

Fluorophore selection guide for flow cytometry

Dye choices for your instrument made easy



Fluorophore selection guide for flow cytometry

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Fluorophore selection guide

Dyes for the 405 nm and 407 nm lasers

Pacific Blue™

- The dye of choice for the first violet channel
- Excited optimally at ~410 nm with emission maximum at ~455 nm
- No UV excitation
- Minimal spectral overlap with green fluorophores

Alexa Fluor® 405

- Excited optimally at ~402 nm with emission maximum at ~421 nm
- Minimal spectral overlap with green fluorophores
- Lower in fluorescence than Pacific Blue™ dye, higher background in some intracellular applications
- May withstand fixation better than Pacific Blue™ dye under some circumstances
- Some UV excitation

Pacific Orange™

- Compatible with Pacific Blue™ dye for multicolor applications of the violet laser
- Excited optimally at ~405 nm with emission maximum at ~551 nm
- Best signal obtained with an RPE emission filter (i.e., 548/42 or 575/26)

Qdot® 525 nanocrystal

Qdot® 565 nanocrystal

Qdot® 605 nanocrystal

Qdot® 655 nanocrystal

Qdot® 705 nanocrystal

Qdot® 800 nanocrystal

- Allows high level multiplexing with a single excitation source
- Ultimate in photostability
- Excited optimally with UV or violet
- Also excited by every laser below the emission wavelength
- Emission centered on the wavelength in nanocrystal name
- May require cross-laser compensation depending on fluorophores used
- Can replace selected energy transfer (tandem) conjugates

Fluorophore selection guide

Dyes for the 488 nm laser

Alexa Fluor® 488

- Brighter and more photostable than FITC
- Interchangeable with FITC with only minor changes in compensation
- Excited at 488 nm with emission maximum at ~519 nm
- pH insensitive
- Ideal primary color for flow cytometry

RPE (R-Phycoerythrin)

- Excited at 488 nm or 532 nm with emission maximum at ~575 nm
- Very bright fluorescence
- Shows some excitation with 405 nm laser
- Highly susceptible to photobleaching

RPE-Texas Red®

- Energy transfer dye excited at ~488 nm with emission maximum at ~615 nm
- Can be measured in FL3 channel on BD™ and Beckman Coulter instruments

RPE-Alexa Fluor® 610

- Energy transfer dye excited at ~488 nm with emission maximum at ~628 nm
- Alternative to RPE-Texas Red® dye
- Higher quantum yield than RPE-Texas Red® dye with lower compensation against RPE
- Ideal for use with RPE-Alexa Fluor® 700 or RPE-Cy®5.5 dyes in multicolor panels
- Can be measured in FL3 channel on BD™ and Beckman Coulter instruments
- Requires filter modification for optimal use on Beckman Coulter EPICS® XL™ instrument

TRI-COLOR®

- Energy transfer dye excited at ~488 nm with emission maximum at ~670 nm
- Also known as PE-Cy®5
- Bright fluorescence
- Low compensation against RPE
- Significant emission in APC channel with 633 nm excitation
- Measured in FL3 channel on BD FACScan™ and BD FACSCalibur™ instruments
- Measured in FL4 channel on Beckman Coulter EPICS® XL™ instrument
- Can demonstrate monocyte binding in some circumstances

continued



Fluorophore selection guide

Dyes for the 488 nm laser, continued

RPE-Alexa Fluor® 700

- Fluorochrome of choice for BD™ FACSCalibur™ instrument
- Energy transfer dye excited at ~488 nm with emission maximum at ~723 nm
- Very low compensation against FL2 and FL4 when detected in FL3 on BD FACSCalibur™ or BD FACScan™ instrument
- Bright alternative to RPE-Cy®5 (TRI-COLOR®, CyChrome, PC5), PerCP, and RPE-Cy®5.5
- Together with RPE-Alexa Fluor® 610 dye, constitutes the optimal four-color combination using the 488 nm laser line

RPE-Cy®5.5

- Energy transfer dye excited at ~488 nm with emission maximum at ~694 nm
- Lower photostability than RPE-Alexa Fluor® 700
- Requires more compensation against APC channel than RPE-Alexa Fluor® 700
- Measured in FL3 channel on BD FACScan™ and BD FACSCalibur™ instruments
- Measured in FL4 on Beckman Coulter EPICS® XL™ instrument

