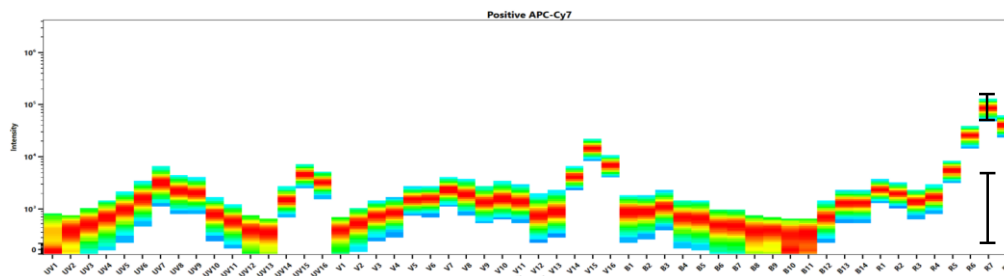
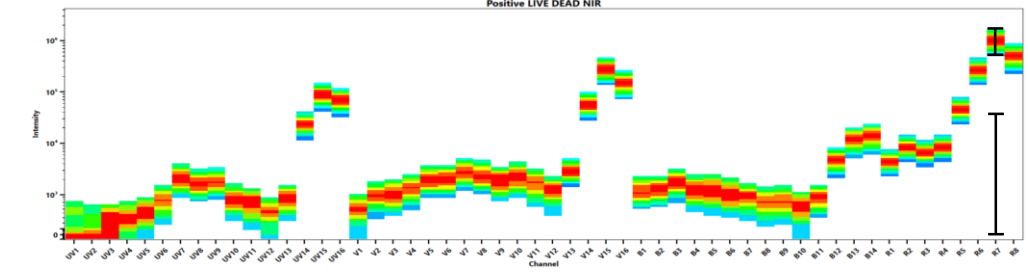
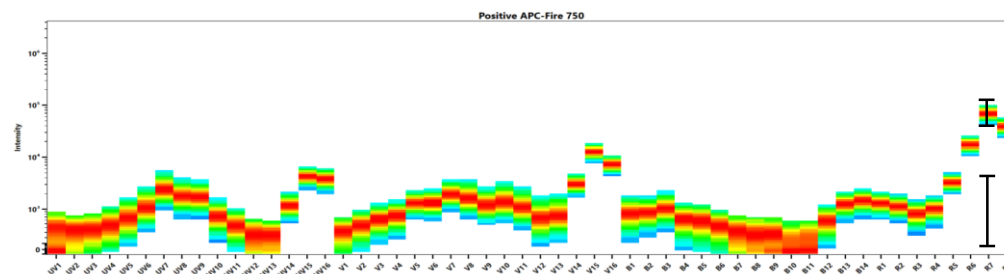
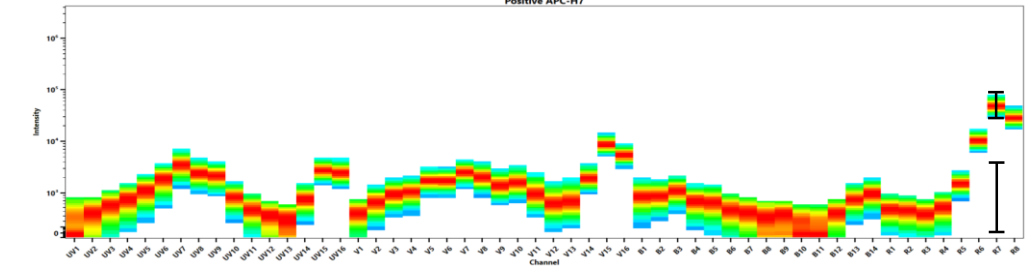
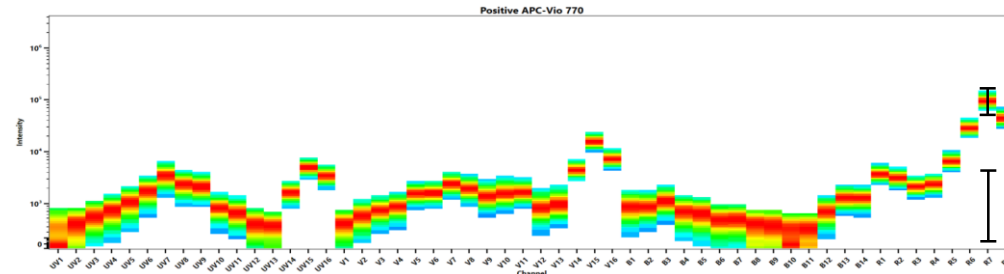
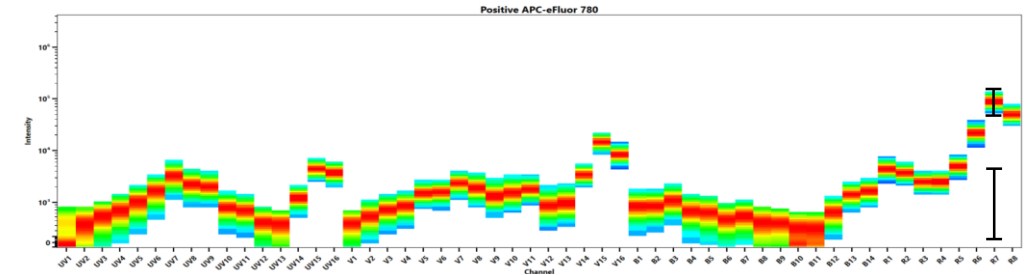
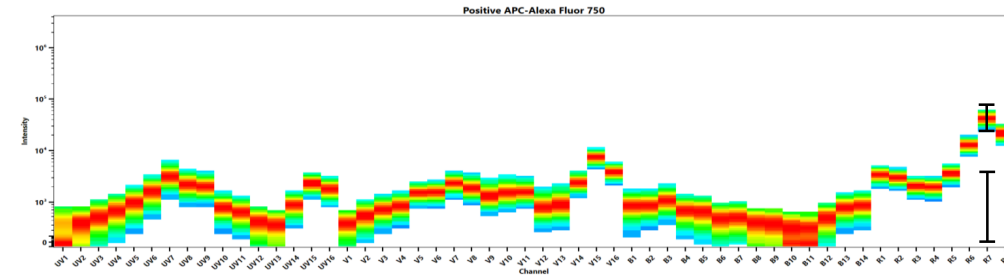
Red Laser Excitable Dyes with Similar Signatures (1 of 2)

