vector LABORATORIES

Fluorescent Dyes from Vector Laboratories

Illuminate the Full Spectrum of Possibilities

A broad portfolio of high-quality fluorophores to suit your specific scientific needs

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Introduction to Vector Fluorescent Dyes

Vector Laboratories offers a diverse catalog of fluorescent dyes engineered to support a wide range of applications

With multiple chemistries for easy conjugation to a variety of biomolecules, Vector fluorophores meet a wide range of scientific research needs. Our portfolio includes fluorescent dyes with top-tier performance, covering the full spectral range from UV to near-infrared, and featuring multiple reactive groups for versatile labeling. Backed by robust technical support, rigorous quality standards, and scalable manufacturing, Vector Laboratories ensures cost-effective solutions for research and development in academia and industry.

Comprehensive Product Portfolio

We offer an array of functionalized fluorophores with broad spectral coverage as well as a wide selection of reactive groups and fluorescent dye types with unique performance characteristics for numerous applications.

Within our catalog are hundreds of fluorescent dyes that cover a wide spectrum of emitted wavelengths, from ultraviolet to near-infrared. Vector fluorophores also come in a variety of reactive groups for conjugation flexibility.

Additionally, we offer fluorophores with unique performance characteristics. AQuora® dyes, for example, are built for increased hydrophilicity and solubility, resulting in a high degree-of-labeling with minimal background. Whatever your research needs, Vector Laboratories has the optimal unconjugated fluorophore for you.

Superior Quality and Consistency

Our fluorophores provide enhanced performance backed by detailed quality documentation and batch records, high product purity, reliable lot-to-lot consistency, and world class technical support.

Our fluorescent dyes are produced with >90% purity, making Vector fluorophores reliable options made with performance reproducibility in mind. Each batch of each dye includes a Certificate of Analysis to ensure lot-to-lot quality so you can trust that your Vector fluorophore is the same vial after vial.

We back our product purity with highly qualified, bench-trained technical support scientists to aid you in troubleshooting and workflow enhancement. See our research-quality, catalog fluorophores in action in our list of cited publications, available in this brochure.

Cost-Effective Research Solutions

Our catalog features economized pricing without sacrificing performance, including affordable alternatives to popular reagents with comparable results and flexible sizing to fit a variety of project needs.

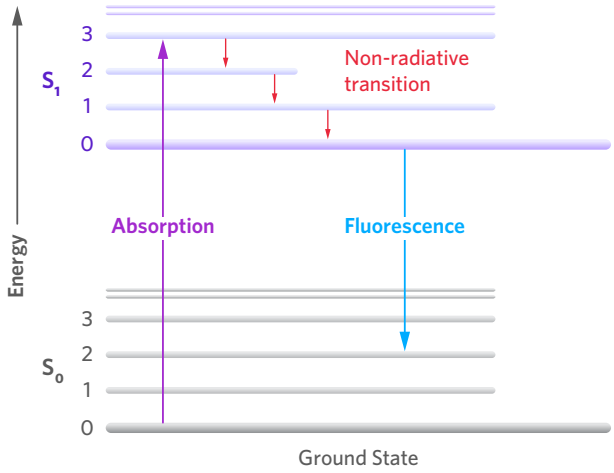
Our AZDyes branded fluorophores offer comparable performance to Alexa Fluor® products but are 2.5 times cheaper per milligram than Alexa Fluor® products (see our Tech Note highlights in this brochure for more information).

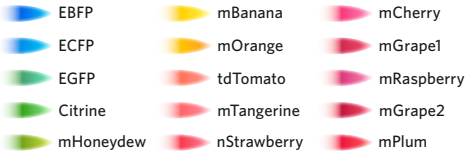
To meet the scaling needs for both academic and industry projects, we offer multiple sizing options, from milligram to gram scale, with bulk pricing available upon request.

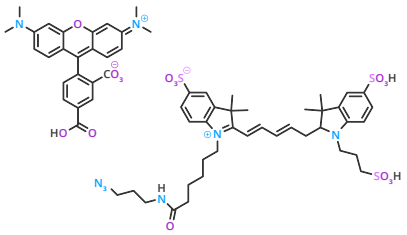
Fundamentals of Fluorophores

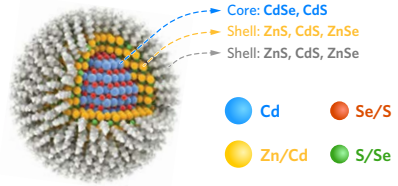
The Basics of Fluorescence

Fluorescence is the process by which a molecule called a fluorophore absorbs light energy, called excitation, and then re-emits it at a longer wavelength, called emission. The difference between the excitation wavelength and the emission wavelength, called the Stokes shift, is referring to a loss of energy during the period of time that the fluorophore is in an excited state. For fluorescence imaging, a larger Stokes shift is advantageous in order to reduce background noise and improve signal clarity.