RPE-Cy®7

- Provides long-wavelength emission off the 488 nm laser
- Energy transfer dye excited at ~488 nm with emission maximum at ~775 nm
- Requires varying degrees of compensation out of RPE channel

Fluorophore selection guide

Dyes for the 635 nm laser

Alexa Fluor® 647

- Energy transfer dye excited at 633/635 nm with emission maximum at 668 nm
- An excellent alternative to APC and Cy®5; potentially less background with intracellular staining
- Brightness comparable to APC in flow cytometry
- Significantly more photostable than APC and Cy®5

Alexa Fluor® 700

- Energy transfer dye excited at 633/635 nm with emission maximum at 723 nm
- Allows three-color analysis using a red laser when combined with APC and APC-Alexa Fluor® 750
- Extremely bright and photostable
- A single, small-molecule direct conjugate alternative to the tandem APC-Cy®5.5
- Minimal compensation against APC
- Requires significant compensation against RPE-Alexa Fluor® 700 and RPE-Cy®5.5

APC-Alexa Fluor® 750

- Energy transfer dye excited at 633/635 nm with emission maximum at 775 nm
- Significantly more photostable than APC-Cy®7
- Lower compensation when paired with APC than is needed with the APC-Cy®7/APC pair
- Brighter and more stable than APC-Cy®7
- Perfectly interchangeable with APC-Cy®7 due to spectral similarity between Alexa Fluor® 750 dye and Cy®7



Fluorophore selection guide

Instrument: **Accuri C6 Flow Cytometer™ System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	FL1 Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	FL2 Yellow	585/40	565–605	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	FL3 Red	675LP	≥675	RPE-Alexa Fluor® 700 Qdot® 705 nanocrystal Qdot® 800 nanocrystal RPE-Cy®5.5 TRI-COLOR® RPE-Cy®7 RPE-Alexa Fluor® 750 PerCP	PI 7-AAD SNARF® (high pH) JC-1 or DiOC ₂ (3) LIVE/DEAD® Fixable Red Dead Cell Stain
He-Ne	640	FL4 Red	675/24	663–687	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE

Bold = recommended fluorophore.

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Fluorophore selection guide

Instrument: **BD FACSCalibur™ System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	FL1 Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	FL2 Yellow	585/42	564–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	FL3 Red	670LP	≥670	RPE-Alexa Fluor® 700 Qdot® 705 nanocrystal Qdot® 800 nanocrystal RPE-Cy®5.5 TRI-COLOR® RPE-Cy®7 RPE-Alexa Fluor® 750 PerCP	PI 7-AAD SNARF® (high pH) JC-1 or DiOC ₂ (3) LIVE/DEAD® Fixable Red Dead Cell Stain
He-Ne	635	FL4 Red	661/12	656–667	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE

Bold = recommended fluorophore.

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Fluorophore selection guide

Instrument: **BD FACScan™** Flow Cytometer

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	FL1 Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC₂(3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	FL2 Yellow	585/42	564–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC₂(3) pHrodo™ dye
Argon	488	FL3 Red	650LP	≥650	RPE-Alexa Fluor® 700 Qdot® 655 nanocrystal Qdot® 705 nanocrystal Qdot® 800 nanocrystal RPE-Cy®5.5 TRI-COLOR® RPE-Cy®7 RPE-Alexa Fluor® 750 PerCP	PI 7-AAD SNARF® (high pH) JC-1 or DiOC₂(3) LIVE/DEAD® Fixable Red Dead Cell Stain

Bold = recommended fluorophore.

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Fluorophore selection guide

Instrument: **BD FACSCanto™ System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	585/42	564–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC ₂ (3) pHrodo™ dye
Argon	488	Red	670LP	≥670	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® PerCP Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD FACSCanto™ System, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC₁(5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: **BD FACSCanto™ II System, 2-laser option**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-IT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	585/42	566–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC ₂ (3) pHrodo™ dye
Argon	488	Orange	616/23	604–628	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 705 nanocrystal	PI JC-1 or DiOC ₂ (3) LIVE/DEAD® Fixable Red Dead Cell Stain
Argon	488	Red	670LP	≥670	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® PerCP Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD FACSCanto™ II System, 2-laser option, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC₁(5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Far Red	712/21	701–723	Alexa Fluor® 700	
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter. † Available on some models.

