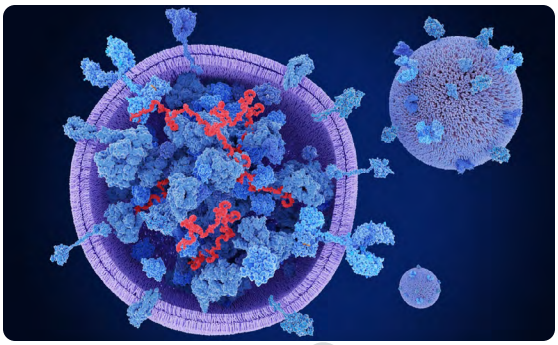
EV Research Deserves Better Tools. We Built Them.

Detect EVs, Not Dye Aggregates
Discover ExoBrite™ EV Products



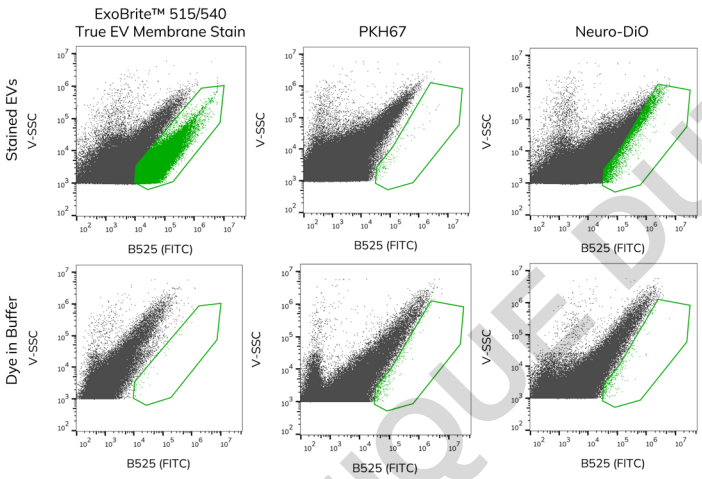
ExoBrite™ True EV Membrane Stains

The best choice for pan-EV staining

ExoBrite™ True EV Membrane Stains overcome the aggregation issues common in dyes such as PKH, DiO, and DiI (Figure 1). Their excellent solubility, extracellular vesicle (EV) coverage, and clearer differentiation from nonspecific particles deliver more reliable results for flow cytometry and fluorescence nanoparticle tracking analysis (fNTA).

We also offer other ExoBrite™ EV Surface Stains as cholera toxin subunit B (CTB), wheat germ agglutinin (WGA), or Annexin V fluorescent conjugates for purified or bead-bound EV applications.

A.



B.

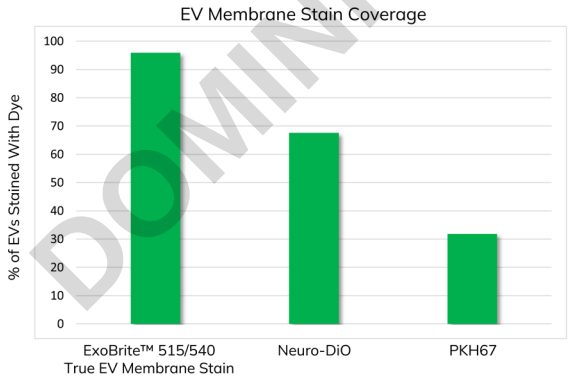


Figure 1. EVs stained with ExoBrite™ 515/540 True EV Membrane Stain are distinguishable from dye particles in buffer in flow cytometry, which is not the case for PKH67 or Neuro-DiO (A). In fNTA, ExoBrite™ 515/540 True EV Membrane Stain showed higher coverage on EVs compared to the other dyes.