eFluor 660, Alexa Fluor 647, Vio 667, sVio 667 and Live/Dead Far Red

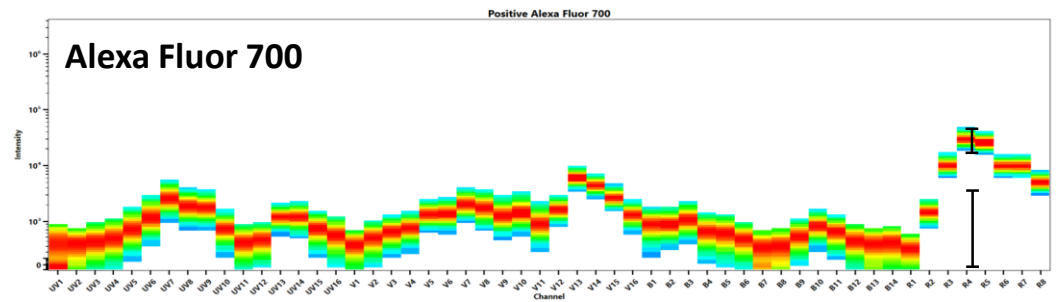
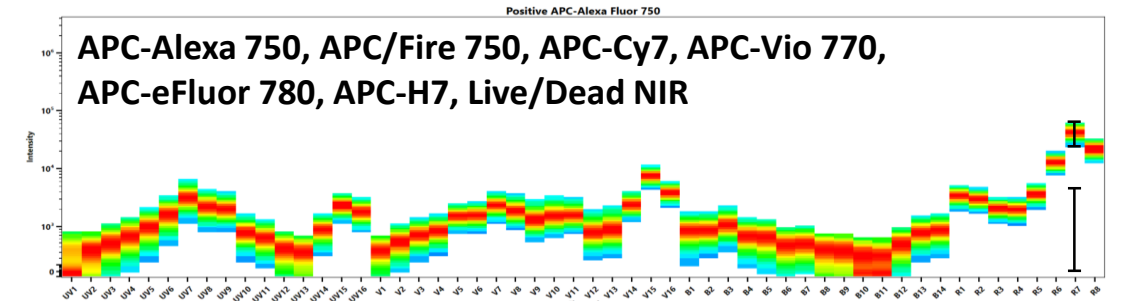
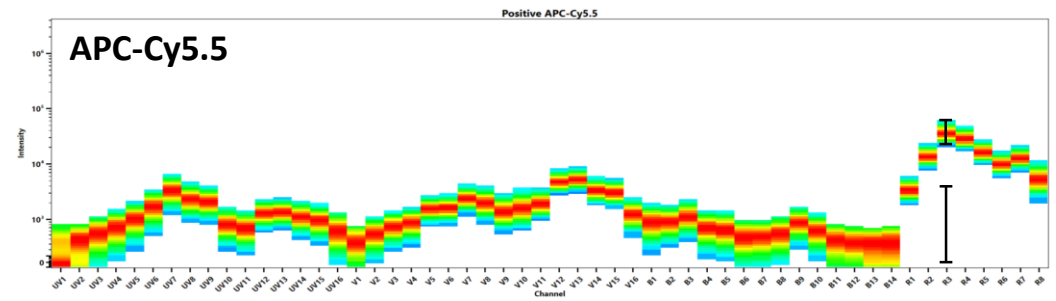
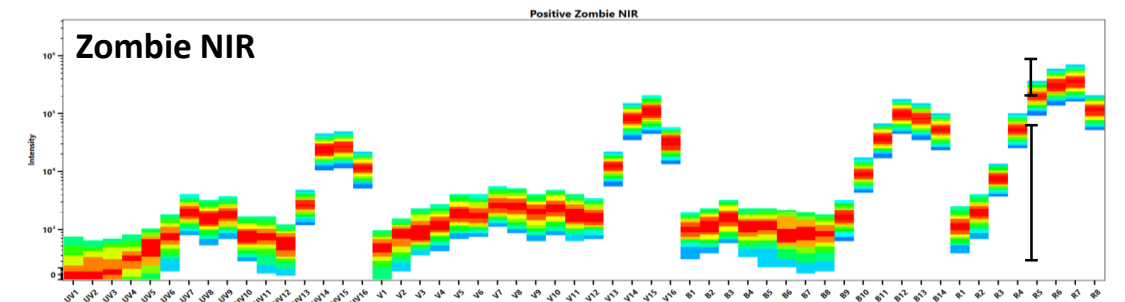
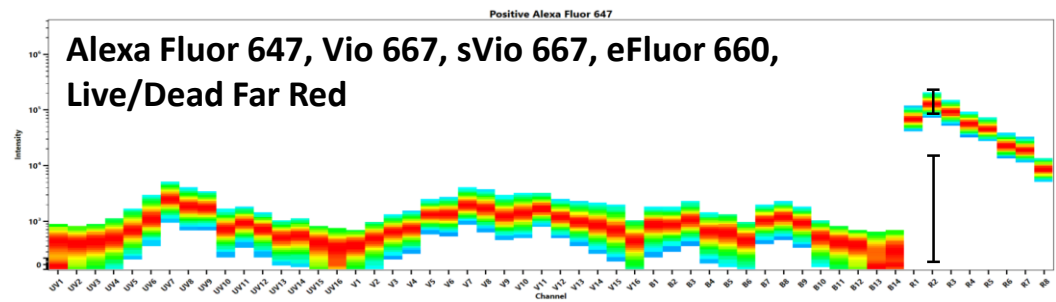