Fluorophore selection guide

Instrument: **BD FACSCanto™ II System, 3-laser option**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	585/42	566–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC ₂ (3) pHrodo™ dye
Argon	488	Red	670LP	≥670	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® PerCP Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD FACSCanto™ II System, 3-laser option, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC₁(5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
Violet †	405	Blue	450/50	425–475	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Violet †	405	Green	513/22	502–525	Qdot® 525 nanocrystal AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter. † Available on some models.

Fluorophore selection guide

Instrument: **BD™ LSR Flow Cytometer**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	585/42	564–606	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC ₂ (3) pHrodo™ dye
Argon	488	Red	670LP	≥670	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® PerCP Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD™ LSR Flow Cytometer, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Cd	325	FL4 Violet	405/20	395–415	Alexa Fluor® 350	Indo-1 (high Ca ²⁺)
He-Cd	325	FL5 Blue	450/50	425–475		DAPI Hoechst 33342 Calcein Blue SYTOX® Blue LIVE/DEAD® Fixable Blue Dead Cell Stain
He-Cd	325	Green	530/30	515–545	Qdot® 525 nanocrystal	Indo-1 (low Ca ²⁺) SYTOX® Blue
He-Ne	633	FL6 Red	660/16	652–668	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 CellTrace™ Far Red DDAO-SE SYTOX® Red MitoProbe™ DiIC ₁ (5) LIVE/DEAD® Fixable Near-IR Dead Cell Stain

Bold = recommended fluorophore.

Fluorophore selection guide

Instrument: **BD™ LSR II Flow Cytometer**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 YO-PRO®-1 LIVE/DEAD® Fixable Green Dead Cell Stain
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	Orange	610/20	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI JC-1 or DiOC ₂ (3) LIVE/DEAD® Fixable Red Dead Cell Stain
Argon	488	Red	695/40	675–715	RPE-Alexa Fluor® 700 RPE-Cy5.5 TRI-COLOR® (670/14)* PerCP Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy7 RPE-Alexa Fluor® 750 (787/42)*	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD™ LSR II Flow Cytometer, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ Edu Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Red	710/20	700–720	Alexa Fluor® 700 Qdot® 705 nanocrystal	
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
UV†	355	Violet	405/20	395–415	Alexa Fluor® 350	Indo-1 (high Ca ²⁺)
UV†	355	Blue	450/50	425–475		Hoechst 33342 DAPI Calcein Blue LIVE/DEAD® Fixable Blue Dead Cell Stain
UV†	355	Green	530/30	515–545	Qdot® 525 nanocrystal	Indo-1 (low Ca ²⁺)
Violet†	405	Blue	440/40	420–460	Pacific Blue™ Alexa Fluor® 405	Click-iT™ Edu Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Violet†	405	Green	525/50	500–550	Qdot® 525 nanocrystal (525/20)* AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
Violet†	405	Yellow	585/42	564–606	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	
Violet†	405	Orange	610/20	600–620	Qdot® 605 nanocrystal	
Violet†	405	Red	655/20	675–715	Qdot® 655 nanocrystal	
Violet†	405	Red	720/40	700–740	Qdot® 705 nanocrystal	
Violet†	405	Infrared	787/42	766–808	Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter. † Available on some models.

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Fluorophore selection guide

Instrument: **BD FACSAria™ Cell Sorter**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) JC-1 or DiOC ₂ (3) pHrodo™ dye
Argon	488	Red	610/20	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Far Red	695/40	675–715	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® PerCP Qdot® 705 nanocrystal	7-AAD SNARF® (high pH) LIVE/DEAD® Fixable Red Dead Cell Stain
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **BD FACSAria™ Cell Sorter, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
Violet	407	Blue	450/40	430–470	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ LIVE/DEAD® Fixable Violet Dead Cell Stain PO-PRO™-1 DyeCycle™ Violet Calcein Violet
Violet	407	Green	530/30	515–545	Qdot® 525 nanocrystal AmCyan	LIVE/DEAD® Fixable Aqua Dead Cell Stain SYTOX® Blue
Violet	407	Yellow	585/42	564–606	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	
Violet	407	Orange	610/20	600–620	Qdot® 605 nanocrystal	
Violet	407	Red	655/20	675–715	Qdot® 655 nanocrystal	
Violet	407	Red	720/40	700–740	Qdot® 705 nanocrystal	
Violet	407	Infrared	787/42	766–808	Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: **BD FACSAarray™ Bioanalyzer System**

