# Human Retinol Binding Protein 4 (RBP4)

## 96-Well Plate

## Cat. # EZHRBP4-18K

**HUMAN RETINOL BINDING PROTEIN 4 (RBP4) ELISA KIT**

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**HUMAN RBP4 ELISA KIT**
**96-Well Plate (Cat. # EZHRBP4-18K)**

## I. INTENDED USE

This Human Retinol Binding Protein 4 (RBP4) ELISA kit is used for the non-radioactive quantification of Human RBP4 in serum, plasma, and cell culture samples. One kit is sufficient to measure 38 unknown samples in duplicate.
***This kit is for research purpose only.***

## II. PRINCIPLES OF PROCEDURE

This assay is a Sandwich ELISA based, sequentially, on: 1) capture of Human RBP4 molecules from samples to the wells of a microtiter plate coated with anti-human RBP4 antibody, 2) washing of unbound materials from samples, 3) binding of a second biotinylated anti-human RBP4 antibody to the captured molecules , 4) washing of unbound materials from samples, 5) binding of streptavidin-horseradish peroxidase conjugate to the immobilized biotinylated antibodies, 6) washing of excess of free enzyme conjugates, and 7) quantification of immobilized antibody-enzyme conjugates by monitoring horseradish peroxidase activities in the presence of the substrate 3,3',5,5'-tetramethylbenzidine. The enzyme activity is measured spectrophotometrically by the increased absorbance at 450 nm – 590 nm after acidification of formed products. Since the increase in absorbance is directly proportional to the amount of captured Human RBP4 in the unknown sample, the latter can be derived by interpolation from a reference curve generated in the same assay with reference standards of known concentrations of Human RBP4.

## III. REAGENTS SUPPLIED

Each kit is sufficient to run one 96-well plate and contains the following reagents:

**A. Human RBP4 ELISA Plate**
Coated with Polyclonal anti-Human RBP4 Antibody
Quantity: 1 strip plate
Preparation: Ready to Use
Note: Unused strips should be resealed in the foil pouch with the dessicant provided and stored at 2-8 °C.

**B. Adhesive Plate Sealer**
Quantity: 2 sheets
Preparation: Ready to Use

## III. REAGENTS SUPPLIED (continued)

### C. 10X Concentrate HRP Wash Buffer
10X concentrate of 50 mM Tris Buffered Saline containing Tween-20
Quantity: 2 bottles containing 50 mL each
Preparation: Dilute 1:10 with distilled or deionized water

### D. Human RBP4 Standard
Purified Recombinant Human RBP4, lyophilized
Quantity: 0.5mL upon hydration
Preparation: Reconstitute with 0.5mL distilled or deionized water.

### E. Quality Controls 1 and 2
One vial each, lyophilized, containing recombinant human RBP4 at two different levels.
Quantity: 0.5mL upon hydration
Preparation: Reconstitute each control with 0.5mL distilled or deionized water.

### F. Assay Buffer (Sample Diluent)
0.05M Phosphosaline containing 0.025M EDTA, 0.08% Sodium Azide, 1% BSA
Quantity: 2 bottles containing 40 mL each
Preparation: Ready to Use

### G. Assay Running Buffer
0.05M Phosphosaline containing 0.025M EDTA, 0.08% Sodium Azide, 1% BSA
Quantity: 10 mL
Preparation: Ready to Use

### H. Human RBP4 Detection Antibody
Pre-titered Biotinylated anti-Human RBP4 Antibody
Quantity: 6mL
Preparation: Ready to Use

### I. Enzyme Solution
Pre-titered Streptavidin-Horseradish Peroxidase Conjugate in Buffer
Quantity: 12 mL
Preparation: Ready to Use

### J. Substrate (Light sensitive, avoid unnecessary exposure to light)
3, 3', 5, 5'-tetramethylbenzidine in buffer
Quantity: 12 mL
Preparation: Ready to Use.

### K. Stop Solution (Caution: Corrosive Solution)
0.3 M HCl
Quantity: 12 mL
Preparation: Ready to Use

## IV. STORAGE AND STABILITY

Prior to use, all components in the kit can be stored up to 2 weeks at 2-8°C. For longer storage (> 2 weeks), freeze diluted HRP Wash Buffer, Assay Buffer, and reconstituted RBP4 Standards and Controls at ≤ –20°C. Minimize repeated freeze and thaw of the RBP4 Standards and Quality Controls. Refer to expiration dates on all reagents prior to use. Do not mix reagents from different kits unless they have the same lot numbers.