ExoBrite™ True EV Membrane Stains

- **Bright, aggregation-resistant labeling:** Lipophilic dyes for reliable pan-EV membrane staining
- **Superior to traditional membrane dyes:** Outperform PKH, DiO, DiI, and DiD
- **Robust & universal detection in four flow channels:** High EV coverage, broad EV compatibility in Pacific Blue®, FITC, PE, and APC channels
- **Antibody co-staining compatible:** Ideal for valuable EV samples

ExoBrite™ EV Surface Stains

- **Multiple conjugate options:** Optimized conjugates of Annexin V, WGA, and CTB for EV labeling
- **Four colors available:** High-performance ExoBrite™ conjugates for the Pacific Blue®, FITC, PE, and APC channels
- **Flexible applications:** Stain purified or bead-bound EVs and compatible with antibody co-staining
- **Pair with ExoBrite™ EV Stain Enhancer:** Reduces dye aggregates and improves signal-to-noise

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ExoBrite™ Flow Antibody Conjugates

Individual antibodies and cocktails formulated for EV flow applications

Biotium's ExoBrite™ Flow Antibody Conjugates are optimized for sensitive detection of EV markers by flow cytometry. They include antibodies against human and mouse tetraspanins CD9, CD63, and CD81, as well as additional EV-associated targets. These reagents are validated for purified or bead-bound EVs and formulated in a proprietary buffer designed to minimize antibody aggregation and improve signal-to-noise. We offer cocktails for single-color or 3-color staining of CD9/CD63/CD81 for simplified EV detection and phenotyping.

ExoBrite™ Mix-n-Stain Antibody Labeling Kits enable researchers to quickly label an antibody of interest with a variety of ExoBrite™ Dyes. This simple mix-and-incubate workflow allows rapid generation of custom fluorescent antibody conjugates for EV detection and phenotyping.

Advantages of ExoBrite™ Antibodies

- **Common EV markers**: Human and mouse tetraspanins CD9, CD63, CD81, CD29, and other EV markers
- **Optimized brightness**: Formulated for strong, bright signals in purified or bead-bound EVs
- **Robust performance**: Proprietary formulation for low aggregation and high signal-to-noise
- **Multiple colors available**: High-performance ExoBrite™ Dyes for Pacific Blue®, FITC, PE, and APC channels
- **Single-color and 3-color tetraspanin cocktails:** Ideal for robust EV detection and phenotyping

Advantages of ExoBrite™ Mix-n-Stain Kits

- **Rapid antibody labeling:** Quickly label antibodies with a variety of ExoBrite™ Dyes
- **Simple mix-and-stain workflow:** Label antibodies in minutes with minimal hands-on time and no post-labeling purification
- **Minimize aggregation:** Optimized labeling protocol and the inclusion of the ExoBrite™ buffer generate results with high signal-to-noise
- **Flexible panel design:** Easily expand EV phenotyping panels for flow cytometry and other fluorescence-based assays

ExoBrite™ CD9/CD63/CD81 Single-Color Antibody Cocktails

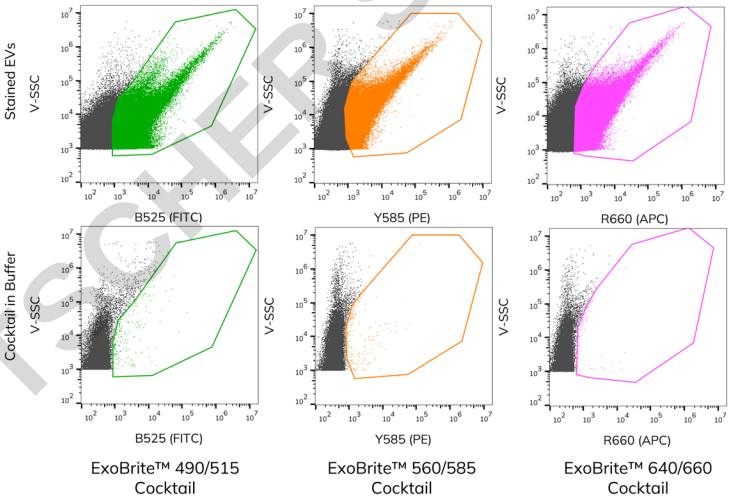


Figure 2. Purified EVs were stained with each of the three ExoBrite™ CD9/CD63/CD81 Single-Color Antibody Cocktails. There is strong, bright signal on EVs and minimal aggregates seen when the same cocktail is run in PBS.

