



The Invitrogen™ Attune™ Nxt Flow Cytometer.  
For more information, go to [thermofisher.com/attune](http://thermofisher.com/attune)

# Fluorophore and reagent selection guide for flow cytometry

| Excitation laser   | Common emission filters (nm)                                       | Attune Nxt channel (nm)  | Recommended dyes  | Viability dyes (compatible with fixation) | Viability dyes (non-fixed cells)                  | DNA content/cell cycle dyes (live cells)   | DNA content/cell cycle dyes (fixed cells) | Apoptosis dyes  | Cell proliferation dyes                                     | Reactive oxygen species (ROS) detection dyes | Phagocytosis dyes  | Fluorescent proteins  | Other dyes   |
|--|--|--|---|---|---|--|---|---|---|--|--|---|--|
| UV (~350 nm)   | 369/28<br>379/28   | NA   |   |   |   |  |   |   |   |  |  |   | BD Horizon™ BUV395   |
|  | 440/40<br>450/50   | NA   | Alexa Fluor™ 350<br>Alexa Fluor™ 405  | LIVE/DEAD™<br>Fixable Blue                | DAPI<br>SYTOX™ Blue                               | Hoechst 33342<br>Vybrant™ DyeCycle™ Violet | FxCycle™ Violet (DAPI)                    | Annexin V, Alexa Fluor 350<br>Annexin V, Pacific Blue™  | Click-IT™ Plus EdU<br>Alexa Fluor 350                       |  |  | EFCFP   | BD Horizon™ BUV496   |
|  | 740/35   | NA   |   |   |   |  |   |   |   |  |  |   | BD Horizon™ BUV737   |
| Violet (405 nm)  | 425/20<br>440/60<br>450/50<br>455/50<br>450/65<br>460/50           | VL1<br>440/50  | Alexa Fluor 405<br>Pacific Blue   | LIVE/DEAD™<br>Fixable Violet              | DAPI<br>SYTOX Blue                                | Vybrant DyeCycle Violet                    | FxCycle Violet                            | Annexin V, Pacific Blue<br>PO-PRO™-1  | CellTrace™ Violet<br>Click-IT Plus EdU<br>Pacific Blue      |  |  | Azurite<br>Cerulean<br>TagBFP<br>ECFP<br>mTurquoise<br>AmCyan                         | BD Horizon™ BV421<br>eFluor™ 450<br>BD Horizon™ V450<br>VioBlue™                                     |
|  | 510/50<br>512/25<br>520/35<br>525/50<br>530/40<br>542/50<br>550/40 | VL2<br>512/25  | Pacific Green™  | LIVE/DEAD™<br>Fixable Aqua                |   |  |   | Violet Ratiometric Probe (F2N12S)   |   |  |  | T-Sapphire  | BD Horizon™ BV510<br>BD Horizon™ V500<br>eFluor™ 506<br>VioGreen™                                    |
|  | 585/40<br>595/50<br>603/48<br>605/40<br>610/20                     | VL3<br>603/48  | Pacific Orange™<br>Qdot™ 605  | LIVE/DEAD™<br>Fixable Yellow              |   |  |   | Violet Ratiometric Probe (F2N12S)   |   |  |  |   | BD Horizon™ BV570<br>BD Horizon™ BV605<br>BD Horizon™ BV650<br>eFluor™ 605NC                         |
|  | 660/40<br>710/50   | VL4<br>710/50  | Qdot™ 705   |   |   |  |   |   |   |  |  |   | BD Horizon BV650<br>BD Horizon™ BV711<br>eVolve™ 655   |