## V. REAGENT PRECAUTIONS

### A. Sodium Azide

Sodium Azide has been added to certain reagents as a preservative. Although the concentrations are low, Sodium Azide may react with lead and copper plumbing to form highly explosive metal azides. On disposal, flush with a large volume of water to prevent azide build up.

### B. Hydrochloric Acid

Hydrochloric Acid is corrosive and can cause eye and skin burns. It is harmful if swallowed and can cause respiratory and digestive tract burns. Avoid contact with skin and eyes. Do not swallow or ingest.

## VI. MATERIALS REQUIRED BUT NOT PROVIDED

1. Pipettes and Pipette Tips: 10 µL - 20 µL or 20 µL - 100 µL
2. Multi-Channel Pipettes and Pipette Tips: 5 ~ 50 µL and 50 ~ 300 µL
3. Buffer and Reagent Reservoirs
4. Vortex Mixer
5. Deionized Water
6. Microtiter Plate Reader capable of reading absorbency at 450 nm
7. Orbital Microtiter Plate Shaker
8. Absorbent Paper or Cloth

## VII. SAMPLE COLLECTION AND STORAGE

1. To prepare serum samples, whole blood is directly drawn into a centrifuge tube that contains no anti-coagulant. Let blood clot at room temperature for 30 min.

2. Promptly centrifuge the clotted blood at 2,000 to 3,000 x g for 15 minutes at 4 ± 2°C.

3. Transfer and store serum samples in separate tubes. Date and identify each sample.

4. Use freshly prepared serum or aliquot and store samples at ≤ –20°C for later use. For long-term storage, keep at -70 °C. Avoid freeze/thaw cycles.

5. To prepare plasma samples, whole blood should be collected into centrifuge tubes containing enough $K_3$EDTA to achieve a final concentration of 1.735 mg/mL and centrifuged immediately after collection. Observe the same precautions in the preparation of serum samples.

6. If heparin is to be used as an anticoagulant, the effect on the assay outcome at the dose of heparin used should be pre-determined.

7. Avoid using samples with gross hemolysis or lipemia.

## VIII. SAMPLE PREPARATION

1. Allow all the reagents to come to room temperature.

2. Dilute serum or plasma samples 1:2000 in Assay Buffer (AB-P). Recommended dilution: dilute 10 µL of serum or plasma in 390 µL of Assay Buffer (AB-P) for a 1:40 dilution. Mix well and dilute 10 µL of dilution 1 into 490 µL of Assay Buffer (AB-P) for a final 1:2000 dilution. Cellular extract and culture media dilutions will vary.

## IX. STANDARD AND QUALITY CONTROL PREPARATION

### A. Standard Preparation

#### Human RBP4 Standard Preparation

1. Use care in opening the lyophilized Standard vial. Using a pipette, reconstitute the Human RBP4 Standard with 0.5 mL distilled or deionized water to give a concentration described in the analysis sheet. Invert and mix gently, let sit for 5 minutes then vortex gently.

2. Label six tubes 1, 2, 3, 4, 5, and 6. Add 200 µL Assay Buffer (AB-P) to each of the six tubes. Perform 3 time serial dilutions by adding 100 µL of the reconstituted standard to Tube 1, mix well and transfer 100 µL of Tube 1 to Tube 2, mix well and transfer 100 µL of Tube 2 to Tube 3, mix well and transfer 100ul of Tube 3 to Tube 4, mix well and transfer 100 µL of Tube 4 to Tube 5, mix well and transfer 100 µL of Tube 5 to Tube 6 and mix well.

