PRODUCT INFORMATION

Galectin 9 Short Variant (human, recombinant)

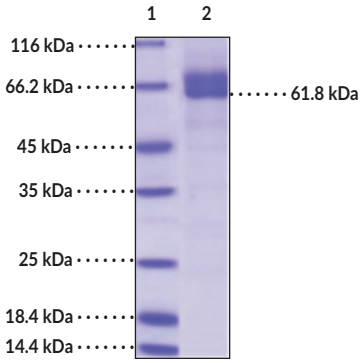
Item No. 32012

Overview and Properties

Synonyms:	Gal-9S, HUAT, Human Urate Transporter, Lectin Galactoside-binding Soluble 9, LGALS9A
Source:	Recombinant N-terminal human IgG1 Fc-tagged galectin 9 expressed in HEK293 cells
Amino Acids:	2-323 (full length)
Molecular Weight:	61.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	< 1.0 EU/µg, determined by the LAL endotoxin assay

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: Galectin 9 Short Variant

SDS-PAGE Analysis of Galectin 9 Short Variant.

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Description

Galectin 9 is a β-galactoside-binding protein encoded by the *LGALS9* gene and a member of the galectin family.[1] It contains two non-identical carbohydrate recognition domains (CRDs) joined by a peptide linker, the length of which depends on alternative splicing of the *LGALS9* gene, which produces a short, medium, or long variant of the protein.[1,2] The non-identical CRDs are responsible for binding to different types of saccharide ligands with the N-terminal CRD (NCRD) preferring more complex glycoconjugates.[1] Galectin 9 is localized to the cytosol, nucleus, and extracellular matrix and is expressed primarily in immune-related tissues and cells.[3] When expressed on immune or tumor cells, galectin 9 binds to glycosylated sites on the immunoregulatory protein TIM-3 and activates signaling that impairs immune synapse formation leading to T cell anergy or apoptosis.[4] It also binds to the transmembrane glycoprotein CD44 on osteoblasts, leading to their proliferation, and it has a role in cell adhesion by preventing hyaluronic acid from binding to CD44.[5] The short variant of galectin 9 acts as an eosinophil chemoattractant.[6] It also activates $CD4^+$ T cell populations and induces naïve T cells to acquire a central memory T cell (T_{CM}) phenotype.[7] Galectin 9 was originally identified as a tumor antigen in patients with Hodgkin's disease.[1] It is expressed to a lower extent in tumor cells compared with non-tumor cells but is increased in leukemia and colon cancer cell lines.[3] Increased expression of the short variant of galectin 9 inhibits or enhances adhesion in breast or colon cancer cell lines, respectively. The expression of the short variant of galectin 9 is increased by interferon γ (IFN-γ) in synovial fibroblasts isolated from patients with rheumatoid arthritis.[8] Cayman's Galectin 9 Short Variant (human, recombinant) protein is a disulfide-linked homodimer. The reduced monomer, comprised of galectin 9 (amino acids 2-323) fused to human IgG1 Fc at its N-terminus, consists of 554 amino acids and has a calculated molecular weight of 61.8 kDa.

References

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2. Chabot, S., Kashio, Y., Seki, M., *et al.* Regulation of galectin-9 expression and release in Jurkat T cell line cells. *Glycobiology* **12(2)**, 111-118 (2002).
3. Heusschen, R., Griffioen, A.W., and Thijssen, V.L. Galectin-9 in tumor biology: A jack of multiple trades. *Biochim. Biophys. Acta* **1836(1)**, 177-185 (2013).
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6. Sato, M., Nishi, N., Shoji, H., *et al.* Functional analysis of the carbohydrate recognition domains and a linker peptide of galectin-9 as to eosinophil chemoattractant activity. *Glycobiology* **12(3)**, 191-197 (2002).
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8. Pearson, M.J., Bik, M.A., Ospelt, C., *et al.* Endogenous galectin-9 suppresses apoptosis in human rheumatoid arthritis synovial fibroblasts. *Sci. Rep.* **8(1)**, 12887 (2018).

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