

## DESCRIPTION

**Source** *E. coli*-derived human Galectin-1 protein  
Ala2-Asp135  
Accession # P09382.2

**N-terminal Sequence Analysis** Ala2

**Predicted Molecular Mass** 15 kDa

## SPECIFICATIONS

**SDS-PAGE** 11-14 kDa, under reducing conditions.

**Activity** Measured by its ability to agglutinate human red blood cells. Hadari, Y.R. *et al.* (2000) *J. Cell Sci.* **113**:2385. The ED<sub>50</sub> for this effect is 0.5-3 µg/mL.

**Endotoxin Level** <0.10 EU per 1 µg of the protein by the LAL method.

**Purity** >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

**Formulation** Lyophilized from a 0.2 µm filtered solution in PBS and Betamercaptoethanol. See Certificate of Analysis for details.

## PREPARATION AND STORAGE

**Reconstitution** Reconstitute at 100 µg/mL in sterile PBS.

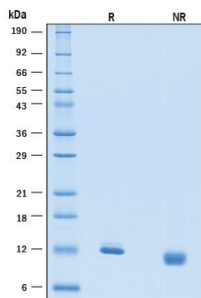
**Shipping** The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

## DATA

### SDS-PAGE



**Recombinant Human Galectin-1 Protein SDS-PAGE.** 2 µg/lane of Recombinant Human Galectin-1 Protein (Catalog # 1152-GA/CF) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 11-14 kDa.

**BACKGROUND**

Galectin-1, gene name LGALS1 (lectin, galactoside-binding, soluble 1), is a 135 amino acid (aa), 14 kDa, pleiotropic, non-glycosylated, monomeric or homodimeric carbohydrate-binding protein of the prototype galectin family (1-3). Galectins lack a classical signal peptide and can be localized to the cytosolic compartments, or secreted via non-classical pathways (1). Secreted Galectin-1 has immunosuppressive and anti-inflammatory properties and suppresses acute and chronic inflammation and autoimmunity. It contributes to negative selection of developing T cells, immunosuppression by regulatory T cells, resolution of the inflammatory response, and inhibition of immune cell migration, inflammatory cytokine production, and mast cell degranulation (1, 2, 4-6). Galectin-1 preferentially binds laminin, fibronectin, 90K/Mac-2BP, CD45, CD43, CD7, CD2, CD3, integrins  $\alpha_4\beta_1$ ,  $\alpha_5\beta_1$  and  $\alpha_4\beta_7$ , and ganglioside GM1 (2, 3). It is produced in a variety of tissues by cells that include endothelial cells, connective tissue fibroblasts, thymic stromal cells, tumor cells, muscle cells, platelets, regulatory T cells, and activated tissue macrophages, B cells, T cells and dendritic cells (2, 3, 6-11). Most of this expression is cytosolic. Human Galectin-1 shares 88% aa sequence identity with mouse, equine and ovine, 90% with rat, and 87% with bovine and porcine Galectin-1. Endothelial cell surface expression, including tumor endothelial cells, is greatly increased by cell activation (9). Galectin-1 is highly expressed at the maternal-fetal interface and contributes to fetal immune privilege (5, 12). Its immunosuppressive properties appear to also allow tumor cells to evade immune detection (4, 5). It selectively controls T cell survival by inducing apoptosis of activated Th1 and Th17 cells, which express Galectin-1-binding glycans, while promoting Th2 cell survival where glycans are sialylated and less recognized (4, 13). It also induces apoptosis of immature thymocytes (3, 6). Galectin-1 secreted from bone marrow stromal cells aids B lymphocyte development by contributing to pre-B cell integrin adhesion and receptor signaling (3). The dimer form of Galectin-1 also induces neutrophil down-regulation by inducing cell surface exposure of phosphatidylserine that marks the cell for phagocytosis (14). Galectin-1 can also modulate cell-cell and cell-matrix interactions, and can promote either cell attachment or detachment depending on the cell type and developmental stage (1, 2).

**References:**

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