CYTEK

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Cytek Aurora™ Fluorochrome Selection Guidelines for 5 Laser Systems (UV-V-B-YG-R)

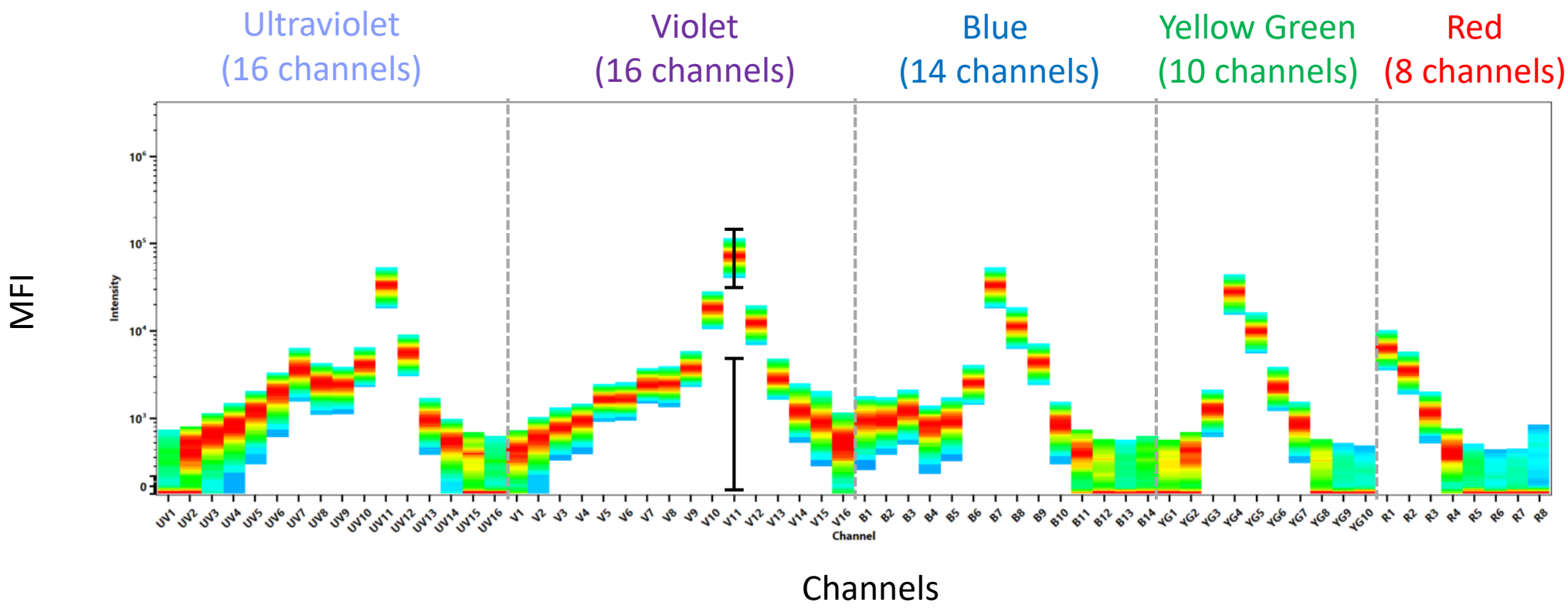
Last Updated: March 2019

Fluorochrome Signatures

Dyes can be used in combination as long as they have a unique spectrum signature.

When designing a multicolor panel, you should look for dyes with unique spectra and also consider spread introduced by the dyes (see slide 28).

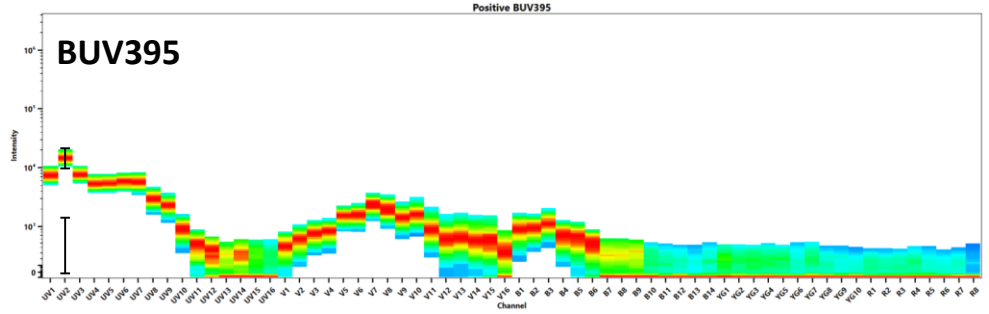
How to Read Full Spectrum Fluorochrome Signatures

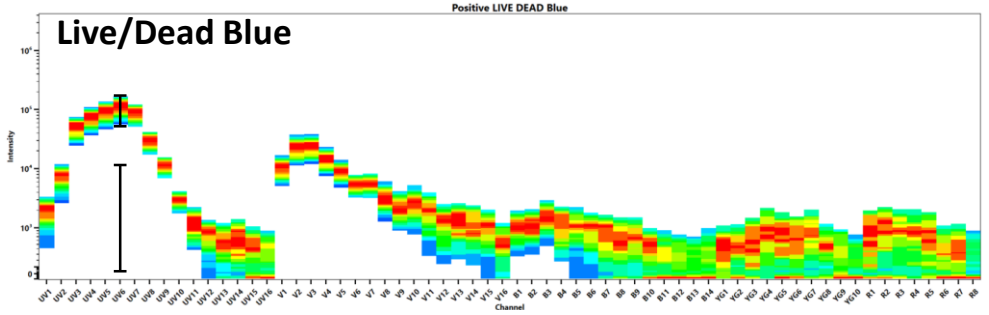


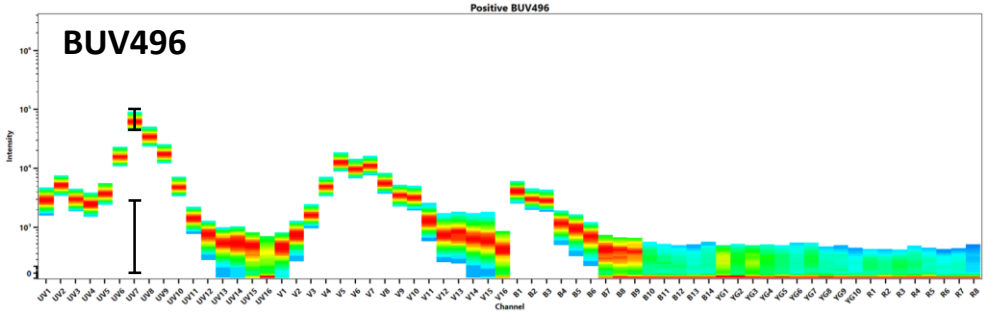
This dye is excited by all 5 lasers. The peak channel (indicated by the black bar) is in channel V11, and it has secondary emission in channels UV11, B7, YG4 and R1. Based on this information, expect this dye to introduce spread into dyes emitting at similar wavelengths.

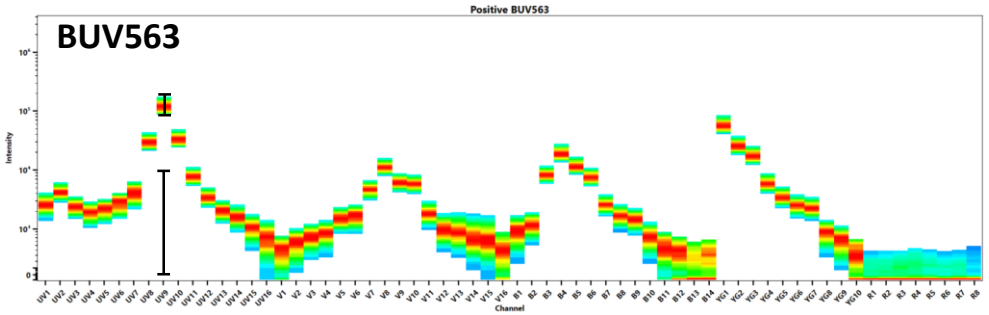
Dyes Primarily Excited by the Ultraviolet Laser

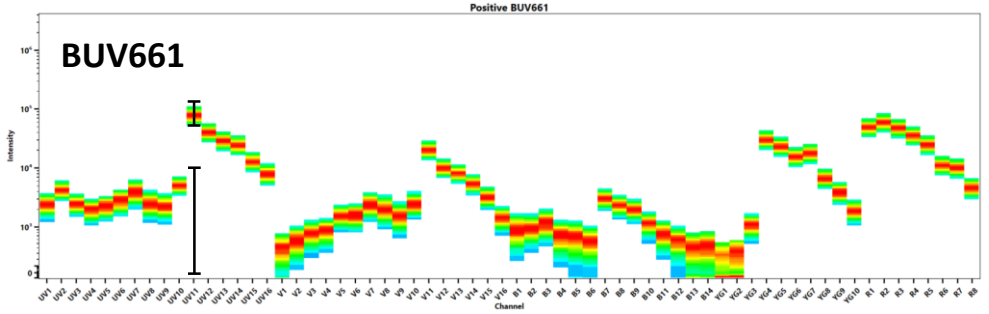
Ultraviolet Laser Excitable Dyes with Unique Signatures

