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ExoBrite™ WGA EV Staining Kits

Fluorescent WGA conjugates that are optimized for bright staining of extracellular vesicles for flow cytometry.



Product attributes

Dye	ExoBrite™ 410/450, ExoBrite™ 490/515, ExoBrite™ 560/585, ExoBrite™ 640/660
Colors	Blue, Green, Orange-red, Far-red

Product Description

ExoBrite™ WGA EV Staining Kits were designed to overcome some of the challenges of EV detection, particularly in flow cytometry. ExoBrite™ WGA EV Stains bind to molecules in the EV membrane for bright, specific staining, with little background.

ExoBrite™ WGA EV Stains are uniquely formulated conjugates of wheat germ agglutinin (WGA), a carbohydrate-binding lectin with high affinity for N-acetylglucosamine moieties of glycoproteins. WGA conjugates are often used for labeling cell membranes as well as gram-positive bacteria. WGA conjugates have also been used to detect EVs due to the presence of glycoproteins on EV membranes.

ExoBrite™ WGA EV Stains were designed to overcome some of the challenges of detecting isolated EVs, particularly in flow cytometry. For example, tetraspanin antibodies commonly used to stain EVs can have varying signal and coverage depending on the EV source. Conversely, ExoBrite™ WGA EV Stains show bright staining of EVs derived from a broad range of sources. We tested EVs derived from 9 cell lines and ExoBrite™ WGA EV Stains showed strong staining for all of them. ExoBrite™ WGA EV Stains are less prone to aggregation than hydrophobic membrane dyes and do not bind non-specifically to polystyrene beads, allowing them to be used to stain bead-bound EVs.

The [ExoBrite™ EV Stain Enhancer](#) may be used to improve the signal-to-noise when staining with ExoBrite™ WGA EV Stains. The enhancer has shown to be beneficial for staining EVs with Annexin V, WGA, and other lectins. It is easy to use, simply add it directly to your staining reaction, and does not interfere with antibody staining.

EVs are often labeled with fluorescent antibodies targeting one or more of the tetraspanin proteins CD9, CD63, and CD81. ExoBrite™ WGA staining can be combined with antibody staining, for multi-parameter analysis.

Notes:

1. ExoBrite™ WGA EV Stains have been found to label EVs derived from all cell lines tested (see Validated EV Sources below), but may not stain EVs from every source.
2. In our testing, we have found that ExoBrite™ 490/515 dye may bind to streptavidin coated surfaces or beads if free biotin binding sites are not blocked. We recommend performing a biotin blocking step after binding your biotinylated capture antibody to streptavidin beads or surfaces when using ExoBrite™ 490/515 conjugates. Alternatively, consider using a different ExoBrite™ dye for staining EVs captured on streptavidin beads or surfaces.

ExoBrite™ WGA EV Staining Kits

Product	Ex/Em	Detection channels	Size	Catalog Number
ExoBrite™ 410/450 WGA EV Staining Kit	416/452 nm	Pacific Blue™	100 Labelings	30123-T
500 Labelings	30123			
ExoBrite™ 490/515 WGA EV Staining Kit	490/516 nm	FITC	100 Labelings	30124-T
500 Labelings	30124			
ExoBrite™ 560/585 WGA EV Staining Kit	562/584 nm	PE	100 Labelings	30125-T
500 Labelings	30125			
ExoBrite™ 640/660 WGA EV Staining Kit	642/663 nm	APC	100 Labelings	30126-T
500 Labelings	30126			

ExoBrite™ EV Stains Comparison Guide

ExoBrite™ EV Surface Stain	Pros	Cons
ExoBrite™ True EV Membrane Stains	• Near-complete staining of EVs in a sample • Broad compatibility with different EV sources • Validated for flow and fNTA	• Can't be used to stain bead-bound EVs • May have more aggregation than CTB & Annexin
ExoBrite™ Annexin EV Staining Kits	• Broad compatibility with different EV sources • Validated for flow and fNTA • Low background aggregates	• May not stain every EV in a sample • Doesn't work well on bead-bound EVs
ExoBrite™ WGA EV Staining Kits	• Broad compatibility with different EV sources • Can be used with bead-bound EVs	• May not stain every EV in a sample • Doesn't work well for fNTA
ExoBrite™ CTB EV Staining Kits	• Validated for flow and fNTA • Extremely low background • Can be used with bead-bound EVs	• May not stain every EV in a sample • Does not stain EVs from every source
ExoBrite™ Antibodies	• Highly specific for human tetraspanins CD9, CD63, CD81, and other EV markers • Validated for EV flow • Broad compatibility for different EV sources • Can be used with bead-bound EVs • Can be used for WB	• Depends on the expression level of the target protein on the EVs
ExoBrite™ EV Stain Enhancer	• 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	• Not recommended for use with lipophilic EV stains

Validated EV Sources for ExoBrite™ EV Surface Stains

EV Source	ExoBrite™ True EV Membrane Stains	ExoBrite™ CTB Stains	ExoBrite™ WGA Stains	ExoBrite™ Annexin Stains
A549 cells	Yes	Yes	Yes	Yes
CHO cells	Yes	No	Yes	Yes
hASC (human adipose stem cells)	ND	No ¹	ND	ND
HEK293 cells	Yes	Yes ¹	Yes	Yes

EV Source	ExoBrite™ True EV Membrane Stains	ExoBrite™ CTB Stains	ExoBrite™ WGA Stains	ExoBrite™ Annexin Stains
HeLa cells	Yes	No	Yes	Yes
HUVEC (human umbilical vein endothelial cells)	ND	No ¹	ND	ND
J774 cells	Yes	Yes	Yes	Yes
Jurkat cells	Yes	Yes	Yes	Yes
MCF-7 cells	Yes	Yes	Yes	Yes
Plasma	Yes	No	ND	Yes
Raji cells	ND	Yes	Yes	Yes
RAW 264.7 cells	Yes	Yes	Yes	Yes
Serum	Yes	No	ND	Yes
Skeletal myoblasts	ND	Yes ¹	ND	ND
THP-1 cells	Yes	ND	ND	ND
U2OS cells	Yes	No	Yes	Yes
U937 cells	Yes	No	Yes	Yes
NIH3T3 cells	Yes	Yes	Yes	Yes
HepG2 cells	Yes	No	Yes	Yes
Yeast (S. cerevisiae)	Yes	No	Yes	Yes

¹Customer-reported data
Value of “Yes” or “No” indicates coverage of EVs based on Biotium’s internal data or customer-reported data. Value of “ND” indicates no data.

Biotium also offers other validated ExoBrite™ reagents for flow cytometry, western blotting, or super-resolution imaging.

Learn about Biotium's new [ExoBrite™ True EV Membrane Stains](#). These genuine lipophilic membrane dyes are designed for superior pan-EV labeling over other membrane dyes including PKH, DiO, Dil, and DiD. Biotium also offers [ExoBrite™ CTB EV Stains](#) (cholera toxin B conjugates) and [ExoBrite™ Annexin EV Stains](#) optimized for bright and sensitive staining of EVs. The [ExoBrite™ EV Surface Stain Sampler Kit](#) contains each of Biotium’s ExoBrite™ EV Surface Stains (CTB, WGA, and Annexin V) for assessing which stain offers the best coverage for the EV samples of interest. Biotium also offers [ExoBrite™ Antibody Conjugates](#) for optimal detection of CD9, CD63, and CD81 EV markers by flow cytometry and western blotting. For super-resolution imaging by STORM, learn about our [ExoBrite™ STORM CTB EV Staining Kits](#) available in four CF® Dyes validated for STORM.