

## 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 mannose<sup>1</sup>. 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 proliferation<sup>2</sup>. 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 cells<sup>3</sup>.

### 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.

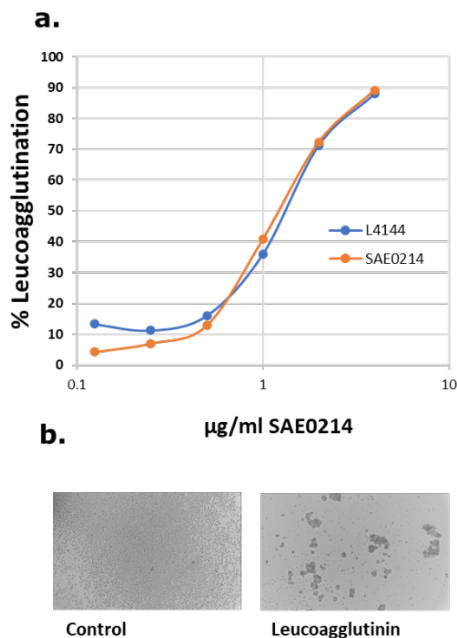
The resuspended protein solution is stable for 1 week at 2-8 °C.

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

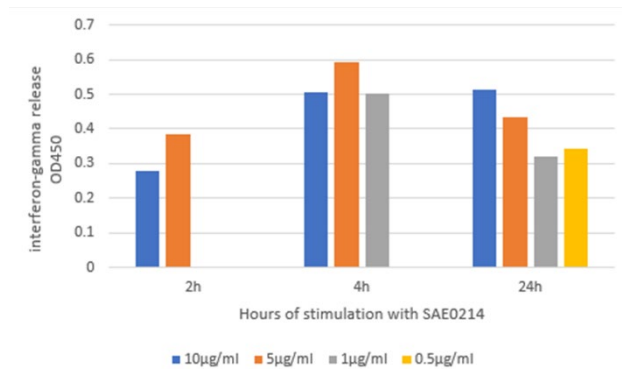
### Applications

Leucoagglutinin lectin can be used for the following applications:

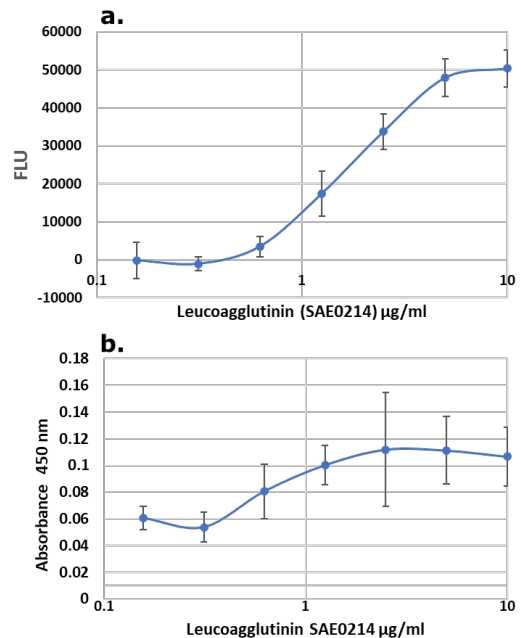
- Leucoagglutination, see Figure 1
- Induction of Interferon gamma in cell culture, see Figure 2
- Lymphocyte Mitogenicity, see Figure 3
- Binding  $\beta$ 1-6 branched N-glycans



**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 $\gamma$ ) 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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SAE0214pis Rev 02/24

