Recombinant Mouse Galectin-9

Catalog Number: 3535-GA

DESCRIPTION

Source	*E. coli*-derived mouse Galectin-9 protein Ala2-Thr322 Accession # NP_001152773
N-terminal Sequence Analysis	Ala2
Predicted Molecular Mass	36.4 kDa

SPECIFICATIONS

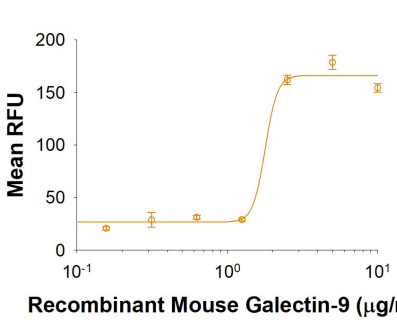
SDS-PAGE	36 kDa, reducing conditions
Activity	Measured by the ability of the immobilized protein to support the adhesion of D10.G4.1 mouse helper T cells. The ED_{50} for this effect is 0.6-3 µg/mL.
Endotoxin Level	<1.0 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
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 sterile, deionized water.
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

Bioactivity



Immobilized Recombinant Mouse Galectin-9 (Catalog # 3535-GA) supports the adhesion of D10.G4.1 mouse helper T cells. The ED_{50} for this effect is 0.6-3 µg/mL.

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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: a prototype group (one CRD), a tandem-repeat group (two CRDs), and a chimeric group (one CRD, unique N-terminus) (1, 2). Full length Galectin-9 is a widely expressed 39 kDa tandem-repeat group Galectin that contains two CRDs connected by a linker region (3). Alternate splicing generates an extended, small intestine-specific isoform with a 31 amino acid insertion in the linker region (3). The standard (or short) isoform of mouse Galectin-9 is orthologous to human galectin-9, which is also known as Ecalectin (4). This isoform shares 70% and 85% aa sequence identity with the corresponding regions of human and rat Galectin-9, respectively. Galectin-9 exhibits a wide range of activities including eosinophil chemoattraction (5-7). This activity is destroyed by thrombin-mediated cleavage within the linker region of the long isoform, although the human Ecalectin isoform is resistant to thrombin (8). Galectin-9 binds to carbohydrate moieties of IgE, thereby preventing immune complex formation, mast cell degranulation, and asthmatic and cutaneous anaphylaxis reactions (9). Independent of its lectin properties, Galectin-9 induces the maturation of dendritic cells which promote Th1 polarization (10). Galectin-9 induces cellular apoptosis in part by direct binding to TIM-3 (11, 12). Its interaction with TIM-3 inhibits Th1 cell and $CD8^+$ cytotoxic T cell responses, while also promoting regulatory T cell differentiation and activity (12, 13). Conversely, Galectin-9 is also reported to bind to a non-TIM3 receptor on both Th1 and Th2 cells, promoting both apoptosis and cytokine secretion, suggesting multiple receptors on T helper cells (14). Galectin-9 suppresses tumor cell metastasis by interfering with the associations between hyaluronic acid and CD44 and between VCAM-1 and Integrin α4β1 (15). Galectin-9, also known as the UAT or urate transporter, can also be expressed as an integral membrane protein in kidney that mediates the cellular efflux of urate (16).

References:

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