

Lectin PHA-L Conjugates

Quick Facts

Storage upon receipt:

- $\leq -20^{\circ}\text{C}$
- Desiccate
- Protect from light

Abs/Em: See Table 1

Introduction

Lectins are oligomeric proteins with saccharide-binding sites that can recognize and bind particular glycoconjugates. The lectin phytohemagglutinin-L (PHA-L), which is isolated from *Phaseolus vulgaris* (red kidney bean), is strongly inhibited by *N*-acetylglucosamine $\beta(1\rightarrow2)$ mannosyl residues.¹ PHA-L exists as a tetramer with a molecular weight of approximately 120,000 daltons. This lectin has been shown to agglutinate leukocytes and induce mitogenic activity in T-lymphocytes^{1,2} and has also been used as an anterograde tracer for the study of neuronal pathways.³

Fluorescent lectins are versatile probes with diverse applications, including detection of cell surface and intracellular glycoconjugates by microscopy and flow cytometry, localization of glycoproteins in gels, precipitation of glycoproteins in solution and agglutination of specific cell types.¹ Molecular Probes offers several Alexa Fluor[®] dye conjugates of lectin PHA-L; Table 1 provides a summary of absorption and emission maxima for these conjugates.

Table 1. Lectin PHA-L conjugates and spectral characteristics.

Catalog #	Conjugate	Abs *	Em *
L-11270	Alexa Fluor 488	495	519
L-32455	Alexa Fluor 568	579	603
L-32456	Alexa Fluor 594	590	617
L-32457	Alexa Fluor 647	650	668

* Approximate absorption (Abs) and emission (Em) maxima, in nm.

Table 2. Recommended fluorescent lectin concentrations for various applications.

Application	Working Concentration
Staining glycoproteins in gels ⁴	1–10 mg/mL
Staining intracellular and cell surface glycoconjugates ^{5,6}	5–50 $\mu\text{g/mL}$
Agglutinating cells ⁶	10–250 $\mu\text{g/mL}$

Contents and Storage

The fluorescent conjugates of lectin PHA-L are supplied in unit sizes of 1 mg, lyophilized from 0.5 mL phosphate-buffered saline (PBS), pH 7.2. When stored desiccated at $\leq -20^{\circ}\text{C}$, these products are stable for at least one year. A 2 mg/mL solution can be prepared by dissolving the contents of one vial in 0.5 mL of H_2O . Solutions can be stored at $2\text{--}6^{\circ}\text{C}$ for approximately three months. For longer storage, divide the solution into aliquots and freeze at $\leq -20^{\circ}\text{C}$. PROTECT FROM LIGHT. AVOID REPEATED FREEZING AND THAWING OF SOLUTIONS.

Applications and Working Concentrations

Due to the diversity of potential applications, please consult the literature for appropriate working concentrations. The concentrations in Table 2 are recommended starting ranges for some of the more common applications. However, because staining conditions will vary with the application, optimal concentrations should be determined empirically.

It is a good practice to centrifuge the protein conjugate solution briefly in a microcentrifuge before use; only the supernatant should then be added to the experiment. This step will eliminate any protein aggregates that may have formed during storage, thereby reducing nonspecific background staining.

References

1. Adv Immunol 34, 213 (1983);
2. Kuby, T., *Immunology*, W.H. Freeman & Co. (1994);
3. Cell Vis 2, 184 (1995);
4. Anal Biochem 96, 208 (1979);
5. Histochemistry 56, 265 (1978);
6. Mol Biochem Parasitol 23, 165 (1987).

Product List *Current prices may be obtained from our Web site or from our Customer Service Department.*

Cat #	Product Name	Unit Size
L-11270	lectin PHA-L from <i>Phaseolus vulgaris</i> (red kidney bean), Alexa Fluor® 488 conjugate	1 mg
L-32455	lectin PHA-L from <i>Phaseolus vulgaris</i> (red kidney bean), Alexa Fluor® 568 conjugate	1 mg
L-32456	lectin PHA-L from <i>Phaseolus vulgaris</i> (red kidney bean), Alexa Fluor® 594 conjugate	1 mg
L-32457	lectin PHA-L from <i>Phaseolus vulgaris</i> (red kidney bean), Alexa Fluor® 647 conjugate	1 mg

Contact Information

Further information on Molecular Probes' products, including product bibliographies, is available from your local distributor or directly from Molecular Probes. Customers in Europe, Africa and the Middle East should contact our office in Leiden, the Netherlands. All others should contact our Technical Assistance Department in Eugene, Oregon.

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