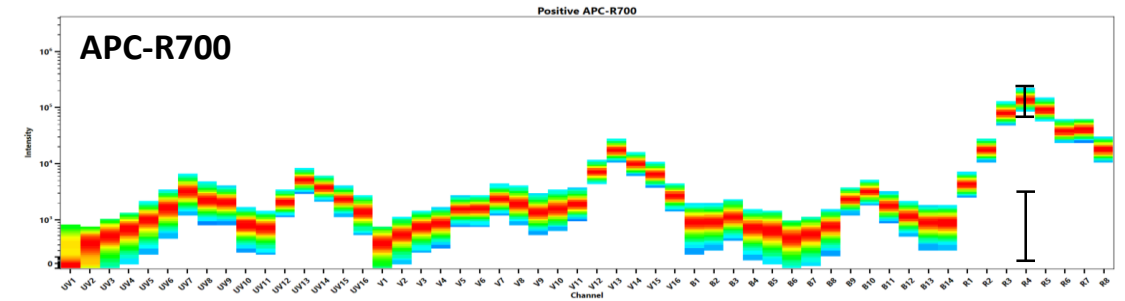
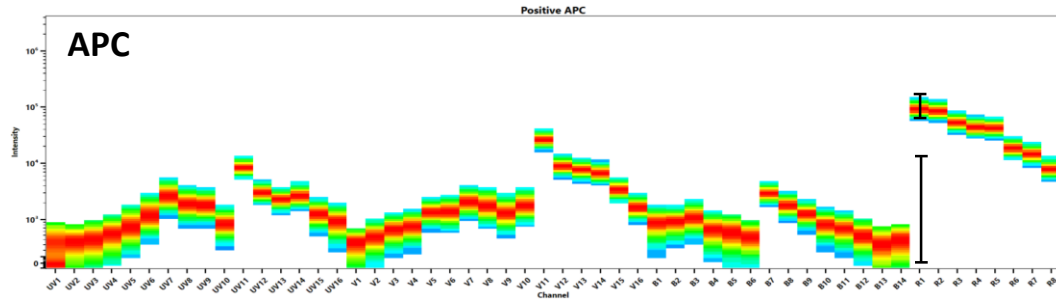


Red Laser Excitable Dyes with Similar Signatures (2 of 2)

APC-Alexa 750, APC-Vio 770, APC/Fire 750, APC-Cy7, APC-H7, APC-eFluor 780, and Live/Dead NIR

