

## REFERENCES

1. Erb KJ (2007). Eur. J. Immunol. 37 (5): 1170–3.
2. Pfister K, et al. (1983). "IgE production in rat fascioliasis". Parasite Immunol. 5 (6): 587–93.
3. Gould HJ, et al. (2003). Annu. Rev. Immunol. 21: 579–628.
4. Winter WE, et al. (2000). Arch. Pathol. Lab. Med. 124 (9): 1382–5.
5. Karagiannis SN, et al. (2003). Eur. J. Immunol. 33 (4): 1030–40.
6. Elkayam O, et al. (1995). Allergy 50 (1): 94–6.

## Mouse IgE Immunoassay

Catalog Number:SEKM-0345

For the quantitative determination of mouse IgE concentrations in cell culture supernates, serum, and plasma.

For research use only. Not for use in diagnostic procedures.

Country | Company: China | Beijing Solarbio Science & Technology Co.,Ltd  
Address:NO.85A, Liandong U Valley, Tongzhou District, Beijing, P.R.China.  
Tel: 86-10-56371241 Fax: 86-10-56371282 E-mail: [service@solarbio.com](mailto:service@solarbio.com)

## TABLE OF CONTENTS

SECTION	PAGE
BACKGROUND.....	01
PRINCIPLE OF THE ASSAY.....	01
TECHNICAL HINTS AND LIMITATIONS.....	02
PRECAUTIONS.....	02
KIT COMPONENTS& STORAGE CONDITIONS.....	03
OTHER SUPPLIES REQUIRED BUT NOT SUPPLIED.....	04
SPECIMEN COLLECTION & STORAGE.....	04
REAGENTS PREPARATION.....	04
ASSAY PROCEDURE.....	06
CALCULATION OF RESULTS.....	06
PERFORMANCE CHARACTERISTICS.....	08
REFERENCES.....	10

**LINEARITY:**To assess the linearity of the assay, three samples were spiked with high concentrations of IgE in various matrices and diluted with the appropriate Sample Diluent to produce samples with values within the dynamic range of the assay. (The plasma samples were initially diluted 1:1)

Typical data using the IgE ELISA

Dilution ratio	Recovery(%)	Citrate plasma	Cell culture supernatants
1:2	Average% of Expected	89	95
	Range(%)	83-93	88-103
1:4	Average% of Expected	99	101
	Range(%)	93-105	92-110
1:8	Average% of Expected	103	102
	Range(%)	92-108	91-113
1:16	Average% of Expected	102	106
	Range(%)	95-110	95-112

**Performance Characteristics**

**SENSITIVITY:** The minimum detectable dose was 39 pg/ml.

**SPECIFICITY:** This assay recognizes both natural and recombinant mouse IgE. The factors listed below were prepared at 100ng/ml in Standard /sample Diluent and assayed for cross-reactivity and no significant cross-reactivity or interference was observed.

Factors assayed for cross-reactivity

Recombinant human	Recombinant mouse	Recombinant porcine
IL-2		
IL-4		
IL-5		
IL-6		
IL-8		
IL-10		
TNF-a		

**REPEATABILITY:** The coefficient of variation of both intra-assay and inter-assay were less than 10%.

**RECOVERY:** The recovery of IgE spiked to three different levels in four samples throughout the range of the assay in various matrices was evaluated.

Sample Type	Average % of Expected Range(%)	Range(%)
Citrate plasma	90	86-96
Cell culture supernatants	102	95-110

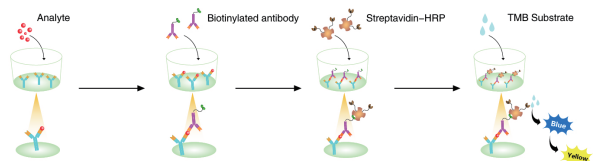
**BACKGROUND**

Immunoglobulin E (IgE) is a kind of antibody (or immunoglobulin (Ig "isotype")) that has only been found in mammals. IgE's main function is immunity to parasites such as helminths like *Schistosoma mansoni*, *Trichinella spiralis*, and *Fasciola hepatica*. IgE is utilized during immune defense against certain protozoan parasites such as *Plasmodium falciparum*. IgE also has an essential role in type I hypersensitivity, which manifests various allergic diseases, such as allergic asthma, most types of sinusitis, allergic rhinitis, food allergies, and specific types of chronic urticaria and atopic dermatitis. IgE also plays a pivotal role in responses to allergens, such as: anaphylactic drugs, bee stings, and antigen preparations used in desensitization immunotherapy.