|  | 525/50<br>525/30<br>525/40<br>530/30<br>530/40                     | BL1<br>530/30  | Alexa Fluor™ 488<br>FITC  | LIVE/DEAD™<br>Fixable Green               | SYTOX™ Green                                      | Vybrant™ DyeCycle™ Green                   |   | Annexin V, Alexa Fluor 488<br>Annexin V, FITC<br>Anti-PARP-FITC<br>APO-BRDU™ TUNEL-Alexa Fluor 488<br>CellEvent™ Caspase-3/7 Green<br>MitoProbe™ DiOC <sub>2</sub> (3)<br>MitoProbe™ JC-1<br>YO-PRO™-1 Iodide | CellTrace™ CFSE<br>Click-IT Plus EdU<br>Alexa Fluor 488     | CellROX™ Green                               | pHrodo™ Green<br><i>E. coli</i> BioParticles™ conjugate<br>pHrodo™ Green<br><i>S. aureus</i> BioParticles™ conjugate | EGFP<br>Emerald<br>EYFP   | BD Horizon™ BB515  |
|  | 574/26<br>575/30<br>580/23<br>585/40<br>586/15<br>590/40           | BL2<br>574/26<br>(without yellow laser present)<br>590/40<br>(with yellow laser present) | PE<br>PE-Alexa Fluor 610<br>PE-Texas Red™   | LIVE/DEAD™<br>Fixable Red                 | 7-AAD<br>PI<br>SYTOX™ AADvanced™<br>SYTOX™ Orange | Vybrant™ DyeCycle™ Orange                  | FxCycle™ PI/RNase                         | Annexin V, PE<br>TMRE<br>TMRM<br>MitoProbe JC-1   |   |  |  | pHrodo™ Red<br><i>E. coli</i> BioParticles™ conjugate<br>pHrodo™ Red phagocytosis kit | EYFP<br>mCitrine<br>Venus  |
| 670/30<br>675/30<br>680/30<br>695/30<br>695/40<br>710/50 | BL3<br>695/40  | PE-Alexa Fluor™ 700<br>PE-Cy5.5<br>PerCP<br>PerCP-Cy5.5<br>Qdot 705<br>TRI-COLOR™        |   | 7-AAD<br>PI<br>SYTOX AADvanced            |   |  |   |   |   |  |  |   | BD Horizon™ PE-CF594<br>PE/Dazzle™ 594<br>PerCP-eFluor™ 710<br>PerCP-Vio700™<br>VioGreen™<br>Vio770™ |
| 750 LP<br>775/50<br>780/40<br>780/60<br>785/70           | BL4<br>780/60<br>(without yellow laser present)                    | PE-Cy7<br>Qdot™ 800  |   |   |   | Vybrant™ DyeCycle™ Ruby                    |   |   |   |  |  |   | PE-Vio770™<br>VioGreen™  |
| Green (532 nm)   | 555/20<br>575/24<br>585/16<br>585/42<br>610/20                     | NA   | Alexa Fluor™ 532<br>Alexa Fluor™ 555<br>DsRed<br>Qdot™ 565<br>Qdot™ 605<br>R-phycoerythrin (R-PE, PE) |   | SYTOX™ Orange                                     | Vybrant DyeCycle Orange                    |   | Annexin V, R-PE<br>Annexin V, Alexa Fluor™ 555<br>MitoTracker™ Orange CMTMRos   | CellTrace™ Yellow   | CellROX™ Orange                              | pHrodo™ Red <i>E. Coli</i> BioParticles  | tdTomato<br>YFP   |  |
|  | 610/20<br>620/15<br>630/30   | NA   | Alexa Fluor™ 568<br>Alexa Fluor™ 594<br>Qdot 605<br>PE-Texas Red™                                     | LIVE/DEAD™<br>Fixable Red                 | SYTOX™ AADvanced™<br>PI                           | Vybrant DyeCycle Orange                    | FxCycle PI/RNase                          | Annexin V, Alexa Fluor 568<br>Annexin V, Alexa Fluor 594<br>MitoTracker™ Red MNXRos   | Click-IT Plus EdU<br>Alexa Fluor 594                        |  |  | tmCherry  |  |