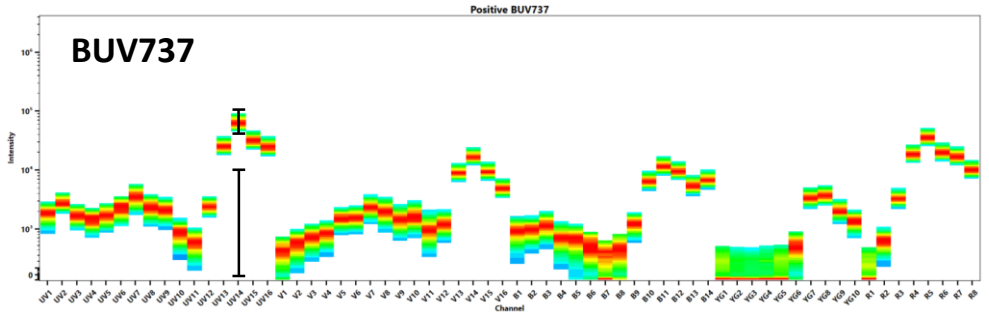


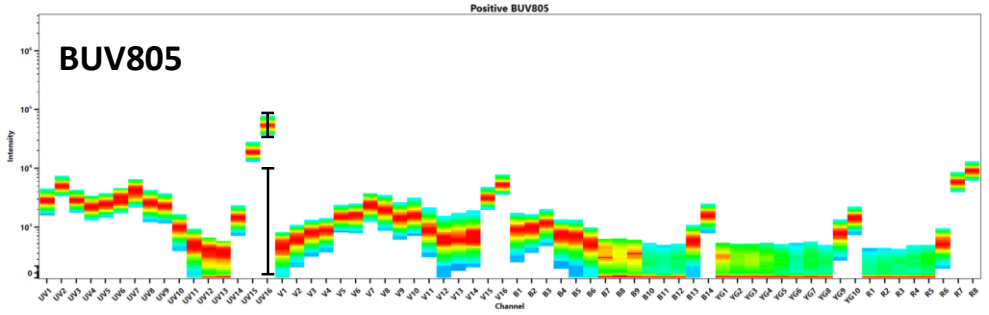








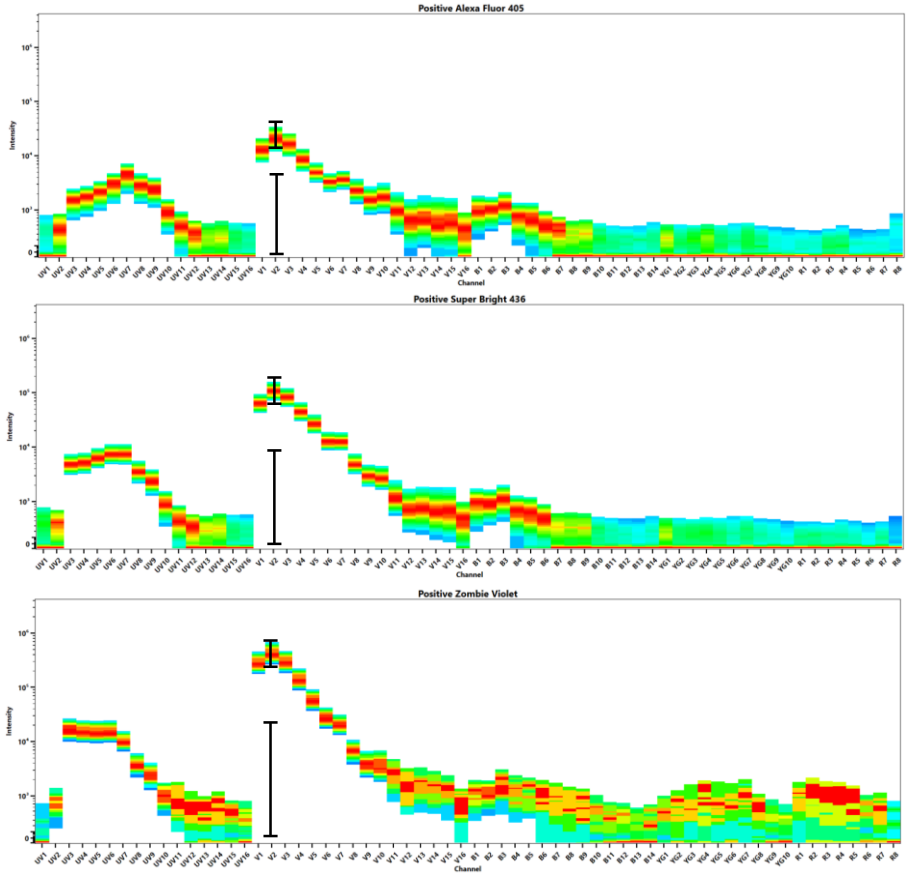




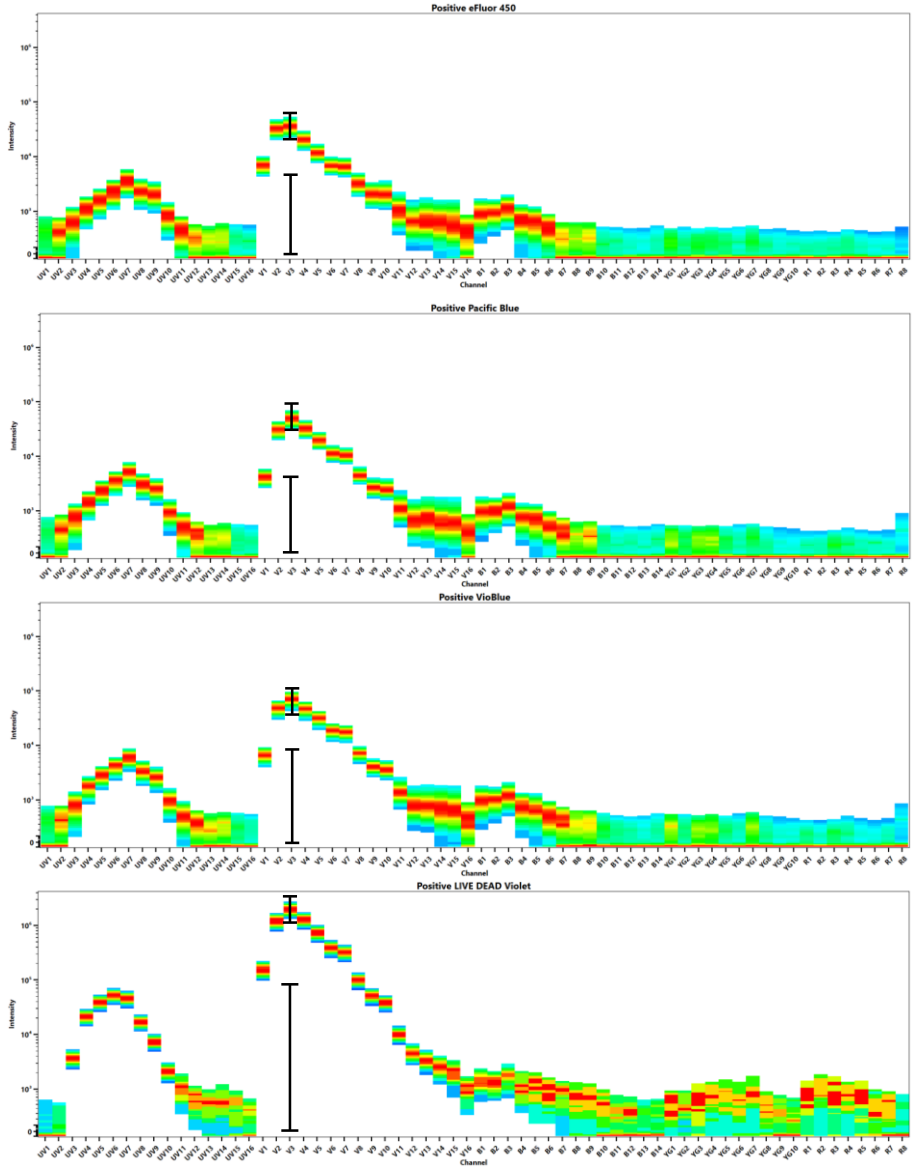
Dyes Primarily Excited by the Violet Laser