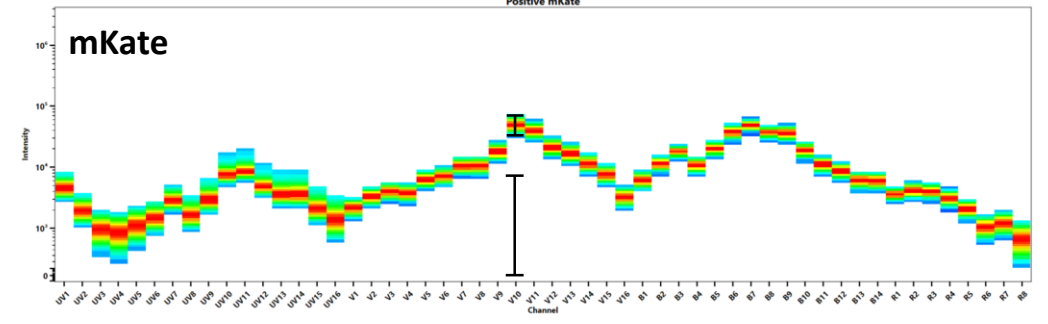
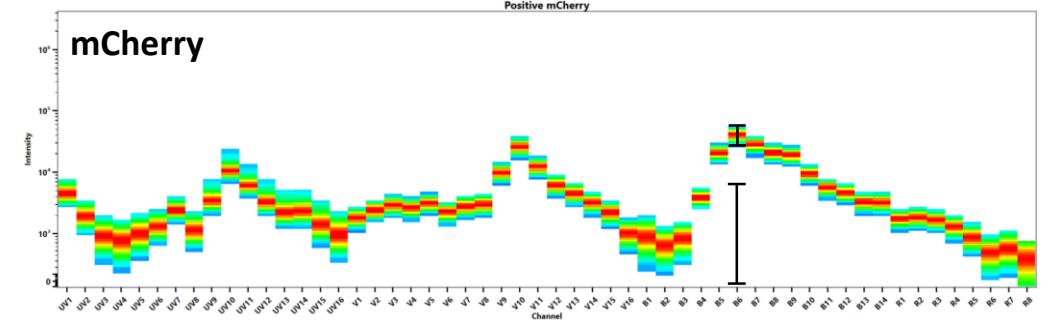
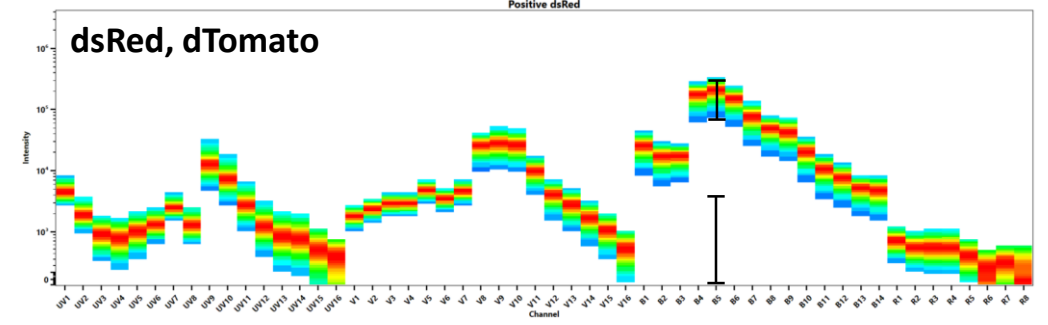
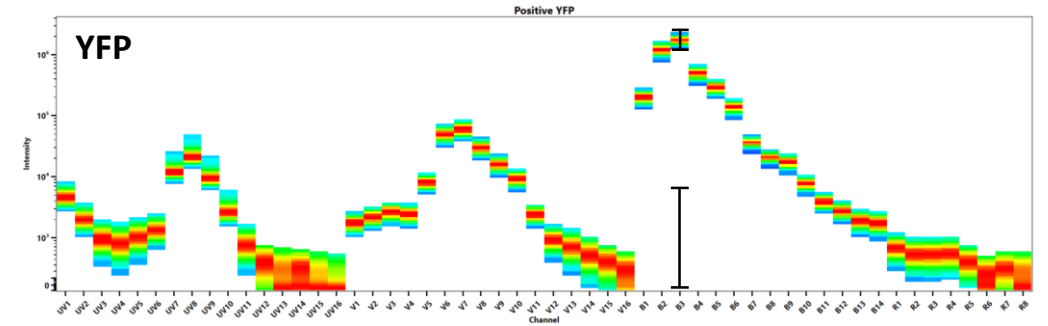
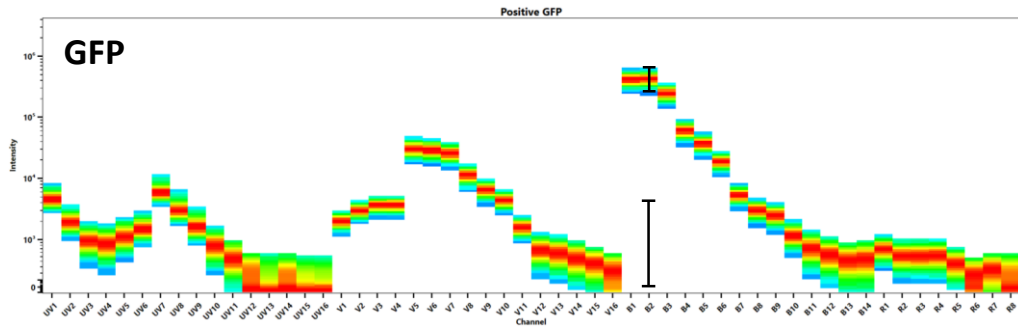
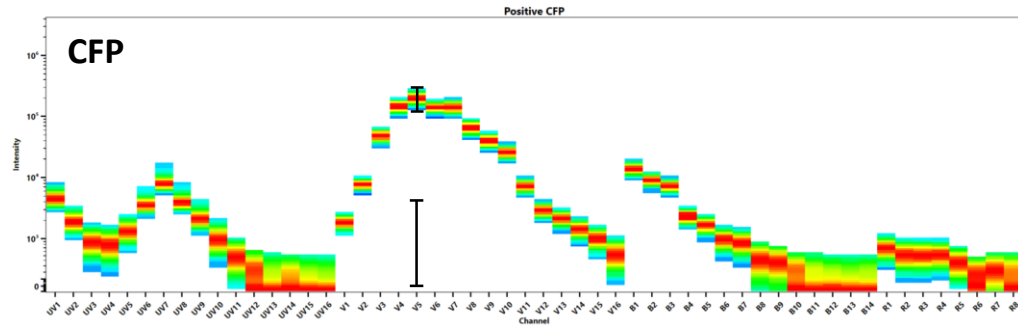
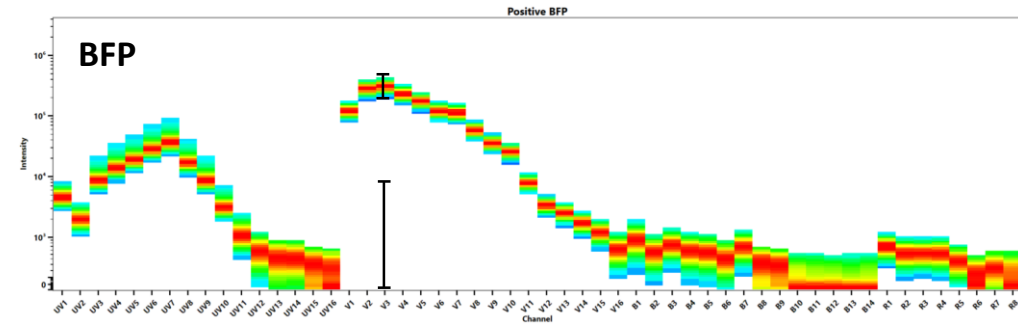


