Membrane & Cell Surface Stains

Options for live or fixed cells

Find a fluorescent surface stain for your application

Biotium offers a variety of highly fluorescent and photostable stains to visualize cell boundaries and morphology in multi-color staining experiments. Our original CellBrite™ Cytoplasmic Membrane Stains are lipophilic dyes for simple, non-toxic, stable labeling of membranes in live or fixed cells. Cells can be fixed with formaldehyde before or after CellBrite™ staining. But the staining has poor tolerance for permeabilization or methanol fixation, so CellBrite™ staining is not easily combined with intracellular immunofluorescence (IF) staining. The dyes also do not stain bacteria or yeast.

Biotium’s new CellBrite™ Fix and MemBrite™ Fix stains were developed to overcome some of these shortcomings. They are novel covalent stains that can be fixed and permeabilized for IF staining. CellBrite™ Fix Membrane Stains are fluorogenic reactive membrane dyes that rapidly accumulate at the plasma membrane. When they incorporate into lipids, they become fluorescent, and at the same time react covalently with membrane proteins for stable labeling. Staining takes only 15 minutes in a single step with no wash. CellBrite™ Fix stains mammalian cells, yeast, and bacteria.

MemBrite™ Fix Cell Surface Stains do not bind lipids, but label cell surface proteins. MemBrite™ Fix requires a two-step staining protocol with washing, but offers a more extensive choice of dye colors than CellBrite™ Fix. MemBrite™ Fix also can be used to stain yeast. But unlike original CellBrite™ dyes and lectins, CellBrite™ Fix and MemBrite™ Fix cannot be used on cells that are already fixed.

We also offer the lectins WGA and Con A conjugated to our bright and photostable CF® dyes. Lectins label glycoproteins on the surface of live or fixed cells, but also label secretory and endocytic compartments in permeabilized cells. Lectin staining may be cell-type dependent in mammalian cells, but they are also useful bacterial Gram stains and yeast stains.

Find a stain that fits your workflow

A. Stain, then fix

1. Stain live cells

2. Fix

Recommended Products:
- CellBrite™ Cytoplasmic Membrane Stains
- MemBrite™ Fix Cell Surface Staining Kits
- CellBrite™ Fix Membrane Stains
- CF® Dye WGA or Con A

B. Stain, fix, then permeabilize

1. Stain live cells

2. Fix

3. Permeabilize

Recommended Products:
- MemBrite™ Fix Cell Surface Staining Kits
- CellBrite™ Fix Membrane Stains
- CF® Dye WGA or Con A

C. Fix, then stain

1. Fix cells

2. Stain

Recommended Products:
- CellBrite™ Cytoplasmic Membrane Stains
- CF® Dye WGA or Con A

Look inside for detailed product comparisons.
Find the right stain for your application

<table>
<thead>
<tr>
<th>I want to...</th>
<th>Recommended products</th>
<th>Notes</th>
</tr>
</thead>
</table>
| Stain live cells | • CellBrite™ Cytoplasmic Membrane Stains  
• CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains  
• CF® Dye WGA or Con A | • CellBrite™ Fix and MemBrite™ Fix stain more uniformly than original CellBrite™ Cytoplasmic Membrane Stains.  
• WGA or Con A staining may be cell-type dependent. |
| Perform long term staining of live cells | • CellBrite™ Cytoplasmic Membrane Stains  
• CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains | • Dyes will be internalized by live cells over time as membranes turn over by endocytosis. |
| Fix with formaldehyde after staining live cells | • CellBrite™ Cytoplasmic Membrane Stains  
• CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains  
• CF® Dye WGA or Con A | • CellBrite™ Fix and MemBrite™ Fix stain more uniformly than original CellBrite™ Cytoplasmic Membrane Stains.  
• For uniform fixable staining at 4°C, we recommend MemBrite™ Fix. |
| Permeabilize with detergent after fixing stained cells | • CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains  
• CF® Dye WGA or Con A | • WGA or Con A staining may be cell-type dependent. |
| Fix with MeOH after staining live cells | • CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains  
• CF® Dye WGA or Con A | • For uniform fixable staining at 4°C, we recommend MemBrite™ Fix. |
| Stain formaldehyde-fixed cells | • CellBrite™ Cytoplasmic Membrane Stains  
• CF® Dye WGA or Con A | • Permeabilization after fixing may affect the distribution of CellBrite™ Cytoplasmic Membrane Stains.  
• Surface and intracellular staining may be observed in fixed or fixed/permeabilized cells.  
• WGA or Con A staining may be cell-type dependent. |
| Stain methanol-fixed cells | • CF® Dye WGA or Con A | • WGA or Con A staining may be cell-type dependent.  
• Surface and intracellular staining may be observed in fixed or fixed/permeabilized cells. |
| Stain bacterial cell surface | • CellBrite™ Fix Membrane Stains | • WGA and MemBrite™ Fix stain gram+ cells but not gram- bacteria. |
| Stain yeast cell surface | • CellBrite™ Fix Membrane Stains  
• MemBrite™ Fix Cell Surface Stains  
• CF® Dye Con A | • WGA selectively stains yeast bud scars. |
Product

Can fix after staining?

