To boldly flow with Qdot® nanocrystals

Now available: Qdot® nanocrystal–conjugated primary antibodies

Researchers today are trying to maximize information from their flow cytometry experiments by looking at more parameters in one sample. Qdot® nanocrystals provide a powerful way to increase your fluor selection from your available excitation sources. Qdot® nanocrystal conjugates will allow you to add 1–6 colors to your data acquisition from a violet laser and, in addition, provide the advantages of brightness and photostability.

The fluorescence properties of Qdot® nanocrystals are different from those of typical dye molecules. Typical fluorescent dyes have excitation and emission spectra with relatively small Stokes shifts, which means that the optimal excitation wavelength is close to the emission peak. Qdot® nanocrystals have broad absorbance spectra and are optimally excited by a UV or violet (405–407 nm) laser, although usable excitation can also be obtained with other sources such as the 488 nm laser. Their emission peaks are narrow and symmetrical, and do not change with excitation (Figure 1). Because of their spectral properties, Qdot® nanocrystals are brighter than most common fluors.

Qdot® nanocrystal conjugates may be used in the same way as conventional conjugates. Because staining conditions may vary, reagents should be titered with samples to obtain optimal staining concentrations. Figure 2 shows typical profiles of human peripheral blood leukocytes (PBLs) stained with Qdot® nanocrystal conjugates specific for CD3, CD4, CD8, and CD14 antigens. The two-color combination was analyzed with <4% compensation between channels. In addition, Qdot® nanocrystals are compatible with common lysing, fixation, and permeabilization reagents, such as Cal-Lyse™ and FIX & PERM®.

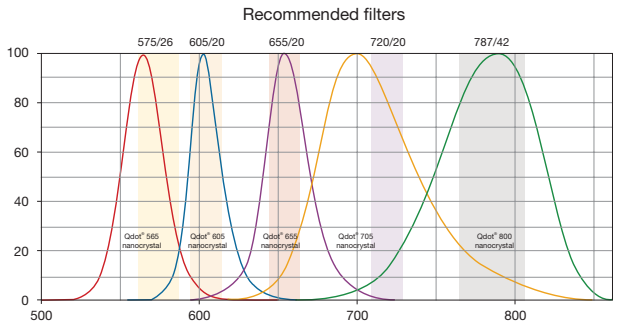

Figure 1—Recommended filter configuration and emission profiles for selected Qdot® nanocrystals. Filter diagrams and emission curves were viewed with the Fluorescence Spectra Viewer (probes.invitrogen.com/resources/spectraviewer/).

Primary antibody conjugates now available

As the exclusive provider of Qdot® nanocrystal technology for life science research, Invitrogen offers a full range of tools, from new primary antibody conjugates to secondary detection reagents, to maximize the use of your flow cytometer by combining Qdot® nanocrystal technology with existing organic fluorophores. For more information on using this new technology in flow cytometry, including detailed protocols and resources, visit www.invitrogen.com/qdotforflow.

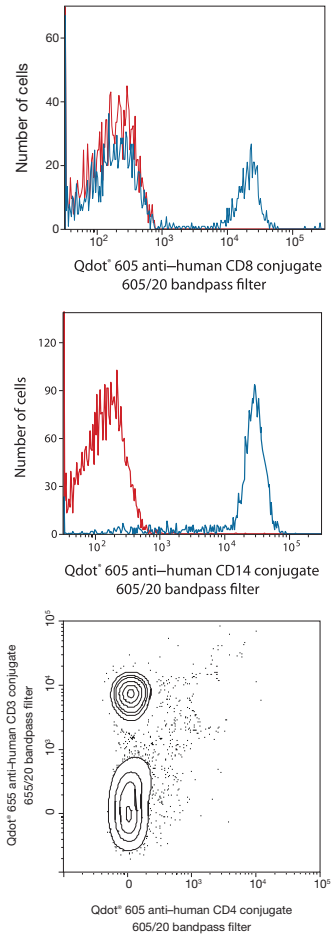

Figure 2—Staining profiles for Qdot® nanocrystal–conjugated antibodies. Human peripheral blood leukocytes were stained with the specified Qdot® conjugates. Samples were analyzed using a BD™ LSR II flow cytometer with 405 nm excitation and the specified emission filters.

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Professor, Pathology and Pediatrics, Feinberg School of Medicine, Northwestern University

Vice Chair, Pathology and Laboratory Medicine, The Children's Memorial Hospital

Read about what inspires Dr. O'Gorman's research at Children's Memorial Hospital:

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