Note: Do not use a Repeater pipette. Change tip for every dilution. Wet tip with Standard before dispensing. Unused portions of standard should be stored at ≤ -20°C. Avoid multiple freeze/thaw cycles.

| Volume of Deionized Water to Add | Volume of Standard to Add | Standard Concentration (ng/mL) |
|---|---|---|
| 0.5 mL | 0 | X (refer to analysis sheet For exact concentration) |

| Tube # | Volume of Assay Buffer (AB-P) to Add | Volume of Standard to Add | Standard Concentration (ng/mL) |
|---|---|---|---|
| Tube 1 | 200 µL | 100ul of reconstituted standard | X/3 |
| Tube 2 | 200 µL | 100 µL of Tube 1 | X/9 |
| Tube 3 | 200 µL | 100 µL of Tube 2 | X/27 |
| Tube 4 | 200 µL | 100 µL of Tube 3 | X/81 |
| Tube 5 | 200 µL | 100 µL of Tube 4 | X/243 |
| Tube 6 | 200 µL | 100 µL of Tube 5 | X/729 |

### B. Human RBP4 Quality Control 1 and 2 Preparation

Use care in opening the lyophilized Quality Control vials. Using a pipette, reconstitute each of the Human RBP4 Quality Control 1 and Quality Control 2 with 0.5 mL distilled or deionized water into the glass vials. Invert and mix gently, let sit for 5 minutes then mix well.

## X. ASSAY PROCEDURE

**Pre-warm all reagents to room temperature prior to setting up the assay.**

1. Dilute the 10X Wash Buffer concentrate 10 fold by mixing the entire content of each bottle of Wash Buffer with 450 mL deionized or distilled water (dilute both bottles with 900 mL deionized water).

2. Remove the required number of strips from the Microtiter Assay Plate. Unused strips should be resealed in the foil pouch and stored at 2-8°C. Assemble the strips in an empty plate holder and wash each well 3 times with 300 µL of 1X HRP wash buffer per wash. Decant wash buffer and remove the residual amount from all wells by inverting the plate and tapping it smartly onto absorbent towels several times. **Do not let wells dry before proceeding to the next step. If an automated machine is used for the assay, follow the manufacturer's instructions for all washing steps described in this protocol.**

3. Add in duplicate 25 µL **Assay Running Buffer (EARB)** to all wells.

4. Add in duplicate additional 25 µL **Assay Running Buffer (EARB)** to blank wells.

5. Add in duplicate 25 µL Human RBP4 Standards in the order of ascending concentration to the appropriate wells. Add in duplicate 25 µL QC1 and 25 µL QC2 to the appropriate wells.

6. Add in sequentially 25 µL of the diluted unknown samples in duplicate to the remaining wells. **For best result all additions should be completed within 30 minutes.**

7. Cover the plate with plate sealer and incubate at room temperature for 1.5 hours on an orbital microtiter plate shaker set to rotate at moderate speed, approximately 400 to 500 rpm.

8. Remove plate sealer and decant solutions from the plate. Tap as before to remove residual solutions in the wells.

9. Wash wells 3 times with 1X Wash Buffer, 300 µl per well per wash. Decant and tap firmly after each wash to remove residual buffer.

10. Add 50 µL of Detection Antibody to each well. Cover plate with sealer and incubate with moderate shaking at room temperature for 1 hour on the microtiter plate shaker.

11. Remove plate sealer and decant solutions from the plate. Tap as before to remove residual solutions in the wells.

12. Wash wells 3 times with 1X Wash Buffer, 300 µL per well per wash. Decant and tap firmly after each wash to remove residual buffer.

## X. ASSAY PROCEDURE (continued)

13. Add 100 µL Enzyme Solution to each well. Cover plate with sealer and incubate with moderate shaking at room temperature for 30 minutes on the microtiter plate shaker.

14. Remove plate sealer and decant solutions from the plate. Tap as before to remove residual solutions in the wells.

15. Wash wells 3 times with 1X Wash Buffer, 300 µL per well per wash. Decant and tap firmly after each wash to remove residual buffer.

16. Add 100 µL of Substrate Solution to each well, cover plate with sealer and shake on the plate shaker for 5 to 20 minutes at room temperature. Blue color should be formed in wells of Human RBP4 standards with intensity proportional to increasing concentrations of Human RBP4.

**Note:** Please be aware that the color may develop more quickly or more slowly than the recommended incubation time depending on the localized room temperature. Please visually monitor the color development to optimize the incubation time.

17. Remove sealer and add 100 µL Stop Solution **[CAUTION: CORROSIVE SOLUTION]** and shake plate by hand to ensure complete mixing of solution in all wells. The blue color should turn to yellow after acidification. Read absorbance at 450 nm and 590 nm in a plate reader within 5 minutes and ensure that there are no air bubbles in any well. Record the difference of absorbance units. The absorbance of highest RBP4 standard should be approximately 2.2-2.8, or not to exceed the capability of the plate reader used.

