Product specification

Product number: **GL-004**

Product name: **BP39L lectin produced recombinantly in *E. coli*, unconjugated**

Form: Lyophilized powder

Unit size: 1 mg, 5 mg, 10 mg

Sugar specificity: D-mannose (see the detailed information below)

Protein sequence: MHHHHHHENLYFQSAKLAASNQFGIPNQTDVFAVDGNGSLRVSWVVSAGAWNGPAQI GPAGL FPSRAAVASSNQFGIPNQTDVFAVGRDGALNVAWVVSADRWNGPTPISAAGLFPAGAAIAASNQ FGIPNQTDVFAVSDSGALNVAWVVSAERWNGPIPISAAGHFPAGAPLATSNQFGIPNQTDVFVVD NKGALNVAWVVGAGSWNGPIPISPPGLFPPGAAVAASNQFGIPNQTDVFVVDNQGALNVAWVV GADRWNGPVPISPAGLFPPGAAVAASNQFGIPNQTDVFAVGRDGALRVAWVVSAGNWNGPVSI SPTNLFPSGAAVAASNQFGIPNQTDVFAADSDGVLHVAWVVSAGNWNGPISIA

Storage conditions: For long-term storage, keep the freeze-dried lectin at -20 °C. After dissolving, store the sample in the fridge.

This product is for R&D use only. Not for human or animal use.

Basic information:

Name:	BP39L	Molecular weight (monomer):	37831.1 Da
Organism:	*Burkholderia pseudomallei*	Extinction coefficient:	78490 M^{-1} cm^{-1}
Expression host:	*Escherichia coli*	Oligomeric state:	monomer
Tags:	His_6-TEV (N-terminus)		

Carbohydrate specificity:

BP39L lectin has a preference for branched, mannosylated oligosaccharides with Man5 pentasaccharide (Manα1-6(Manα1-3)Manα1-6(Manα1-3)Manβ) being the best known ligand. The Manα1-6Man motif is preferred over its α1-2 and α1-3 isomers. The affinity for the monosaccharide itself (D-mannose) is weak (lower than 1 mM). Additionally, BP39L recognizes the Lewis b epitope [1].

Ion dependency: no Glycan array data available at www.4glyco.cz

Stability:

Most stable in slightly acidic and neutral buffers. BP39L tends to aggregate in alkaline pH. Avoid buffers with pH below 4 and above 9. Adding sodium azide (0.02%) is recommended to avoid microbial growth.

T_m = 74 °C (DSC, 20 mM Tris, 150 mM NaCl, pH 7.5)

Applications and biological effects:

BP39L lectin can be used to detect oligo-mannosylated structures on proteins, cells, and tissues in lectin blotting, fluorescence microscopy, flow cytometry, or lectin histochemistry experiments. Also, it can be used to isolate oligo-mannosylated species using, for example, lectin affinity chromatography.

References:

1. Sýkorová *et al*, *Int J Biol Macromol*, 2020, doi: 10.1016/j.ijbiomac.2019.10.200

Guidelines for reconstitution of the lyophilized product

Wear protective gloves and clothing when handling the product. Respiratory protection should be worn when working with lyophilized lectin.

1. Allow the product to equilibrate to room temperature before opening the vial.
2. The product is offered in different amounts. For 1 mg, we recommend briefly centrifuging the vial and dissolving the whole lyophilisate. For 5 mg and 10 mg products, the desired quantity of freeze-dried protein can be transferred to a clean tube and dissolved there.
3. Add the desired solvent volume (see below for buffer recommendation), and allow the sample to reconstitute in the fridge (2 hours are recommended). If the undissolved particles are observed, let the sample dissolve at room temperature with gentle agitation, or for a prolonged period (overnight) in the fridge. Do not vortex.
4. Centrifuge the sample on a bench-top centrifuge (15 min, max speed) to remove the eventual insoluble material and check the concentration of the reconstituted lectin by measuring the absorbance at 280 nm (e.g., by Nanodrop).

In some instances, it may be challenging to dissolve the lyophilized powders completely, and the reconstitution efficiency may vary for different buffers. Therefore, 4GLYCO provides their customers with the output of testing their lectins in the most common solvents. The data can help customers select the appropriate buffer.

solvent	BP39L dissolved
water (MilliQ)	28 %
20 mM Na acetate, pH 4.5	65 %
20 mM MES, pH 6.0	45 %
20 mM Tris, pH 7.5	55 %
50 mM Na borate, pH 8.5	96 %
20 mM Na acetate, 150 mM NaCl, pH 4.5	44 %
20 mM MES, 150 mM NaCl, pH 6.0	36 %
20 mM Tris, 150 mM NaCl, pH 7.5	29 %
20 mM Hepes, 150 mM NaCl, pH 7.5	21 %
PBS	25 %

The data were obtained by dissolving 0.5 mg of fresh, freeze-dried lectin in 500 µl of the buffers (2 hours, 4 °C), centrifuging, and measuring the lectin concentration in the supernatant spectrophotometrically.

Please note that the data are presented to compare different solvents. The absolute numbers may vary due to various factors.