Red Laser Excitable Dyes with Unique Signatures



Fluorescent Protein Signatures

Fluorescent Proteins



Peak Channels & Possible Combination of Dyes

Fluorochrome Peak Channels

UV Excited Fluors	Peak Channel
BUV395	UV2
BUV496	UV7
BUV563	UV9
BUV661	UV11
BUV737	UV14
BUV805	UV16
Violet Excited Fluors	Peak Channel
BV421	V1
Alexa Fluor 405, SuperBright 436	V2
eFluor450 , VioBlue, Pacific Blue	V3
BV480	V4
eFluor 506	V5
BV510, VioGreen	V7
BV570, Pacific Orange	V8
BV605, SuperBright 600, Qdot 605	V10
BV650, SuperBright 645, Qdot 655	V11
BV711, SuperBright 702, Qdot705	V13
BV750	V14
BV785, BV786, Qdot 800	V15
Blue Excited Fluors	Peak Channel
Vio 515, sVio 515, BB515	B1
Alexa Fluor 488, FITC, VioBright FITC	B2
Alexa Fluor 532	B3
PE	B4
PE/Dazzle 594, PE-CF 594, PE-Texas Red, eFluor 610, PE-Alexa Fluor 610	B6
PerCP, PE-Cy5	B8
PerCP-Cy5.5, BB700, PE-Cy5.5	B9
PE-Alexa Fluor 700, PerCP-eFluor 710, PerCP-Vio 700	B10
PE-Cy7, PE-Vio 770	B13
Red Excited Fluors	Peak Channel
APC	R1
Alexa Fluor 647, Vio 667, sVio 667, eFluor660	R2
APC-Cy5.5	R3
Alexa 700, APC-R700	R4
APC-Alexa750, APC/Fire 750, APC-Cy7, APC Vio 770, APC-efluor780, APC-H7	R7

