

Fluorophore and reagent selection guide for flow cytometry



The Invitrogen™ Attune™ NxT Flow Cytometer.

For more information, go to thermofisher.com/attune

| Excitation laser | Common emission filters (nm) | Attune NxT channel (nm)* | Recommended dyes | Viability dyes (compatible with fixation) | Viability dyes (unfixed cells) | DNA content/ cell cycle dyes (live cells) | DNA content/ cell cycle dyes (fixed cells) | Apoptosis dyes | Cell proliferation dyes | Reactive oxygen species (ROS) dyes | Phagocytosis dyes | Fluorescent proteins | Other dyes |
|------------------|--|--|--|---|---|---|--|---|---|------------------------------------|--|---|---|
| UV (~350 nm) | 379/28 | NA | | | | | | | | | | | BD Horizon BUV395 |
| | 440/40 450/50 | NA | Alexa Fluor 350 Alexa Fluor 405 | LIVE/DEAD Fixable Blue | DAPI SYTOX Blue | Hoechst 33342 Vybrant DyeCycle Violet | FxCycle Violet (DAPI) | Annexin V, Alexa Fluor 350 Annexin V, Pacific Blue | CellTrace Blue Click-iT Plus EdU Alexa Fluor 350 | | | ECFP | BD Horizon BUV496 |
| | 740/35 | NA | | | | | | | | | | | BD Horizon BUV737 |
| Violet (405 nm) | 425/20 440/50 450/50 455/50 450/65 460/50 | VL1 440/50 VL1 (V6**) 450/40 | Super Bright 436 eFluor 450 Pacific Blue Alexa Fluor 405 | LIVE/DEAD Fixable Violet | DAPI SYTOX Blue | Vybrant DyeCycle Violet | FxCycle Violet (DAPI) | Annexin V, Pacific Blue Annexin V, eFluor 450 PO-PRO-1 | CellTrace Violet Click-iT Plus EdU Pacific Blue | | | Azurite Cerulean TagBFP ECFP mTurquoise AmCyan | BD Horizon BV421 BD Horizon V450 VioBlue |
| | 510/50 520/35 525/50 530/40 550/40 | VL2 512/25 VL2 (V6) 525/50 | eFluor 506 Pacific Green | LIVE/DEAD Fixable Aqua | | | | Violet Ratiometric Probe (F2N12S) | | | | | BD Horizon BV510 BD Horizon V500 VioGreen |
| | 585/40 610/20 | VL3 603/48 VL3 (V6) 610/20 | Super Bright 600 Pacific Orange Qdot 605 | LIVE/DEAD Fixable Yellow | | | | Violet Ratiometric Probe (F2N12S) | | | | | BD Horizon BV570 BD Horizon BV605 BD Horizon BV650 |
| | 660/20 660/40 710/50 | VL4 710/50 VL4 (V6) 660/20 | Super Bright 645 Super Bright 702 Qdot 705 | | | | | | | | | | BD Horizon BV650 BD Horizon BV711 |
| | 710/50 | VL5 710/50 | Super Bright 702 | | | | | | | | | | BD Horizon BV711 |
| | 780/60 | VL6 780/60 | Super Bright 780 | | | | | | | | | | BD Horizon BV786 |
| Blue (488 nm) | 525/50 525/30 525/40 530/30 530/40 | BL1 530/30 BL1 (G†) 525/50 | Alexa Fluor 488 FITC | LIVE/DEAD Fixable Green | SYTOX Green | Vybrant DyeCycle Green | | Annexin V, Alexa Fluor 488 Annexin V, FITC APO-BrdU TUNEL with Alexa Fluor 488 CellEvent Caspase-3/7 Green MitoProbe DiOC ₂ (3) MitoProbe JC-1 YO-PRO-1 Iodide | CellTrace CFSE Click-iT Plus EdU Alexa Fluor 488 | CellROX Green | pHrodo Green <i>E. coli</i> BioParticles Conjugate pHrodo Green <i>S. aureus</i> BioParticles Conjugate | EGFP Emerald GFP EYFP | BD Horizon BB515 |
| | 574/26 575/30 580/23 585/40 586/15 590/40 | BL2 574/26 BL2 (G,Y†) 590/40 | PE PE-eFluor 610 PE-Alexa Fluor 610 PE-Texas Red | LIVE/DEAD Fixable Red | 7-AAD Propidium Iodide (PI) SYTOX AADvanced SYTOX Orange | Vybrant DyeCycle Orange | FxCycle PI/RNase | Annexin V, PE TMRE TMRM MitoProbe JC-1 | | | pHrodo Red <i>E. coli</i> BioParticles Conjugate pHrodo Red Phagocytosis Kit | EYFP mCitrine Venus | BD Horizon PE-CF594 PE/Dazzle 594 |