Can perm?

Stains fixed cells

Non-toxic

Stains bacteria

Stains yeast

Transfers between cells

Colors

Pros

Cons

**CellBrite™ & CellBrite™**

NIR Cytoplasmic Membrane Dyes

Yes

No

Yes

Yes

No

No

4 colors from blue to far-red

4 near-IR colors

- Simple staining protocol
- Stain before or after PFA fix
- Non-toxic & stable in live cells for days to weeks*

- Uneven live cell staining
- Poor tolerance for detergent
- Can’t fix with MeOH
- Can’t stain yeast or bacteria

**CellBrite™ Fix Membrane Staining Kits**

Yes

Yes

No

Yes

Yes

No

Green, red, far-red

- Rapid, uniform staining
- Can fix & perm for IF
- Fix with PFA or MeOH
- Washing after staining optional
- Stains yeast & bacteria
- Stable in live cells for days*

- Can’t stain fixed cells
- Limited color selection

**MemBrite™ Fix Cell Surface Staining Kits**

Yes

Yes

No

Gram+ only

Yes

No

8 colors from blue to near-IR

- Rapid, uniform staining
- Efficient staining at 4°C
- Can fix & perm for IF
- Fix with PFA or MeOH
- Stable in live cells for days*

- Can’t stain fixed cells
- Wash after stain required

**CF® Dye WGA Conjugates**

Yes

Yes

Yes

No

Gram+ only

Bud scars

Possible

13 colors from UV to near-IR

- Extensive color selection
- Bacterial Gram stain
- Yeast bud scar stain
- Fix before or after staining

- May be toxic or stimulatory to cells
- Some intracellular staining in permeabilized cells
- Staining may be cell-type dependent

**CF® Dye ConA Conjugates**

Yes

Yes

Yes

No

Strain dependent

Yes

Possible

10 colors from UV to near-IR

- Extensive color selection
- Yeast cell wall stain
- Fix before or after staining

- May be toxic or stimulatory to cells
- Some intracellular staining in permeabilized cells
- Staining may be cell-type dependent

* Surface staining will be internalized by endocytosis in live cells over time.
Membrane & Cell Surface Stains Ordering Information

Figure 11. MemBrite™ Fix dyes are available in eight colors from blue to near-IR.

### CellBrite™ & CellBrite™ NIR Cytoplasmic Membrane Dyes

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Description</th>
<th>Abs/Em</th>
</tr>
</thead>
<tbody>
<tr>
<td>30024</td>
<td>CellBrite™ Blue Cytoplasmic Membrane Staining Kit</td>
<td>366/441 nm</td>
</tr>
<tr>
<td>30021</td>
<td>CellBrite™ Green Cytoplasmic Membrane Labeling Dye</td>
<td>484/501 nm</td>
</tr>
<tr>
<td>30022</td>
<td>CellBrite™ Orange Cytoplasmic Membrane Labeling Dye</td>
<td>549/565 nm</td>
</tr>
<tr>
<td>30023</td>
<td>CellBrite™ Red Cytoplasmic Membrane Labeling Dye</td>
<td>644/665 nm</td>
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<tr>
<td>30070</td>
<td>CellBrite™ NIR680 Membrane Labeling Dye</td>
<td>683/724 nm</td>
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<tr>
<td>30077</td>
<td>CellBrite™ NIR750 Membrane Labeling Dye</td>
<td>748/780 nm</td>
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<tr>
<td>30078</td>
<td>CellBrite™ NIR770 Membrane Labeling Dye</td>
<td>767/806 nm</td>
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<tr>
<td>30079</td>
<td>CellBrite™ NIR790 Membrane Labeling Dye</td>
<td>786/820 nm</td>
</tr>
</tbody>
</table>

CellBrite™ supplied as 1 mL of 200X dye; CellBrite™ NIR supplied as 100 µL of 2 mM dye

### CellBrite™ Fix Membrane Labeling Kits

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Description</th>
<th>Abs/Em</th>
</tr>
</thead>
<tbody>
<tr>
<td>30090</td>
<td>CellBrite™ Fix 488 Membrane Stain</td>
<td>480/513 nm</td>
</tr>
<tr>
<td>30088</td>
<td>CellBrite™ Fix 555 Membrane Stain</td>
<td>542/571 nm</td>
</tr>
<tr>
<td>30089</td>
<td>CellBrite™ Fix 640 Membrane Stain</td>
<td>638/667 nm</td>
</tr>
</tbody>
</table>

Trial size kit: 100 labeling reactions; Regular size kit: 5 x 100 labeling reactions
Size based on 200 µL labeling volume, actual number of assays may vary