Violet Laser Excitable Dyes with Similar Signatures

Alexa Fluor 405, Super Bright 436 and Zombie Violet

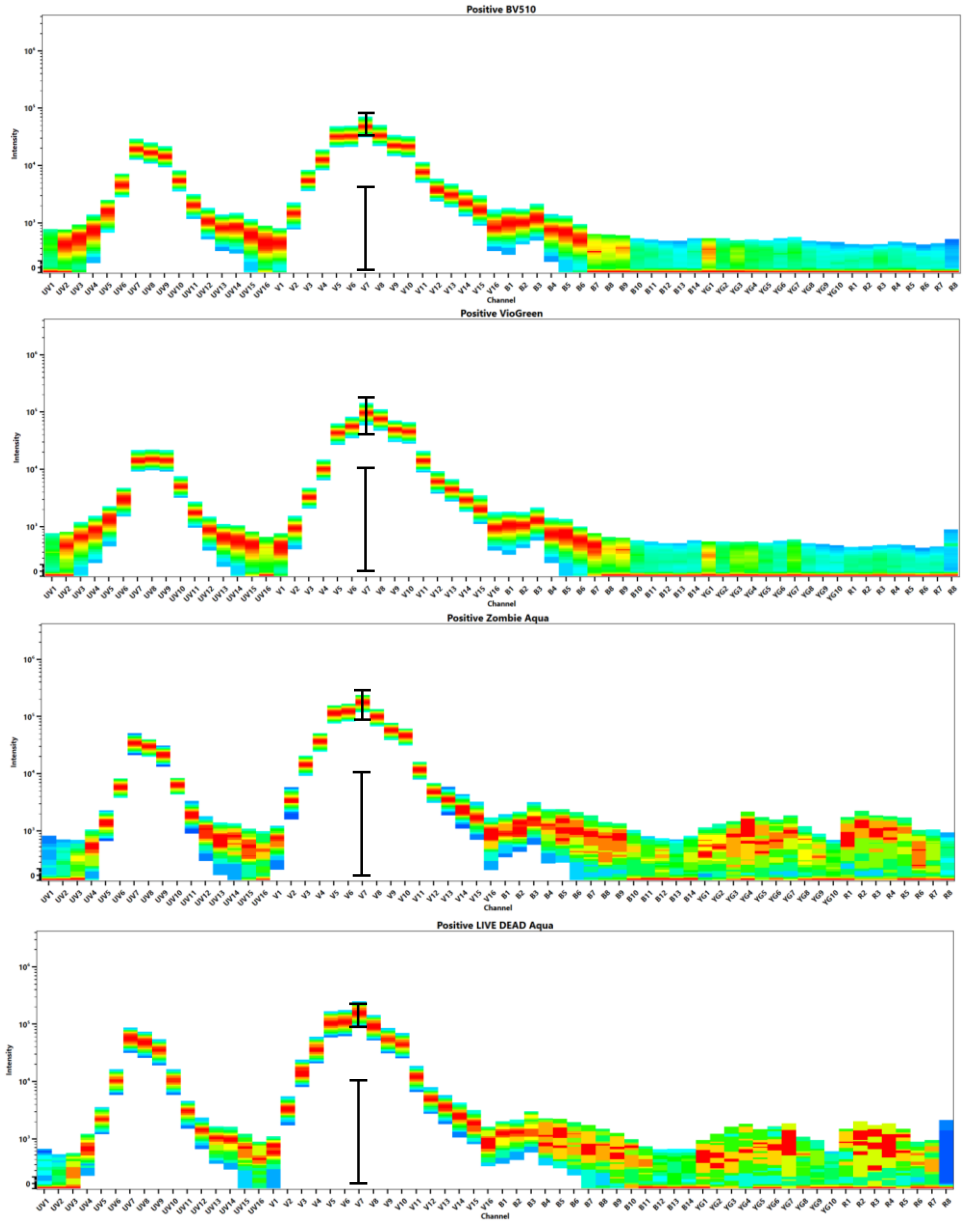


eFluor 450, VioBlue, Pacific Blue and Live/Dead Violet

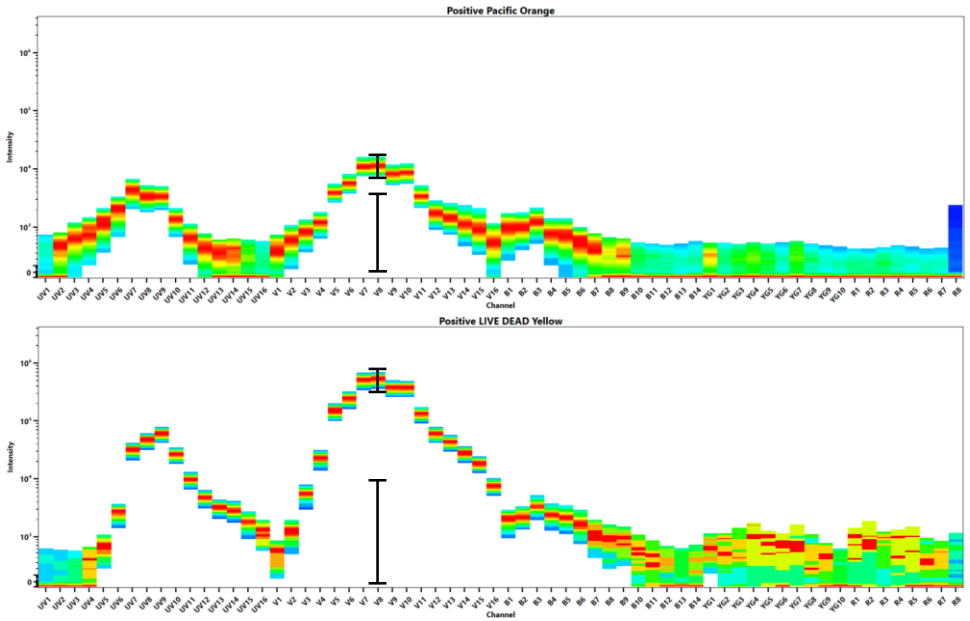


Violet Laser Excitable Dyes with Similar Signatures

BV510, VioGreen, Zombie Aqua and Live/Dead Aqua

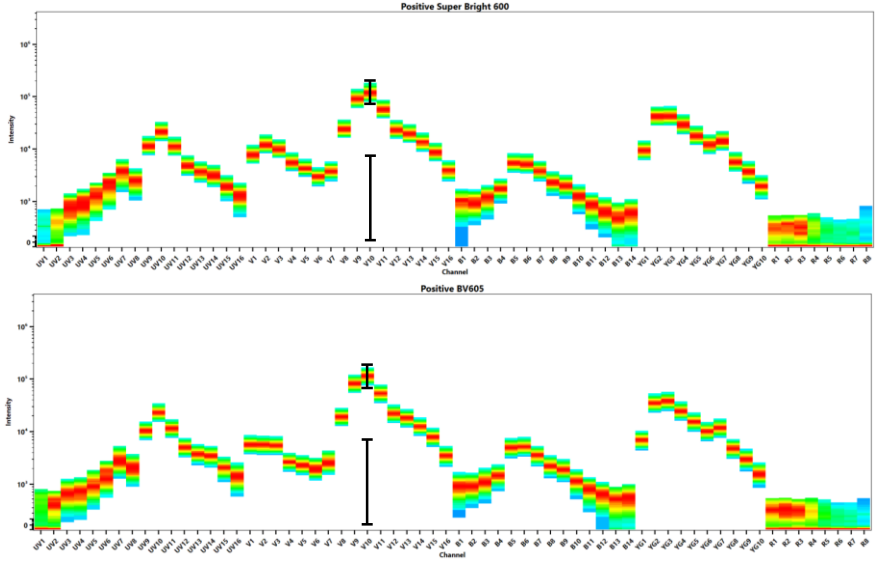


Pacific Orange and Live/Dead Yellow

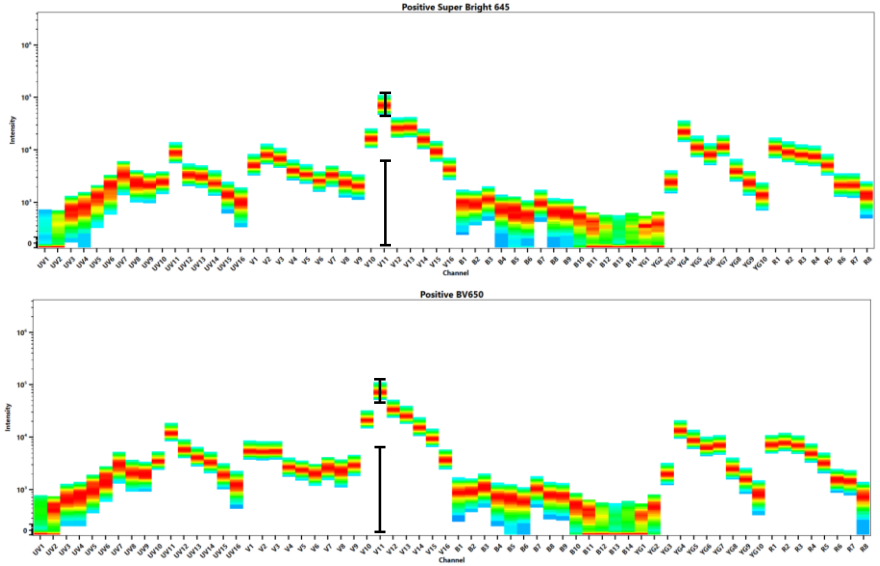


Violet Laser Excitable Dyes with Similar Signatures

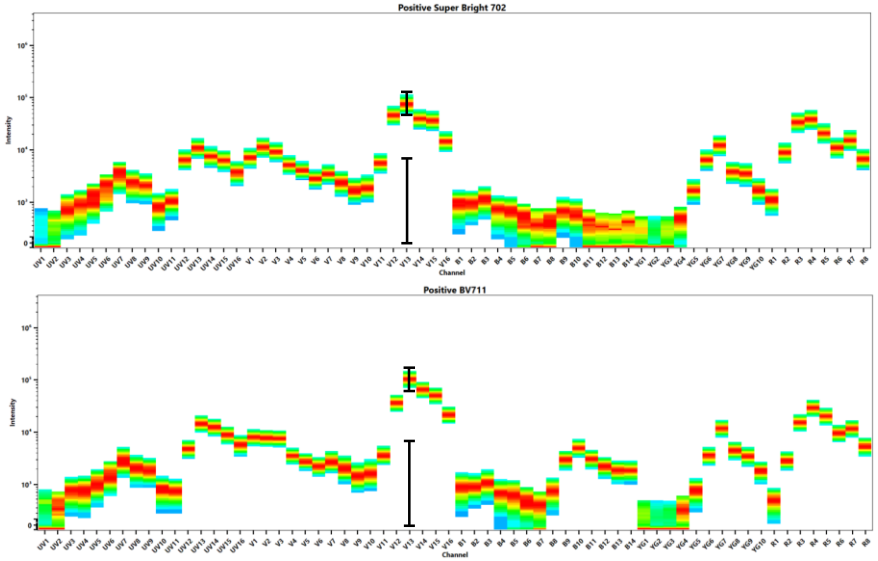
Super Bright 600 and BV605



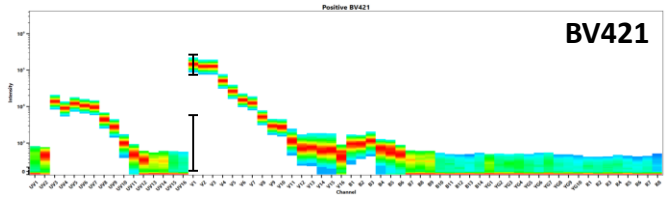
Super Bright 645 and BV650

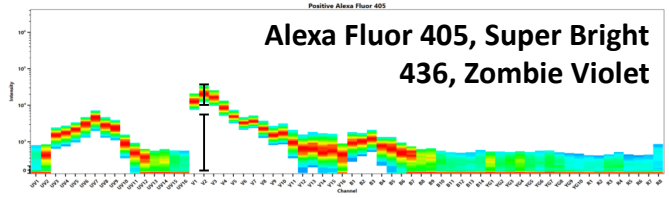


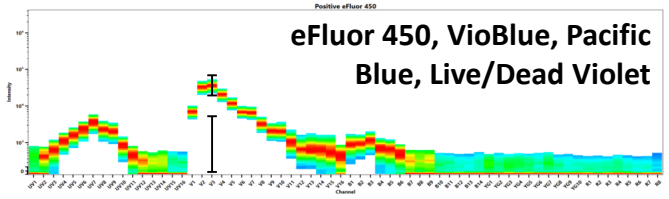
Super Bright 702 and BV711

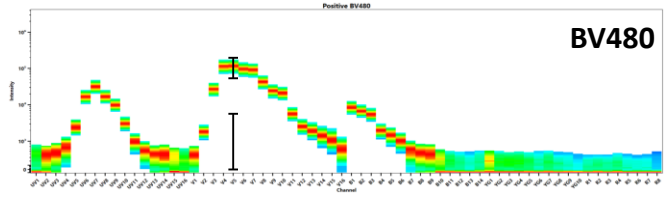


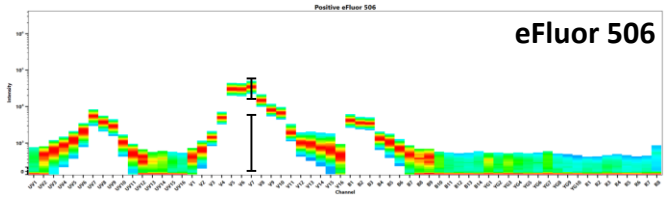
Violet Laser Excitable Dyes with Unique Signatures