# Assay Procedure for Human RBP4 ELISA Kit (Cat. # EZHRBP4-18K)

| | Step 1 | Step 2 | Step 3-4 | Step 5-6 | Step 7-9 | Step 10 | Step 11-12 | Step 13 | Step 14-15 | Step 16 | Step 16 | Step 17 | Step 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Well # | **Dilute each bottle of 10X Wash Buffer with 450mL Deionized Water.** | **Wash plate 3X with 300 µl 1X Wash Buffer. Remove residual buffer by tapping smartly on absorbent towels** | Assay Running Buffer | Standards/ Controls/ Samples | **Seal, Agitate, Incubate 1.5 hours at Room Temperature. Wash 3X with 300 µL Wash Buffer** | Detection Antibody | **Seal, Agitate, Incubate 1 hour at Room Temperature. Wash 3X with 300 µL Wash Buffer** | Enzyme Solution | **Seal, Agitate, Incubate 30 minutes at Room Temperature. Wash 3X with 300 µL Wash Buffer** | Substrate | **Seal, Agitate, Incubate 5 - 20 minutes at Room Temperature.** | Stop Solution | **Read Absorbance at 450 nm and 590 nm.** |
| A1, B1 | | | 50 µL | | | 50 µL | | 100 µL | | 100 µL | | 100 µL | |
| C1, D1 | | | 25 µL | 25 µL of Tube 6 | | | | | | | | | |
| E1, F1 | | | 25 µL | 25 µL of Tube 5 | | | | | | | | | |
| G1, H1 | | | 25 µL | 25 µL of Tube 4 | | | | | | | | | |
| A2, B2 | | | 25 µL | 25 µL of Tube 3 | | | | | | | | | |
| C2, D2 | | | 25 µL | 25 µL of Tube 2 | | | | | | | | | |
| E2, F2 | | | 25 µL | 25 µL of Tube 1 | | | | | | | | | |
| G2, H2 | | | 25 µL | 25 µL of reconstituted standard | | | | | | | | | |
| A3, B3 | | | 25 µL | 25 µL of QC 1 | | | | | | | | | |
| C3, D3 | | | 25 µL | 25 µL of QC 2 | | | | | | | | | |
| E3, F3 | | | 25 µL | 25 µL of diluted Sample | | | | | | | | | |
| G3, H3 | | | 25 µL | 25 µL of diluted Sample | | | | | | | | | |
| A4, B4 ↓ | | | 25 µL | 25 µL of diluted Sample | | | | | | | | | |

## XI. MICROTITER PLATE ARRANGEMENT

Human RBP4 ELISA

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | Blank | Tube 3 | QC 1 | Etc. | | | | | | | | |
| B | Blank | Tube 3 | QC 1 | Etc. | | | | | | | | |
| C | Tube 6 | Tube 2 | QC2 | | | | | | | | | |
| D | Tube 6 | Tube 2 | QC2 | | | | | | | | | |
| E | Tube 5 | Tube 1 | Sample | | | | | | | | | |
| F | Tube 5 | Tube 1 | Sample | | | | | | | | | |
| G | Tube 4 | Reconstituted Standard | Sample | | | | | | | | | |
| H | Tube4 | Reconstituted Standard | Sample | | | | | | | | | |

