



# Rat Albumin ELISA Kit

**Vertrieb:**

**L O X O GmbH** Immunbiologie Biochemie, Produkte und Systeme  
Postfach 11 30 69215 Dossenheim  
**Telefon** +49 (0) 62 21 - 86 80 23 **FAX** +49 (0) 62 21 - 86 80 255  
**E-Mail:** info@loxo.de **Internet:** www.loxo.de

Assaypro LLC  
30 Triad South Drive  
St. Charles, MO 63304  
T (636) 447-9175  
F (636) 447-9475  
[www.assaypro.com](http://www.assaypro.com)

**Hinweis/Note:**

Der Packungsbeileger dient nur als erste Information.  
Der relevante Packungsbeileger liegt der Ware bei.

The datasheet is only a first information.  
The relevant datasheet is included with the product.

For any questions regarding troubleshooting or performing the assay, please contact our support team at [support@assaypro.com](mailto:support@assaypro.com).

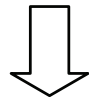
Thank you for choosing Assaypro.

## Assay Summary

Add 50  $\mu$ l of Standard/ Sample per well.  
Incubate 1 hour.



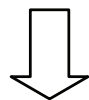
Wash, then add 50  $\mu$ l of  
Biotinylated Antibody per well.  
Incubate 30 minutes.



Wash, then add 50  $\mu$ l of  
SP Conjugate per well.  
Incubate 30 minutes.



Wash, then add 50  $\mu$ l of  
Chromogen Substrate per well.  
Incubate 10 minutes.



Add 50  $\mu$ l of Stop Solution per well.  
Read at 450 nm immediately.





# AssayMax Rat Albumin ELISA Kit

Catalog No. ERA3201-1  
Sample Insert/Reference Only

## Introduction

Albumin, a serum hepatic protein, is the most abundant protein in serum. It contributes to the maintenance of oncotic pressure as well as the transport of hydrophobic molecules (1). Serum albumin level has been linked in clinical practice to several diseases. Low albumin levels can suggest liver disease (2), kidney disease (3), inflammation (4), shock (5), and malnutrition (6). On the other hand, high albumin levels usually reflect dehydration (7).

## Principle of the Assay

The AssayMax Rat Albumin ELISA (Enzyme-Linked Immunosorbent Assay) kit is designed for detection of rat albumin in cell culture samples and urine. This assay employs a quantitative sandwich enzyme immunoassay technique that measures rat albumin in less than 3 hours. A polyclonal antibody specific for rat albumin has been pre-coated onto a 96-well microplate with removable strips. Albumin in standards and samples is sandwiched by the immobilized polyclonal antibody and biotinylated polyclonal antibody specific for rat albumin, which is recognized by a streptavidin-peroxidase conjugate. All unbound material is then washed away and a peroxidase enzyme substrate is added. The color development is stopped and the intensity of the color is measured.

## Caution and Warning

- **Prepare all reagents (working diluent buffer, wash buffer, standards, biotinylated antibody, and SP conjugate) as instructed, prior to running the assay.**
- **Prepare all samples prior to running the assay. The dilution factors for the samples are suggested in this protocol. However, the user should determine the optimal dilution factor.**
- **Spin down the SP conjugate vial and the biotinylated antibody vial before opening and using contents.**
- This kit is for research use only.
- The kit should not be used beyond the expiration date.
- The Stop Solution is an acidic solution.

## Reagents

- **Rat Albumin Microplate:** A 96-well polystyrene microplate (12 strips of 8 wells) coated with a polyclonal antibody against rat albumin.
- **Sealing Tapes:** Each kit contains 3 precut, pressure sensitive sealing tapes that can be cut to fit the format of the individual assay.
- **Rat Albumin Standard:** Rat albumin in a buffered protein base (800 ng, lyophilized).
- **Biotinylated Rat Albumin Antibody (100x):** A 100-fold concentrated biotinylated polyclonal antibody against rat albumin (80  $\mu$ l).
- **MIX Diluent Concentrate (10x):** A 10-fold concentrated buffered protein base (30 ml).
- **Wash Buffer Concentrate (20x):** A 20-fold concentrated buffered surfactant (30 ml, 2 bottles).
- **Streptavidin-Peroxidase Conjugate (SP Conjugate):** A 100-fold concentrate (80  $\mu$ l).
- **Chromogen Substrate:** A ready-to-use stabilized peroxidase chromogen substrate tetramethylbenzidine (8 ml).
- **Stop Solution:** A 0.5 N hydrochloric acid to stop the chromogen substrate reaction (12 ml).