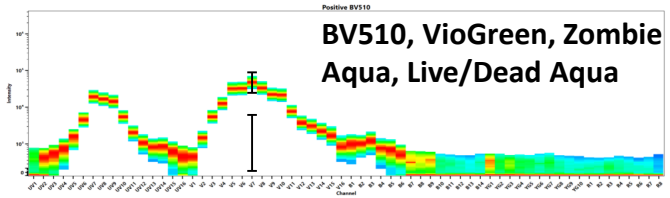


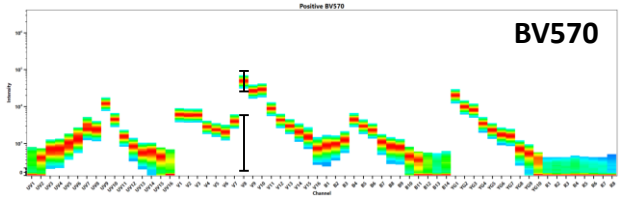


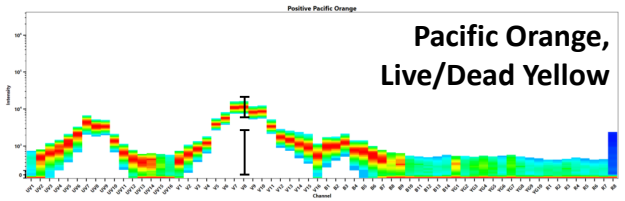


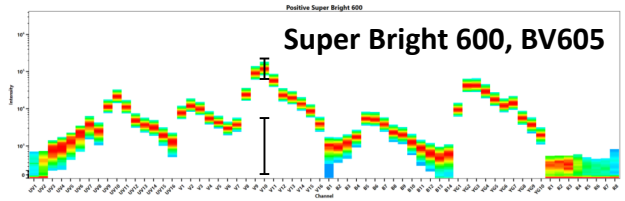


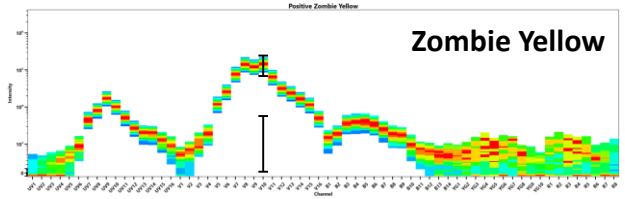


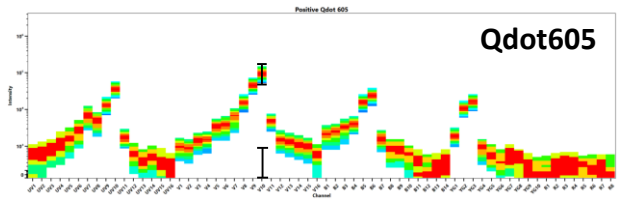


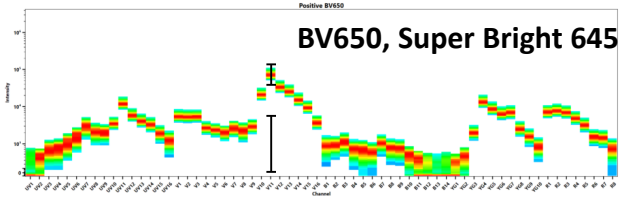


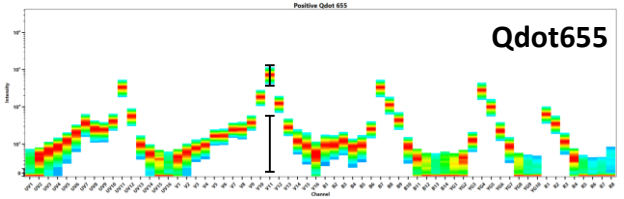


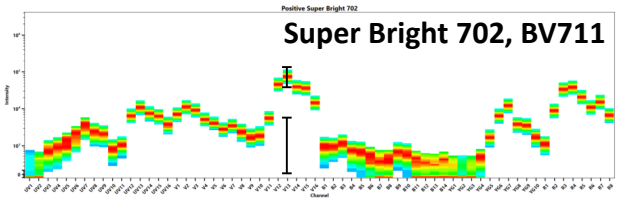


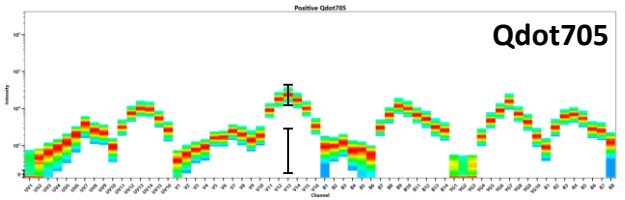


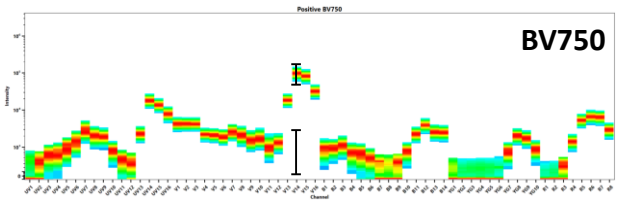


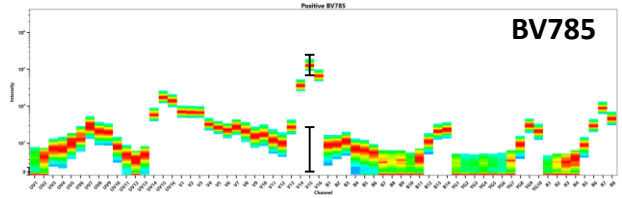


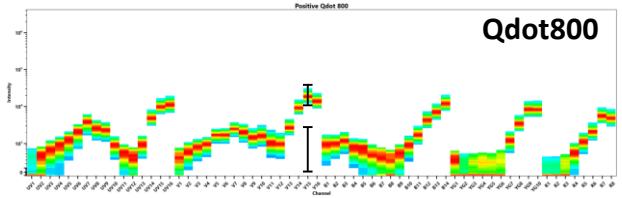








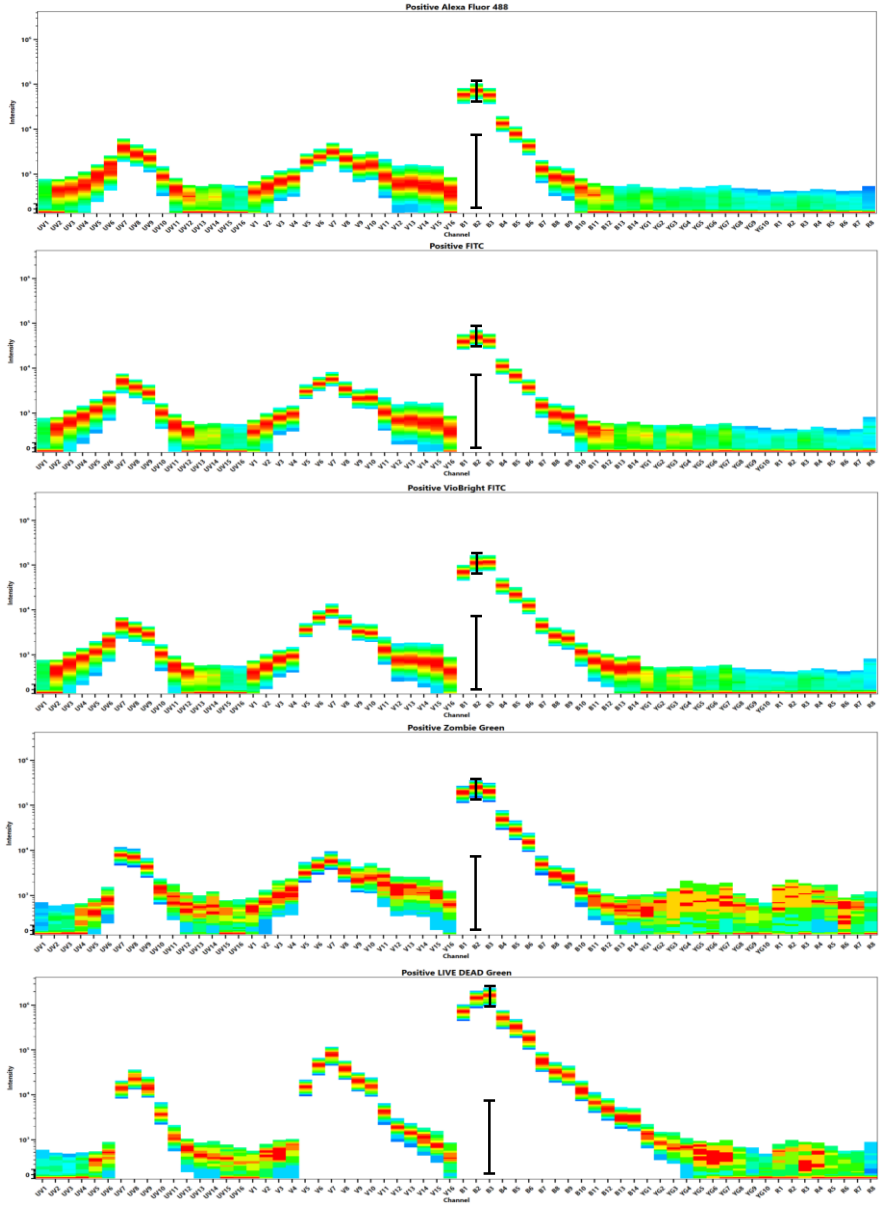




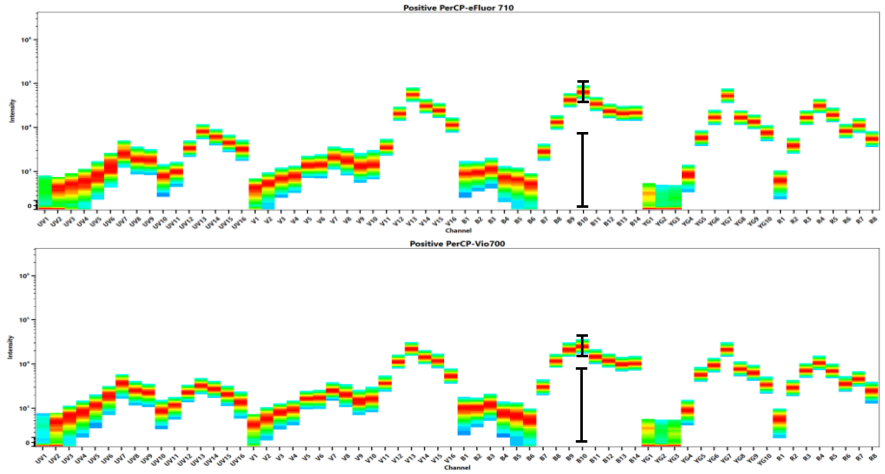
Dyes Primarily Excited by the Blue Laser

Blue Laser Excitable Dyes with Similar Signatures

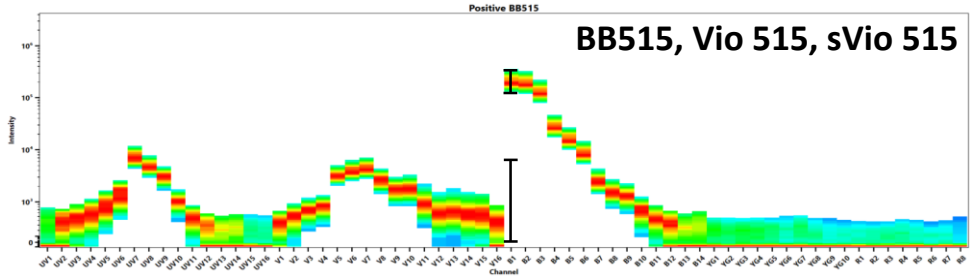
Alexa Fluor 488, FITC, VioBright FITC, Zombie Green and Live Dead Green

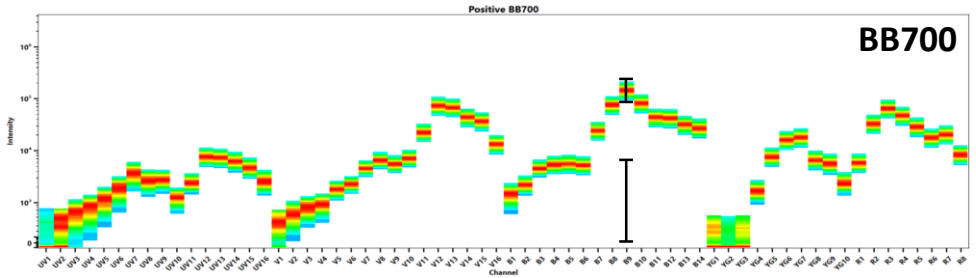


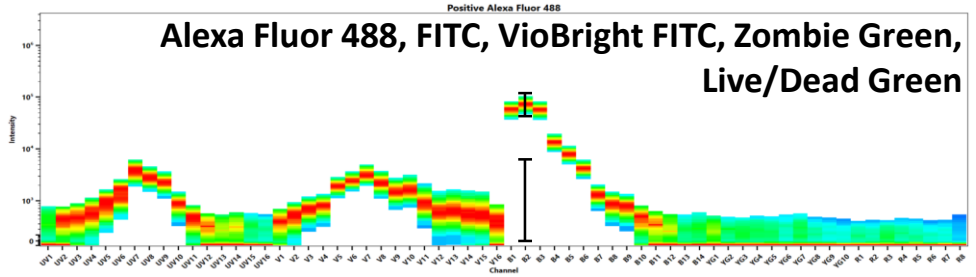
PerCP-Vio 710 and PerCP-eFluor 710

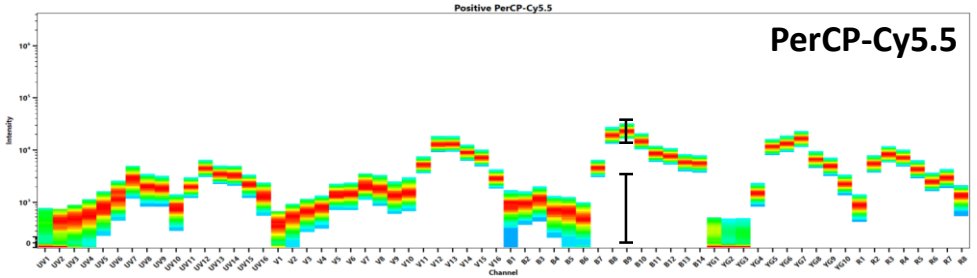


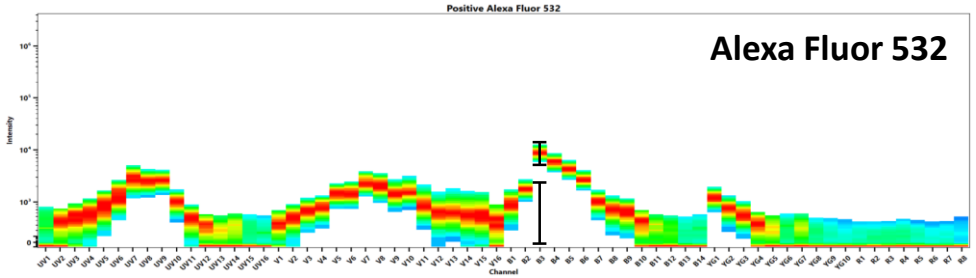
Blue Laser Excitable Dyes with Unique Signatures

