Recombinant Human Galectin-4

Catalog Number: 1227-GA/CF

DESCRIPTION

Source	*E. coli*-derived Ala2-Ile323 Accession # P56470
N-terminal Sequence Analysis	Ala2
Predicted Molecular Mass	36 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 2-10 µg/mL. Measured by its binding activity in a functional ELISA. Ideo, H. *et al.* (2005) J. Biol. Chem. **280**:4730. Recombinant Human Galectin-4 can bind Recombinant Human CEACAM-5/CD66e (Catalog # 4128-CM) with an estimated K_d <4nM.
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 HEPES, NaCl, TCEP, PEG and Trehalose. 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

Galectins are a family of carbohydrate-binding proteins with specificity for N-acetyl-lactosamine-containing glycoproteins. At least 14 mammalian galectins share structural similarities in their carbohydrate recognition domains (CRD), forming three groups often termed prototype (one CRD), tandem-repeat (two CRDs) and chimeric (one CRD, unique N-terminus) (1, 2). All lack classical signal peptides, but are present and active both within and outside of the cell. Galectins are involved in cell adhesion, migration, survival and apoptosis, and are often up- or down-regulated in cancer (1 - 3). Galectin-4 is a 36 kDa tandem-repeat galectin found throughout the gastrointestinal tract, but also present in well-differentiated breast and liver carcinomas (3, 4). Each CRD binds a different set of carbohydrate groups, including those found on red cell blood group antigens (3, 5). CRD1 also binds cholesterol 3-sulfate and other sulfatides, which are concentrated within lipid raft membrane microdomains (6, 7). Endocytosed Galectin-4 is thought to play a role in forming the rafts, delivering them to the intestinal apical membrane, and stabilizing highly detergent-resistant "superrafts" (7, 9). Human Galectin-4 shares 76%, 77%, 78% and 80% aa identity with mouse, rat, bovine and porcine Galectin-4, respectively, with the highest identity occurring within the CRDs. A potential splice variant begins at aa 132 and lacks most of the first CRD (10). Galectin-4 expression is concentrated within microvilli in the gastrointestinal epithelium, where it can interact with CD3 and bind activated T cells in the lamina propria during intestinal inflammation (11, 12). Either pro- or anti-inflammatory activity has been shown, depending on the mouse model used. Galectin-4 can also bind lung, spleen and kidney macrophages, although its expression is normally low in these tissues (5).

References:

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