## Storage Condition

- Upon arrival, immediately store components of the kit at recommended temperatures up to the expiration date.
- Store SP Conjugate and Biotinylated Antibody at -20°C.
- Store Microplate, Diluent Concentrate (10x), Wash Buffer, Stop Solution, and Chromogen Substrate at 2-8°C.
- Unused microplate wells may be returned to the foil pouch with the desiccant packs and resealed. May be stored for up to 30 days in a vacuum desiccator.
- Diluent (1x) may be stored for up to 30 days at 2-8°C.
- Store Standard at 2-8°C before reconstituting with Diluent and at -20°C after reconstituting with Diluent.

## Other Supplies Required

- Microplate reader capable of measuring absorbance at 450 nm.
- Pipettes (1-20  $\mu$ l, 20-200  $\mu$ l, 200-1000  $\mu$ l, and multiple channel).
- Deionized or distilled reagent grade water.

## Sample Collection, Preparation and Storage

- **Cell Culture Supernatants:** Centrifuge cell culture media at 3000 x *g* for 10 minutes to remove debris. Collect supernatants and assay. Store samples at -20°C or below. Avoid repeated freeze-thaw cycles.
- **Urine:** Collect urine using sample pot. Centrifuge samples at 800 x *g* for 10 minutes. Dilute samples 1:800 into MIX Diluent and assay. The undiluted samples can be stored at -20°C or below for up to 3 months. Avoid repeated freeze-thaw cycles.

## Reagent Preparation

- Freshly dilute all reagents and bring all reagents to room temperature before use.
- **MIX Diluent Concentrate (10x):** If crystals have formed in the concentrate, mix gently until the crystals have completely dissolved. Dilute the MIX Diluent Concentrate 1:10 with reagent grade water. Store for up to 30 days at 2-8°C.
- **Standard Curve:** Reconstitute the 800 ng of Rat Albumin Standard with 4 ml of MIX Diluent to generate a 200 ng/ml standard solution. Allow the standard to sit for 10 minutes with gentle agitation prior to making dilutions. Prepare duplicate or triplicate standard points by serially diluting the standard solution (200 ng/ml) 1:4 with MIX Diluent to produce 50, 12.5, 3.125, and 0.781 ng/ml solutions. MIX Diluent serves as the zero standard (0 ng/ml). Any remaining solution should be frozen at -20°C and used within 30 days.

Standard Point	Dilution	[Rat Albumin] (ng/ml)
P1	Standard (200 ng/ml)	200.0
P2	1 part P1 + 3 parts MIX Diluent	50.00
P3	1 part P2 + 3 parts MIX Diluent	12.50
P4	1 part P3 + 3 parts MIX Diluent	3.125
P5	1 part P4 + 3 parts MIX Diluent	0.781
P6	MIX Diluent	0.000

- **Biotinylated Rat Albumin Antibody (100x):** Spin down the antibody briefly and dilute the desired amount of the antibody 1:100 with MIX Diluent. Any remaining solution should be frozen at -20°C.
- **Wash Buffer Concentrate (20x):** If crystals have formed in the concentrate, mix gently until the crystals have completely dissolved. Dilute the Wash Buffer Concentrate 1:20 with reagent grade water.
- **SP Conjugate (100x):** Spin down the SP Conjugate briefly and dilute the desired amount of the conjugate 1:100 with MIX Diluent. Any remaining solution should be frozen at -20°C.

## Assay Procedure

- Prepare all reagents, standard solutions, and samples as instructed. Bring all reagents to room temperature before use. The assay is performed at room temperature (20-25°C).
- Remove excess microplate strips from the plate frame and return them immediately to the foil pouch with desiccants inside. Reseal the pouch securely to minimize exposure to water vapor and store in a vacuum desiccator.
- Add 50 µl of Rat Albumin Standard or sample per well. Cover wells with a sealing tape and incubate for 1 hour. Start the timer after the last addition.
- Wash five times with 200 µl of Wash Buffer manually. Invert the plate each time and decant the contents; hit 4-5 times on absorbent material to completely remove the liquid. If using a machine, wash six times with 300 µl of Wash Buffer and then invert the plate, decanting the contents; hit 4-5 times on absorbent material to completely remove the liquid.
- Add 50 µl of Biotinylated Rat Albumin Antibody to each well and incubate for 30 minutes.
- Wash the microplate as described above.
- Add 50 µl of Streptavidin-Peroxidase Conjugate to each well and incubate for 30 minutes. Turn on the microplate reader and set up the program in advance.
- Wash the microplate as described above.
- Add 50 µl of Chromogen Substrate per well and incubate for about 10 minutes or till the optimal blue color density develops. Gently tap plate to ensure thorough mixing and break the bubbles in the well with pipette tip.
- Add 50 µl of Stop Solution to each well. The color will change from blue to yellow.
- Read the absorbance on a microplate reader at a wavelength of 450 nm **immediately**. If wavelength correction is available, subtract readings at 570 nm from those at 450 nm to correct optical imperfections. Otherwise, read the plate at 450 nm only. Please note that some unstable black particles may be generated at high concentration points after stopping the reaction for about 10 minutes, which will reduce the readings.

