

# ABSOLUTE LECTINS

## 05-0104 - Lens culinaris lectin (LCA/LcH)



### Benefits

- Ultrapure quality
- Sugar specificity:  $\alpha$ -D-mannose and  $\alpha$ -D-glucose
- Haemagglutinating activity
- Lyophilized powder

### Product description

Lens culinaris lectin or agglutinin (LCA) is isolated from *Lens culinaris* (lentil) seeds and purified by affinity chromatography. The lectin has two subunits and a molecular weight of 46 kDa (1) and it forms a complex together with sucrose (Figure 1).

Lectins are, due to their specific binding to carbohydrate structures on the cell surface or elsewhere useful in haematology, immunology or as specific markers for membrane glycoprotein structures (2). LCA's carbohydrate specificity is D-mannose and D-glucose and the two isomers LCA-A and LCA-B agglutinates human red blood cells, although this reaction is not blood group specific. LCA is also a useful component in affinity chromatography columns for the separation of glycoconjugates (3).

Medicago's Lens culinaris lectin is supplied as a white lyophilized powder from 1 mM CaCl<sub>2</sub>, 1 mM MnCl<sub>2</sub> and 1 mM MgCl<sub>2</sub>. No preservatives are added. In isoelectric focusing, the lectin generates two major bands at pI 8.15, 8.45 and one minor band at pI 8.65. The activity of the lectin is determined by haemagglutination with human blood. Lens culinaris lectin agglutinates a 2% suspension of human erythrocytes at a lectin concentration of  $\leq 8$   $\mu$ g/ml

in 0.9% saline solution (NaCl) after 2h at 25°C.

Adding 60 mM methylmannoside yields an inhibition with a lectin titer that is at least 16-fold weaker than the control. Addition of Mn<sup>2+</sup> and Ca<sup>2+</sup> to the reconstitution buffer will enhance hemagglutination activity (1).

### Applications

- Haemagglutination studies
- Cell agglutination studies
- Component in affinity columns
- Separation of glycoconjugates



Figure 1: Crystal structure of Lens culinaris lectin complexed with sucrose (2)

| Specifications    | <i>Lens culinaris lectin (LCA/LcH) (05-0104)</i>   |
|-------------------|--|
| Appearance        | White lyophilized powder or flocculate   |
| Source            | Lentil seeds   |
| Molecular weight  | 46 kDa   |
| Sugar specificity | $\alpha$ -D-mannose and $\alpha$ -D-glucose  |
| Activity          | Agglutinates human erythrocytes in a 2 % blood suspension with lectin concentration $\leq 8$ $\mu$ g/ml in 0.9% NaCl after 2 h at 25°C |
| Microorganisms    | $\leq 100$ CFU/g   |
| Shelf life        | $\geq$ Three years when stored at -20°C  |

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### Directions for use

Medicago's Lens culinaris lyophilized lectin may be reconstituted with 2 ml of deionized water before use, spin the vial gently until full dissolution. Aggregation is thought to occur in the presence of high concentrations of 2-mercaptoethanol.

### Tips and hints

Avoid repeated freezing and thawing.

### 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.

### Certifications

Medicago's laboratories and manufacturing site in Uppsala are ISO 9001:2015 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.



### Ordering information

| Article no.   | Product name                 | Pack size |
|---------------|------------------------------|-----------|
| 05-0104-10mg  | <i>Lens culinaris lectin</i> | 10 mg     |
| 05-0104-25mg  | <i>Lens culinaris lectin</i> | 25 mg     |
| 05-0104-100mg | <i>Lens culinaris lectin</i> | 100 mg    |
| 05-0104-1g    | <i>Lens culinaris lectin</i> | 1 g       |
| 05-0104-10g   | <i>Lens culinaris lectin</i> | 10 g      |
| 05-0104-100g  | <i>Lens culinaris lectin</i> | 100 g     |

### References

- (1) Liener I. E., Sharon N., Goldstein I. J., (1986) The Lectins – Properties, Functions and Applications in Biology and Medicine.
- (2) The Structure of the Lentil (*Lens culinaris*) Lectin Amino acid sequence determination and prediction of the secondary structure. Andre Foriers S., Evelyne Lebrung, Roland Varnapenbusch, Roeland de Neve, and A. Donny Strosberggy. J. Biol. Chem. 286, No 11: 5550-5560.
- (3) NMR, molecular modeling, and crystallographic studies of lentil lectin-sucrose interaction. Casset, F., Hamelryck, T., Loris, R