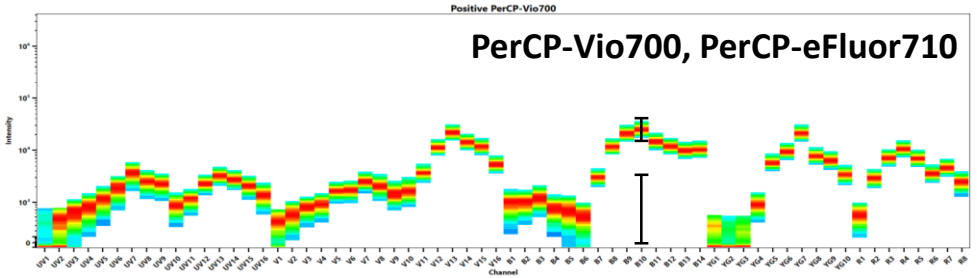


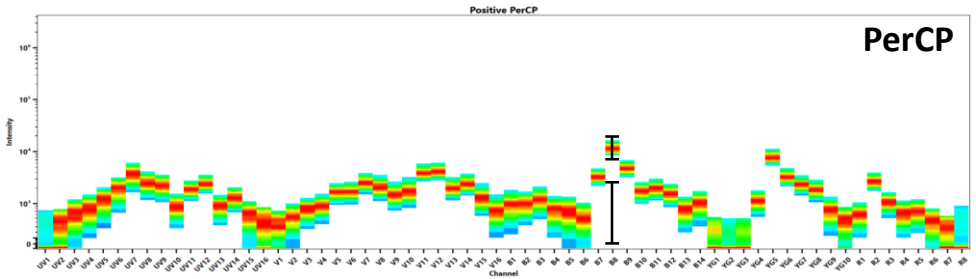








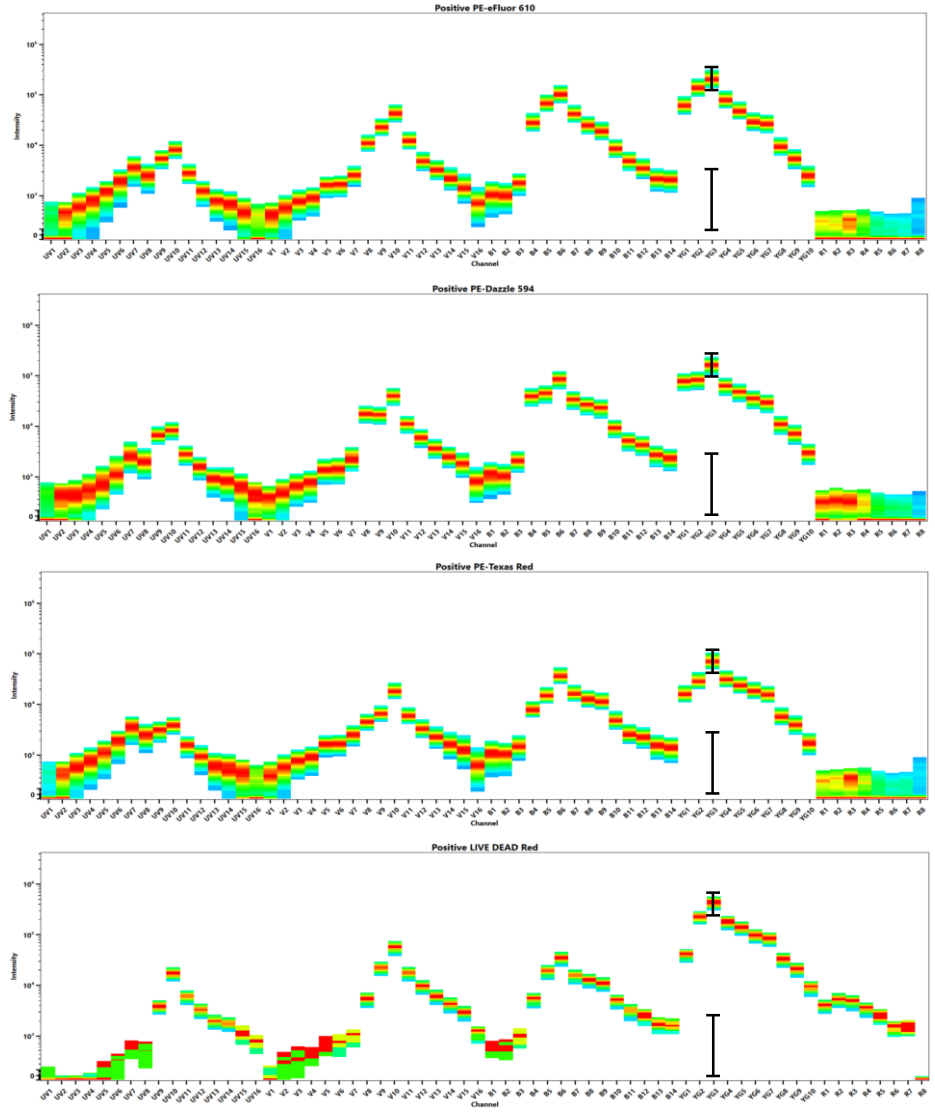




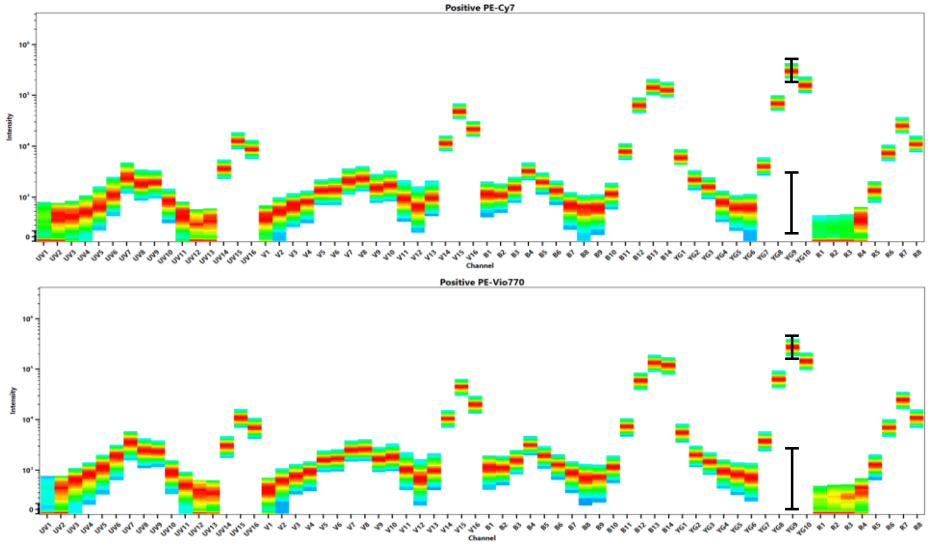
Dyes Primarily Excited by the Yellow Green Laser

Yellow Green Laser Excitable Dyes with Similar Signatures

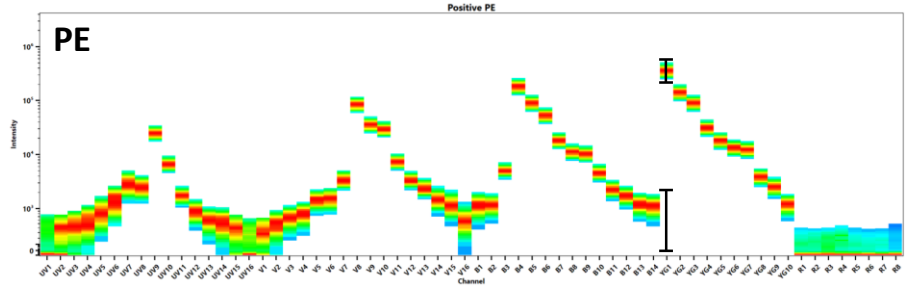
PE-eFluor 610, PE/Dazzle 594, PE-CF594, PE-Texas Red and Live Dead Red

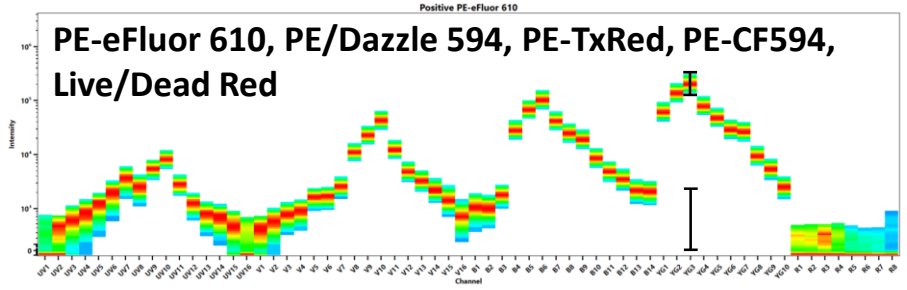


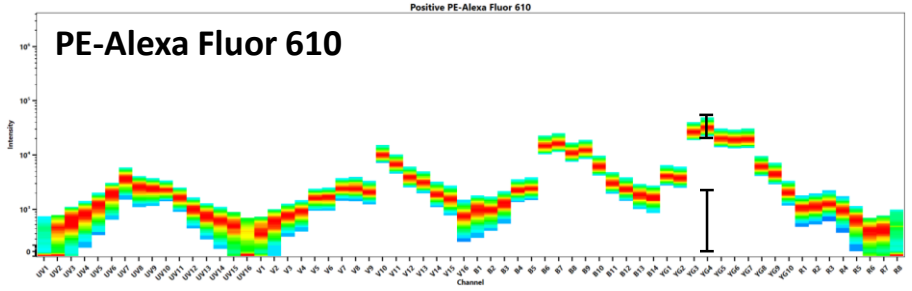
PE-Cy7 and PE-Vio 770

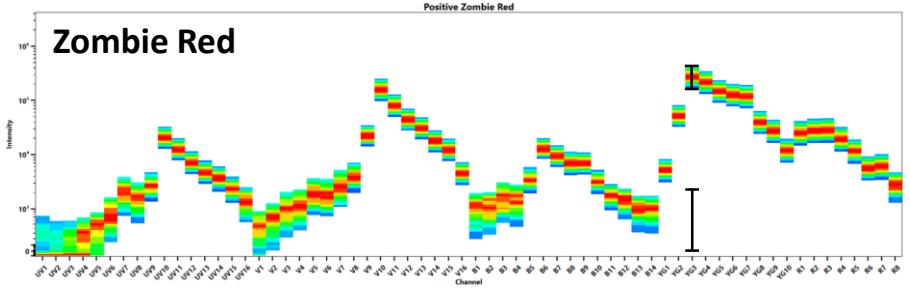


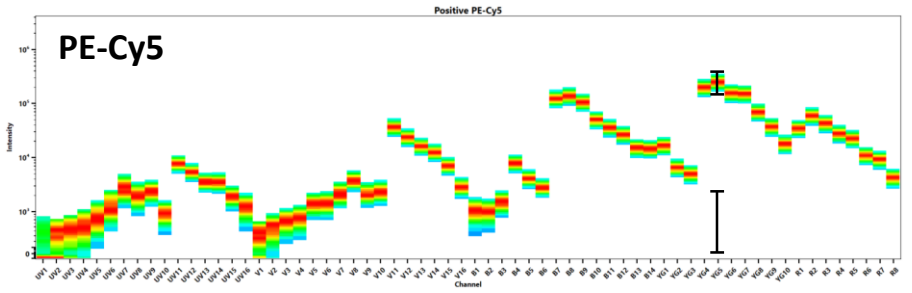
Yellow Green Laser Excitable Dyes with Unique Signatures