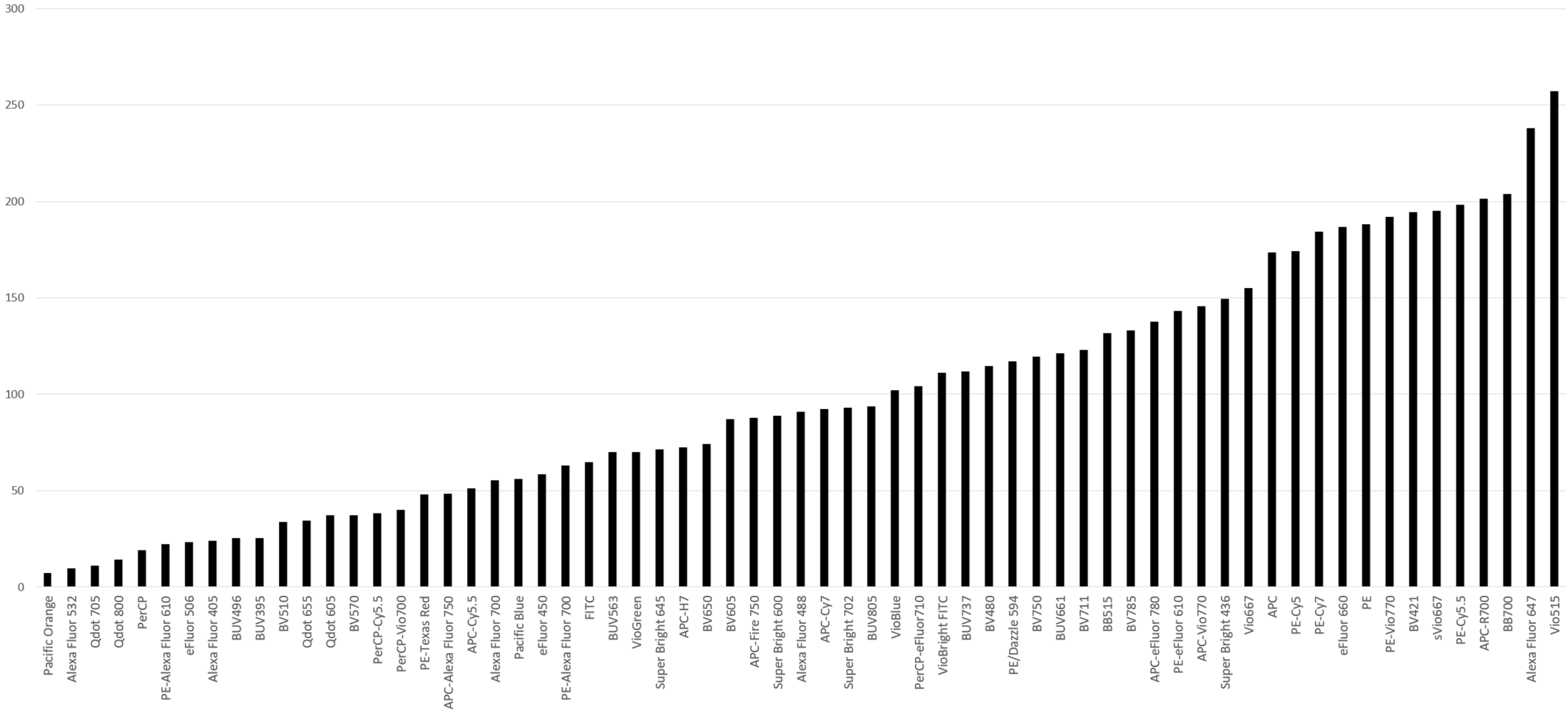
Example of 30 Dyes that can be Used in Combination (CAREFUL PANEL DESIGN IS NEEDED)

UV Excited Fluors	Violet Excited Fluors	Blue Excited Fluors	Red Excited Fluors
BUV395	BV421	BB515	APC
BUV496	SuperBright 436	Alexa Fluor 488	Alexa Fluor 647
BUV563	eFluor450	Alexa Fluor 532	APC-R700
BUV661	BV480	PerCP-Cy5.5	APC/Fire 750
BUV737	BV510	PerCP-eFluor 710	
BUV805	BV570	PE	
	BV605	PE/Dazzle 594	
	BV650	PE-Cy5	
	BV711	PE-Cy7	
	BV750		
	BV785		