## XII. CALCULATIONS

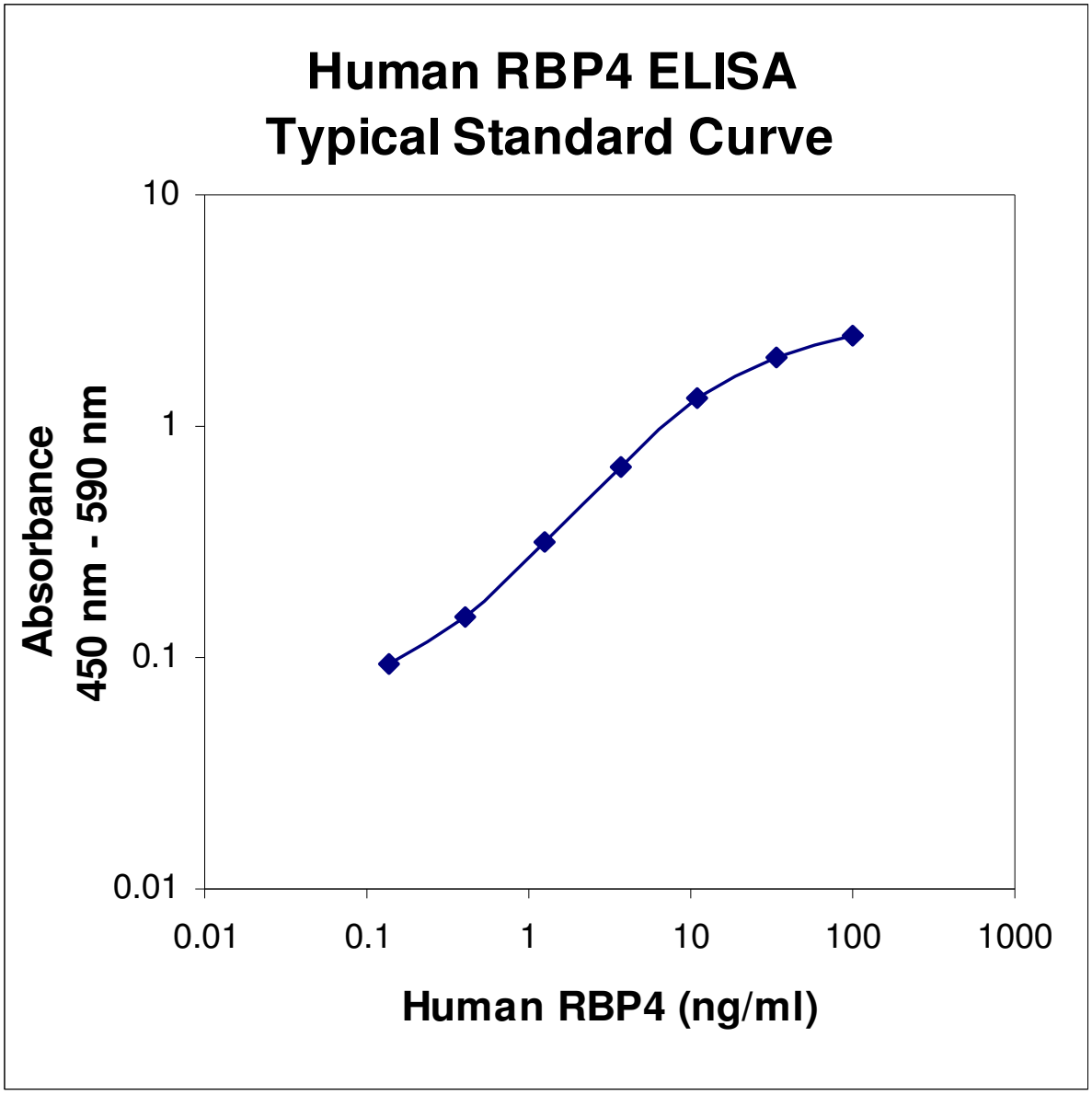
The dose-response curve of this assay fits best to a sigmoidal 4- or 5-parameter logistic equation. The results of unknown samples can be calculated with any computer program having a 4- or 5-parameter logistic function.

**Note:** When sample volumes assayed differ from 25 µL, an appropriate mathematical adjustment must be made to accommodate for the dilution factor (e.g., if 50 µL of sample is used, then calculated data must be divided by 2). When sample volume assayed is less than 25 µL, compensate the volume deficit with assay buffer (AB-P).

## XIII. INTERPRETATION

1. The assay will be considered accepted when all Quality Control values fall within the calculated Quality Control Range. If any QC's fall outside the control range, review results with a supervisor.
2. If the difference between duplicate results of a sample is >15% CV, repeat the sample.
3. The limit of sensitivity of this assay is 0.14 ng/mL Human RBP4 (25 µL sample size).
4. The appropriate range of this assay is 0.14 ng/mL to 100 ng/mL Human RBP4 (25 µL sample size). Any result greater than 100 ng/mL in a 25 µL sample should be diluted using assay buffer (AB-P), and the assay repeated until the results fall within range.