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
Green He-Ne	532	Yellow	585/42	564–606	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) pHrodo™ dye
Green He-Ne	532	Red	685LP	≥685	RPE-Alexa Fluor® 700 Qdot® 705 nanocrystal Qdot® 800 nanocrystal RPE-Cy®5.5 TRI-COLOR® (670/14)* RPE-Alexa Fluor® 750 RPE-Cy®7	PI 7-AAD SNARF® (high pH) LIVE/DEAD® Fixable Red Dead Cell Stain
He-Ne	633	Red	661/16	653–669	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Infrared	788/60	758–818	APC-Alexa Fluor® 750 APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter.



Fluorophore selection guide

Instrument: **BD FACSVantage™ SE Cell Sorter**

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC₂(3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC₂(3) SNARF® (low pH) pHrodo™ dye
Argon	488	Orange	610/20	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC₂(3)
Argon	488	Red	700/20	690–710	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® (670/14)* Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: **BD FACSVantage™ SE Cell Sorter, continued**

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Red	710/20	700–720	Alexa Fluor® 700 Qdot® 705 nanocrystal	
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
UV	355	Violet	395	415		Indo-1 (high Ca ²⁺)
UV	355	Blue	424/44	402–446	Alexa Fluor® 350	DAPI Hoechst 33342 Calcein Blue LIVE/DEAD® Fixable Blue Dead Cell Stain
UV	355	Green	530/30	515–545	Qdot® 525 nanocrystal	Indo-1 (low Ca ²⁺)
UV	355	Blue	440/40	420–460	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain
UV	355	Green	530/30	515–545	Qdot® 525 nanocrystal AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
UV	355	Yellow	575/26	562–588	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	
UV	355	Orange	610/20	600–620	Qdot® 605 nanocrystal	
UV	355	Red	655/20	675–715	Qdot® 655 nanocrystal	
UV	355	Red	720/40	700–740	Qdot® 705 nanocrystal	
UV	355	Infrared	787/42	766–808	Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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continued



Fluorophore selection guide

Instrument: **BD FACSVantage™ SE Cell Sorter**, continued

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
Green He-Ne	532	Yellow	575/26	562-588	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) pHrodo™ dye
Green He-Ne	532	Orange	610/20	600-620	RPE-Alexa Fluor® 610 RPE-Texas Red®	
Green He-Ne	532	Red	695/40	675-715	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® (670/14)* Qdot® 705 nanocrystal	PI 7-AAD SNARF® (high pH)
Green He-Ne	532	Infrared	780/60	750-810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: Beckman Coulter Cytomics FC 500 Flow Cytometer

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	525BP		Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575BP		RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	Orange	620BP		RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Red	675/30	660-690	RPE-Alexa Fluor® 700 (710/20)* Qdot® 705 nanocrystal RPE-Cy®5.5 TRI-COLOR® (670/14)* PerCP	PI 7-AAD SNARF® (high pH) LIVE/DEAD® Fixable Red Dead Cell Stain
Argon	488	Red	755/30	740-770	RPE-Alexa Fluor® 750 (787/42)* RPE-Cy®7 Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: **Beckman Coulter Cytomics FC 500 Flow Cytometer, continued**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	675/30	660-690	APC Alexa Fluor® 647 Alexa Fluor® 700 (710/20)*	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 CellTrace™ Far Red DDAO-SE MitoProbe™ DiI₁(5) SYTOX® Red
He-Ne	633	Infrared	755/30	740-770	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: Beckman Coulter EPICS® XL™ Flow Cytometer

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	525/30	510–40	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/30	560–590	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) pHrodo™ dye SNARF® (low pH)
Argon	488	Orange	620/30	605–635	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Red	675/30	660–690	RPE-Alexa Fluor® 700 (710/20)* Qdot® 705 nanocrystal RPE-Cy®5.5 TRI-COLOR® (670/14)* PerCP	PI 7-AAD SNARF® (high pH) LIVE/DEAD® Fixable Red Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter.