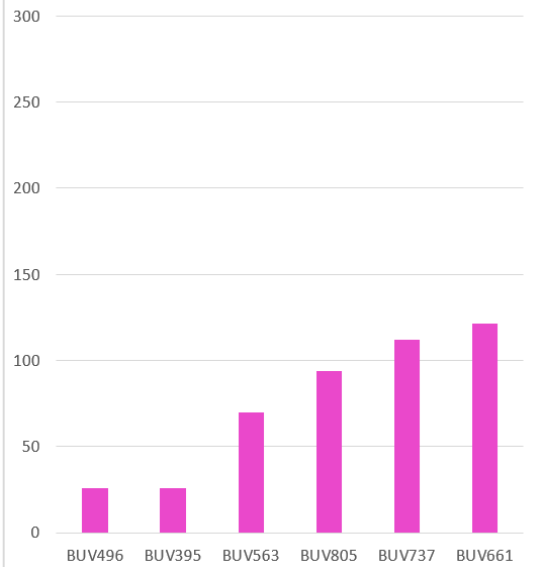
Stain Indexes

Data generated using CD4 staining on human PBMCs

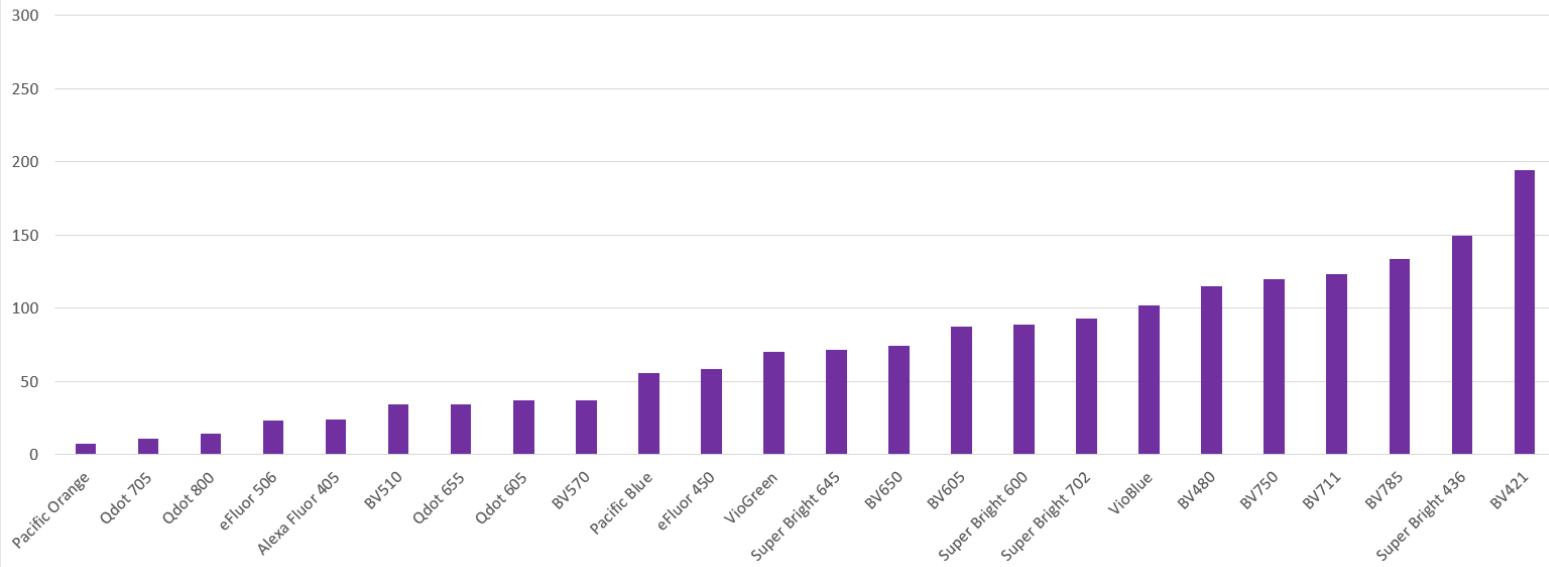
Stain Index Ranking - 65 Dyes



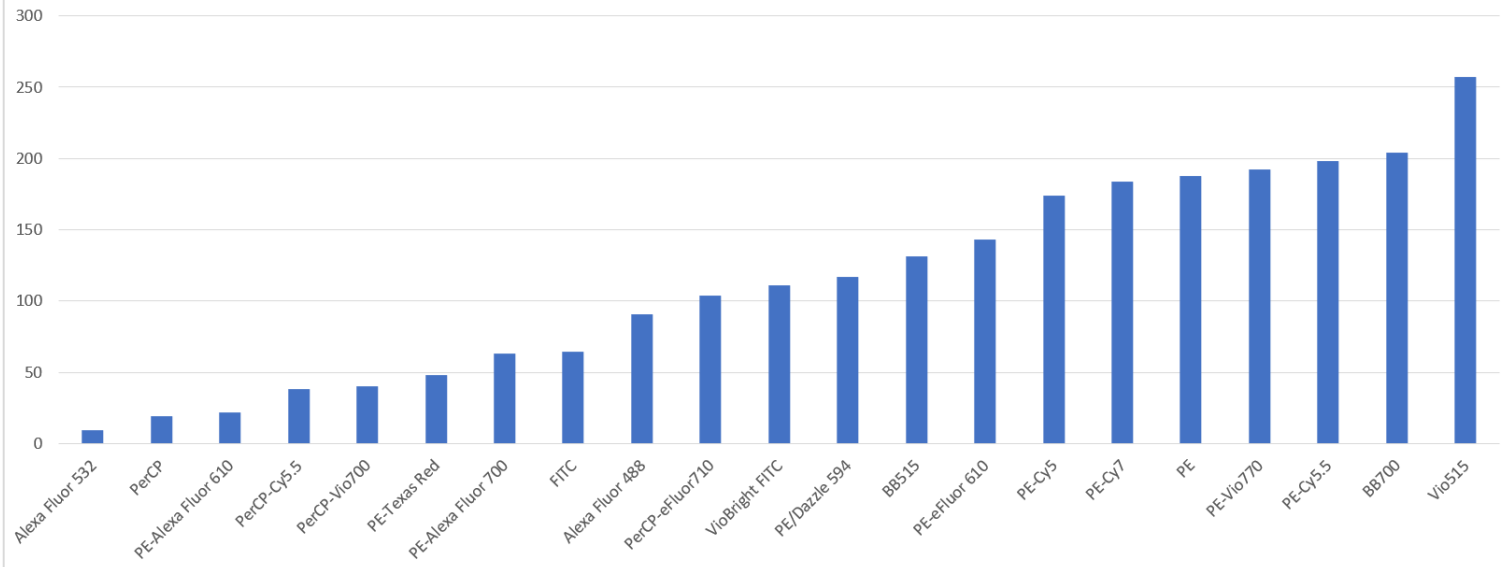
Stain Index UV Excitable Dyes



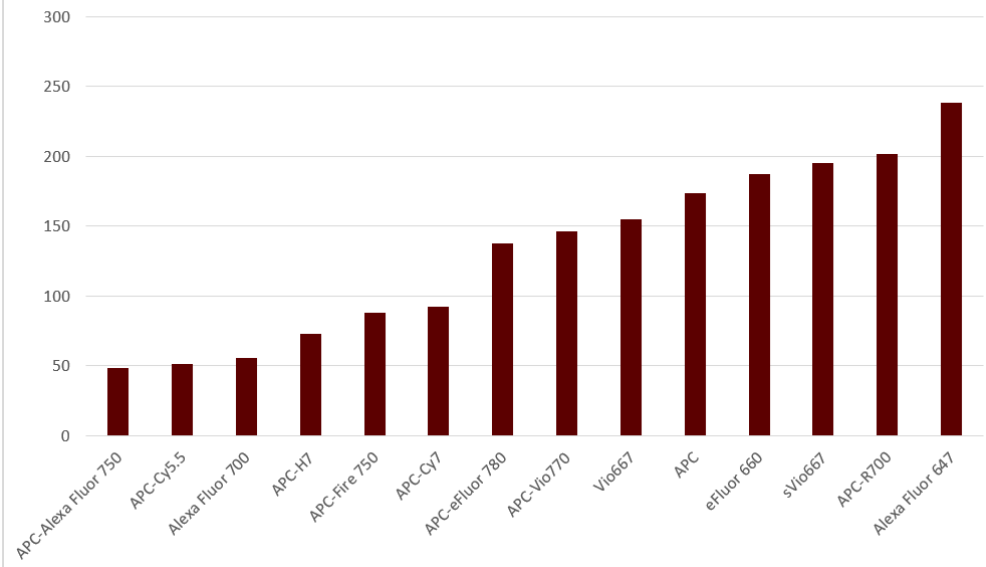
Stain Index Violet Excitable Dyes



Stain Index Blue Excitable Dyes



Stain Index Red Excitable Dyes



Cross-Stain Index Matrix

Dyes used in combination need to have unique spectra AND need to be assessed in terms of spread that they introduce to other dyes.

For example PerCP-Cy5.5 and PE-Cy5.5 have distinct signatures, but since both dyes emit in the same wavelength range and significant spread is introduced by PE-Cy5.5, careful panel design is needed when used in combination.

Spread Matrix for 30 Fluors that can be Used in Combination

	BUV395	BUV496	BUV563	BUV661	BUV737	BUV805	BV421	Super Bright 436	eFluor 450	BV480	BV510	BV570	BV605	BV650	BV711	BV750	BV785	BB515	Alexa Fluor 488	Alexa Fluor 532	PerCP-Cy5.5	PerCP-eFluor 710	PE	PE-Dazzle594	PE-Cy5	PE-Cy7	APC	Alexa Fluor 647	Alexa Fluor 700	APC-Fire 750					
BUV395	Black																																		
BUV496		Black																																	
BUV563			Black																																
BUV661				Black	Red	Red								Light Pink														Light Pink	Light Pink	Light Pink					
BUV737					Black	Red											Light Pink													Light Pink					
BUV805						Black																									Light Pink				
BV421							Black	Red	Light Pink																										
Super Bright 436								Black	Red	Light Pink																									
eFluor 450									Black	Light Pink																									
