

RBP4 Protein, Mouse, Recombinant (His)

General Information

Synonyms:	Rbp-4;retinol binding protein 4, plasma
Protein Construction:	A DNA sequence encoding the mouse RBP4 (NP_035385.1) (Met 1-Leu 201) was fused with a polyhistidine tag at the C-terminus. Predicted N terminal: Glu 19
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	Q00724
Molecular Weight:	22.8 kDa (predicted); 22.8 kDa (reducing conditions)

QC Testing

Biological Activity:	Measured by its ability to bind alltrans retinoic acid. The binding of retinoic acid results in the quenching of Trp fluorescence in RBP4. The 50% binding concentration (BC50) is >0.5 μ M.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μ m filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:	Reconstituted with sterile deionized water to 0.1 mg/mL. Reconstitution conditions may vary depending on the lot.
Stability & Storage:	It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

Retinol-binding protein 4 (RBP4) is the specific carrier for retinol (also known as vitamin A), and is responsible for the conversion of unstable and insoluble retinol in aqueous solution into stable and soluble complex in plasma through their tight interaction. As a member of the lipocalin superfamily, RBP4 containing a β -barrel structure with a well-defined cavity is secreted from the liver, and in turn delivers retinol from the liver stores to the peripheral tissues. In plasma, the RBP4-retinol complex interacts with transthyretin (TTR), and this binding is crucial for

preventing RBP4 excretion through the kidney glomeruli. RBP4 expressed from an ectopic source efficiently delivers retinol to the eyes, and its deficiency affects night vision largely. Recently, RBP4 as an adipokine, is found to be expressed in adipose tissue and correlated with obesity, insulin resistance (IR) and type 2 diabetes (T2DM).

Reference

Yang Q, et al. (2005) Serum retinol binding protein 4 contributes to insulin resistance in obesity and type 2 diabetes. *Nature*. 436(7049): 356-62.

Choi SH, et al. (2008) High plasma retinol binding protein-4 and low plasma adiponectin concentrations are associated with severity of glucose intolerance in women with previous gestational diabetes mellitus. *J Clin Endocrinol Metab*. 93(8): 3142-8.

Tepper BJ, et al. (2010) Serum retinol-binding protein 4 (RBP4) and retinol in a cohort of borderline obese women with and without gestational diabetes. *Clin Biochem*. 43(3): 320-3.

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