

APA929Ra01 100µg
Active Retinol Binding Protein 4 (RBP4)
Organism Species: *Rattus norvegicus* (Rat)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Prokaryotic expression.

Host: *E. coli*

Residues: Glu19~Leu201

Tags: N-terminal His-tag

Purity: >95%

Endotoxin Level: <1.0EU per 1µg (determined by the LAL method).

Buffer Formulation: PBS, pH7.4, containing 0.01% SKL, 5%Trehalose .

Original Concentration: 200µg/mL

Applications: Cell culture; Activity Assays.

(May be suitable for use in other assays to be determined by the end user.)

Predicted isoelectric point: 6.3

Predicted Molecular Mass: 22.7kDa

Accurate Molecular Mass: 23kDa as determined by SDS-PAGE reducing conditions.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.

Store at 2-8°C for one month.

Aliquot and store at -80°C for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37°C for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

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ER DCRVSSFRVK ENFDKARFSG LWYAIKKDP EGLFLQDNII
AEFSVDEKGH MSATAKGRVR LLSNWEVCAD MVGTFTDTED PAKFKMKYWG
VASFLQRGND DHWIIDTDYD TFALQYSCRL QNLDGTCADS YSFVFSRDPN
GLTPETRRLV RQRQEELCLE RQYRWIEHNG YCQSRPSRNS L
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[ACTIVITY]

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). The activity of recombinant rat RBP4 was measured by its ability to bind all-trans retinoic acid. The binding of retinoic acid results in the quenching of Trp fluorescence in RBP4. RBP4 was diluted to 50 ug/ml in 50 mM Tris, 10 mM CaCl₂, 150 mM NaCl, pH 7.5 (assay buffer) and the retinoic acid was diluted to 800, 400, 200, 100, 30, 10, 3, 1, 0.5 and 0.1 uM in 95% ethanol. Mixing 112.5 μ L of 50 μ g/mL rrRBP4 and 12.5 μ L of retinoic acid serial dilutions in microtubes and a

blank containing 112.5 μL of 50 $\mu\text{g}/\text{mL}$ rrRBP4 and 12.5 μL of 95% ethanol, then incubate at room temperature for 30 minutes. Loading 100 μL of the reaction mixtures and blank and read at excitation and emission wavelengths of 280 nm and 340 nm (top read), respectively, in endpoint mode. The result was shown in figure 1, the 50% binding concentration (BC50) is $>22 \mu\text{M}$.

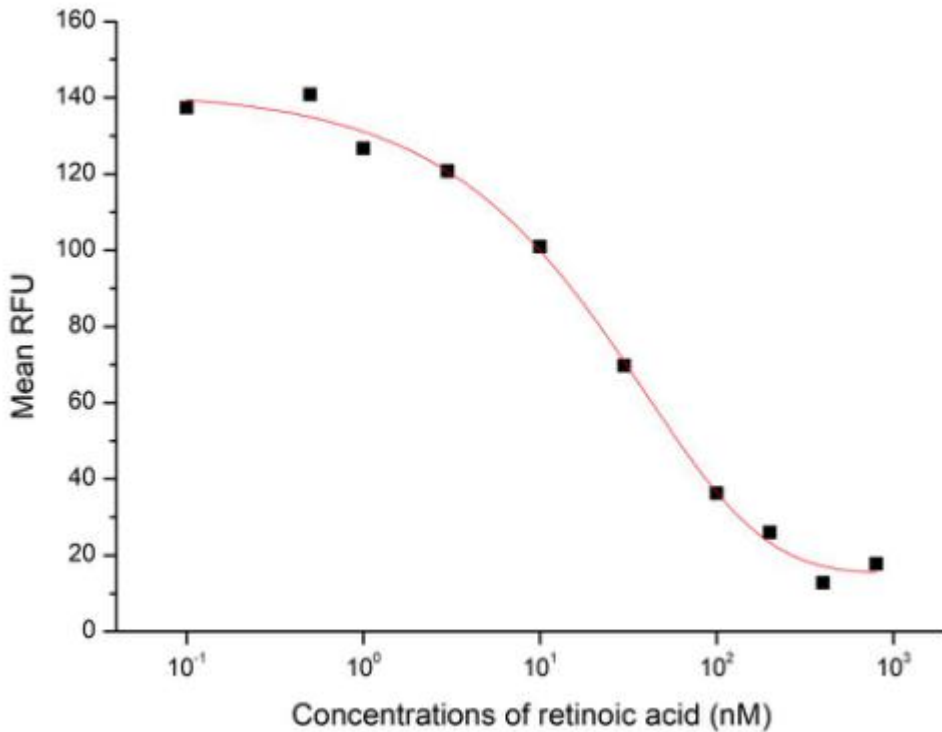


Figure 1 The binding activity of recombinant rat RBP4 with retinoic acid

[**IDENTIFICATION**]

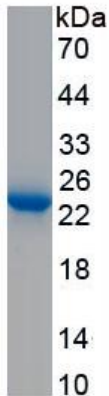


Figure 2. SDS-PAGE

Sample: Active recombinant RBP4, Rat

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.