Fluorophore selection guide

Instrument: Beckman Coulter Cell Lab Quanta™ SC

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	525BP		Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575BP		RPE Alexa Fluor® 546	PI JC-1 or DiOC ₂ (3) Fura Red™ DyeCycle™ Orange SNARF® (low pH) pHrodo™ dye
Argon	488	Red	670LP	≥670	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® (670/14)* PerCP RPE-Cy®7 RPE-Alexa Fluor® 750 Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: Beckman Coulter Cell Lab Quanta™ SC, continued

Excitation filter 355

Light source	Fluorescence channel	Default filter	Fluorophores	Other fluorescent dyes
Mercury-arc	Violet	405BP	Alexa Fluor® 350	Indo-1 (high Ca ²⁺)
Mercury-arc	Blue	450BP		Hoechst 33342 DAPI Calcein Blue LIVE/DEAD® Fixable Blue Dead Cell Stain
Mercury-arc	Green	525BP	Qdot® 525 nanocrystal	Indo-1 (low Ca ²⁺)

Excitation filter 405

Light source	Fluorescence channel	Default filter	Fluorophores	Other fluorescent dyes
Mercury-arc	Blue	440BP	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Mercury-arc	Green	525BP	Qdot® 525 nanocrystal (525/20)* AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
Mercury-arc	Yellow	585BP	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	

Bold = recommended fluorophore. * Recommended filter.



Fluorophore selection guide

Instrument: Beckman Coulter EPICS® ALTRA™ Cell Sorter

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	Orange	(610/20)	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Red	695/40	675–715	RPE-Alexa Fluor® 700 Qdot® 705 nanocrystal RPE-Cy®5.5 TRI-COLOR® (670/14)* PerCP	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: Beckman Coulter EPICS® ALTRA™ Cell Sorter, continued

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	660/16	652–668	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Red	(710/20)	700–720	Alexa Fluor® 700 Qdot® 705 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
He-Ne	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	
UV	355	Violet	405/20	395–415		Indo-1 (high Ca ²⁺)
UV	355	Blue	450/50	425–475	Alexa Fluor® 350	DAPI Hoechst 33342 Calcein Blue
UV	355	Green	530/30	560–585	Qdot® 535 nanocrystal	Indo-1 (low Ca ²⁺)
Violet	405	Blue	440/40	420–460	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Violet	405	Green	530/30	560–585	Qdot® 525 nanocrystal AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
Violet	405	Yellow	575/26	562–588	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: Beckman Coulter EPICS® ALTRA™ Cell Sorter, continued

Laser	Excitation laser	Fluorescence channel	Possible filters	Filter range (nm)	Fluorophores	Other fluorescent dyes
Violet	405	Orange	610/20	600–620	Qdot® 605 nanocrystal	
Violet	405	Red	655/20	675–715	Qdot® 655 nanocrystal	
Violet	405	Red	720/40	700–740	Qdot® 705 nanocrystal	
Violet	405	Infrared	787/42	766–808	Qdot® 800 nanocrystal	
Green He–Ne	532	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) pHrodo™ dye
Green He–Ne	532	Orange	610/20	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain
Green He–Ne	532	Red	695/40	675–715	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® (670/14)* Qdot® 705 nanocrystal	PI 7-AAD SNARF® (high pH)
Green He–Ne	532	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: Beckman Coulter CyAn™ ADP Analyzer

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/40	510–550	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	Orange	620/30	605–635	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Red	680/30	665–695	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy®5.5 TRI-COLOR® (670/14)* PerCP	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	750LP	≥750	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: Beckman Coulter CyAn™ ADP Analyzer, continued