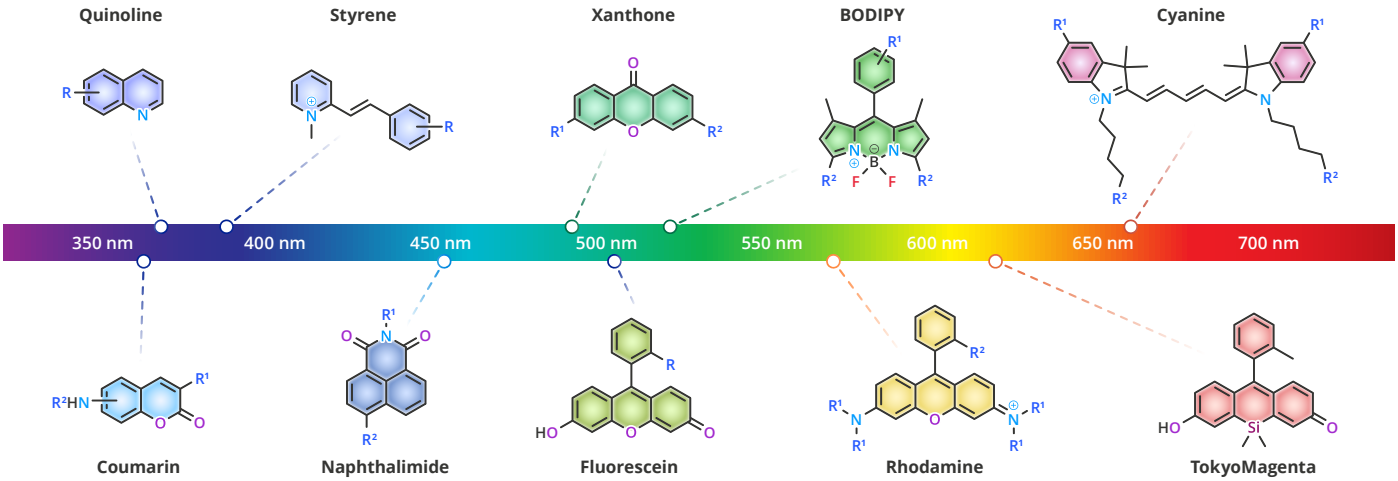


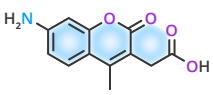
Fluorescent Proteins	Organic Fluorescent Dyes	Quantum Dots
Pros	**Pros**	**Pros**
1. Biocompatible 2. Best for live-cell imaging	1. Large variety of excitation/emission profiles 2. Small size 3. Chemically stable 4. Straightforward conjugation	1. Narrow, symmetrical emission peak 2. Stable against photobleaching 3. Very bright 4. Large Stoke's shift 5. Multiplexing by a single wavelength
Cons	**Cons**	**Cons**
1. Require genetic engineering 2. Large size can interfere with fusion protein function 3. Quick photobleaching	1. Susceptible to photobleaching 2. Small Stoke's shift 3. Asymmetrical emission peak	1. Toxicity 2. Complex synthesis 3. Very large size

Structure of Organic Fluorescent Dyes

While different dyes fluoresce at different wavelengths due to structural differences, the basic motif of core fluorescent dye structure is an aromatic hydrocarbon ring that can absorb energy and become excited, then emit that energy as a photon. In addition to changing the color emitted by the fluorescent dye, different structural characteristics can lend properties like enhanced solubility and increased photostability.

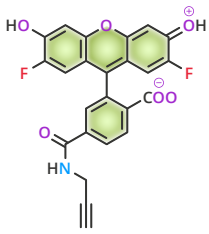
Some of the most popular core fluorescent dyes from which other dyes are designed include coumarin, fluorescein, rhodamine, and cyanine.





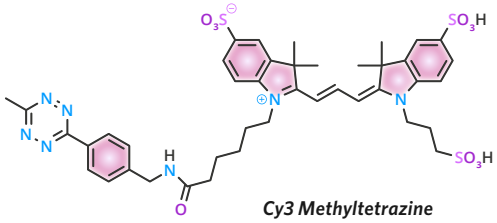
AMCA Acid *Catalog# FP-1235*

Coumarins like AMCA Acid have blue fluorescence, good quantum yields, and are highly photostable. However, coumarins are less bright than other classes of dyes.



OG 488 Alkyne
Catalog# CCT-1397

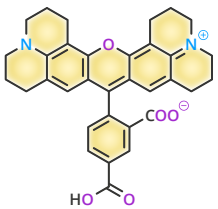
Fluoresceins, like the core structure of the fluorinated carboxylfluorescein OG 488 Alkyne, fluoresce an intense green, but are less chemically stable than rhodamine.



Cy3 Methyltetrazine
Catalog# CCT-1018

Cyanine dyes, like Cy3 Methyltetrazine, are two nitrogen-containing rings with a polymethylene linker. They emit brightly across a variety of wavelengths.

Rhodamines like 5-ROX come in a variety of excitation and emission wavelengths. They have strong fluorescence, high quantum yield, chemical stability, and are pH insensitive.



5 ROX
Catalog# FP-1271

Applications of Vector Fluorophores

Our fluorophores provide bright detection, minimal photobleaching, and multiple chemistries for reproducible fluorescence resonance energy transfer (FRET) and subcellular localization analysis in a variety of tissue types.

Antibody labeling

Attaching fluorescent dyes to antibodies allows researchers to identify, localize, characterize, and quantify target antigens in cells and tissues for biomedical research and immunodiagnostic development. To make the most of precious antibody stock, the fluorescent dye should be readily conjugable and result in a high concentration of conjugated antibody. The fluorophore should also be bright and compatible with the experimental protocols and instruments.

Our fluorescent dyes enable efficient bioconjugations with high yield and offer the spectral breadth for experimental flexibility in flow cytometry, fluorescence activated cell sorting (FACS), immunofluorescence, and enzyme-linked immunosorbent assay (ELISA) applications.

Peptide/protein labeling in vitro and in vivo

Fluorescent dyes can also be attached to proteins and peptides to visualize protein interactions and locations in cells and living organisms. In vivo imaging through fluorescent or confocal microscopy uses fluorescently conjugated proteins or peptides to study biological processes in real time.

Our fluorophores provide bright detection, minimal photobleaching, and multiple chemistries for reproducible fluorescence resonance energy transfer (FRET) and subcellular localization analysis in a variety of tissue types. Additionally, we offer options with high solubility and low toxicity for in vivo applications.

Oligo labeling

Oligonucleotides, or oligos, are short chains of nucleotides that are commonly conjugated with fluorescent dyes. Oligo probes with fluorescent labels can be incorporated into genetic material, then used to image and quantify the chromosomal location of a complimentary DNA or RNA strand. With multiple conjugation chemistry and color options, our fluorescent dyes provide the specificity and customization for reliable fluorescence in situ hybridization (FISH) analysis and for effective quantification of real-time polymerase chain reaction (PCR).

Our catalog of fluorescent dyes includes broad spectral coverage and multiple conjugation chemistry options so you can choose the optimal fluorescent dye for your research. The table below provides an overview of which applications are recommended for Vector fluorophores.

Applications	AZDye™	AQuora®	Cyanine	MB Dyes	TAMRA	IR Dyes	CalFluor Dyes
In Vivo Applications	✓ (esp NIR Dyes)	✓ (esp NIR Dyes)	✓ (esp NIR Dyes)	✓ (esp NIR Dyes)	×	✓ (esp NIR Dyes)	✓
Live Cell Imaging	✓	✓	✓	✓	✓	✓	✓
Immunofluorescence	✓	✓	✓	✓	✓	✓	✓
Flow Cytometry	✓	✓	✓	✓	✓	✓	✓
FLISA	✓	✓	✓	✓	✓	✓	✓
Subcellular localization	✓	✓	✓	✓	✓	✓	✓
Multiplexing	✓	✓	✓	✓	✓	✓	✓
FRET	✓ (Cy3-Cy5 pairs)	Limited	✓	Limited	✓	Limited	Limited
Oligonucleotide Labeling	✓	✓	✓	✓	✓	✓	✓
Peptide/Protein Labeling	✓	✓	✓	✓	✓	✓	✓
Bioorthogonal Conjugation	✓	×	✓	✓	✓	✓	✓

Immunofluorescence Workflow

1. Slide Preparation/ Antigen Retrieval
2. Quench/Block
3. Primary Antibody/Lectins
4. Secondary Antibody
5. Autofluorescence Quencher
6. Counterstain/ Mount
7. Image

With more than 40 years of research, development, and manufacturing experience, Vector Laboratories has acquired considerable expertise in the production of immunofluorescence reagents. In addition to our fluorophores, we offer reagents and mounting media to accommodate a variety of experimental designs and levels of signal amplification.