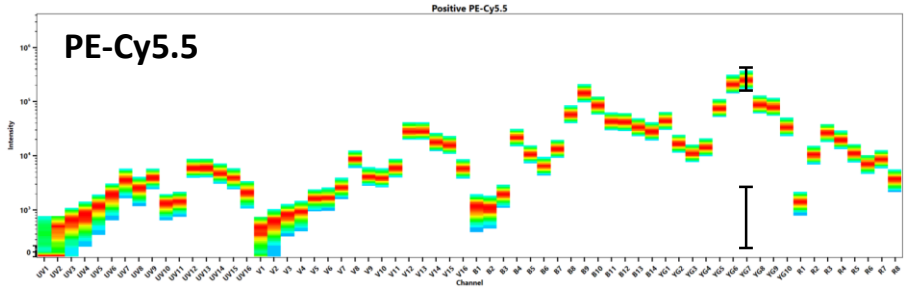


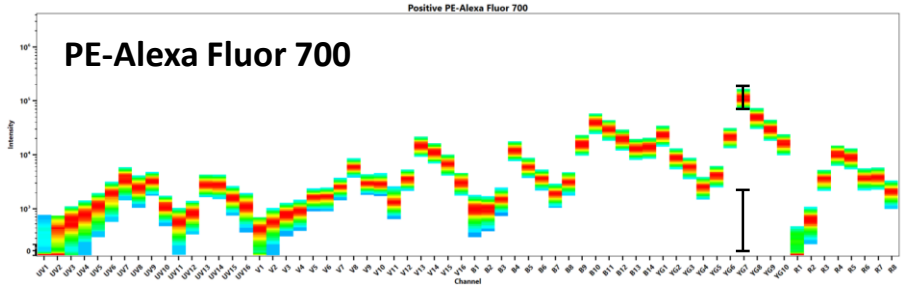


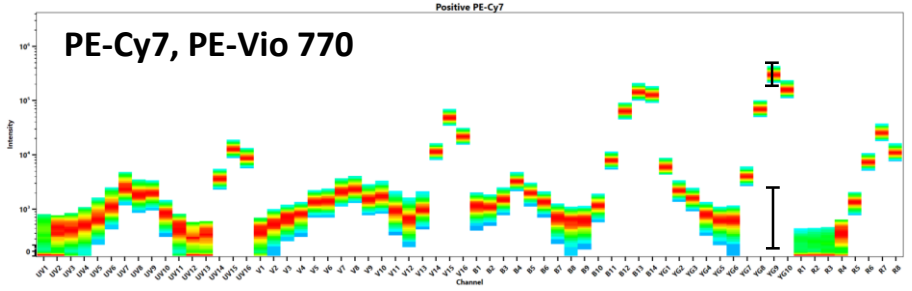








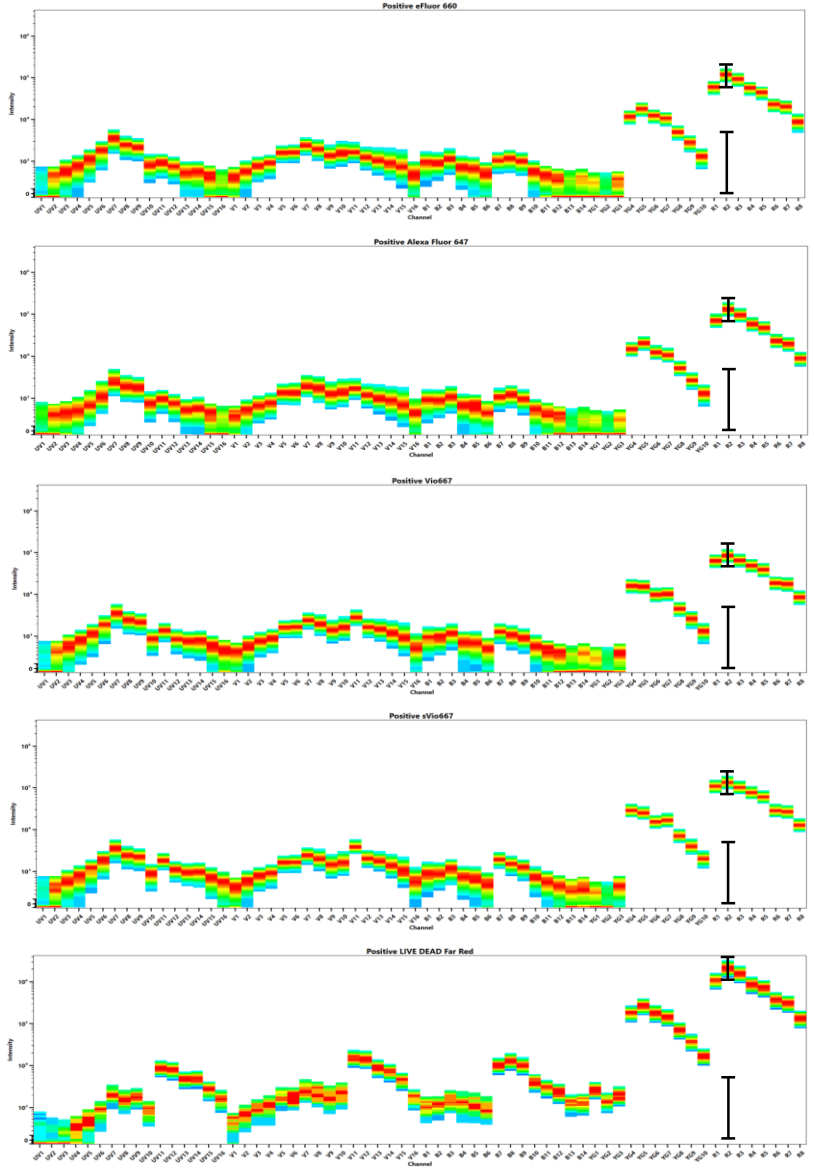




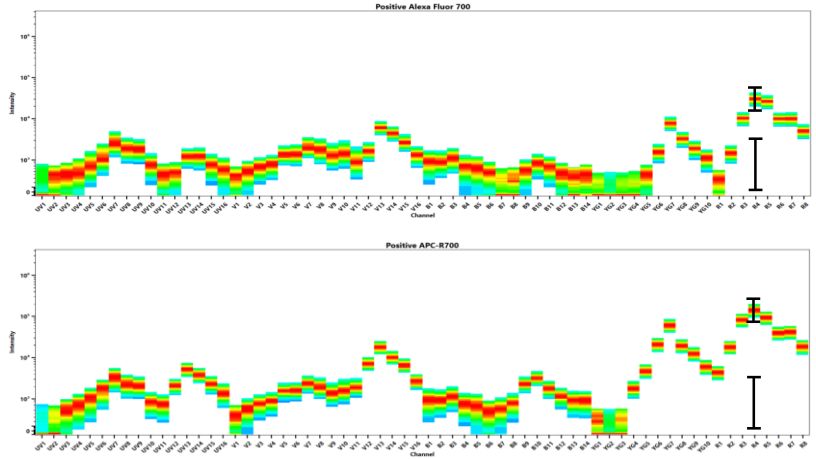
Dyes Primarily Excited by the Red Laser

Red Laser Excitable Dyes with Similar Signatures

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

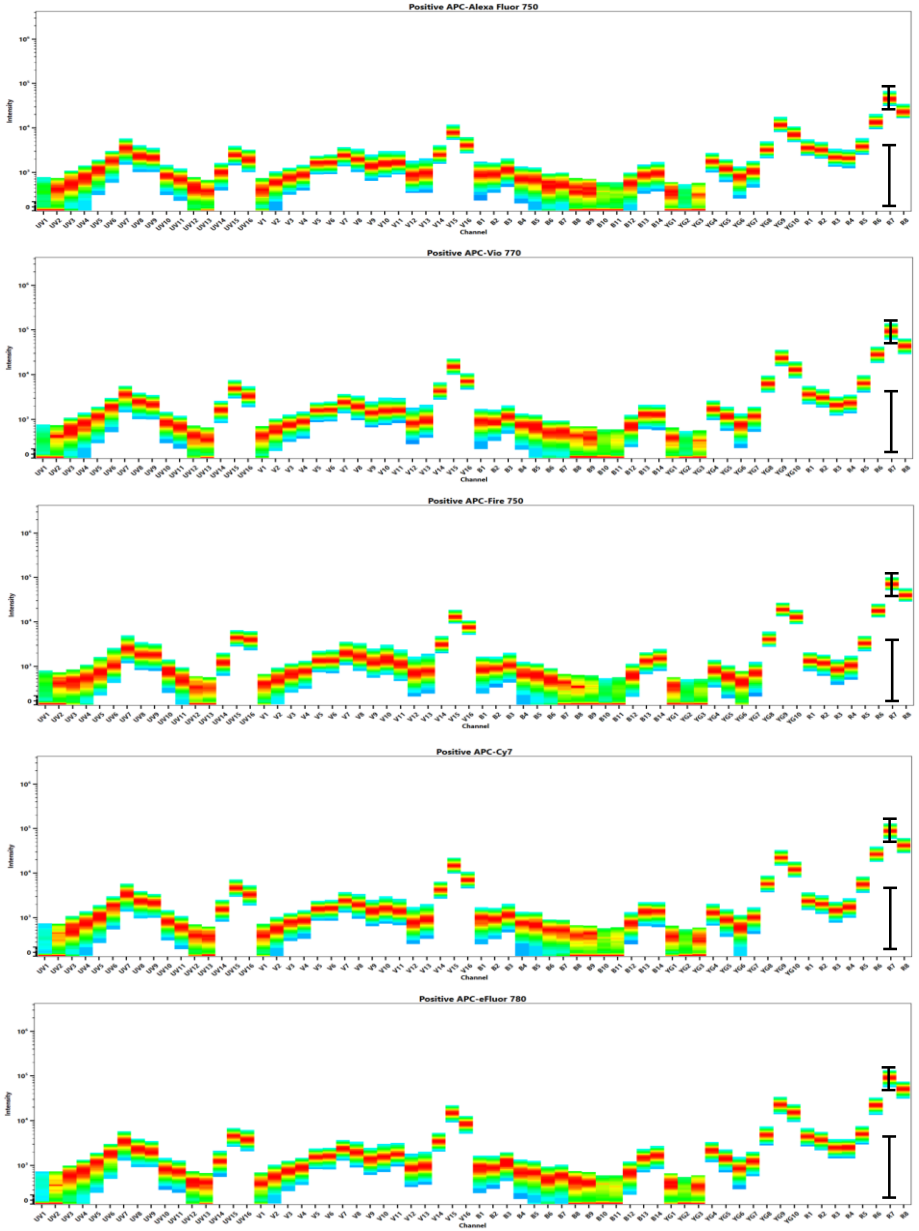


Alexa Fluor 700 and APC-R700

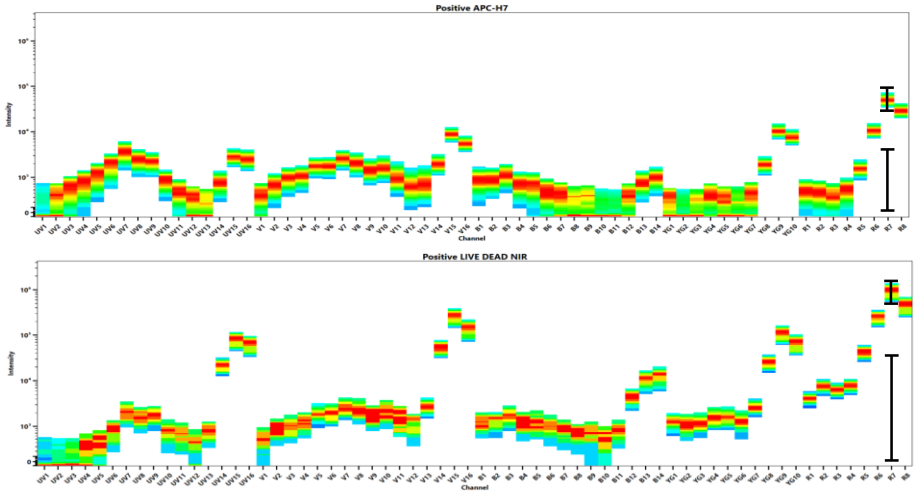


Red Laser Excitable Dyes with Similar Signatures

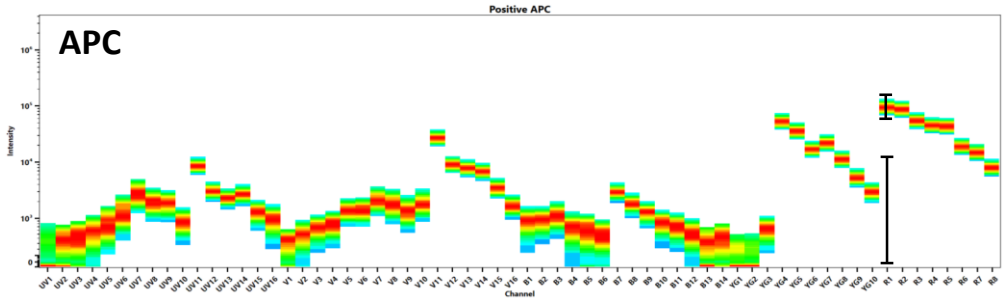
APC-Alexa 750, APC-Vio 770, APC/Fire 750, APC-Cy7 and APC-eFluor 780

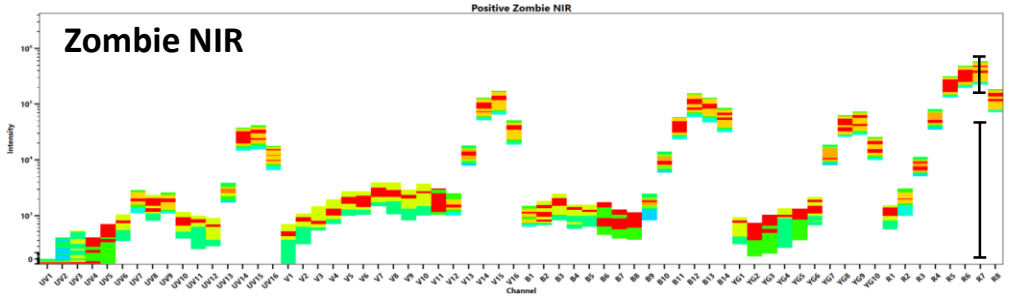


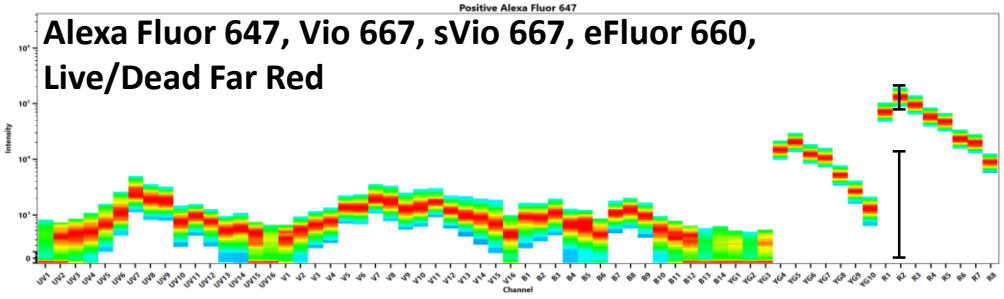
APC-H7 and Live/Dead NIR

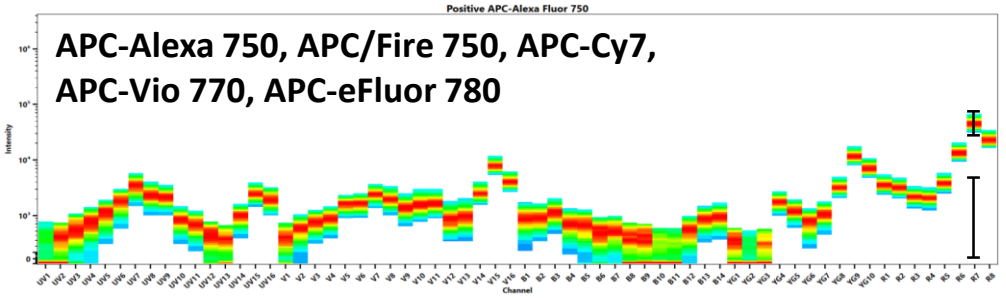


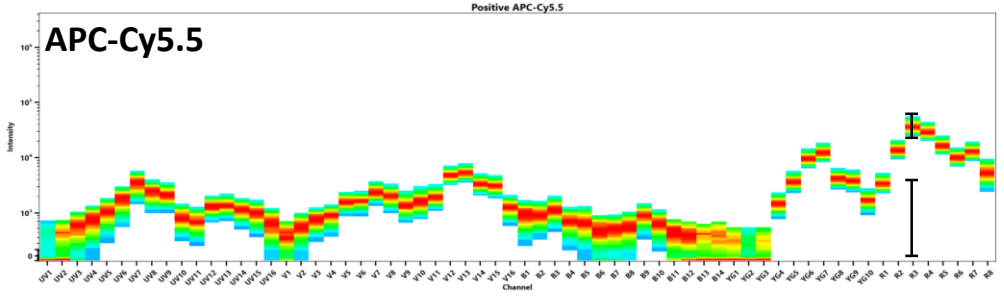
Red Laser Excitable Dyes with Unique Signatures