## Data Analysis

- Calculate the mean value of the duplicate or triplicate readings for each standard and sample.
- To generate a standard curve, plot the graph using the standard concentrations on the x-axis and the corresponding mean 450 nm

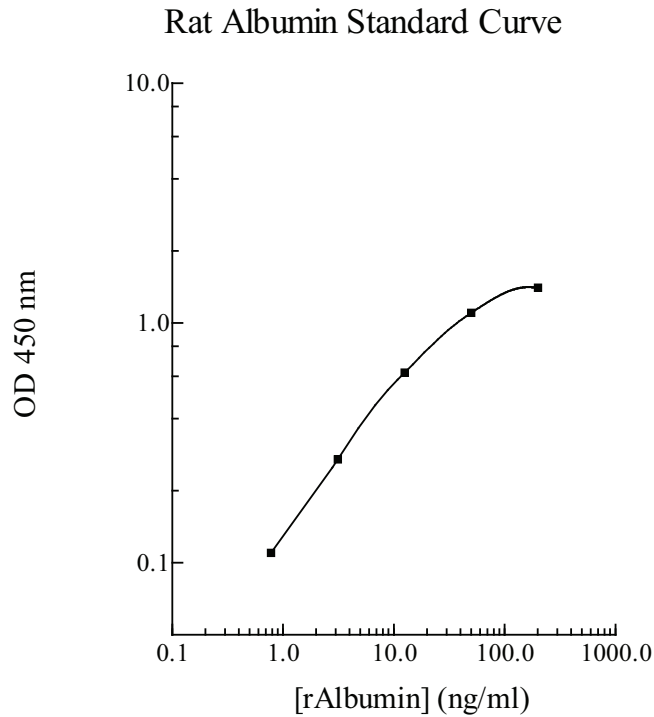


absorbance on the y-axis. The best-fit line can be determined by regression analysis using log-log or four-parameter logistic curve-fit.

- Determine the unknown sample concentration from the Standard Curve and multiply the value by the dilution factor.

## Standard Curve

- The curve is provided for illustration only. A standard curve should be generated each time the assay is performed.



## Performance Characteristics

- The minimum detectable dose of rat albumin is typically ~ 0.7 ng/ml.
- Intra-assay and inter-assay coefficients of variation were 4.9% and 7.1% respectively.

## Linearity

Average Percentage of Expected Value	
Sample Dilution	Urine
1:400	91%
1:800	95%
1:1600	102%

## Recovery

<b>Standard Added Value</b>	3 – 50 ng/ml
<b>Recovery %</b>	88 – 113%
<b>Average Recovery %</b>	96%

## Cross Reactivity

<b>Species</b>	<b>% Cross Reactivity</b>
Bovine	None
Human	None
Mouse	5%
Swine	None
Canine	None
Monkey	None
Rat	100%
Rabbit	None

## References

- (1) Gekle M. (2004) *Ann. Rev. Physiol.*
- (2) Schindler C *et al.* (1999) *J. Hepatol.* 31(6): 1132
- (3) Hemmeler MH *et al.* (1997) *Nephro.l Dial. Transplant* 12 Suppl 2:57-62
- (4) Sesnilo G *et al.* (2004) *Ann. Intern. Med.* 133(2): 111-22
- (5) Wettstein R *et al.* (2004) *Shock* 2(4): 351-357
- (6) Saito T *et al.* (1991) *Jpn. J. Surg.* 21(4): 402-11
- (7) Strand TA (2004) *Am. J. Clin. Nutr.* 79(3): 451-6

Version 5.2

## Related Products

- EA2201-1 AssayMax Human Albumin ELISA Kit (Plasma and Serum samples)
- EA3201-1 AssayMax Human Albumin ELISA Kit (Urine, Saliva, Milk, and Cell Culture samples)
- EMA2201-1 AssayMax Mouse Albumin ELISA Kit (Plasma and Serum samples)
- EMA3201-1 AssayMax Mouse Albumin ELISA Kit (Urine and Cell Culture samples)
- ERA2201-1 AssayMax Rat Albumin ELISA Kit (Plasma and Serum samples)
- ETA2202-1 AssayMax Rabbit Albumin ELISA Kit (Plasma, Serum, Urine, and Cell Culture samples)
- EPA3201-1 AssayMax Swine Albumin ELISA Kit (Urine and Cell Culture samples)
- EPA2201-1 AssayMax Swine Albumin ELISA Kit (Plasma and Serum samples)