Fluorescent Dye Properties

To provide researchers with the optimal reagent for diverse applications, our catalog includes fluorescent dyes with a variety of spectral characteristics and unique performance features. Choose from dyes in the ultraviolet to the near-infrared range, including highly photostable options with excellent brightness. Vector fluorophores are also built for a variety of experimental environments, with dyes stable in pH as low as 4 and as high as 10, and highly hydrophilic options for applications like ***in vivo*** imaging. The table below demonstrates the features and characteristics of Vector fluorophore options.

Feature/Criteria	AZDye™	AQuora®	Cyanine	MB Dyes	TAMRA	IR Dyes	CalFluor Dyes
Excitation/Emission Range	UV to Near IR (350-800 nm)	UV to Near IR (350-800 nm)	UV to Near IR (350-800 nm)	Visible (488-800 nm)	546/573 nm	Near IR (650-800 nm)	544-637 nm
Photostability	High	High	Moderate to High	High	Moderate	High	Moderat to High
Brightness	High	High	Moderate to High	High	High	High	Moderate to High
Options for Near-Infrared Imaging	Yes	Yes	Yes	Yes	No	Yes	No
pH Stability	pH 4-10	pH 4-9	pH 4-10	pH 4-9	pH 5-9	pH 4-10	pH 6-9
Hydrophilicity	High	Very High (dPEG technology)	Moderate	High	Low to Moderate	High	High
Degree of Labeling (DOL) Flexibility	Moderate	Very High	Moderate	High	Moderate	Moderate	Moderate
Fluorescent only when conjugated	No	No	No	No	No	No	Yes

Choosing the Ideal Fluorophore

When selecting the optimal fluorophore for your needs, consider the following:

Compatibility

Your fluorophore should match your laser or filter cubes set.

Ease of Conjugation

Your fluorophore should be straightforward to conjugate without affecting the function of the labeled substance.

Stability

Your fluorophore should be stable within your workflow's pH and temperature parameters, as well as with the solvents and fixatives in your process.

Workflow Integration

Your fluorophore should not interfere with your workflow.

Brightness

Your fluorophore should have high quantum yield and high fluorescence intensity

Excitation and Emission Properties

Your fluorophore should demonstrate strong absorption of excitation light and a narrow emission spectrum.

Wavelengths

Your fluorophore should have a large Stokes shift to reduce spectral overlap between excitation and emission, and in turn improve signal detection.

Photostability

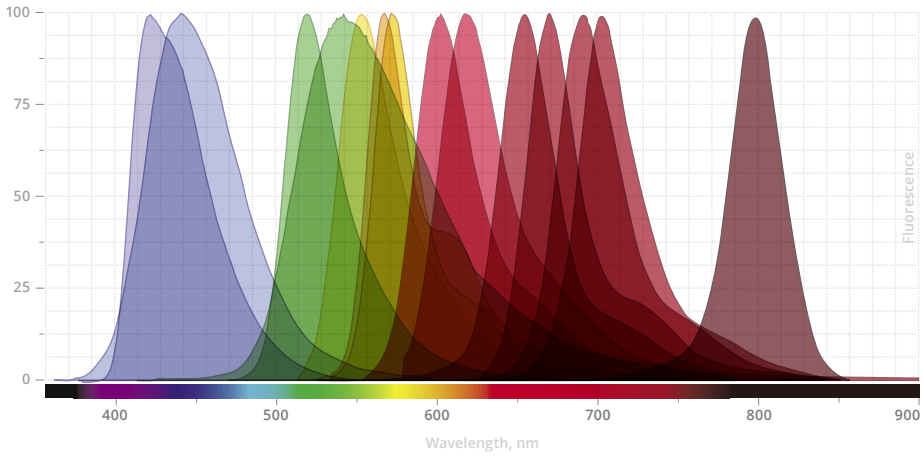
Your fluorophore should be highly photostable, meaning it resists photobleaching, maintains intensity, performs under high-intensity illumination.

Toxicity

If using your fluorophore in vivo, it should have low toxicity.

Our catalog of fluorescent dyes seeks to address these needs in the fluorophore selection process, with broad spectral coverage, dyes with unique performance characteristics, and multiple conjugation chemistries for all applications.

Backed by our robust quality system and strong technical support, Vector's dyes are built to meet the diverse needs of scientists across fields.