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	633	Red	665/20	655–675	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	Click-iT™ EdU Alexa Fluor® 647 LIVE/DEAD® Fixable Far Red Dead Cell Stain TO-PRO®-3 SYTOX® Red MitoProbe™ DiIC ₁ (5) CellTrace™ Far Red DDAO-SE
He-Ne	633	Red	670/40 695/40	650–690	Alexa Fluor® 660 Alexa Fluor® 700 Qdot® 655 nanocrystal Qdot® 705 nanocrystal	
He-Ne	633	Infrared	750LP	≥750	APC-Alexa Fluor® 750 (787/42)* APC-Cy®7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
Violet	405	Blue	450/50	425–475	Pacific Blue™ Alexa Fluor® 405	Click-iT™ EdU Pacific Blue™ PO-PRO™-1 DyeCycle™ Violet LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Violet	405	Green	530/40	510–550	Qdot® 525 nanocrystal AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
Violet	405	Yellow	575/26	562–588	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	
Violet	405	Orange	610/20	600–620	Qdot® 605 nanocrystal	
Violet	405	Red	655/20	675–715	Qdot® 655 nanocrystal	
Violet	405	Red	720/40	700–740	Qdot® 705 nanocrystal	
Violet	405	Infrared	787/42	766–808	Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

Fluorophore selection guide

Instrument: Beckman Coulter MoFlo™ XDP Cell Sorter

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	530/30	515–545	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) pHrodo™ dye SNARF® (low pH)
Argon	488	Orange	610/20	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain JC-1 or DiOC ₂ (3)
Argon	488	Red	700/20	690–710	RPE-Alexa Fluor® 700 (695/40)* RPE-Cy5.5 TRI-COLOR® (670/14)* Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Infrared	780/60	750–810	RPE-Cy7 RPE-Alexa Fluor® 750 (787/42)* Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: Beckman Coulter MoFlo™ XDP Cell Sorter, continued

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
HeNe	633	Red	660/20	650–670	APC Alexa Fluor® 647 Qdot® 655 nanocrystal	TO-PRO®-3 SYTOX® Red LIVE/DEAD® Fixable Far Red Dead Cell Stain Click-iT™ EdU Alexa Fluor® 647 MitoProbe™ DiI ₁ (5) CellTrace™ Far Red DDAO-SE
HeNe	633	Red	(710/20)	700–720	Alexa Fluor® 700 Qdot® 705 nanocrystal	
HeNe	633	Infrared	780/60	750–810	APC-Alexa Fluor® 750 (787/42)* APC-Cy*7 Qdot® 800 nanocrystal	LIVE/DEAD® Fixable Near-IR Dead Cell Stain
HeNe	633	Violet	395	415		Indo-1 (High Ca ²⁺)
HeNe	633	Blue	424/44	402–446	Alexa Fluor® 350	DAPI Hoechst 33342 Calcein Blue LIVE/DEAD® Fixable Blue Dead Cell Stain Calcein Violet
HeNe	633	Green	530/30	515–545	Qdot® 525 nanocrystal	Indo-1 (Low Ca ²⁺)
Violet	405	Blue	440/40	420–460	Pacific Blue™ Alexa Fluor® 405	PO-PRO®-1 DyeCycle™ Violet Click-iT™ EdU Pacific Blue™ LIVE/DEAD® Fixable Violet Dead Cell Stain Calcein Violet
Violet	405	Green	530/30	515–545	Qdot® 525 nanocrystal AmCyan	SYTOX® Blue LIVE/DEAD® Fixable Aqua Dead Cell Stain
Violet	405	Yellow	575/26	562–588	Pacific Orange™ Qdot® 565 nanocrystal (565/20)* Qdot® 585 nanocrystal (585/20)*	
Violet	405	Orange	(610/20)	600–620	Qdot® 605 nanocrystal	
Violet	405	Red	(655/20)	675–715	Qdot® 655 nanocrystal	
Violet	405	Red	(720/40)	700–40	Qdot® 705 nanocrystal	
Violet	405	Infrared	(787/42)	766–808	Qdot® 800 nanocrystal	

Bold = recommended fluorophore. * Recommended filter.

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Fluorophore selection guide

Instrument: Beckman Coulter MoFlo™ XDP Cell Sorter, continued

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Green HeNe	532	Yellow	575/26	562–588	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH)
Green HeNe	532	Orange	(610/20)	600–620	RPE-Alexa Fluor® 610 RPE-Texas Red® Qdot® 605 nanocrystal	PI LIVE/DEAD® Fixable Red Dead Cell Stain
Green HeNe	532	Red	695/40	675–715	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® (670/14)* Qdot® 705 nanocrystal	PI 7-AAD SNARF® (high pH)
Green HeNe	532	Infrared	780/60	750–810	RPE-Cy®7 RPE-Alexa Fluor® 750 (787/42)*	

Bold = recommended fluorophore. * Recommended filter.