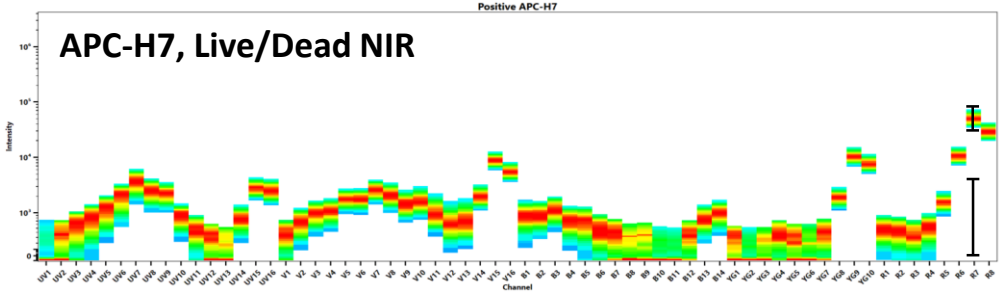


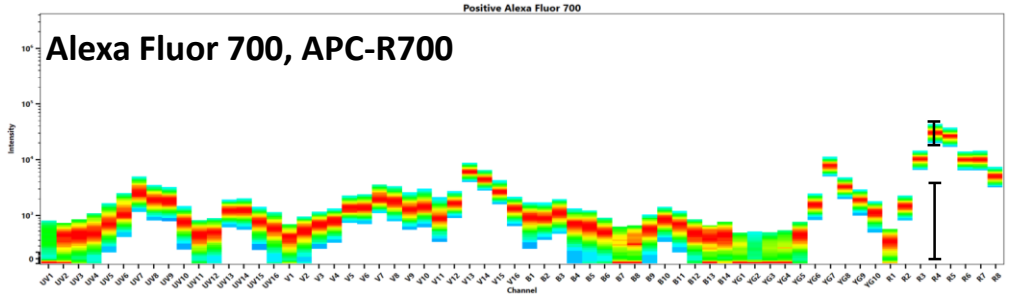




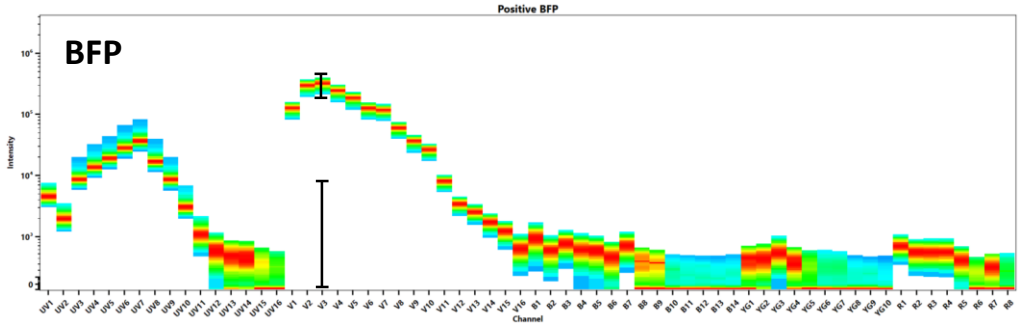


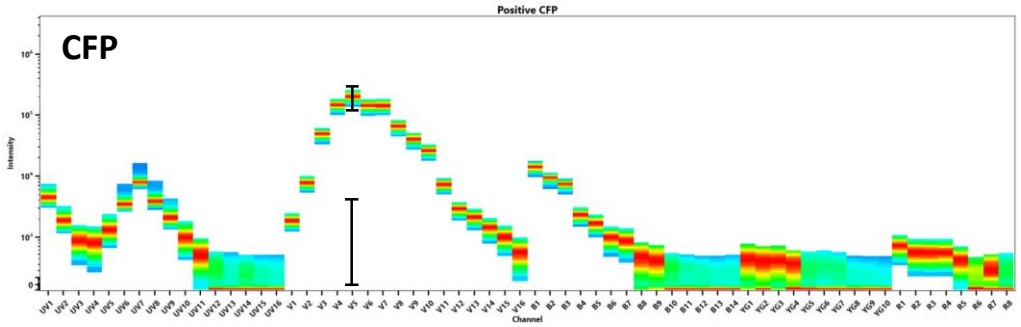


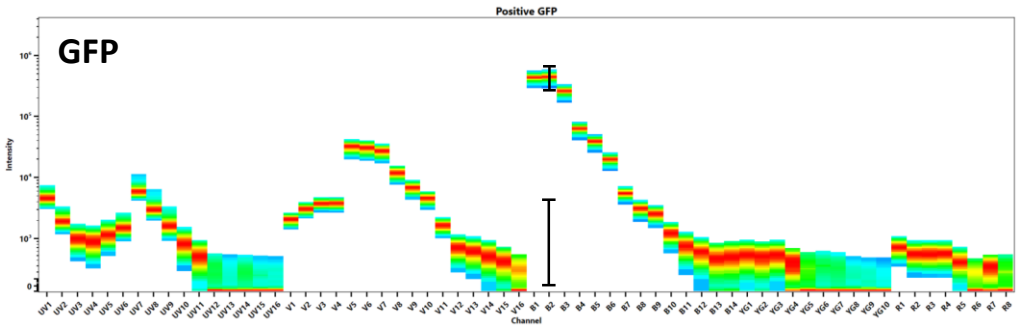


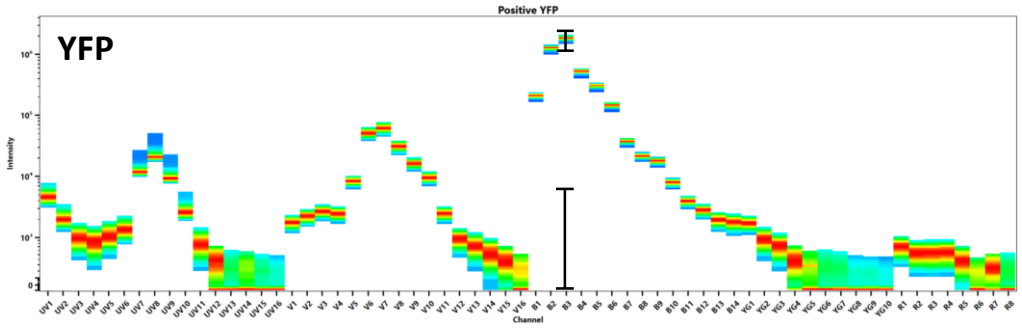


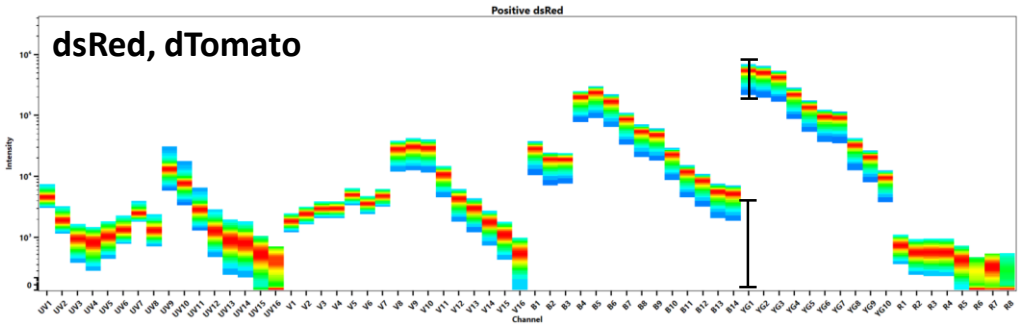
Fluorescent Proteins

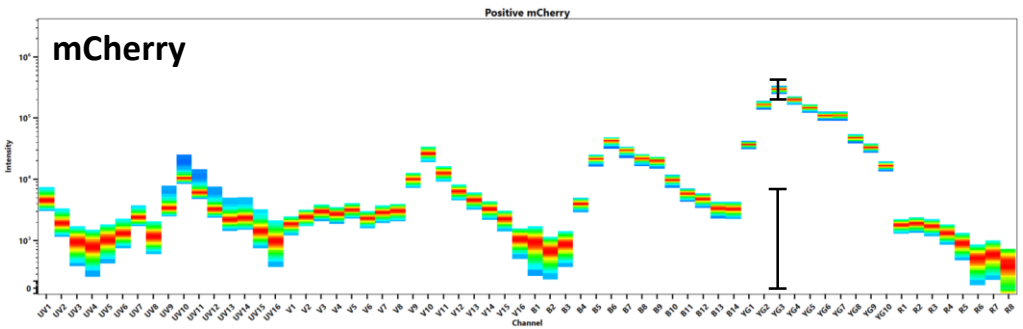


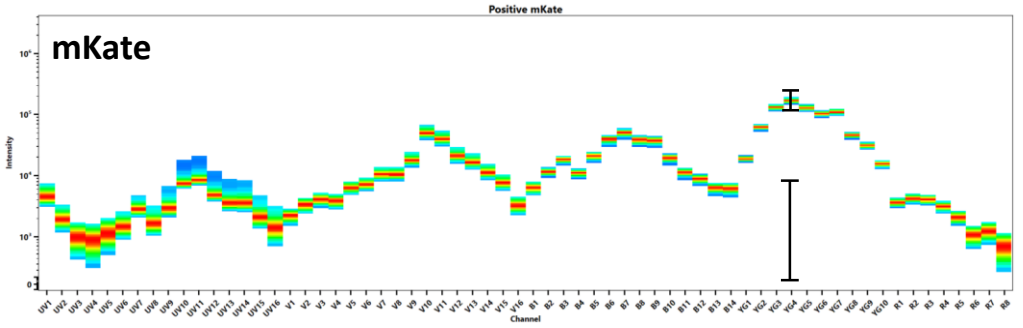












Fluorochrome Peak Channels

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 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, Super Bright 702, Qdot705	V13
BV750	V14
BV785, BV786, Qdot 800	V15
Blue Excited Fluors	
Vio 515, sVio 515, BB515	B1
Alexa Fluor 488, FITC, VioBright FITC	B2
Alexa Fluor 532	B3
PerCP	B8
PerCP-Cy5.5, BB700	B9
PerCP-eFluor 710, PerCP-Vio 700	B10
Yellow Green Excited Fluors	
PE	YG1
PE-Dazzle 594, PE-CF 594, PE-TexasRed, PE-efluor 610, PE-Alexa Fluor 610	YG3
PE-Cy5	YG5
PE-Cy5.5, PE-AlexaFluor 700	YG7
PE-Cy7, PE-Vio 770	YG9
Red Excited Fluors	
APC	R1
Alexa647, Vio 667, sVio 667, efluor660	R2
Alexa 700, APC-R700	R4
APC-Alexa750, APC/Fire 750, APC-Cy7, APC-Vio 770, APC-efluor780, APC-H7	R7

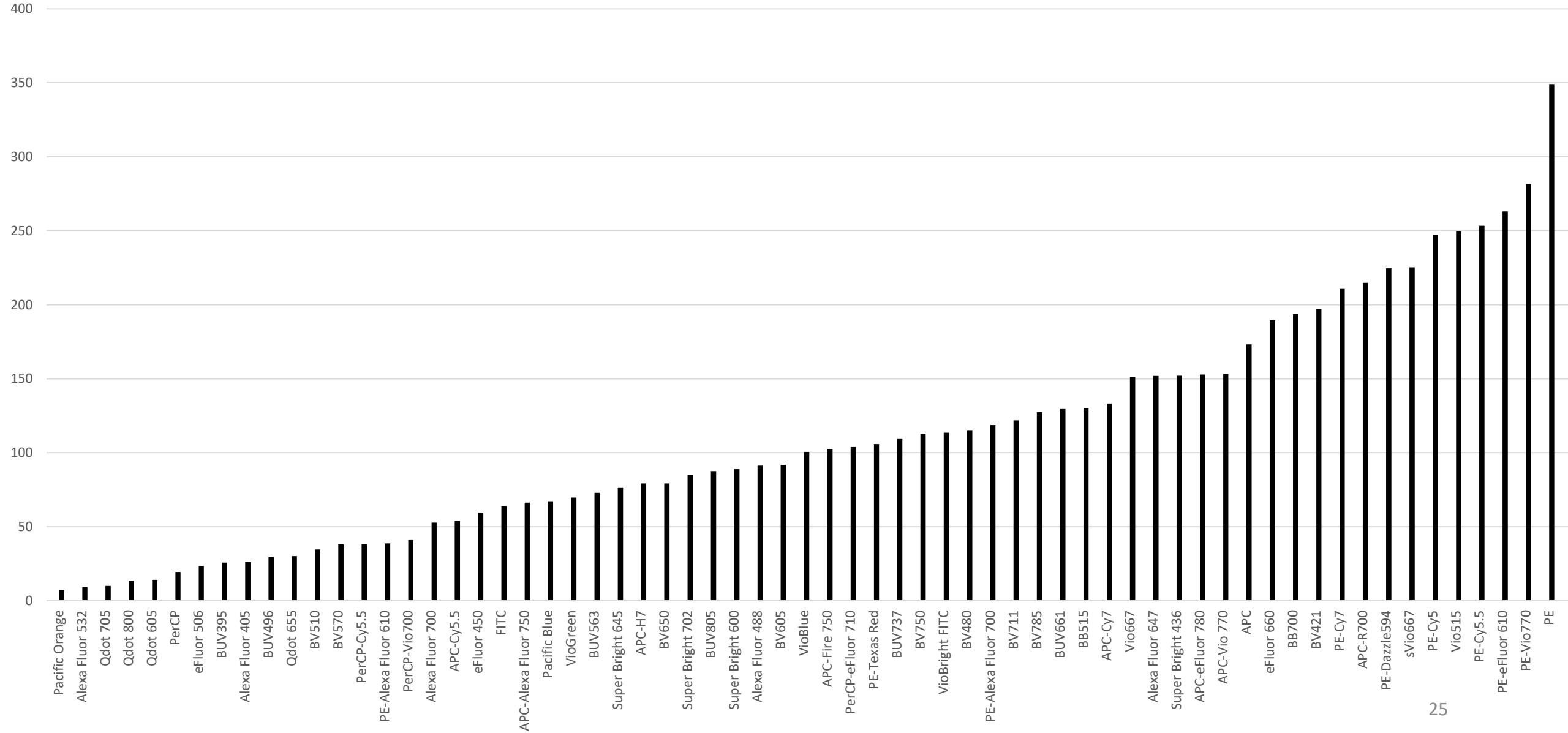
Example of 30 Dyes that Can Be Used in Combination (CAREFUL PANEL DESIGN IS NEEDED)