**PRINCIPLE OF THE ASSAY**

This assay employs the quantitative sandwich enzyme immunoassay technique. A monoclonal antibody specific for IgE has been pre-coated onto a microplate. Standards and samples are pipetted into the wells and any IgE present is captured by the coated antibody after incubation. Following extensive washing, a biotin-conjugate antibody specific for IgE is added to detect the captured IgE protein in sample. For signal development, horseradish peroxidase (HRP)-conjugated Streptavidin is added, followed by Tetramethyl-benzidine (TMB) reagent. Following a wash to remove any unbound combination, and enzyme conjugate is added to the wells. Solution containing sulfuric acid is used to stop color development and the color intensity which is proportional to the quantity of bound protein is measurable at 450nm.

## DESCRIPTION



## TECHNICAL HINTS AND LIMITATIONS

1. This Solarbio ELISA should not be used beyond the expiration data on the kit label.
2. To avoid cross-contamination, use a fresh reagent reservoir and pipette tips for each step.
3. To ensure accurate results, some details, such as technique, plasticware and water sources should be emphasized.
4. A thorough and consistent wash technique is essential for proper assay performance.
5. A standard curve should be generated for each set of samples assayed.
6. It is recommended that all standards and samples be assayed in duplicate.
7. Avoid microbial contamination of reagents and buffers. Buffers containing protein should be made under aseptic conditions and be prepared fresh daily.
8. In order to ensure the accuracy of the results, the standard curve should be made every time.

## PRECAUTIONS

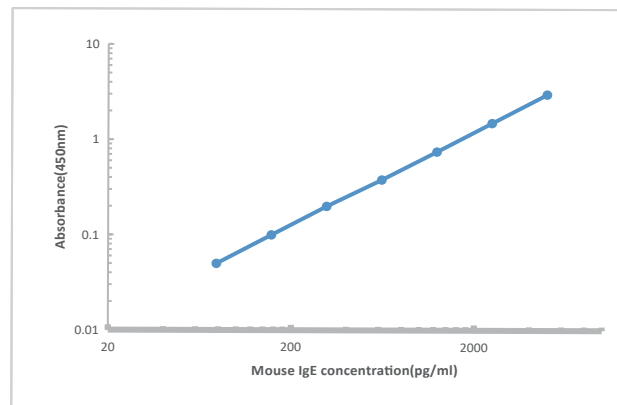
The Stop Solution suggested for use with this kit is an acid solution. Wear protective gloves, clothing, eye, and face protection. Wash hands thoroughly after handling.

## DESCRIPTION

regression analysis. This procedure will produce an adequate but less precise fit of the data. If samples have been diluted, the concentration read from the standard curve must be multiplied by the dilution factor.  
5. This standard curve is provided for demonstration only. A standard curve should be generated for each set of samples assayed.

Typical data using the Mouse IgE ELISA

Standardized (pg/ml)	OD1.	OD2.	Average	Corrected
0	0.048	0.043	0.045	-
78.13	0.172	0.185	0.178	0.133
156.3	0.250	0.269	0.260	0.214
313	0.372	0.400	0.386	0.341
625	0.591	0.635	0.613	0.568
1250	0.960	1.031	0.996	0.950
2500	1.563	1.679	1.621	1.576
5000	2.546	2.736	2.641	2.596



Representative standard curve for Mouse IgE ELISA.

**ASSAY PROCEDURE**

Prepare all reagents and standards as directed, wash the plate 3 times before the assay.



Add 100µl standard or samples to each well, shaking with Micro-oscillator (100r/min) to incubate 120 minutes at room temperature(25±2°C).