## XIV. STANDARD CURVE




Typical Standard Curve, not to be used to calculate data.

## XV. ASSAY CHARACTERISTICS

### A. Sensitivity

The lowest level of Human RBP4 that can be detected by this assay is 0.14 ng/mL when using a 25 µL sample size.

### B. Specificity

The antibody pair used in this assay is specific to Human RBP4. No species cross-reactivity is observed in the assay to mouse, guinea pig, hamster, or rabbit samples. However, there is a high cross-reactivity to non-human primate, canine, feline, and horse samples. This species cross reactivity has not been evaluated or calibrated.

No cross reactivity is observed to the following human analytes: Total Adiponectin, Resistin, PAI-1 (Total), and PAI-1 (Active).

### C. Precision

Intra-Assay Variation

| Sample No. | Mean RBP4 Levels (ng/mL) | Intra-Assay% CV |
|---|---|---|
| 1 | 6.44 | 7.75 |
| 2 | 8.93 | 4.30 |
| 3 | 9.77 | 3.77 |
| 4 | 10.65 | 6.46 |
| 5 | 11.7 | 7.41 |

Inter-Assay Variation

| Sample No. | Mean RBP4 Levels (ng/mL) | Inter-Assay % CV |
|---|---|---|
| 1 | 8.45 | 8.06 |
| 2 | 8.78 | 5.87 |
| 3 | 9.58 | 3.34 |
| 4 | 10.99 | 5.27 |
| 5 | 11.28 | 5.90 |

The assay variations of Human RBP4 ELISA kits were studied on five human serum samples with varying concentrations of endogenous RBP4. The mean Intra-Assay variation was calculated from results of 8 replicate determinations in each assay of the indicated samples. The mean Inter-Assay variations of each sample were calculated from results of three separate assays with duplicate samples in each assay.

## XV. ASSAY CHARACTERISTICS (continued)

### D. Recovery

Spike & Recovery of Human RBP4 in Serum

| Sample No. | RBP4 Added ng/mL | Expected ng/mL | Observed ng/mL | % of Recovery |
|---|---|---|---|---|
| 1 | 0 | 5.60 | 5.06 | |
| | 1.56 | 7.16 | 8.10 | 113.13 |
| | 6.25 | 11.85 | 12.90 | 108.86 |
| | 25.00 | 30.60 | 32.70 | 106.86 |
| 2 | 0 | 7.10 | 7.10 | |
| | 1.56 | 8.66 | 8.50 | 98.15 |
| | 6.25 | 13.35 | 12.80 | 95.88 |
| | 25.00 | 32.10 | 31.70 | 98.75 |
| 3 | 0 | 7.70 | 7.70 | |
| | 1.56 | 9.26 | 8.70 | 93.95 |
| | 6.25 | 13.95 | 13.10 | 93.91 |
| | 25.00 | 32.70 | 26.20 | 80.12 |
| 4 | 0 | 8.50 | 8.50 | |
| | 1.56 | 10.06 | 10.00 | 99.40 |
| | 6.25 | 14.75 | 13.90 | 94.24 |
| | 25.00 | 33.50 | 32.00 | 95.52 |
| 5 | 0 | 9.30 | 9.30 | |
| | 1.56 | 10.86 | 10.50 | 96.69 |
| | 6.25 | 15.55 | 14.80 | 95.18 |
| | 25.00 | 34.30 | 33.10 | 96.50 |
| 6 | 0 | 10.2 | 10.20 | |
| | 1.56 | 11.76 | 11.90 | 101.19 |
| | 6.25 | 16.45 | 15.50 | 94.22 |
| | 25.00 | 35.20 | 26.90 | 76.42 |

Varying amounts of Human RBP4 were added to six human serum samples and the RBP4 content was determined in two separate assays. The % of recovery = observed RBP4 concentrations/expected RBP4 concentrations x 100%.

