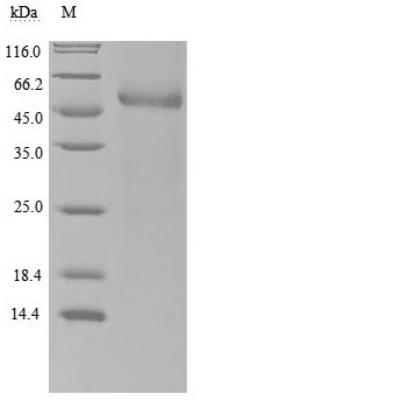
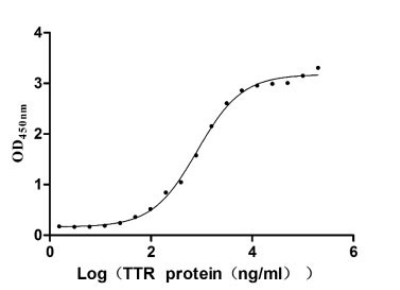
Recombinant Human Retinol-binding protein 4 (RBP4) (Active)

Product Code	CSB-MP019483HU
Abbreviation	Recombinant Human RBP4 protein (Active)
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.	P02753
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered PBS, 6% Trehalose, pH 7.4
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Biological Activity	①Measured by its binding ability in a functional ELISA. Immobilized RBP4 at 5 μg/ml can bind TTR (CSB-MP025270HUh6), the EC_{50} is 695.0-970.1 ng/ml.
Purity	Greater than 90% as determined by SDS-PAGE. Greater than 90% as determined by SEC-HPLC.
Sequence	ERDCRVSSFRVKENFDKARFSGTWYAMAKKDPEGLFLQDNIVAEFSVDETGQ MSATAKGRVRLLNNWDVCADMVGTFTDTEDPAKFKMKYWGVASFLQKGNDD HWIVDTDYDTYAVQYSCRLLNLDGTCADSYSFVFSRDPNGLPPEAQKIVRQR QEELCLARQYRLIVHNGYCDGRSERNLL
Research Area	Cancer
Source	Mammalian cell
Target Names	RBP4
Expression Region	19-201aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	C-terminal hFc1-tagged
Mol. Weight	50.0 kDa
Protein Length	Full Length of Mature Protein
Image	



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



Activity
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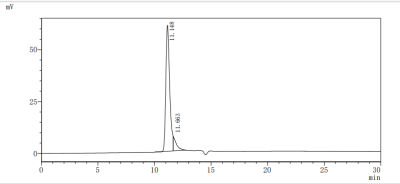

The purity of RBP4 was greater than 90% as determined by SEC-HPLC.

Description

Gene cloning, plasmid construction, protein expression, purification, and analysis are performed to produce the recombinant human RBP4 protein. Primers are designed to amplify the gene sequence encoding the 19-201aa segment of the human RBP4, which is inserted into a plasmid containing the C-terminal hFc-tag gene. After transfecting mammalian cells with the recombinant plasmid, selective antibiotics are used to screen RBP4 protein-expressing cells. The recombinant RBP4 protein is obtained by lysing the cells and purified via affinity chromatography. Its purity exceeds 90% verified by both SDS-PAGE and SEC-HPLC. The LAL test ensures its endotoxin levels are less than 1.0 EU/μg. Functional ELISA demonstrates RBP4's binding to the TTR (CSB-MP025270HUh6) with an EC_{50} of 695.0-970.1 ng/mL.

Human RBP4 is primarily synthesized in the liver and adipose tissues and plays a crucial role in the transport of retinol (vitamin A) in the bloodstream. RBP4 binds retinol and facilitates its delivery to various tissues, where it is essential for numerous physiological functions, including vision, immune response, and cellular differentiation [1][2][3]. The transport mechanism involves the formation of a complex with transthyretin (TTR), which stabilizes RBP4 and enhances its delivery efficiency to target tissues [4].

In addition to its role as a transport protein, RBP4 has emerged as a significant adipokine, influencing metabolic processes and insulin sensitivity. Elevated

levels of RBP4 have been associated with insulin resistance and type 2 diabetes mellitus [5][6][7]. Studies indicate that RBP4 can impair insulin signaling in skeletal muscle and liver, thereby contributing to the pathophysiology of obesity-related insulin resistance [8][9][10]. Increased RBP4 levels have been linked to reduced expression of glucose transporter type 4 (GLUT4), which is critical for glucose uptake in insulin-sensitive tissues [7][11].

Moreover, RBP4 has been shown to correlate with various components of metabolic syndrome, including obesity, dyslipidemia, and hypertension [12][4]. Patients with type 2 diabetes often have elevated RBP4 levels, which is thought to exacerbate insulin resistance and contribute to the progression of diabetic complications, such as diabetic cardiomyopathy and retinopathy [1][8][13].

References:

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Endotoxin	Less than 1.0 EU/ug as determined by LAL method.
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.