

Product Information

Leucoagglutinin from *P. vulgaris*, Recombinant

Expressed in *P. pastoris*, Lyophilized Powder, Suitable for Cell Culture

SAE0214

Synonyms: Kidney bean (*Phaseolus vulgaris*) lectin, Phytohemagglutinin-L, PHA-L,

Storage Temperature -20 °C

Product Description

Leucoagglutinin from *P. vulgaris*, also known as Phytohemagglutinin-L (PHA-L), is a lectin purified from red kidney bean, is a high molecular weight glycoprotein composed of galactose, *N*-acetylglucosamine and mannose¹. In general, PHA is a tetramer composed of two types of polypeptide chains called L (leukocyte lectin) and E (erythrocyte lectin), reflecting their preferential binding to erythrocytes and leukocytes, respectively.

The native PHA-L is a tetrameric isomer of phytohemagglutinin purified from the red kidney bean (*Phaseolus vulgaris*) and is a well-known human lymphocyte mitogen promoting *in vitro* T lymphocyte proliferation². PHA-L is still widely used in antiviral treatment of poultry due to its high-efficiency nonspecific immune activation and immune defense function. PHA-L also simultaneously activates the immune system by secreting various interleukins, including interleukin-2, tumor necrosis factor alpha, and interferon-gamma, which were involved in induction of apoptosis of the tumor cells³.

Reagent

This Leucoagglutinin is purified from a recombinant strain of *Pichia pastoris* which expresses the cDNA for PHA-L. The product is supplied as an essentially salt-free, lyophilized protein powder.

Storage/Stability

Store this product at -20 °C (range of -25 °C to -10 °C). The product retains activity for at least 2 years when stored lyophilized at -20 °C.

Precautions and Disclaimer

This product is for R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

Solution of Leucoagglutinin lectin can be prepared by reconstitution of the lyophilized material either in water or PBS.

The resuspended protein solution is stable for 1 week at 2-8 °C.

For longer storage, aliquot the protein solution and store at -20 °C.

Applications

Leucoagglutinin lectin can be used for the following applications:

- Leucoagglutination, see Figure 1
- Induction of Interferon gamma in cell culture, see Figure 2
- Lymphocyte Mitogenicity, see Figure 3
- Binding β 1-6 branched N-glycans

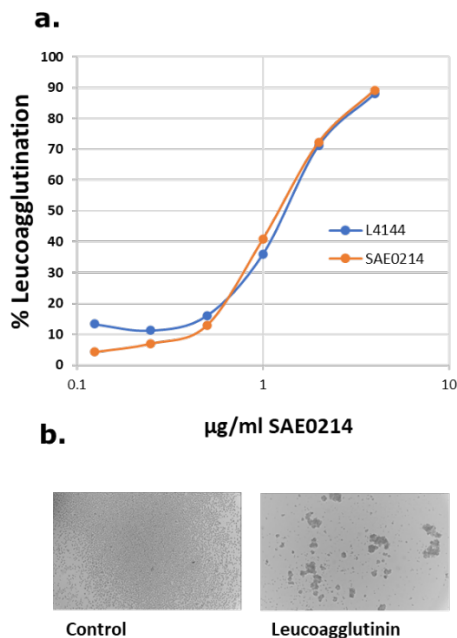


Figure 1: Comparison of leucoagglutination using recombinant PHA-L (SAE0214) and native PHA-L (L4144), performed on cultured CTLL-2 cells. a) Dose response curve. b) Images of leucoagglutination activity.

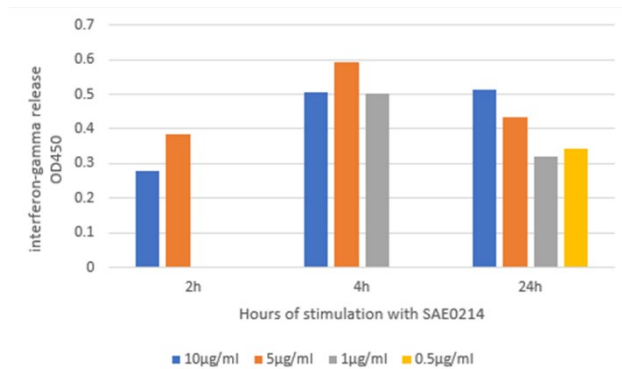


Figure 2: Jurkat cells were stimulated with Leucoagglutinin (SAE0214) with increasing concentrations and time periods. Levels of interferon- gamma (IFN γ) in the cell medium were monitored by ELISA detection.

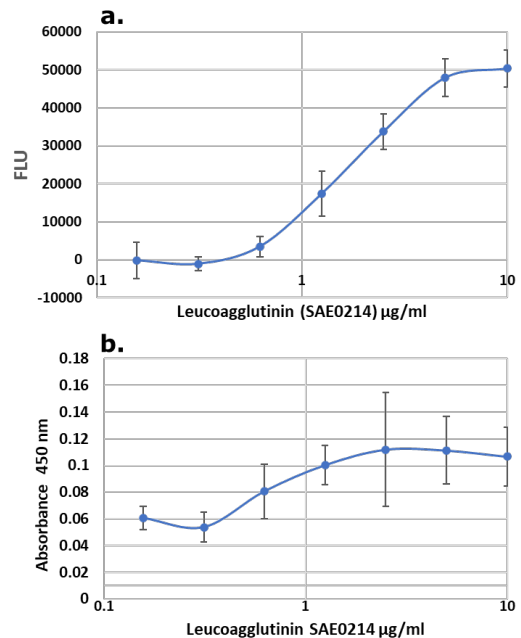


Figure 3: Lymphocyte mitogenicity was demonstrated using D10G4.1 cells. The cells were stimulated increasing concentrations of Leucoagglutinin (SAE0214) for 6 days at 37 °C.

- Cellular viability was assessed using a resazurin based assay.
- DNA synthesis was assessed using a BrdU assay.

References

1. Franz, H. *et al.*, *Acta Histochem.*, **71 (1)**, 19-21 (1982).
2. Goossens, A. *et. al.*, *Eur. J. Biochem.*, **225(3)**, 787-795 (1994).
3. Fang, E. F. *et al.*, *Arch. Toxicol.*, **85(12)**, 1551-1563 (2011).

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For Lectin Selection Guide



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