

## RECOMBINANT HUMAN GALECTIN-3

Galectin-3 is a member of the galectin family, encoded by LGALS3 gene, a group of proteins that bind beta-galactoside sugars<sup>1</sup>. Classified on the basis of carbohydrate recognition domains (CRD), there are three types of Galectins: Proto-type galectins, tandem-repeat galectins and chimaera galectins. Galectin-3 is a chimaera type, characterized by having a single CRD and an amino-terminal polypeptide tail region<sup>2</sup>. Ubiquitously expressed in the heart, kidney, blood vessels, and macrophages, it plays a crucial role in various biological processes such as cell adhesion, proliferation, differentiation and apoptosis. Increased Galectin-3 expression has been documented in cardiovascular diseases (CVDs), such as atherosclerosis, acute coronary syndrome (ACS) and heart failure (HF), etc<sup>3</sup>.

Galectin-3 has also been found to be significantly up-regulated in the hypertrophied hearts of patients with aortic stenosis and in the plasma of patients with acute and chronic HF and also as a biomarker for cancer<sup>4</sup>.

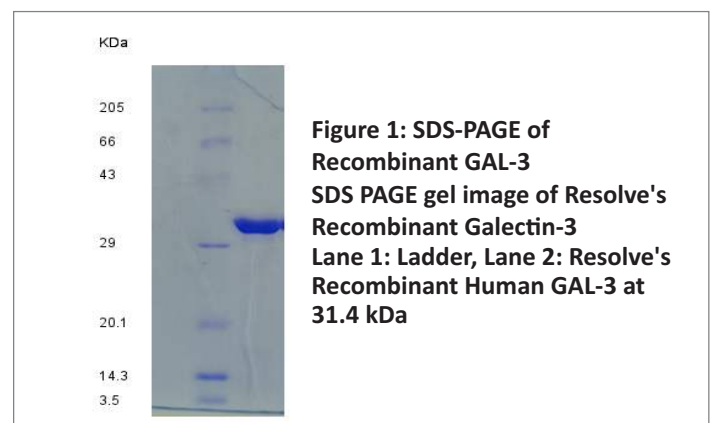


Being a multifunctional protein, Galectin-3 holds diagnostic potential as a biomarker for prediction of heart failure, renal health, cancer prognosis and variety of inflammatory and fibrotic diseases. Recombinant Human Galectin-3 (GAL-3) from Resolve Biotech is a biologically active 31.4 kDa protein (250 aa, His-tag), expressed in *E. coli* and purified through conventional affinity chromatography.

### Technical Specifications

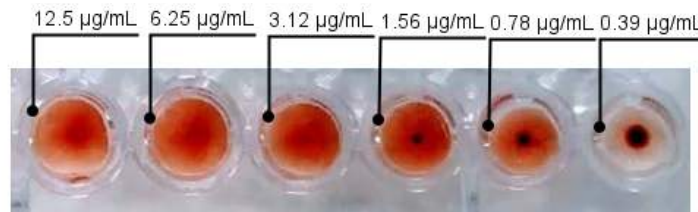
#### A. Purity:

Purity of Resolve's Recombinant Human GAL-3 was analyzed by SDS-PAGE and was found to be >95% pure (Figure 1).



## B. Bioactivity by Haemagglutination assay

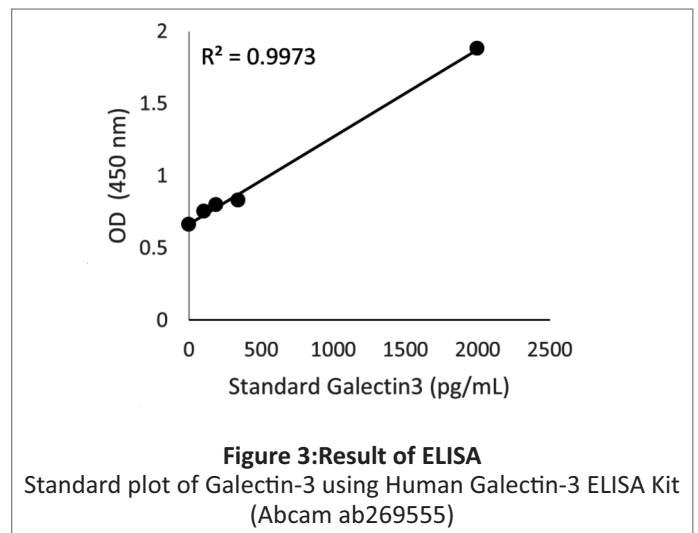
Galectin-3 is capable of haemagglutination of human RBCs by being able to agglutinate trypsinized and glutaraldehyde fixed erythrocytes by cross-linking with glycans present on the cells surface<sup>5,6</sup>. Resolve's Recombinant Human GAL-3 is a biologically active protein and is able to agglutinate erythrocytes with an  $ED_{50} < 10 \mu\text{g/mL}$ .



**Figure 2: Haemagglutination activity of Resolve's Recombinant Human Galectin-3**  
 Varying concentrations of Resolve's Recombinant Human Galectin-3 (0.39–12.5  $\mu\text{g/mL}$ ) were incubated with 4% human erythrocytes in a V-bottom plate. Haemagglutination (diffused red coloration) was observed in a dose-dependent manner with increasing concentration of GAL-3.

## C. Antigenic activity by ELISA

Antigenic activity for Resolve's Recombinant Human GAL-3 was tested by Human Galectin-3 ELISA Kit (LGALS3) - Abcam (ab269555). A sample of Resolve's Recombinant Human GAL-3 (determined as 0.87 mg/mL by total protein estimation) was spiked into FBS and assayed using the ELISA kit. The sample was determined to be 0.69 mg/mL by extrapolating using the ELISA standard curve (Figure 3).



**Figure 3: Result of ELISA**  
 Standard plot of Galectin-3 using Human Galectin-3 ELISA Kit (Abcam ab269555)

## References

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