

## Pisum sativum lectin (PSA)



### Features

- Ultrapure quality
- Carbohydrate binding specificity:  $\alpha$ -D-mannose and  $\alpha$ -D-glucose
- Non-specific blood group agglutinin
- Mitogenic activity
- Lyophilized powder

### Product description

*Pisum sativum* lectin or agglutinin (PSA) is isolated from peas and purified by affinity chromatography. The lectin has four subunits and a molecular weight of 49 kDa. PSA agglutinates human erythrocytes but is not blood group specific (1). It displays specificity toward  $\alpha$ -D-mannose and  $\alpha$ -D-glucose (1) and has mitogenic activity similar to Concanavalin A (2).



**Figure 1:** Crystal structure of PSA-D-glucopyranose complex (3)

Medicago's PSA lectin is supplied as a white to cream-coloured lyophilized powder. The purity of PSA is determined by SDS-electrophoresis, which generates two bands at 17 kDa and 5,7 kDa corresponding to the  $\alpha$ - and  $\beta$ -chains that are formed in solution, below pH 5.8 (4). The lectin is available in vials containing 100 mg, 25 mg or 10 mg powder and the product is to be used for laboratory work only.

### Applications

- Agglutination studies
- Model system of how proteins recognize carbohydrates

### Directions for use

The lectin may be reconstituted with 2 ml of PBS buffer before use, spin the vial gently until full dissolution. Aggregation is thought to occur in the presence of high concentrations of 2-mercaptoethanol.

The solution may be reconstituted in this buffer to desired working concentration. In absence of lactose the lectin will polymerize and storage at pH 8.6–8.8 causes precipitation.

### Specifications

Appearance	White to cream-coloured lyophilized powder or flocculate
Source	Peas
Molecular weight	49 kDa
Sugar specificity	$\alpha$ -D-Man and $\alpha$ -D-Glu
Activity	10-100 $\mu$ g/ml lectin is required to agglutinate neuraminidase treated erythrocytes. Agglutinates human erythrocytes; not blood group specific.
Microorganisms	< 100 CFU/g
Protein content	> 85%
Identity & Purity	Phast gel
Shelf life	> Three years when stored at -20°C

### Shipping and storage

The product is shipped at -20°C however for over-the-day transport it may be shipped at ambient temperature. The lyophilized powder is stable for more than three years from production date when stored below -20°C. After reconstitution with deionized water, the solution may be stored frozen in working aliquots for up to 12 months.



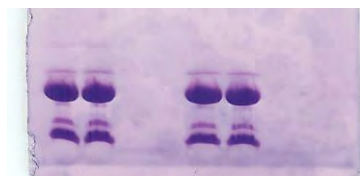
# ABSOLUTE LECTINS

## Tips and hints

Avoid repeated freezing and thawing.

## Certifications

Medicago's laboratories and manufacturing site in Uppsala are ISO 9001:2008 and ISO 13485:2003 certified. Each stage of the manufacturing process is controlled and monitored by stringent quality control procedures to guarantee the highest possible quality and lot-to-lot reproducibility.



$\beta$ -chain 17 kDa  
 $\alpha$ -chain 5,7 kDa

**Figure 2:** SDS-PAGE for PSA lectin, two bands corresponding to  $\beta$ -chain 17 kDa and  $\alpha$ -chain 5,7 kDa one band at 13 kDa.  
Lane 1 and 2: Reference sample lectin  
Lane 3 and 4: Lot-specific sample

## Ordering information

Article no.	Product name	Pack size
A05-0111-100	<i>Pisum sativum</i> lectin	100 mg
A05-0111-25	<i>Pisum sativum</i> lectin	25 mg
A05-0111-10	<i>Pisum sativum</i> lectin	10 mg

## References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) X-ray crystallographic studies of unique cross-linked lattices between four isomeric biantennary oligosaccharides and soybean agglutinin. Olsen, L.R., Dessen, A., Gupta, D., Sabesan, S., Sacchetti, J.C., Brewer, C.F. (1997) *Biochemistry* 36: 15073–80.
- (3) The structure of Pea Lectin-D-Glucopyranose Complex at a 1.9 Å Resolution. Pletnev, V.Z., Ruzhenikov, S.N., Tsygannik, I.N., Mikhailova Yu, I., Duax, W., Ghosh, D., Pangborn, W. (1997) *Russ.J.Bioorganic Chem.* 23:469.