

DESCRIPTION

Source *E. coli*-derived human Galectin-9 protein
Ala2-Thr323
Accession # BAA31542

N-terminal Sequence Analysis Ala2

Structure / Form Monomer

Predicted Molecular Mass 35.8 kDa

SPECIFICATIONS

SDS-PAGE 34 kDa, reducing conditions

Activity Measured by its ability to induce apoptosis of Jurkat human acute T cell leukemia cells. Lu, L.H. *et al.* (2007) *J. Biochem.* **141**:157. The ED₅₀ for this effect is 1-5 µg/mL.

Measured by its binding ability in a functional ELISA. Immobilized Recombinant Human Galectin-9 at 500 ng/mL can bind Recombinant Human TIM-3 Fc Chimera (Catalog # 2365-TM) with an apparent K_d <30 nM.

Endotoxin Level <1.0 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 MOPS, NaCl, EDTA, DTT and Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

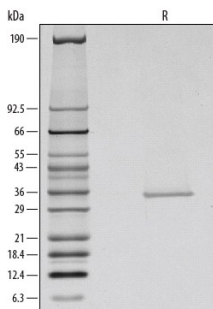
Reconstitution Reconstitute at 100 µg/mL in water.

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

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

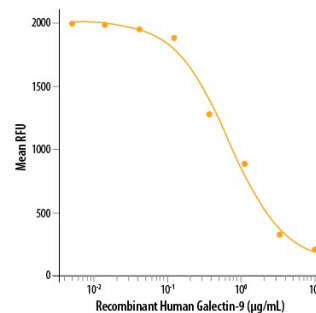
DATA

SDS-PAGE



1 µg/lane of Recombinant Human Galectin-9 was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 34 kDa.

Bioactivity



Recombinant Human Galectin-9 (Catalog # 2045-GA) induces apoptosis of the Jurkat human acute T cell leukemia cell line. The ED₅₀ for this effect is 1-5 µg/mL.

BACKGROUND

Galectins comprise a family of multifunctional 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: prototype (one CRD), tandem-repeat (two CRDs), and chimeric (one CRD, unique N-terminus) (1, 2). Full length Galectin-9 is a widely expressed 39 kDa tandem-repeat Galectin that contains two CRDs connected by a linker region (3). Progressive deletion within the linker region generates a 36 kDa isoform, also known as Ecalectin or UAT, as well as a 35 kDa isoform (4). This recombinant protein corresponds to the Ecalectin isoform of human Galectin-9 and shares 70% and 73% aa sequence identity with the corresponding regions of mouse and rat Galectin-9, respectively. Galectin-9 exhibits a wide range of activities. All three isoforms function as eosinophil chemoattractants (5, 6). This activity is destroyed by thrombin-mediated cleavage within the linker region of the long isoform, although the Ecalectin isoform is resistant to thrombin (7). Galectin-9 binds to carbohydrate moieties of IgE, thereby preventing immune complex formation, mast cell degranulation, and asthmatic and cutaneous anaphylaxis reactions (8). Independent of its lectin properties, Galectin-9 induces the maturation of dendritic cells which promote Th1 polarization (9). Galectin-9 induces cellular apoptosis in part by direct binding to TIM-3 (10, 11). Its interaction with TIM-3 inhibits Th1 cell and CD8⁺ cytotoxic T cell responses and also promotes regulatory T cell differentiation and activity (11, 12). Galectin-9 suppresses tumor cell metastasis by interfering with the associations between hyaluronic acid and CD44 and between VCAM-1 and Integrin $\alpha 4\beta 1$ (13). The Ecalectin isoform (UAT; urate transporter) can also be expressed as an integral membrane protein and mediate the cellular efflux of urate (14).

References:

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