## XV. ASSAY CHARACTERISTICS (continued)

### E. Linearity

Effect of Serum Dilution

| Sample No. | Volume Sampled | Expected ng/mL | Observed ng/mL | % Of Expected |
|---|---|---|---|---|
| 1 | 25µL | 5.70 | 5.70 | 100 |
| | 12.5µL | 2.85 | 3.30 | 115.79 |
| | 6.25µL | 1.423 | 1.60 | 112.28 |
| 2 | 25µL | 6.30 | 6.30 | 100 |
| | 12.5µL | 3.15 | 3.20 | 101.59 |
| | 6.25µL | 1.58 | | |
| 3 | 25µL | 6.50 | 6.50 | 100 |
| | 12.5µL | 3.25 | 4.10 | 126.15 |
| | 6.25µL | 1.63 | 2.20 | 135.38 |
| 4 | 25µL | 7.80 | 7.8 | 100 |
| | 12.5µL | 3.90 | 5.2 | 133.33 |
| | 6.25µL | 1.96 | 2.5 | 128.21 |
| 5 | 25µL | 8.90 | 8.9 | 100 |
| | 12.5µL | 4.45 | 5.2 | 116.85 |
| | 6.25µL | 2.23 | 2.7 | 121.35 |
| 6 | 25µL | 9.4 | 9.4 | 100 |
| | 12.5µL | 4.70 | 5.1 | 108.51 |
| | 6.25µL | 2.35 | 2.6 | 110.64 |

Six human serum samples with the indicated sample volumes were assayed in two separate experiments. Required amounts of assay buffer were added to compensate for lost volumes below 25 µL. The resulting dilution factors of 1, 2, and 4 representing 25 µL, 12.5 µL, and 6.25 µL sample volumes assayed, respectively, were applied in the calculation of % expected = observed/expected x 100%.

## XVI. QUALITY CONTROLS

The ranges for Quality Controls 1 and 2 are provided on the card insert or can be located at the Millipore website www.millipore.com .

## XVII. TROUBLESHOOTING GUIDE

1. To obtain reliable and reproducible results the operator should carefully read this manual and fully understand all aspects of each assay step before attempting to run the assay.
2. Throughout the assay the operator should adhere strictly to the procedures with good laboratory practice.
3. Have all necessary reagents and equipment ready on hand before starting. Once the assay has been started all steps should be completed with precise timing and without interruption.
4. Avoid cross contamination of any reagents or samples to be used in the assay.
5. Make sure all reagents and samples are added to the bottom of each well.
6. Careful and complete mixing of solutions in the well is critical. Poor assay precision will result from incomplete mixing or cross well contamination due to inappropriate mixing.
7. Remove any air bubble formed in the well after acidification of substrate solution because bubbles interfere with spectrophotometric readings.
8. Do not let the absorbency reading of the highest standard reach 3.0 units or higher after acidification.
9. High absorbance in background or blank wells could be due to 1) cross well contamination by standard solution or sample or 2) inadequate washing of wells with HRP Wash Buffer or 3) overexposure to light after substrate has been added.

## XVIII. REPLACEMENT REAGENTS

| **Reagents** | **Cat. #** |
|---|---|
| Microtiter Plate | EP18 |
| 10X HRP Wash Buffer Concentrate (50 mL) | EWB-HRP |
| Human RBP4 Standard | E8018-K |
| Quality Controls 1 and 2 | E6018-K |
| Assay Buffer (Sample Diluent) | AB-P |
| Assay Running Buffer | EARB |
| Human RBP4 Detection Antibody | E1018 |
| Enzyme Solution | EHRP |
| Substrate | ESS-TMB2 |
| Stop Solution | ET-TMB |

## XIX. ORDERING INFORMATION

### A. To place an order:

**For USA Customers**:

Please provide the following information to our customer service department to expedite your telephone, fax or mail order:

1. Your name, telephone and/or fax number
2. Customer account number
3. Shipping and billing address
4. Purchase order number
5. Catalog number and description of product
6. Quantity and product size

TELEPHONE ORDERS:
Toll Free US (800) MILLIPORE
FAX ORDERS: (636) 441-8050
MAIL ORDERS: Millipore
6 Research Park Drive
St. Charles, Missouri 63304 U.S.A.

**For International Customers:**

To best serve our international customers, it is Millipore's policy to sell our products through a network of distributors. To place an order or to obtain additional information about Millipore products, please contact your local distributor.

### B. Conditions of Sale

All products are for research or manufacturing use only. They are not intended for use in clinical diagnosis or for administration to human or animals. All products are intended for *in vitro* use only.

### C. Material Safety Data Sheets (MSDS)

Material safety data sheets for Millipore products may be ordered by fax or phone. See Section A above for details on ordering.