Fluorophore selection guide

Instrument: **Guava® Personal Cell Analysis (PCA) System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
He-Ne	532	Green	580/20	510-550	RPE	PI Fura Red™ DyeCycle™ Orange SNARF® (low pH) pHrodo™ dye
He-Ne	532	Red	675/20	665-685	RPE-Cy*5.5 TRI-COLOR®	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain

Bold = recommended fluorophore.

Fluorophore selection guide

Instrument: **Guava EasyCyte™ Mini System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	525/30	515–540	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ Edu Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	583/26	570–606	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) SNARF® (low pH) pHrodo™ dye
Argon	488	Red	680/30	665–695	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)

Bold = recommended fluorophore.



Fluorophore selection guide

Instrument: **Guava EasyCyte™ Plus System**

Laser	Excitation laser	Fluorescence channel	Default filter	Filter range (nm)	Fluorophores	Other fluorescent dyes
Argon	488	Green	525/30	515–40	Alexa Fluor® 488 Fluorescein Qdot® 525 nanocrystal	Click-iT™ EdU Alexa Fluor® 488 Calcein Fluo-3 or Fluo-4 TO-PRO®-1 CFSE GFP JC-1 or DiOC ₂ (3) SYTOX® Green DyeCycle™ Green Rhodamine 123 LIVE/DEAD® Fixable Green Dead Cell Stain YO-PRO®-1
Argon	488	Yellow	583/26	570–606	RPE Alexa Fluor® 546 Alexa Fluor® 568 Qdot® 565 nanocrystal Qdot® 585 nanocrystal	PI Fura Red™ DyeCycle™ Orange JC-1 or DiOC ₂ (3) pHrodo™ dye SNARF® (low pH)
Argon	488	Red	680/30	665–695	RPE-Alexa Fluor® 700 RPE-Cy®5.5 TRI-COLOR® Qdot® 705 nanocrystal	PI 7-AAD LIVE/DEAD® Fixable Red Dead Cell Stain SNARF® (high pH)
Argon	488	Red	755/30	740–770	RPE-Cy®7 RPE-Alexa Fluor® 750 Qdot® 800 nanocrystals	

Bold = recommended fluorophore.