Fluorophore Product Selection Table

Fluorophore	Core Dye Excitation	Core Dye Emission	Extinction Coefficient	Azide	Azide Plus	Picolyl Azide	Alkyne	DBCO	TCO	Tetrazine	Methyl tetrazine	Maleimide
6,8-Difluoro-7-hydroxy-4-methylcoumarin	346	442	19,000									
AMCA	346	442	19,000									
AzDye 350	346	442	19,000	CCT-1267	CCT-1477	CCT-1268	CCT-1269	CCT-1270				
AQuora 350	347	452	19,000									QBD-12021LF
AQuora 405	399	422	35,000									QBD-12006LF
AZDye 405	401	421	35,000	CCT-1307	CCT-1474	CCT-1308	CCT-1309	CCT-1310				
PB	401	421	30,000		CCT-1483	CCT-1413						
AQuora PB	404	458	19,000									QBD-12019LF
AZDye 430	430	539	15,000	CCT-1271		CCT-1272	CCT-1273	CCT-1274				
5-Carboxyrhodamine 110	460	525	76,000									
Carboxyrhodamine 110	460	525	74,000	CCT-AZ105			CCT-TA106	CCT-A127				
AZDye 488	490	525	73,000	CCT-1275	CCT-1475	CCT-1276	CCT-1277	CCT-1278	CCT-1356	CCT-1361		FP-1014
Difluorocarboxyfluorescein 5-isomer	490	525	73,000									
Difluorocarboxyfluorescein 6-isomer	490	525	73,000	FP-1225								
MB 488	490	525	86,000									
AQuora 488	493	522	73,000									QBD-12022LF
AQuora Fluorescein	495	524	76,000									QBD-11590LF
Fluorescein	495	517	75,000									
OG 488	496	524	84,200	CCT-1264			CCT-1397					
CalFluor 488 Azide	500	521		CCT-1369								
AZDye 532	532	554	81,000	CCT-1279	CCT-1476	CCT-1280	CCT-1281	CCT-1282				FP-1042
MB 543	543	566	105,000					CCT-1174				
AQuora TAMRA	544	582	92,000									QBD-11979LF
AQuora 550	554	570	150,000									QBD-11974LF
AZDye 555	555	580	155,000	CCT-1287	CCT-1479	CCT-1288	CCT-1289	CCT-1290				FP-1168
Cy3	555	580	150,000	CCT-AZ119	CCT-1484	CCT-1178	CCT-TA117	CCT-A140		CCT-1204	CCT-1018	FP-1302
5-TAMRA	556	573	92,000	CCT-1245		CCT-1254	CCT-1255					
6-TAMRA	556	573	92,000	CCT-1246								
AZDye 546	556	573	112,000	CCT-1283	CCT-1478	CCT-1284	CCT-1285	CCT-1286				
TAMRA	556	573	92,000	CCT-AZ109	CCT-1486	FP-1258	CCT-TA108	FP-1260		CCT-1196	CCT-1026	
CalFluor 555 Azide	561	583		CCT-1370								
5-ROX	570	591	93,000									
AZDye 568	578	603	88,000	CCT-1291	CCT-1480	CCT-1292	CCT-1293	CCT-1294	CCT-1358	CCT-1363		FP-1082
AZDye 594	590	617	92,000	CCT-1295	CCT-1481	CCT-1296	CCT-1297	CCT-1298	CCT-1359	CCT-1364		FP-1102
CalFluor 580 Azide	591	609		CCT-1371								
AQuora TX595	592	611	80,000									QBD-11612LF
MB 594	601	623	110,000									FP-1648
AZDye 633	631	651	100,000 (159,000)	CCT-1548		CCT-1549	CCT-1550	CCT-1547				
AZDye 647	650	665	270,000	CCT-1299	CCT-1482	CCT-1300	CCT-1301	CCT-1302				FP-1122
AZDye 660R	650	665	92,000			CCT-1503				CCT-1504		
Cy5	650	665	250,000	CCT-AZ118	CCT-1485	CCT-1177	CCT-TA116	CCT-A130	CCT-1089	CCT-1189	CCT-1019	FP-1322
Sulfo Cy5	650	665	150,000			FP-1325						
IR 650	650	665	230,000					FP-1506				FP-1502
MB 633	650	665	100,000									
MB 660R	650	665	92,000	CCT-1463			CCT-1466	CCT-1461				
AQuora 650	654	674	250,000									QBD-11958LF
CalFluor 647 Azide	657	674		CCT-1372								
AZDye 680	673	694	185,000 (183,000)	CCT-1510	CCT-1512	CCT-1511	CCT-1514	CCT-1513				
AZDye 680R	673	694	135,000							CCT-1505		
Cy5.5	673	694	190,000	CCT-1059		CCT-1182	CCT-1060	CCT-1046				FP-1342
IR 680LT	673	694	190,000									
MB 680R	673	694	135,000	CCT-1464				CCT-1462				
Cy7	753	775	270,000	CCT-1052		CCT-1183	CCT-1053	CCT-1047			CCT-1027	
AQuora 750	755	780	240,000									QBD-11962LF
IR 750	756	776	270,000	FP-1558			FP-1560	FP-1561				FP-1557
MB 800Z	774	798	205,000									
AZDye 800	775	799	204,000	CCT-1562		CCT-1563		CCT-1564				
AQuora 800	792	809	270,000									QBD-11099LF

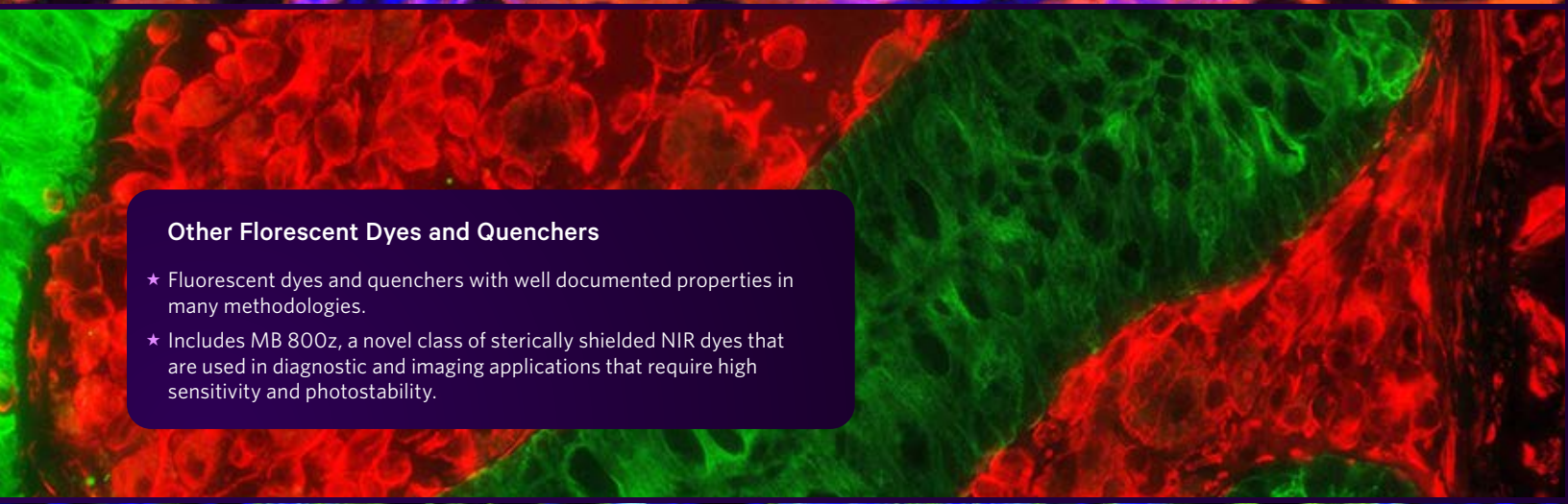
NHS Ester	TFP Ester	Amine	Cadaverine	Biotin Azide	Biotin	Tyramide	Hydrazide	Hydro xylamine	Acid	Biotin Azide	Biotin Alkyne	Desthio biotin Azide	Azide NHS Ester	DBCO NHS Ester
FP-1242														
FP-1236									FP-1235					
FP-1002									FP-1003					
QBD-12020LF														
QBD-12005LF														
FP-1061			FP-1063						FP-1060					
FP-1245														
QBD-12018LF														
FP-1031														
FP-1202														
FP-1201														
FP-1013			FP-1015		CCT-1395	CCT-1538	FP-1017	FP-1016	FP-1012					
FP-1222			FP-1227											
FP-1223														
FP-1601														
QBD-11083LF														
QBD-10885LF														
										CCT-1247				
FP-1041														
FP-1631														
QBD-11977LF														
QBD-11973LF														
FP-1166						CCT-1540								
FP-1301 | FP-1656 (S-NHS Ester)		FP-1303 (Amine)				CCT-1545			FP-1300					
FP-1255			FP-1261						FP-1252					
			FP-1262						FP-1253					
FP-1051						CCT-1539								
FP-1254									FP-1251	CCT-1048 | CCT-1367 (Dde)	CCT-1366 | CCT-1368 (Dde)	CCT-1110		
FP-1274									FP-1271					
FP-1081	FP-1091		FP-1083			CCT-1541		FP-1092						
FP-1101	FP-1111		FP-1103		CCT-1396	CCT-1542								
QBD-11918LF														
FP-1646														
FP-1121	FP-1129	FP-1123				CCT-1543	FP-1128							
FP-1321		FP-1323		CCT-1232	CCT-1049	CCT-1546				CCT-1232			CCT-1572	CCT-1561
									FP-1674					
FP-1501														
FP-1771														
FP-1661	FP-1662								FP-1660					
QBD-11949LF														
						CCT-1544								
FP-1341														
FP-1526														
FP-1671	FP-1672													
FP-1556														
QBD-11960LF														
FP-1786														
QBD-11077LF														