UV Excited Fluors	Violet Excited Fluors	Blue Excited Fluors	Yellow Green Excited Fluors	Red Excited Fluors
BUV395	BV421	BB515	PE	APC
BUV496	Super Bright 436	Alexa Fluor 488	PE/Dazzle594	Alexa647
BUV563	efluor450	Alexa Fluor 532	PE-Cy5	APC-R700
BUV661	BV480	PerCP-Cy5.5	PE-Cy7	APC/Fire750
BUV737	BV510	PerCP-eFluor 710		
BUV805	BV570			
	BV605			
	BV650			
	BV711			
	BV750			
	BV785			

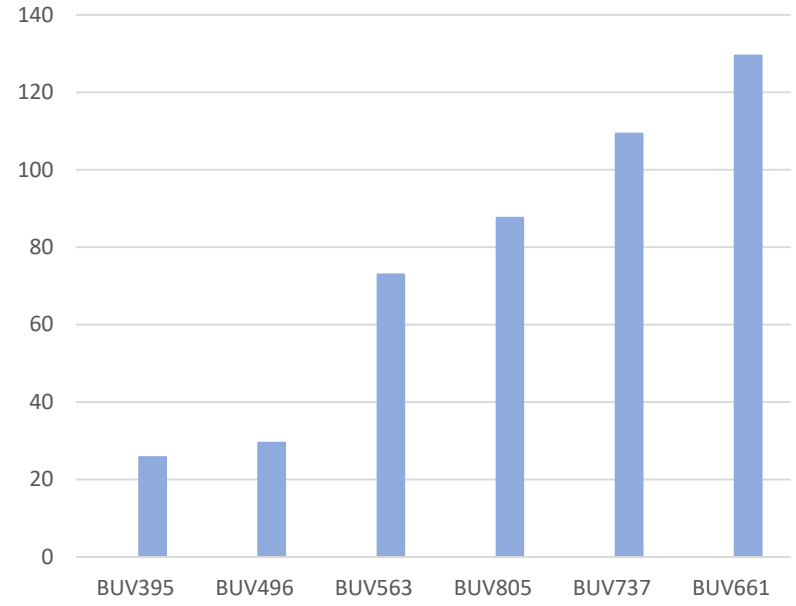
Stain Indexes

Data generated using CD4 staining in human PBMCs

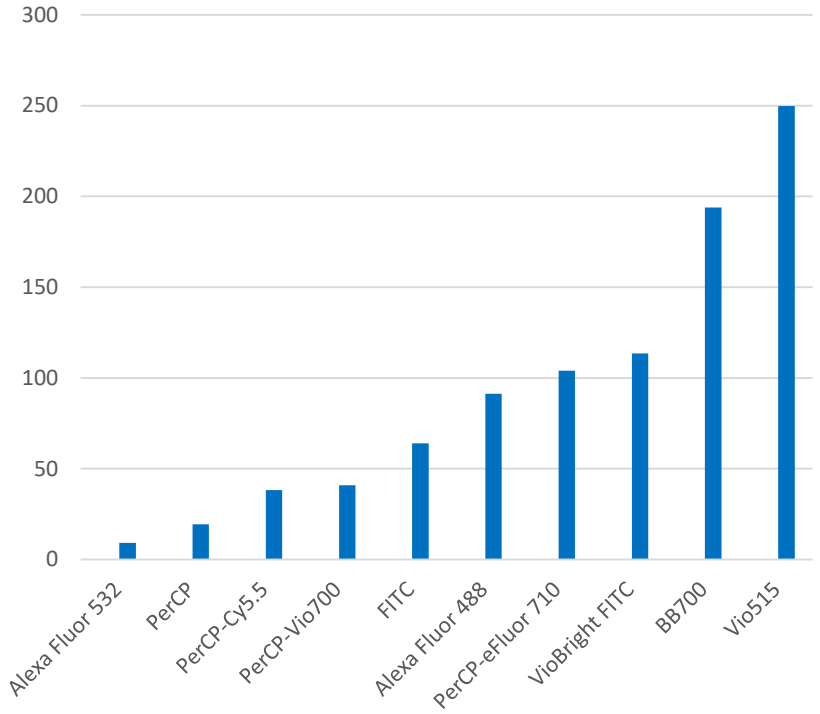
Stain Indexes - 5 Laser System - 65 Dyes



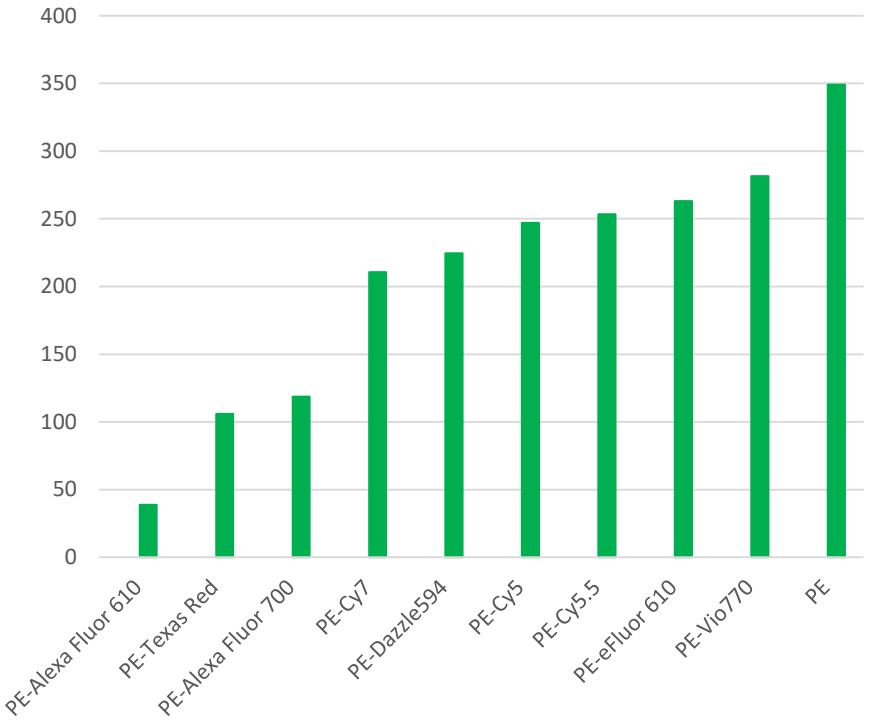
Stain Index UV Excitable Dyes



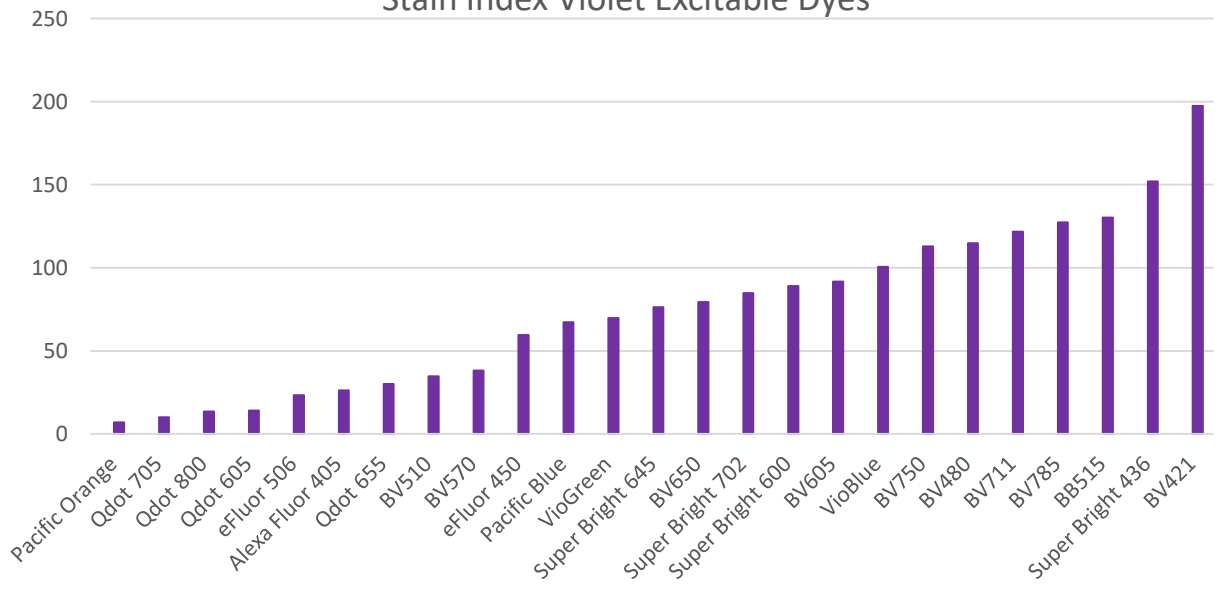
Stain Index Blue Excitable Dyes



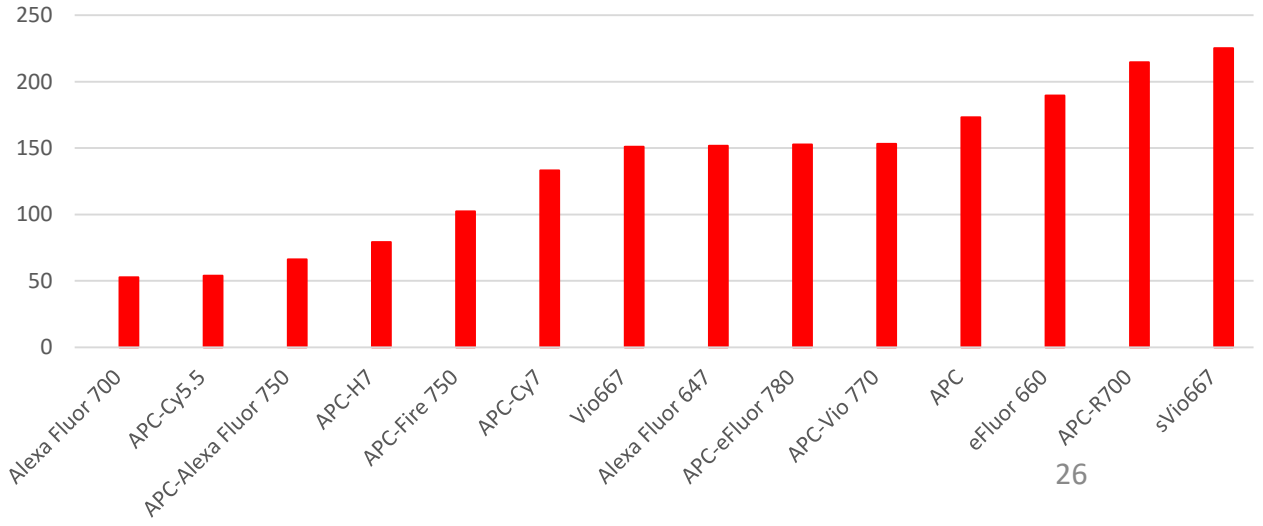
Stain Index Yellow Green Excitable Dyes



Stain Index Violet Excitable Dyes



Stain Index Red Excitable Dyes



Cross-Stain Index Matrix

Dyes used in combination need to have a unique spectrum AND also 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, you will use one or the other (not both!).

Spread matrix for 30 fluors that can be use 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	APC-R700	APC-Fire 750
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																														
APC-R700																														
APC-Fire 750																														

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 PE into AF532). Areas in bright pink and red indicate pairs for which more attention to panel design is needed.