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Name used on instrument pages	Catalog number	Formal name
7-AAD	A1310	7-aminoactinomycin D (7-AAD)
Calcein *	C3100MP	calcein, AM *special packaging*
Calcein Blue	C34853	CellTrace™ calcein blue, AM *special packaging*
Calcein Violet	C34858	CellTrace™ calcein violet, AM *for 405 nm excitation* *special packaging*
CellTrace™ Far Red DDAO-SE	C34553	CellTrace™ Far Red DDAO-SE *special packaging*
CFSE	C34554	CellTrace™ CFSE Cell Proliferation Kit *for flow cytometry*
Click-iT™ EdU Alexa Fluor® 488	C35002	Click-iT™ EdU Alexa Fluor® 488 Flow Cytometry Assay Kit *50 assays*
Click-iT™ EdU Alexa Fluor® 647	A10202	Click-iT™ EdU Alexa Fluor® 647 Flow Cytometry Assay Kit *50 assays*
Click-iT™ EdU Pacific Blue™	A10034	Click-iT™ EdU Pacific Blue™ Flow Cytometry Assay Kit *50 assays*
DAPI *	D3571	4',6-diamidino-2-phenylindole, dilactate (DAPI, dilactate)
DyeCycle™ Green	V35004	Vybrant® DyeCycle™ Green stain *5 mM solution in DMSO* *200 assays*
DyeCycle™ Orange	V35005	Vybrant® DyeCycle™ Orange stain *5 mM solution in DMSO* *200 assays*
DyeCycle™ Violet	V35003	Vybrant® DyeCycle™ Violet stain *5 mM in water* *200 assays*
DiOC ₂ (3)	M34150	MitoProbe™ DiOC ₂ (3) Assay Kit *for flow cytometry* *100 assays*
Fluo-3 *	F1242	fluo-3, AM *cell permeant* *special packaging*
Fluo-4 *	F14201	fluo-4, AM *cell permeant* *special packaging*
Fura Red™*	F3021	Fura Red™, AM *cell permeant* *special packaging*
Hoechst 33342	H3570	Hoechst 33342, trihydrochloride, trihydrate *10 mg/mL solution in water*
Indo-1 *	I1223	indo-1, AM *cell permeant* *special packaging*
JC-1	M34152	MitoProbe™ JC-1 Assay Kit *for flow cytometry* *100 assays*
LIVE/DEAD® Fixable Aqua Dead Cell Stain	L34957	LIVE/DEAD® Fixable Aqua Dead Cell Stain Kit *for 405 nm excitation* *200 assays*
LIVE/DEAD® Fixable Blue Dead Cell Stain	L23105	LIVE/DEAD® Fixable Blue Dead Cell Stain Kit *for flow cytometry* *200 assays*
LIVE/DEAD® Fixable Far Red Dead Cell Stain	L10120	LIVE/DEAD® Fixable Far Red Dead Cell Stain Kit *for 633 or 635 nm excitation* *200 assays*
LIVE/DEAD® Fixable Green Dead Cell Stain	L23101	LIVE/DEAD® Fixable Green Dead Cell Stain Kit *for flow cytometry* *200 assays*
LIVE/DEAD® Fixable Near-IR Dead Cell Stain	L10119	LIVE/DEAD® Fixable Near-IR Dead Cell Stain Kit *for 633 or 635 nm excitation* *200 assays*
LIVE/DEAD® Fixable Red Dead Cell Stain	L23102	LIVE/DEAD® Fixable Red Dead Cell Stain Kit *for flow cytometry* *200 assays*
LIVE/DEAD® Fixable Violet Dead Cell Stain	L34955	LIVE/DEAD® Fixable Violet Dead Cell Stain Kit *for flow cytometry* *200 assays*
MitoProbe™ DiIC(5)	M34151	MitoProbe™ DiIC(5) Assay Kit *for flow cytometry* *100 assays*
pHrodo™ dye *	A10025	pHrodo™ E. coli BioParticles® Phagocytosis Kit *for flow cytometry* *100 tests*
PI	P3566	propidium iodide *1.0 mg/mL solution in water*
PO-PRO™-1	P3581	PO-PRO™-1 iodide (435/455) *1 mM solution in DMSO*
Rhodamine 123	R302	rhodamine 123
SNARF®	S22801	SNARF®-1 carboxylic acid, acetate, succinimidyl ester *special packaging*
SYTOX® Blue *	S34857	SYTOX® Blue dead cell stain *for flow cytometry* *1000 assays* *1 mM solution in DMSO*
SYTOX® Green	S7020	SYTOX® Green nucleic acid stain *5 mM solution in DMSO*
SYTOX® Red	S34859	SYTOX® Red dead cell stain *for 633 or 635 nm excitation* *5 µM solution in DMSO*
TO-PRO®-1	T3602	TO-PRO®-1 iodide (515/531) *1 mM solution in DMSO*
TO-PRO®-3	T3605	TO-PRO®-3 iodide (642/661) *1 mM solution in DMSO*
YO-PRO®-1	Y3603	YO-PRO®-1 iodide (491/509) *1 mM solution in DMSO*

* Other packaging formats available.

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Flow Cytometry

Trademarks of other companies referred to in this fluorophore selection guide include:

Accuri C6 Flow Cytometer™ (Accuri, Inc.)

BD™ (Becton, Dickinson and Company)

CyAn™ (Beckman Coulter, Inc.)

EasyCyte™ (Guava Technologies, Inc.)

EPICS® ALTRA™ (Beckman Coulter, Inc.)

BD FACSAria™ (Becton, Dickinson and Company)

BC FACSAarray™ (Becton, Dickinson and Company)

BD FACSCalibur™ (Becton, Dickinson and Company)

BD FACScan™ (Becton, Dickinson and Company)

BD FACSCanto™ (Becton, Dickinson and Company)

BD FACSVantage™ SE (Becton, Dickinson and Company)

EPICS® XL™ (Beckman Coulter, Inc.)

Guava® (Guava Technologies, Inc.)

Guava® EasyCyte™ (Guava Technologies, Inc.)

MoFlo™ (Beckman Coulter, Inc.)

Quanta™ (Beckman Coulter, Inc.)

