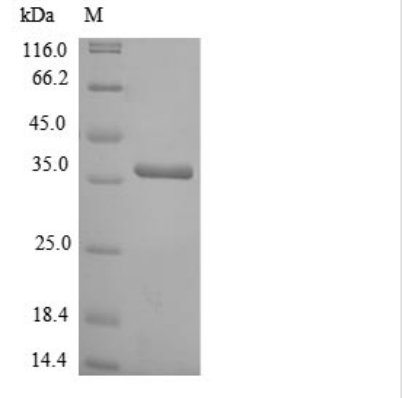
Recombinant Rat Galectin-4 (Lgals4)

Product Code	CSB-EP012889RAe1
Relevance	Galectin that binds lactose and a related range of sugars.
Abbreviation	Recombinant Rat Lgals4 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P38552
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MAYVPAPGYQPTYNPTLPYKRPIPGGLSVGMSIYIQGIAKDNMRRFHVNFAVG QDEGADIAFHFNPRFDGWDKVVFNTMQSGQWGKEEKKKSMPFQKGHHFELV FMVMSEHYKVVVNGTPFYEYGHRLPLQMVTHLQVDGDLELQSINFLGGQPAA SQYPGTMTIPAYPSAGYNPPQMNSLPVMAGPPIFNPPVPYVGTLQGGLTARR TIIIKGYVLPTAKNLIINFKVGSTGDIAFHMNPRIGDCVVRNSYMNGSWGSEERK IPYNPFGAGQFFDLSIRCGTDRFKVFANGQHLFDFSHRFQAFQRVDMLEIKGDI TLSYVQI
Research Area	Others
Source	E.coli
Target Names	Lgals4
Protein Names	L-36 lactose-binding protein Short name: L36LBP Lactose-binding lectin 4
Expression Region	1-324aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	36.3 kDa
Protein Length	Full Length
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Rat Galectin-4 (Lgals4) is produced in an E.coli expression system, containing amino acids 1-324 to create the full-length protein. The product comes tag-free, which appears to preserve its native form, and shows a purity level greater than 85% as confirmed by SDS-PAGE analysis. It's designed for research use only, with what seems to be a focus on precision and quality for various experimental applications.

Galectin-4 is a carbohydrate-binding protein that likely plays a significant role in cell-cell and cell-matrix interactions. Research suggests it's involved in several biological processes, including modulation of immune responses and regulation of cell growth and apoptosis. As a member of the galectin family, this protein may be crucial in research aimed at understanding its function in cellular communication and signaling pathways.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Carbohydrate-Binding Specificity Studies

This recombinant rat galectin-4 works well in glycan array experiments and surface plasmon resonance assays to characterize its carbohydrate-binding specificity and affinity. Scientists can examine how the protein interacts with various β-galactoside-containing oligosaccharides and glycoconjugates to map out its binding preferences. The tag-free design is particularly valuable here - it means binding studies should reflect the native protein's carbohydrate recognition properties without potential interference from affinity tags. These types of studies appear essential for understanding the molecular basis of galectin-4's biological functions and its role in glycobiology research.

2. Antibody Development and Validation

The full-length recombinant rat galectin-4 works as an ideal antigen for generating specific antibodies against this protein. Scientists can use this

purified protein to immunize animals for polyclonal antibody production or as a screening antigen for monoclonal antibody development. The high purity level (>85%) likely ensures consistent and reliable immunization results. The recombinant protein can also validate antibody specificity through ELISA, Western blot, and other immunoassays in galectin-4 research applications.

3. Protein-Protein Interaction Studies

This recombinant galectin-4 proves useful in pull-down assays and co-immunoprecipitation experiments to identify and characterize protein binding partners. Scientists can attach the galectin-4 protein to appropriate matrices to capture interacting proteins from cell lysates or tissue extracts. The tag-free format offers a clear advantage here - it eliminates potential artifacts that might arise from tag-mediated interactions. Such experiments may help clarify the protein networks and signaling pathways involving galectin-4 in various biological processes.

4. Structural and Biophysical Characterization

The purified recombinant rat galectin-4 can support detailed structural studies including X-ray crystallography, NMR spectroscopy, and cryo-electron microscopy experiments. Scientists can investigate the protein's three-dimensional structure, conformational dynamics, and structural changes upon ligand binding. The high purity and tag-free nature appear to make this protein well-suited for biophysical techniques such as dynamic light scattering, analytical ultracentrifugation, and thermal stability assays. These studies provide fundamental insights into the structure-function relationships of galectin-4.

5. Cell-Based Functional Assays

This recombinant galectin-4 can be applied in various cell culture experiments to study its effects on cellular processes such as adhesion, migration, and apoptosis. Scientists can treat cultured cells with the purified protein to investigate dose-dependent responses and examine downstream signaling pathways. The protein also works in cell binding assays to study galectin-4's interaction with cell surface glycoproteins and glycolipids. Such experiments help scientists understand the extracellular functions of galectin-4 in cellular biology and tissue homeostasis.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.