ExoBrite™ CD9/CD63/CD81 3-Color Antibody Cocktail (Green/Orange/Far-Red)

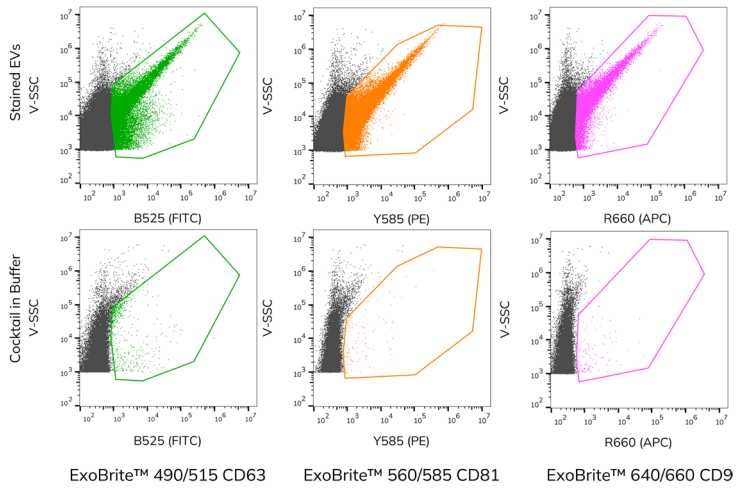


Figure 3. Purified EVs were stained with ExoBrite™ CD9/CD63/CD81 3-Color Antibody Cocktail (Green/Orange/Far-Red). Clear staining was seen in all 3 channels (top row). The same antibody cocktail was run in PBS, and very few aggregates are seen (bottom row).

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EV Stains for Super-Resolution Imaging

ExoBrite™ STORM Antibodies and CTB EV Stains with CF® Dyes optimized for STORM

Characterizing EVs by imaging is challenging due to their small size and the resolution limits of light microscopy. Super-resolution methods like dSTORM overcome these barriers, revealing EV structure at the single-molecule level. ExoBrite™ STORM Antibodies and CTB EV Stains use CF® Dyes optimized for STORM, offering bright, high-resolution EV imaging with excellent clarity and signal-to-noise.

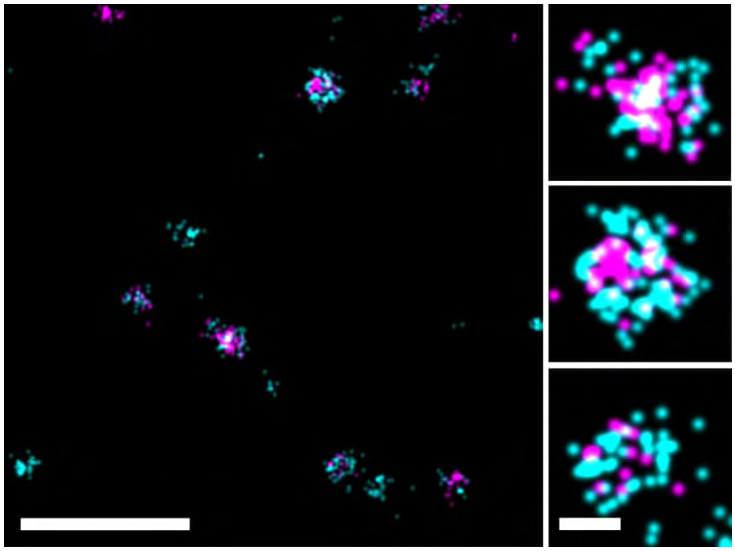


Figure 4. dSTORM images of human colorectal cancer cell line-derived EVs. EVs were stained with CF®647 conjugated CD9/CD63/CD81 cocktail (magenta) with ExoBrite™ 560/585 (cyan). Scale bars are 500 nm (zoomed out, left panel) and 50 nm for single-EV panels (right). Image courtesy of ONI.

