Retinol Binding Protein 4（RBP4）belongs to the lipocalin family and is the specific carrier for retinol (vitamin A alcohol) in the blood. It delivers retinol from the liver stores to the peripheral tissues. In plasma, the RBP-retinol complex interacts with transthyretin, which prevents its loss by filtration through the kidney glomeruli. A deficiency of vitamin A blocks secretion of the binding protein posttranslationally and results in defective delivery and supply to the epidermal cells.

Retinol-binding protein 4 has recently been described as an adipokine that contributes to insulin resistance in the AG4KO mouse model. It is secreted by adipocytes, and can act as a signal to other cells, when there is a decrease in plasma glucose concentration.Mutations in the RBP4 gene have recently been linked to a form of autosomal dominant microphthalmia, anophthalmia, and coloboma (MAC) disease.

Anti-Human RBP4 Monoclonal Antibody

Mouse anti-Human RBP4 antibody has been derived from the mouse immunized with human RBP4. Mouse Anti-Human RBP4 monoclonal antibody can be used for detection of RBP4 in latex enhanced immune turbidimetry.

Properties	Specification
Target species	Human
Host animal	Mice Balb/c
Cell line used for fusion	Sp2/0
Immunogen	Human Retinol Binding Protein 4
Purification method, Purity	Protein G affinity chromatography, >90%(SDS-PAGE)
Presentation	MAb solution in NaCl with 15 mM NaN_3 (pH 7.2)
Application	LETIA ect.
Catalog Number	CSB-DA002AmN① CSB-DA002AmN②

1 Calibration Curve

RBP4 proteins specifically react with anti-RBP4 monoclonal antibodies precoated onto latex beads to form insoluble complexes, resulting in turbidity increasing, and then the increasing of absorbance is detected by automatic biochemical analyzer. The calibration curve was fitted according to the relationship between absorbance values and RBP4 concentrations (Fig.1).

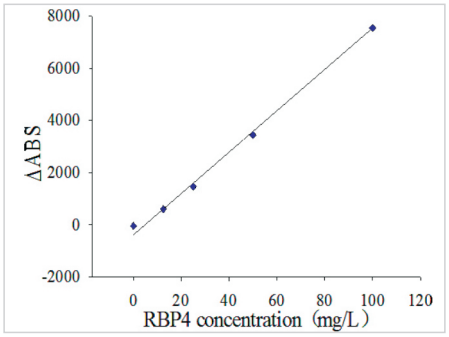

Fig.1 Calibration curve for RBP4 in latex-enhanced turbidimetric immunoassay (LETIA)

2 Linearity

The high-value RBP4 serum was two-fold serially diluted with physiological saline, and measured on our CUSAg LETIA platform. Fig.2 showed that the measured RBP4 concentrations were gradually declined along with the serial dilution of blood samples.

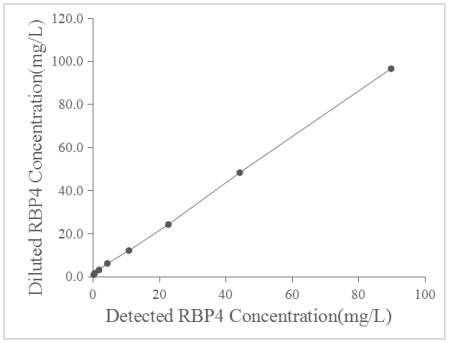

Fig.2 Determination of the RBP4 concentration by serial dilution of clinical serum

3 Accuracy

Two levels of RBP4 blood samples were analyzed in replicates of three using our anti-RBP4 monoclonal antibodies on the CUSAg LETIA platform. Data from this study are summarized in the following table, the relative bias was <1%.

Table 1. Analysis of the accuracy of CUSAg RBP4 assay

	Determined Con.(mg/L)			Mean Con.(mg/L)	Bias (%)
1(15.5 mg/L)	27.4	27.3	27.3	27.3	0.7
2(24.8mg/L)	50	48.6	49.2	49.3	0.4

4 Precision

Blood samples of control low and control high were repeatedly measured 10 times using self-made reagents with CUSAg RBP4 antibody. The CV% of two are all <1%, as shown in table 2.

Table 2. Analysis of the precision of CUSAg RBP4 assay

Control	Mean Conc.(mg/L)	SD	CV(%)
Control low	30.0	0.2	0.7
Control high	73.2	0.1	0.1

5 Stability

Mouse anti-human RBP4 monoclonal antibody was prepared into latex reagents, and then the antibodies were heat-treated at 37°C for 14 days and used to detect RBP4 antigens. Table 3 revealed the detection performance of monoclonal antibodies exposed at 37°C had no significant change compared to that at 4°C. These results showed that the antibody was thermostable.

Table 3. Comparison of detection performances of anti-human RBP4 monoclonal antibodies at 37°C and 4°C for 14 days

RBP4 Concentration (mg/L)	ΔABS (antibodies stored at 4°C for 14 days)	ΔABS (antibodies treated at 37°C for 14 days)	Relative bias (%)
25	964	957	0.7
50	2129	2243	5.4
100	4426	4556	2.9

6 Clinical Comparison

Mouse anti-human RBP4 monoclonal antibody was evaluated in medium-scale clinical tries with blood samples. Fig.3 shows the comparison of the results of RBP4 measurements determined by the self-made reagents with CUSAg RBP4 antibodies and the high-quality comparison kit.

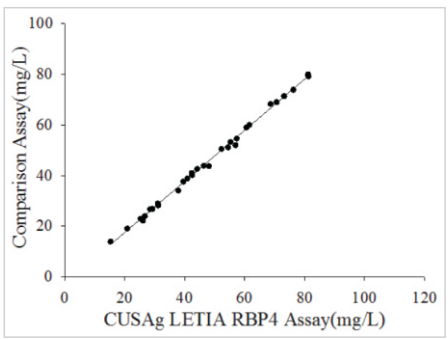

Fig. 3 Determination of serum RBP4 by self-made reagents using CUSAg RBP4 antibody and the high-quality kit

RBP4 Protein

A certain amount of excellent RBP4 protein (Cat : CSB-DP002A) is also offered by CUSAg . It can be used as calibrator in immunoassay.

Reference

1. Impact of family history on relations between insulin resistance, LDL cholesterol and carotid IMT in healthy adults. Heart. 2010.

2. Glucose transport and sensing in the maintenance of glucose homeostasis and metabolic harmony. The Journal of Clinical Investigation. 2006,116 (7): 1767–75.

3. Biochemical Basis for Dominant Inheritance, Variable Penetrance, and Maternal Effects in RBP4 Congenital Eye Disease.Cell. 2015,161 (3): 634–646.

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