Isolectin IB_4 Conjugates

Table 1. Contents and Storage Information.

Material	Amount	Concentration	Storage	Stability
Isolectin IB_4 Alexa Fluor® dye conjugates	500 µg lyophilized powder *	NA	• ≤–20°C • Desiccate • Protect from light	1 year
Isolectin IB_4 Biotin conjugates	500 µg lyophilized powder *	NA	• ≤–20°C • Desiccate	

* The vials are packed according to the protein content and not the dry weight, thus, it is best to solubilize the entire contents of a vial at one time.

Approximate Fluorescence Excitation and Emission, in nm: Alexa Fluor® 488 dye ~495/519 nm; Alexa Fluor® 568 dye ~579/603 nm; Alexa Fluor® 594 dye ~590/617 nm; Alexa Fluor® 647 dye ~650/668 nm.

Introduction

Isolectin IB_4 is a 114 kDa glycoprotein and part of a family of five tetrameric type I isolectins (IA_4, IA_3B, IA_2B_2, IAB_3, and IB_4) isolated from the seeds of the tropical African legume *Griffonia simplicifolia* (formerly *Bandeiraea simplicifolia*). The A and B subunits comprising the family members are very similar, differing in amino acid sequence only at the N-terminus. However, the subunits display different binding specificities; the A subunit prefers *N*-acetyl-D-galactosamine end groups while the B subunit is selective for terminal α-D-galactosyl residues.[1] Molecular Probes offers several Alexa Fluor® dye conjugates of isolectin IB_4, as well as a biotinylated form.

Guidelines for Use

Preparing Isolectin IB_4 Conjugates

Solutions up to ~1 mg/mL can be made by dissolving the protein in an aqueous buffer at neutral pH containing 0.1–1.0 mM $CaCl_2$. Solutions, with the addition of sodium azide to a final concentration of 2 mM, can be stored at 4°C for at least four months with no loss of activity. For longer storage, divide the solution into aliquots and freeze at ≤-20°C. AVOID REPEATED FREEZING AND THAWING.

Using Conjugate Solutions

It is a good practice to centrifuge the isolectin 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 in solution, thereby reducing nonspecific background staining.

Isolectin IB_4 specifically agglutinates blood group B erythrocytes and was originally employed for this purpose.[2] Subsequent work has shown that isolectin IB_4 is cytotoxic to several normal and tumor cell types [3] and has particularly strong affinity for brain microglial and perivascular cells.[4] It has also been particularly valuable as a histochemical and flow cytometric probe for specifically labeling endothelial cells in a number of species.[5,6] Isolectin IB_4 has been used effectively for tracing central and peripheral neuronal pathways following local injections,[7,8] as well as for labeling stimulated murine macrophages,[9] bovine thyroid cells,[10] various murine cell types,[11,12] laminin,[13] and thyroglobulin.[14] Since the applications of isolectin IB_4 are varied, researchers should consult the primary literature for protocol information.

References

1. J Biol Chem 252, 4739 (1977); **2.** Subcell Biochem 32, 127 (1999); **3.** Cancer Res 42, 2977 (1982); **4.** Histochemistry 102, 483 (1994); **5.** Histochem J 19, 225 (1987); **6.** Am J Pathol 134, 1227 (1989); **7.** Neurosci Lett 222, 53 (1997); **8.** Brain Res 811, 34 (1998); **9.** Proc Natl Acad Sci USA 79, 166 (1982); **10.** Arch Biochem Biophys 343, 73 (1997); **11.** Exp Cell Res 120, 321 (1979); **12.** Transplantation 61, 13 (1996); **13.** Biochemistry 28, 6379 (1989); **14.** J Biol Chem 259, 9858 (1984).

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

Cat #	Product Name	Unit Size
I21411	isolectin GS-IB_4 from Griffonia simplicifolia, Alexa Fluor® 488 conjugate	500 µg
I21412	isolectin GS-IB_4 from Griffonia simplicifolia, Alexa Fluor® 568 conjugate	500 µg
I21413	isolectin GS-IB_4 from Griffonia simplicifolia, Alexa Fluor® 594 conjugate	500 µg
I32450	isolectin GS-IB_4 from Griffonia simplicifolia, Alexa Fluor® 647 conjugate	500 µg
I21414	isolectin GS-IB_4 from Griffonia simplicifolia, biotin-XX conjugate	500 µg

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