Advantages of ExoBrite™ STORM Antibodies and CTB EV Stains

- **Validated EV marker antibodies:** Optimized for detection of CD9, CD63, and CD81
- **Industry-leading STORM dyes:** Choose from CF®498, CF®568, CF®583R, and CF®647
- **Antibodies in four color channels:** Compatible with FITC, Cy®3, Texas Red®, and Cy®5 detection
- **CTB EV stains optimized for STORM imaging:** Formulated for super-resolution EV visualization with CF®505, CF®583R, CF®647, or CF®680
- **CTB EV stains compatible with co-staining:** Allows antibody co-staining and localization studies

ExoBrite™ Western Antibody Conjugates

Validated EV marker antibodies for Western blot

ExoBrite™ Western Antibodies are validated to provide bright signal and low background detection of EV markers CD9, CD63, and CD81 in EV extracts by chemiluminescent or near-IR fluorescent Western blot.

The ExoBrite™ Calnexin Western Antibody detects an endoplasmic reticulum marker that can be used as an EV negative control.

Advantages of ExoBrite™ Western Antibodies

- **EV marker detection:** For fluorescent or chemiluminescent Western blot of CD9, CD63, and CD81
- **Multiple colors with bright, low background:** Available with HRP for ECL and 2 near-IR ExoBrite™ Dyes for LICORbio Odyssey® and other near-IR imagers
- **Negative control available:** Validated antibody against Calnexin ER marker to assess EV purity

Conjugates for Near-IR WB of EV Extracts

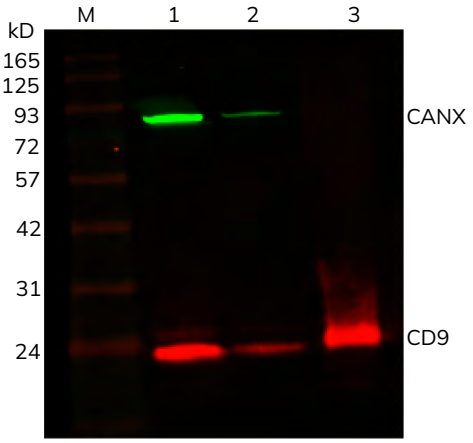


Figure 5. Western detection of human CD9 in MCF-7 cell and EV lysates using ExoBrite™ 680/700 CD9 Western Antibody (red) and ExoBrite™ 770/800 Calnexin Antibody (CANX; EV negative control) (green). Lane M: Protein marker. Lane 1: 10 µg cell lysate. Lane 2: 1 µg cell lysate. Lane 3: 1 µg EV lysate.

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ExoBrite™ EV Protein Quantitation Kit

Highly sensitive, fluorescence-based quantitation of purified proteins

The ExoBrite™ EV Protein Quantitation Kit is a highly sensitive, fluorescence-based assay optimized for measuring total protein concentration in purified EV samples. It has a low limit of detection, making it significantly more sensitive than traditional methods like BCA or Bradford assays and ideal for valuable EV samples.

- Sensitive fluorescence-based EV protein quantitation
- Low limit of detection, good for dilute and precious EV samples
- Works with intact EVs, doesn't require a separate lysis step

ExoBrite™ EV Protein Quantitation Kit
Learn More

ExoBrite™ Streptavidin Magnetic Beads

Designed for convenient and low background EV isolation

- Combine with a biotinylated antibody (not included) for isolation of EVs
- Convenient magnetic-based separation to isolate EVs from biofluids without an overnight precipitation step
- Lower background and higher sensitivity than competitors
- Detect downstream with microscopy, flow cytometry, or Western blot

ExoBrite™ Streptavidin Magnetic Beads
Learn More

ExoBrite™ EV Total RNA Isolation Kit

High yield, efficient RNA extraction from purified EVs

- Optimized for total RNA extraction from purified EVs
- Compatible with downstream applications such as qPCR or RNA-seq
- Simple column-based purification
- No phenol/chloroform or ethanol precipitation steps

ExoBrite™ EV Total RNA Isolation Kit
Learn More

ExoBrite™ EV Stain Enhancer

Unique additive that improves the specificity of EV stain reactions

- Improves signal-to-noise by reducing or eliminating aggregates of certain EV stains
- Validated with several different lectins and Annexin V
- Does not interfere with antibody staining of EVs
- Easy to use, just add directly to the staining reaction

ExoBrite™ EV Stain Enhancer
Learn More

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