### MemBrite™ Fix Cell Surface Labeling Kits

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>MemBrite™ Fix Cell Surface Staining Kits</th>
<th>Abs/Em</th>
</tr>
</thead>
<tbody>
<tr>
<td>30092</td>
<td>MemBrite™ Fix 405/430 Cell Surface Staining Kit</td>
<td>405/430 nm</td>
</tr>
<tr>
<td>30093</td>
<td>MemBrite™ Fix 488/515 Cell Surface Staining Kit</td>
<td>488/515 nm</td>
</tr>
<tr>
<td>30094</td>
<td>MemBrite™ Fix 543/560 Cell Surface Staining Kit</td>
<td>543/560 nm</td>
</tr>
<tr>
<td>30095</td>
<td>MemBrite™ Fix 568/580 Cell Surface Staining Kit</td>
<td>568/580 nm</td>
</tr>
<tr>
<td>30096</td>
<td>MemBrite™ Fix 594/615 Cell Surface Staining Kit</td>
<td>594/615 nm</td>
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<tr>
<td>30097</td>
<td>MemBrite™ Fix 640/660 Cell Surface Staining Kit</td>
<td>640/660 nm</td>
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<tr>
<td>30098</td>
<td>MemBrite™ Fix 660/680 Cell Surface Staining Kit</td>
<td>660/680 nm</td>
</tr>
<tr>
<td>30099</td>
<td>MemBrite™ Fix 680/700 Cell Surface Staining Kit</td>
<td>680/700 nm</td>
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</tbody>
</table>

Trial size kit: 100 labeling reactions; Regular size kit: 5 x 100 labeling reactions
Size based on 200 µL labeling volume, actual number of assays may vary

### CF® Dye Wheat Germ Agglutinin (WGA) Conjugates

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Description</th>
<th>Abs/Em</th>
</tr>
</thead>
<tbody>
<tr>
<td>29021</td>
<td>CF®0350 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>347/448 nm</td>
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<tr>
<td>29027</td>
<td>CF®0405S Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>404/431 nm</td>
</tr>
<tr>
<td>29028</td>
<td>CF®0405M Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>408/452 nm</td>
</tr>
<tr>
<td>29022</td>
<td>CF®0488A Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>490/515 nm</td>
</tr>
<tr>
<td>29064</td>
<td>CF®0532 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>527/558 nm</td>
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<tr>
<td>29076</td>
<td>CF®0655 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>555/565 nm</td>
</tr>
<tr>
<td>29077</td>
<td>CF®068 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>562/583 nm</td>
</tr>
<tr>
<td>29023</td>
<td>CF®0594 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>593/614 nm</td>
</tr>
<tr>
<td>29024</td>
<td>CF®0633 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>630/650 nm</td>
</tr>
<tr>
<td>29026</td>
<td>CF®0640R Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>642/662 nm</td>
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<tr>
<td>29029</td>
<td>CF®0680 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>681/698 nm</td>
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<tr>
<td>29025</td>
<td>CF®0680R Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>680/701 nm</td>
</tr>
<tr>
<td>29059</td>
<td>CF®0770 Wheat Germ Agglutinin (WGA) Conjugate</td>
<td>770/797 nm</td>
</tr>
</tbody>
</table>

Unit size: 1 mg or 5 x 1 mg

### CF® Dye Concanavalin A (Con A) Conjugates

<table>
<thead>
<tr>
<th>Cat. #</th>
<th>Description</th>
<th>Abs/Em</th>
</tr>
</thead>
<tbody>
<tr>
<td>29015</td>
<td>CF®0350 Concanavalin A (Con A) Conjugate</td>
<td>347/448 nm</td>
</tr>
<tr>
<td>29075</td>
<td>CF®0405S Concanavalin A (Con A) Conjugate</td>
<td>404/431 nm</td>
</tr>
<tr>
<td>29074</td>
<td>CF®0405M Concanavalin A (Con A) Conjugate</td>
<td>408/452 nm</td>
</tr>
<tr>
<td>29016</td>
<td>CF®0488A Concanavalin A (Con A) Conjugate</td>
<td>490/515 nm</td>
</tr>
<tr>
<td>29017</td>
<td>CF®0594 Concanavalin A (Con A) Conjugate</td>
<td>593/614 nm</td>
</tr>
<tr>
<td>29018</td>
<td>CF®0633 Concanavalin A (Con A) Conjugate</td>
<td>630/650 nm</td>
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<tr>
<td>29019</td>
<td>CF®0640R Concanavalin A (Con A) Conjugate</td>
<td>642/662 nm</td>
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<tr>
<td>29020</td>
<td>CF®0680 Concanavalin A (Con A) Conjugate</td>
<td>681/698 nm</td>
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<tr>
<td>29080</td>
<td>CF®0750 Concanavalin A (Con A) Conjugate</td>
<td>755/777 nm</td>
</tr>
<tr>
<td>29058</td>
<td>CF®0770 Concanavalin A (Con A) Conjugate</td>
<td>770/797 nm</td>
</tr>
</tbody>
</table>

Unit size: 5 mg