|  | 695/40<br>710/50   | NA   | Qdot 705<br>PE-Alexa Fluor 700<br>TRI-COLOR (PE-Cy5)<br>PE-Cy5.5                                      |   | SYTOX™ AADvanced™                                 | Vybrant DyeCycle Ruby                      |   |   |   |  |  |   |  |
|  | 780/60   | NA   | Qdot 800<br>PE-Cy7  |   |   |  |   |   |   |  |  |   |  |
| Yellow (561 nm)  | 585/40<br>586/15<br>590/40   | YL1<br>585/15  | Alexa Fluor 555<br>PE   |   | PI<br>SYTOX™ Orange                               | Vybrant DyeCycle Orange                    |   | MitoTracker Orange CMTMRos<br>MitoTracker™ Red CMXRos<br>TMRE<br>TMRM   | CellTrace Yellow  | CellROX™ Orange                              | pHrodo™ Red <i>E. Coli</i> BioParticles™ conjugate   | mOrange<br>RFP  |  |
|  | 610/20<br>613/20<br>615/50<br>620/15<br>620/30                     | YL2<br>620/15  | PE-Alexa Fluor 610<br>PE-Texas Red™   | LIVE/DEAD™<br>Fixable Red                 | 7-AAD<br>PI<br>SYTOX AADvanced™<br>SYTOX Orange   | Vybrant DyeCycle Orange                    | FxCycle™ PI/<br>RNase                     | Annexin V, Alexa Fluor 568<br>Annexin V, Alexa Fluor 594  | Click-IT Plus EdU<br>Alexa Fluor 594                        |  |  | DsRed<br>mCherry<br>mKate<br>mStrawberry<br>tdTomato                                  | ECD<br>PE-CF594<br>BD Horizon™ PE/Dazzle™ 594<br>PE-eFluor™ 610<br>PE-Vio™ 610<br>Texas Red™         |
|  | 670/30<br>675/30<br>680/30<br>695/30<br>695/40                     | YL3<br>695/40  | PE-Alexa Fluor 700<br>PE-Cy5.5<br>Qdot 705<br>TRI-COLOR   |   | 7-AAD<br>PI<br>SYTOX AADvanced                    |  |   |   |   |  |  | mPlum<br>mRaspberry<br>mNeptune   |  |
|  | 750 LP<br>775/50<br>780/40<br>780/60<br>785/70                     | YL4<br>780/60  | PE-Cy7<br>Qdot 800  |   |   |  | Vybrant DyeCycle Ruby                     |   |   |  |  |   | PE-Vio770™   |
| Red (638 nm)   | 660/20<br>661/20<br>665/20<br>670/14<br>670/30<br>675/30           | RL1<br>670/14  | Alexa Fluor™ 647<br>APC<br>Qdot™ 655  | LIVE/DEAD™<br>Fixable Far Red             | SYTOX™ Red  |  | FxCycle™ Far Red                          | Annexin V, Alexa Fluor 647<br>Annexin V, Alexa Fluor 680<br>Annexin V, APC<br>MitoProbe™ DiIC <sub>1</sub> (5)<br>TO-PRO™-3   | CellTrace™ Far Red<br>Click-IT Plus EdU<br>Alexa Fluor™ 647 | CellROX™<br>Deep Red                         |  |   | eFluor™ 660  |
|  | 720/30<br>730/45   | RL2<br>720/30  | Alexa Fluor™ 680<br>Alexa Fluor™ 700<br>APC-Alexa Fluor™ 700<br>Qdot 705                              |   |   |  |   |   |   |  |  |   |  |
|  | 750 LP<br>775/50<br>780/40<br>780/60<br>785/70                     | RL3<br>780/60  | APC-Alexa Fluor™ 750<br>APC-Cy7   | LIVE/DEAD™<br>Fixable Near-IR             |   |  | Vybrant DyeCycle Ruby                     |   |   |  |  |   | APC-H7<br>APC-eFluor™ 780<br>APC-Vio770™   |



To find out about Invitrogen™ antibodies, assays, and instruments for flow cytometry, go to [thermofisher.com/flowcytometry](http://thermofisher.com/flowcytometry)