Comprehensive Portfolio of Fluorescent Dyes

Vector Laboratories provides quality fluorophores across the spectrum. Our fluorescent dyes feature a variety of reactive groups for easy bioconjugation, broad spectral coverage, and specialized functional properties to address specific research needs.

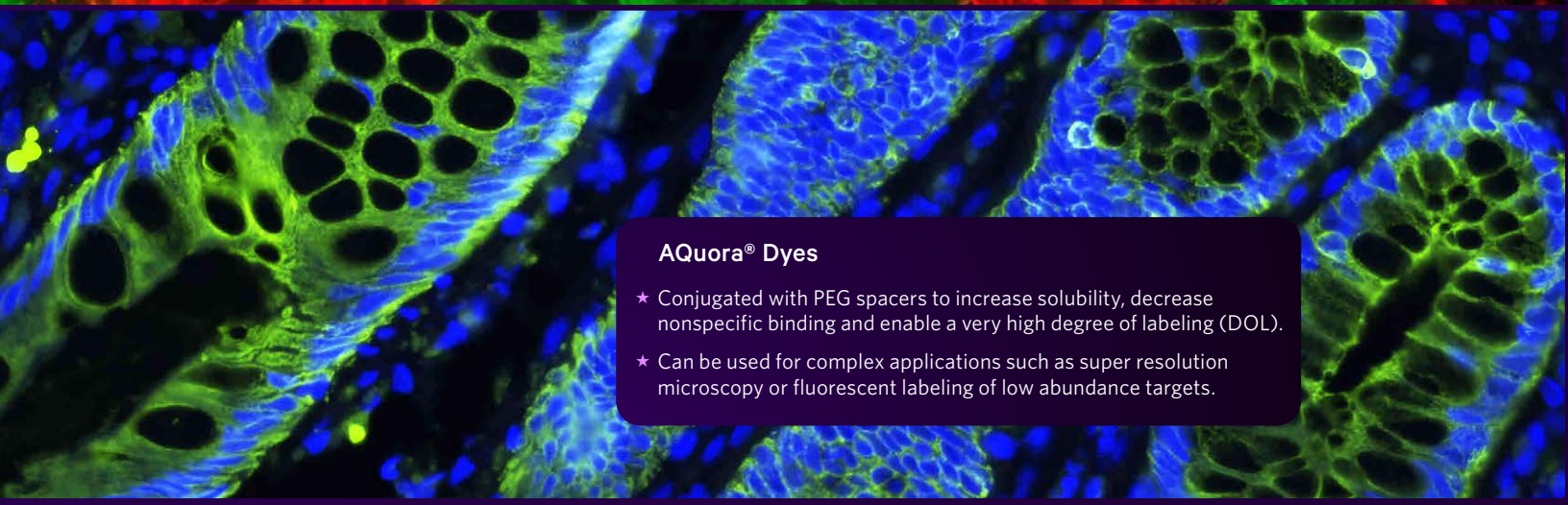
Cyanine Dyes

- ★ Photostable, bright hydrophilic dyes with various reactive groups ideal for labelling protien, peptides and oligonucleotides.
- ★ Available in sulfonated and non-sulfonated cyanines.



Other Florescent Dyes and Quenchers

- ★ Fluorescent dyes and quenchers with well documented properties in many methodologies.
- ★ Includes MB 800z, a novel class of sterically shielded NIR dyes that are used in diagnostic and imaging applications that require high sensitivity and photostability.



AQuora® Dyes

- ★ Conjugated with PEG spacers to increase solubility, decrease nonspecific binding and enable a very high degree of labeling (DOL).
- ★ Can be used for complex applications such as super resolution microscopy or fluorescent labeling of low abundance targets.

Our fluorescent dyes deliver exceptional purity, brightness, photostability, and hydrophilicity to ensure optimal and reproducible results at cost-effective prices. Our range of fluorescent dyes includes:

AZDyes

- ★ Same as Alexa Fluor™ Dyes, with multiple conjugation chemistry options, broad spectral selection, high photo-stability and signal intensity.
- ★ Can be used for fluorescent labeling of antibodies, peptides, proteins, tracers, and amplification substrates for various applications.applications that require high sensitivity and photostability.

