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## Phaseolus Vulgaris Leucoagglutinin (PHA-L) Conjugates

PHA-L triggers lymphocyte agglutination and is available conjugated to biotin and a selection of 6 bright and photostable CF® Dyes.



### Product attributes

Probe cellular localization	Membrane/cell surface
For live or fixed cells	For fixed cells, For live/intact cells
Cell permeability	Membrane impermeant
Fixation options	Fix before staining (formaldehyde), Fix after staining (formaldehyde), Fix before staining (methanol), Fix after staining (methanol), Permeabilize after staining
Colors	Green, Red, Far-red, Near-infrared

### Product Description

*Phaseolus vulgaris* (red kidney bean) agglutinin (phytohemagglutinin; PHA) is a family of lectins, each consisting of four subunits. There are two different types of subunits. The “E” (erythroagglutinin) subunit causes red cell agglutination, and the “L” (lymphocyte) subunit can trigger lymphocyte agglutination and mitogenic activity. These subunits combine to produce five isolectins. *Phaseolus vulgaris* Leucoagglutinin (PHA-L) has four “L” type subunits and does not agglutinate red blood cells but is a potent mitogen and triggers lymphocyte agglutination. The lectin may be used to stain tissue sections. Biotium offers PHA-L conjugated to biotin and a selection of 6 bright and photostable CF® Dyes.

- Used to stimulate lymphocyte and T cell proliferation
- Suitable for immunofluorescence staining in tissue sections
- Choice of 6 CF® Dyes or biotin
- Supplied at 1 mg/mL in 10 mM HEPES pH 7.5, 0.15 M NaCl, 0.08% sodium azide, 0.1 mM CaCl<sub>2</sub>

**Note:** CF® Dye PHA-L conjugates are formulated with sodium azide and are not suitable for use *in vivo* or live cell culture.

### Find the Right Stain for Your Application

PHA-L and other lectins are carbohydrate binding proteins that recognize specific sugar moieties on glycoproteins. The presence and distribution of these targets vary between cell types and tissues. As a result, other [cell surface stains](#) or other lectin conjugates, *Datura stramonium* lectin (DSL), *Lycopersicon esculentum* (Tomato), *Ulex europaeus* agglutinin I (UEA I), [Wheat Germ Agglutinin \(WGA\) conjugates](#), [Concanavalin A \(Con A\)](#) and [Arachis hypogaea \(PNA\)](#) conjugates, may produce better surface staining and may be more appropriate for your cell type. Lectin conjugates can be used to selectively stain the cell surface of live cells, and withstand fixation and permeabilization. When cells are fixed and permeabilized before staining, fluorescent lectins stain both cell surface and organelles in the secretory pathway. Lectins may be toxic or stimulatory to live cells depending on cell type. To find the right stain for your application, see our [Membrane & Cell Surface Stains Comparison](#). See our [Cellular Stains Table](#) for more information on how our dyes stain various organisms.

### Superior CF® Dyes

Biotium's next-generation CF® Dyes were designed to be highly water-soluble with advantages in brightness and photostability compared to other fluorescent dyes. Learn more about [CF® Dyes](#).

### Phaseolus Vulgaris Leucoagglutinin (PHA-L) Conjugates

Conjugation	Ex/Em	Size	Catalog No.	Dye Features
<a href="#">CF@488A</a>	490/516 nm	1 mL	<a href="#">29115</a>	<a href="#">CF@488A Features</a>
<a href="#">CF@568</a>	562/584 nm	1 mL	<a href="#">29116</a>	<a href="#">CF@568 Features</a>
<a href="#">CF@594</a>	593/615 nm	1 mL	<a href="#">29117</a>	<a href="#">CF@594 Features</a>
<a href="#">CF@640R</a>	642/663 nm	1 mL	<a href="#">29118</a>	<a href="#">CF@640R Features</a>
<a href="#">CF@680</a>	681/698 nm	1 mL	<a href="#">29119</a>	<a href="#">CF@680 Features</a>
<a href="#">CF@740</a>	742/767 nm	1 mL	<a href="#">29134</a>	<a href="#">CF@740 Features</a>
<a href="#">Biotin</a>	N/A	1 mL	<a href="#">29114</a>	

### Full List of Lectin Conjugates

Product	Features
<a href="#">CF® Dye Concanavalin A (Con A)</a>	<ul style="list-style-type: none"><li>• Cell surface stain for yeast, fungi, and mammalian cells</li><li>• Selectively binds to α-mannopyranosyl and α-glucopyranosyl residues</li><li>• Available with a wide selection of CF® Dyes</li></ul>

Product	Features
<a href="#">CF® Dye Wheat Germ Agglutinin (WGA)</a>	<ul style="list-style-type: none"> <li>• Cell surface stain for mammalian cells and gram+ bacteria</li> <li>• Also stains yeast bud scars</li> <li>• Has high affinity for sialic acid and N-acetylglucosamine</li> <li>• Choose from a wide selection of CF® Dyes or HRP</li> </ul>
<a href="#">CF® Dye Peanut Lectin (PNA) from Arachis hypogaea</a>	<ul style="list-style-type: none"> <li>• Specific for terminal <math>\beta</math>-galactose and binds preferentially to galactosyl (<math>\beta</math>-1,3) N-acetylgalactosamine</li> <li>• Choice of 4 CF® dye colors</li> </ul>
<a href="#">CF® Dye Lycopersicon Esculentum (Tomato) Lectin (LEL, TL)</a>	<ul style="list-style-type: none"> <li>• Marker for blood vessels and microglial cells</li> <li>• Binds to [GlcNAc] 1,3-N-acetylglucosamine, glycophorin, and Tamm-Horsfall glycoprotein</li> <li>• Used to study tumor angiogenesis or tracing neovascular development in xenograft models</li> <li>• Choice of 5 CF® Dyes or biotin</li> </ul>
<a href="#">CF® Dye Ulex Europaeus Agglutinin I (UEA I)</a>	<ul style="list-style-type: none"> <li>• Marker for human endothelial cells and incompletely differentiated gastrin cells</li> <li>• Binds to glycoproteins and glycolipids containing <math>\alpha</math>-linked fucose residues</li> <li>• Choice of 5 CF® Dyes or biotin</li> </ul>
<a href="#">CF® Dye Phaseolus Vulgaris Leucoagglutinin (PHA-L)</a>	<ul style="list-style-type: none"> <li>• Used to stimulate lymphocyte and T cell proliferation</li> <li>• Choice of 5 CF® Dyes or biotin</li> </ul>
<a href="#">CF® Dye Datura Stramonium Lectin (DSL)</a>	<ul style="list-style-type: none"> <li>• Binds to (beta-1,4) linked N-acetylglucosamine oligomers</li> <li>• Choice of 5 CF® Dyes or biotin</li> </ul>
<a href="#">CF® Dye Sambucus Nigra Lectin (SNA, EBL)</a>	<ul style="list-style-type: none"> <li>• Binds to sialic acid attached to terminal galactose</li> <li>• Choice of 6 CF® Dyes or biotin</li> </ul>

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