Recombinant Mouse Galectin-1

Catalog Number: 1245-GA/CF

DESCRIPTION

Source	*E. coli*-derived Ala2-Glu135 Accession # P16045
N-terminal Sequence Analysis	Ala2
Predicted Molecular Mass	15 kDa

SPECIFICATIONS

Activity	Measured by its ability to agglutinate human red blood cells. Hadari, Y.R. *et al.* (2000) J. Cell Sci. **113**:2385. The ED_{50} for this effect is 1-5 µg/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE under reducing conditions and visualized by silver stain.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS, EDTA and DTT. 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.

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. Mouse Galectin-1 shares 88% aa sequence identity with human, 96% with rat, and 84% with equine, ovine, 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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