Tamra Dyes

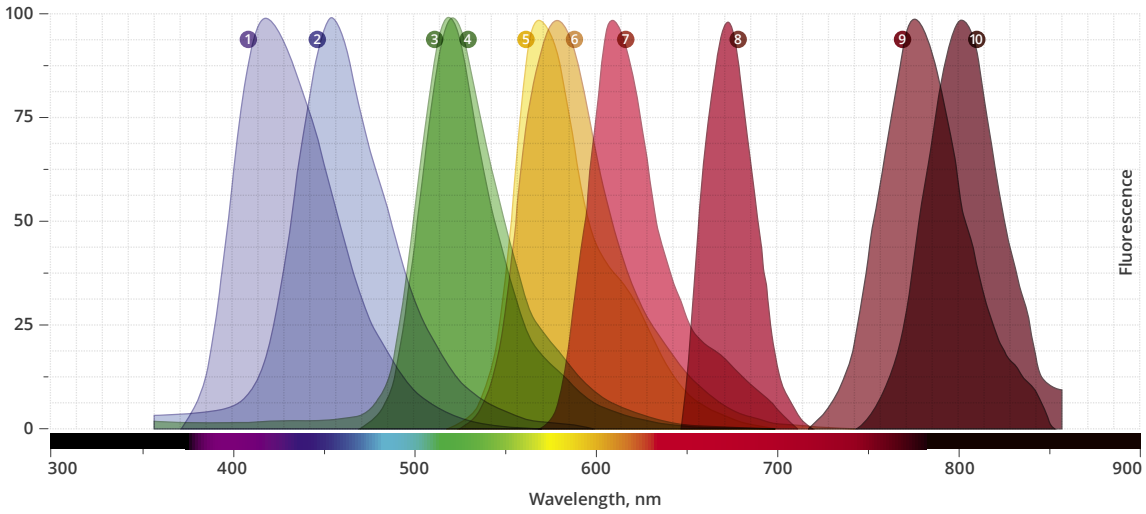
- ★ Fluorescent dye commonly used to modify / label oligos for FRET and Real Time PCR applications.
- ★ Available in formats that enable Cu-catalyzed or Cu-free click chemistry.

MB Dyes

- ★ Bright hydrophillic dyes less susceptiple to self quenching.
- ★ Versatile dye used in various reasearch and medical application.

AQuora® Dyes — Highly Soluble and Specific

AQuora® dyes feature a hydrophilic PEG coat to enable high water solubility and a high degree of labeling while preventing non-specific interactions and self-quenching of the resulting conjugate. These fluorescent dyes are well-suited for complex applications like super resolution microscopy or labeling of low abundance targets. AQuora® dyes are available as NHS esters and maleimides, and custom reactive groups are available upon request.

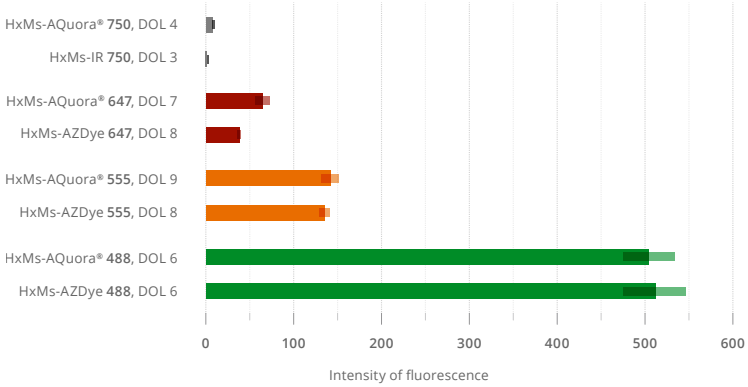


1. AQuora® 405
2. AQuora® PB
3. AQuora® Fluorescein
4. AQuora® 488
5. AQuora® 550
6. AQuora® TM
7. AQuora® TX595
8. AQuora® 650
9. AQuora® 750
10. AQuora® 800

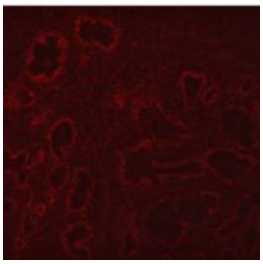
ELISA and immunofluorescence performance of AQuora® Dyes vs. AZDyes

ELISA, detection of Mouse IgG

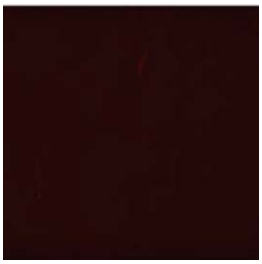
ELISA, 0.3 ×g/ml target IgG, 2 µg/ml detection IgG



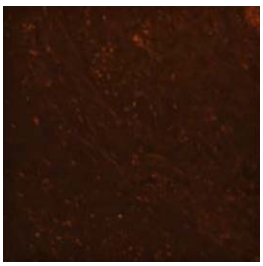
Aquora® dyes demonstrate optimal brightness and reduced background staining in NIR channels, and in situations with low abundance targets and antibody overlabeling.



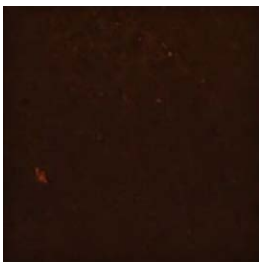
Prostate hyperplasia, no primary, AZDye 647, DOL 21



Prostate hyperplasia, no primary, AQuora® 647, DOL 25



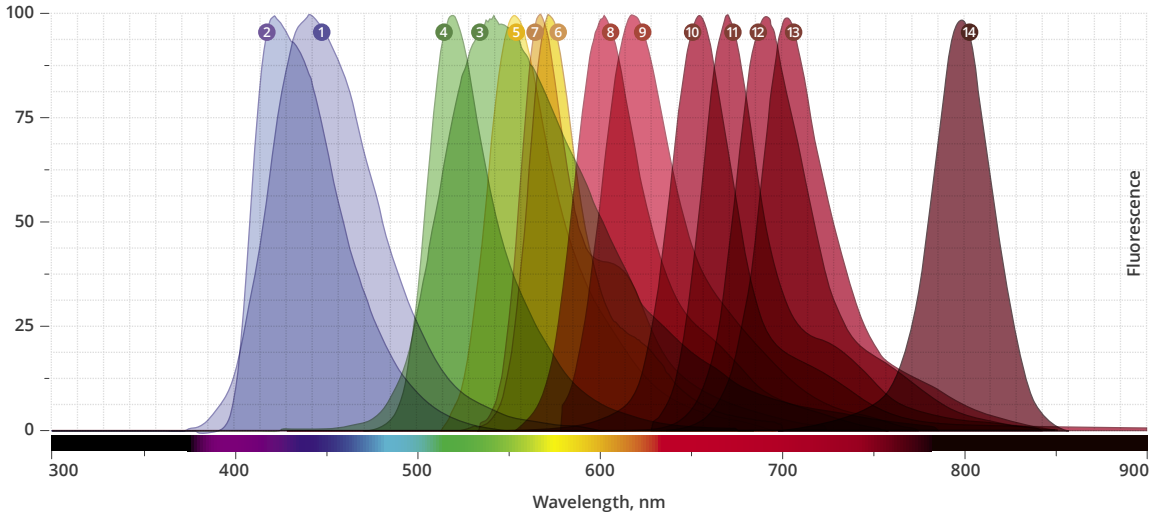
Prostate hyperplasia, no primary, AZDye 555, DOL 23