| | 670/30 675/30 680/30 695/30 695/40 710/50 | BL3 695/40 | PerCP-eFluor 710 PE-Alexa Fluor 700 PE-Cy [®] 5.5 PerCP PerCP-Cy [®] 5.5 Qdot 705 TRI-COLOR (PE-Cy [®] 5) | | 7-AAD Propidium Iodide SYTOX AADvanced | | | Annexin V, PerCP-eFluor 710 | | | | | PerCP-Vio700 |
| | 750 LP 775/50 780/40 780/60 | BL4 780/60 | PE-Cy [®] 7 Qdot 800 | | | | Vybrant DyeCycle Ruby | Annexin V, PerCP-eFluor 710 | | | | | PE-Vio770 |
| | 555/20 575/24 585/16 585/42 610/20 | GL1 575/36 | Alexa Fluor 532 Alexa Fluor 555 Qdot 565 Qdot 605 R-Phycoerythrin (R-PE, PE) | | SYTOX Orange | Vybrant DyeCycle Orange | | Annexin V, R-PE Annexin V, Alexa Fluor 555 MitoTracker Orange CMTMRos | CellTrace Yellow | CellROX Orange | pHrodo Red <i>E. coli</i> BioParticles Conjugate | DsRed tdTomato YFP | |
| Green (532 nm) | 610/20 620/15 630/30 | GL2 620/15 | Alexa Fluor 568 Alexa Fluor 594 Qdot 605 PE-Texas Red | LIVE/DEAD Fixable Red | SYTOX AADvanced Propidium Iodide | Vybrant DyeCycle Orange | FxCycle PI/RNase | Annexin V, Alexa Fluor 568 Annexin V, Alexa Fluor 594 MitoTracker Red CMXRos | Click-iT Plus EdU Alexa Fluor 594 | | | mCherry | PE/Dazzle 594 |
| | 695/40 710/50 | GL3 695/40 | Qdot 705 PE-Alexa Fluor 700 TRI-COLOR PE-Cy [®] 5.5 | | SYTOX AADvanced | Vybrant DyeCycle Ruby | | | | | | | |
| | 780/60 | GL4 780/60 | Qdot 800 PE-Cy [®] 7 | | | | | | | | | | |
| | 585/40 585/15 590/40 | YL1 585/16 | Alexa Fluor 555 PE | | Propidium Iodide SYTOX Orange | Vybrant DyeCycle Orange | | MitoTracker Orange CMTMRos MitoTracker Red CMXRos TMRE TMRM | CellTrace Yellow | CellROX Orange | pHrodo Red <i>E. coli</i> BioParticles Conjugate | mOrange RFP | |
| Yellow (561 nm) | 610/20 613/20 615/50 620/15 620/30 | YL2 620/15 | PE-eFluor 610 PE-Alexa Fluor 610 PE-Texas Red | LIVE/DEAD Fixable Red | 7-AAD Propidium Iodide SYTOX AADvanced SYTOX Orange | Vybrant DyeCycle Orange | FxCycle PI/RNase | Annexin V, Alexa Fluor 568 Annexin V, Alexa Fluor 594 | Click-iT Plus EdU Alexa Fluor 594 | | | DsRed mCherry mKate mStrawberry tdTomato | ECD BD Horizon PE-CF594 PE/Dazzle 594 PE-Vio 615 |
| | 670/30 675/30 680/30 695/30 695/40 | YL3 695/40 YL3 (B [‡] /R ^{††} /V6) 780/60 | PE-Alexa Fluor 700 PE-Cy [®] 5.5 Qdot 705 TRI-COLOR | | 7-AAD Propidium Iodide SYTOX AADvanced | | | | | | | mPlum mRaspberry mNeptune | |
| | 750 LP 780/40 780/60 | YL4 780/60 | PE-Cy [®] 7 Qdot 800 | | | Vybrant DyeCycle Ruby | | | | | | | PE-Vio770 |
| | 660/20 661/20 665/20 670/14 670/30 675/30 | RL1 670/14 | Alexa Fluor 647 eFluor 660 APC Qdot 655 APC-Cy [®] 5 | LIVE/DEAD Fixable Far Red | SYTOX Red | | FxCycle Far Red | Annexin V, Alexa Fluor 647 Annexin V, Alexa Fluor 680 Annexin V, APC MitoProbe DiIC ₁ (5) TO-PRO-3 | CellTrace Far Red Click-iT Plus EdU Alexa Fluor 647 | CellROX Deep Red | | | |
| Red (637 nm) | 720/30 730/45 | RL2 720/30 | Alexa Fluor 680 Alexa Fluor 700 APC-Alexa Fluor 750 Qdot 705 | | | | | | | | | | |
| | 750 LP 775/50 780/40 780/60 | RL3 780/60 | APC-eFluor 780 APC-Alexa Fluor 750 APC-Cy [®] 7 | LIVE/DEAD Fixable Near-IR | | | Vybrant DyeCycle Ruby | | | | | | BD APC-H7 APC-Vio770 |

* Filter sets change depending on the configuration of the Attune NxT Flow Cytometer in use. ** V6 is the Attune NxT violet 6-channel configuration option.
 † G refers to the green laser option. † Y refers to the yellow laser option. ‡ B refers to the blue laser option. †† R refers to the red laser option.

To find out more about Invitrogen™ antibodies, assays, and instruments for flow cytometry, go to thermofisher.com/flowcytometry