BV480										Black	Light Pink									Light Pink															
BV510											Black	Light Pink																							
BV570												Black	Light Pink																						
BV605													Black	Light Pink																					
BV650														Black	Light Pink																				
BV711															Black	Red	Light Pink														Light Pink				
BV750																Black	Red	Light Pink													Light Pink				
BV785																	Black	Light Pink													Light Pink				
BB515																		Black	Red	Light Pink				Light Pink											
Alexa Fluor 488																			Black	Light Pink	Light Pink			Light Pink											
Alexa Fluor 532																				Black	Light Pink														
PerCP-Cy5.5																					Black	Light Pink													
PerCP-eFluor 710																						Black	Light Pink												
PE																							Black	Light Pink											
PE-Dazzle594																								Black	Light Pink										
PE-Cy5																									Black	Light Pink									
PE-Cy7																										Black	Light Pink								
APC																											Black	Light Pink							
Alexa Fluor 647																												Black	Light Pink						
Alexa Fluor 700																														Black	Light Pink				
APC-Fire 750																															Black	Light Pink			

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 (for example BB515 into Alexa Fluor 488). Areas in bright pink and red indicate pairs for which more attention to panel design is needed.

Document Revision History

Effective Date	Description of Change	Revision	EC No.
10/21/2019	Initial Release	A	EC-00265