Prostate hyperplasia, no primary, AQuora® 555, DOL 25

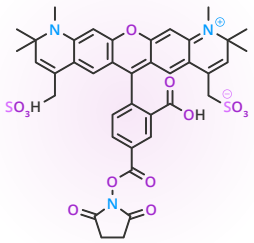
AZDyes — Bright Signal, Broad Coverage

AZDyes from Vector Laboratories are structurally identical to Alexa Fluor®, with the same sulfonated structure to ensure high photostability, water solubility, reduced self-quenching, and lower pH sensitivity. Our broad spectral selection and multiple conjugation chemistry options enable fluorescent labeling of antibodies, peptides, proteins, tracers, and amplification substrates for many applications, at a fraction of the price of Alexa Fluor® dyes.

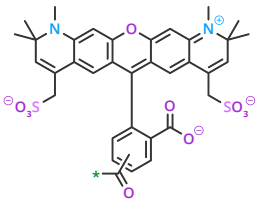


1. AZDye 350
2. AZDye 405
3. AZDye 430
4. AZDye 488
5. AZDye 532
6. AZDye 546
7. AZDye 555
8. AZDye 568
9. AZDye 594
10. AZDye 633
11. AZDye 647
12. AZDye 660
13. AZDye 680
14. AZDye 800

AZDye 594 NHS Ester

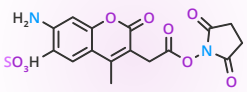


Alexa Fluor® 594



AZDye

AZDye 350 NHS Ester



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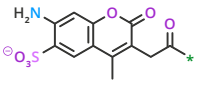

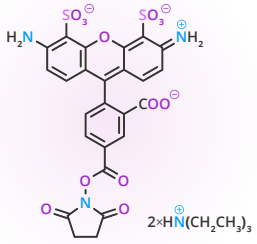

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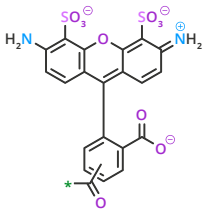

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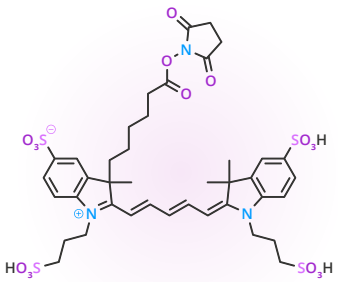

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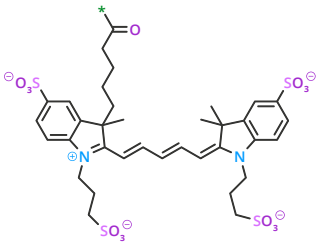


Alexa Fluor® 647

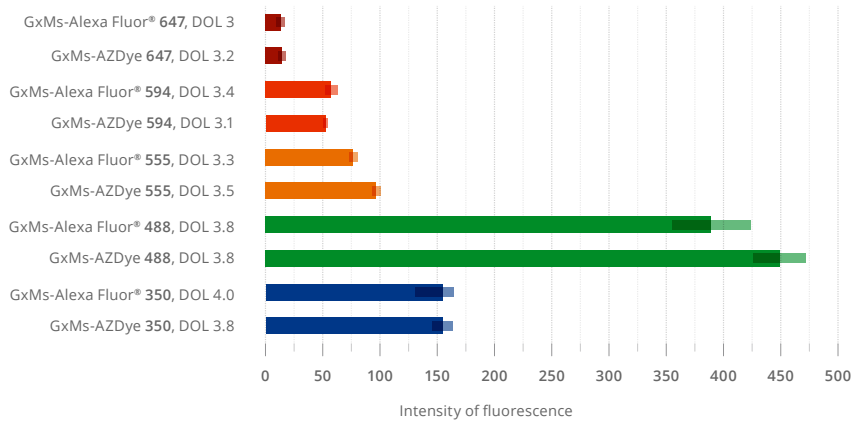
Performance Comparability Between AZDye and Alexa Fluor® Dyes for Fluorescent Based Applications

Alexa Fluor® dyes have been widely considered to be the gold standard for unconjugated fluorophores over the past couple of decades. Vector Laboratories has developed the AZDye brand of fluorophores, which are structurally equivalent and show comparable performance to the Alexa Fluors, but at a fraction of the cost, for process economy in fluorescent based applications including immunofluorescence (IF), ELISA, FISH, flow cytometry, next generation sequencing, and qPCR.

We compared the immunofluorescent performance of AZDyes and Alexa Fluor® dyes and found the performance characteristic comparable, but AZDyes products cost on average 2.5 times less per milligram of unconjugated dye

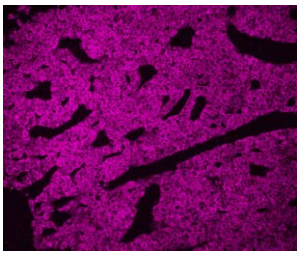
ELISA, detection of Mouse IgG

ELISA, 0.3 ×g/ml target IgG, 2 µg/ml detection IgG

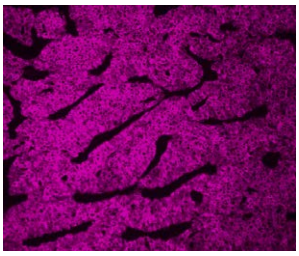


AZDye and Alexa Fluor® Dye conjugates show equivalent intensity of fluorescence and background staining at similar degree of labeling (DOL) in immunofluorescence analysis of cytokeratin in bowel carcinoma tissue sections. The primary antibody used was Mouse anti-AE1/AE3 at 3.27 ×g/ml and secondary antibody was Goat anti-Mouse-dye conjugates at 1 ×g/ml.

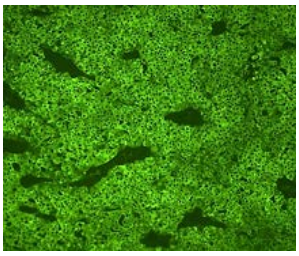
AZDye and Alexa Dye conjugates show equivalent intensity of fluorescence at similar DOL in direct ELISA



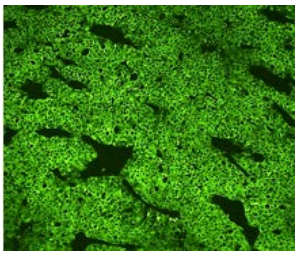
Alexa Fluor® 647, DOL 5.2



AZDye 647, DOL 5.5



Alexa Fluor® 488, DOL 7.2



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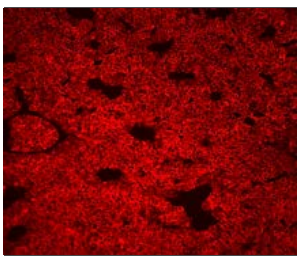
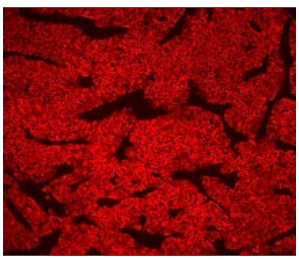
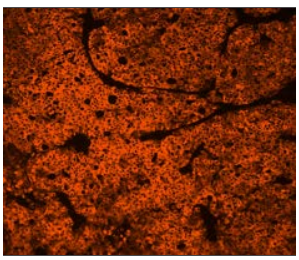


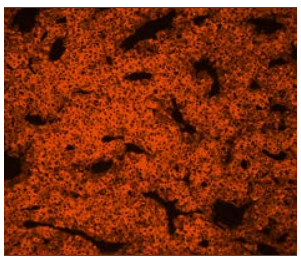
Alexa Fluor® 594, DOL 5.3



AZDye 594, DOL 5.2



Alexa Fluor® 555, DOL 6.3



AZDye 555, DOL 6.6

AZDyes: Comparable Performance, Lower Cost

AZDyes are a valuable tool in the field of fluorescent labeling, offering performance equivalence to Alexa Fluor® dyes at a fraction of the cost. Their measurably superior optical and physical properties, combined with their broad spectral coverage, make AZDyes an excellent choice for researchers seeking high-quality, cost-effective fluorescent labels. The comparable performance of AZDyes in ELISA and tissue immunofluorescence analysis demonstrates their potential to replace Alexa Fluor® dyes in various applications without compromising performance.

Advantages of AZDyes

Brightness and photostability

AZDyes exhibit excellent brightness and photostability, comparable to Alexa Fluor® dyes, allowing for extended imaging times and improved signal detection.

pH insensitivity

AZDyes maintain their fluorescence intensity over a broad pH range (4–10), ensuring consistent performance across various experimental conditions.

Reduced background staining

The high water solubility of AZDyes significantly minimizes aggregation and non-specific binding, resulting in lower background fluorescence.

Spectral compatibility

AZDyes are spectrally similar to Alexa Fluor® dyes, allowing researchers to use existing filter sets and experimental protocols without modification.

Versatility

AZDyes are suitable for a wide range of applications, including flow cytometry, confocal microscopy, and high-content screening assays.

Minimal spectral overlap

The distinct spectral properties of AZDyes facilitate multicolor imaging with minimal crosstalk between channels.

Cost-effectiveness

AZDyes offer significant cost savings — 2.5 times less expensive per milligram on average — making them an attractive alternative for researchers and laboratories working with limited budgets.

Simplified licensing

Unlike Alexa Fluor® dyes, AZDyes do not require complicated and time-consuming licensing agreements, streamlining the procurement process for academic and industrial researchers.

Select Published Applications of Vector Fluorophores

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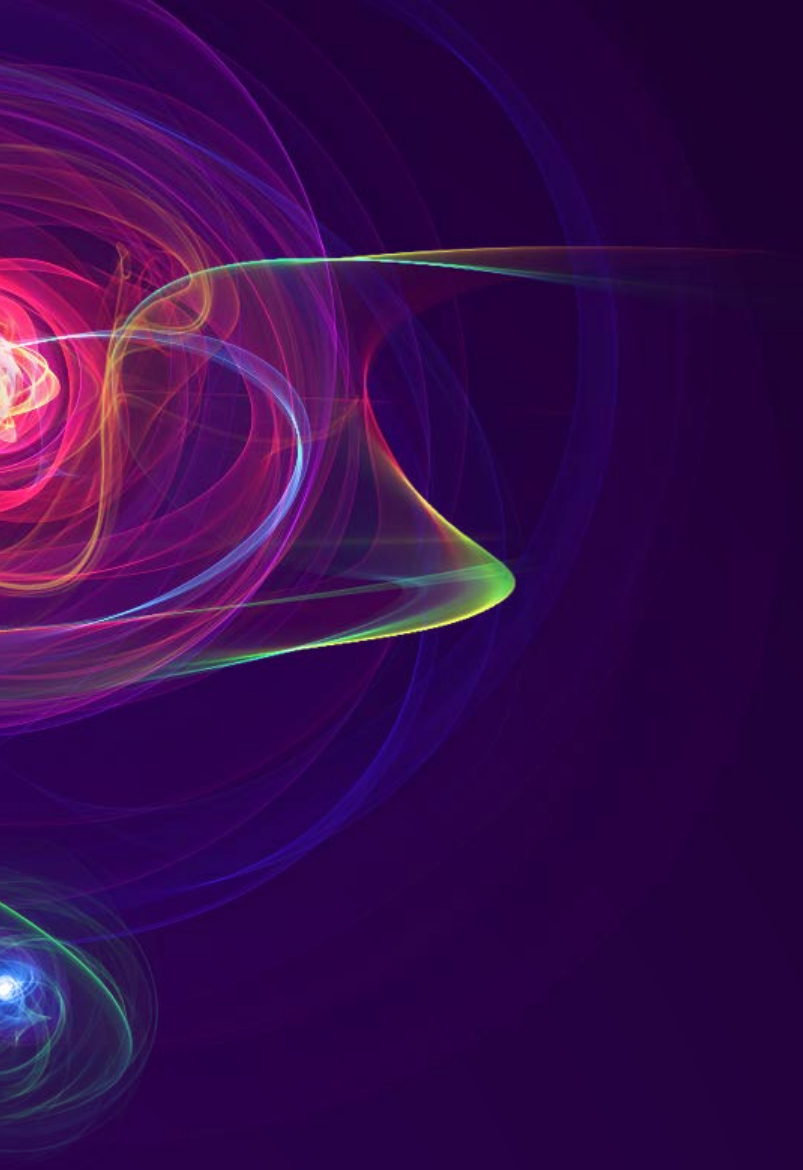

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