Aspirate and wash 4 times

Add 100µl working solution of Biotin-Conjugate anti-Mouse IgE antibody to each well, shaking with Micro-oscillator (100r/min) to incubate 60 minutes at room temperature(25±2°C).



Aspirate and wash 4 times

Add 100µl working solution of Streptavidin-HRP to each well, shaking with Micro-oscillator (100r/min) to incubate 30 minutes at room temperature (25±2°C).



Aspirate and wash 5 times

Add 100µl Substrate solution to each well, incubate 10-30 minutes (depending on signal) at room temperature(25±2°C). Protect from light.



Add 50µl Stop solution to each well. Read at 450nm within 5 minutes.

**CALCULATION OF RESULTS**

1. The standard curve is used to determine the amount of specimens.
2. First, average the duplicate readings for each standard, control, and sample. All O.D. values are subtracted by the mean value of blank control before result interpretation.
3. Construct a standard curve by reducing the data using computer software capable of generating a four parameter logistic (4-PL) curve-fit. As an alternative, construct a standard curve by plotting the mean absorbance for each standard on the y-axis against the concentration on the x-axis and draw a best fit curve through the points on the graph.
4. The data may be linearized by plotting the log of the IgE concentrations versus the log of the O.D. and the best fit line can be determined by

**KIT COMPONENTS & STORAGE CONDITIONS**

PART	SIZE	STORAGE OF OPENED/ RECONSTITUTED MATERIAL
Microwell Plate - antibody coated 96-well Microplate (8 wells x12 strips)	1 plate	Return unused wells to the foil pouch containing the desiccant pack. Reseal along entire edge of the zip-seal. May be stored for up to 1 month at 2 – 8°C**
Standard - lyophilized, 5000 pg/ml upon reconstitution	2 vials	Store at 2-8°C ***for six months
Concentrated Biotin-Conjugated antibody(100X) - 120 µl/vial	1 vial	Store at 2-8°C ***for six months
Concentrated Streptavidin-HRP solution(100X) - 120 µl/vial	1 vial	Store at 2-8°C ***for six months
Standard /sample Diluent - 16 ml/vial	4 bottles	Store at 2-8°C ***for six months
Biotin-Conjugate antibody Diluent - 16 ml/vial	1 bottle	Store at 2-8°C ***for six months
Streptavidin-HRP Diluent - 16 ml/vial	1 bottle	Store at 2-8°C ***for six months
Wash Buffer Concentrate (20x) - 30 ml/vial	1 bottle	Store at 2-8°C ***for six months
Substrate Solution - 12 ml/vial	1 bottle	Store at 2-8°C ***for six months
Stop Solution - 12 ml/vial	1 bottle	Store at 2-8°C ***for six months
Plate Cover Seals	4 pieces	

\*\*Provided this is within the expiration date of the kit.

**OTHER SUPPLIES REQUIRED BUT NOT SUPPLIED**

1. Microplate reader capable of measuring absorbance at 450 nm.
2. Pipettes and pipette tips.
3. Deionized or distilled water.
4. Squirrt bottle, manifold dispenser, or automated microplate washer.
5. 500 mL graduated cylinder.

**SPECIMEN COLLECTION & STORAGE**

**Cell Culture Supernates** - Centrifuge cell culture media at 1000 x g (or 3000rpm) to remove debris. Assay immediately or aliquot and store samples at  $\leq -20$  °C. Avoid repeated freeze-thaw cycles.

**Serum** - Use a serum separator tube (SST) and allow samples to clot for 2 hours at room temperature or overnight at 2-8°C. Centrifuge approximately for 15 minutes at 1000g(or 3000rpm). Assay immediately or aliquot and store samples at  $\leq -20$  °C. Avoid repeated freeze-thaw cycles.

**Plasma** - Collect plasma using EDTA, heparin, or citrate as an anticoagulant. Centrifuge for 15 minutes at 1000 x g (or 3000rpm) within 30 minutes of collection. Assay immediately or aliquot and store samples at  $\leq -20$  °C. Avoid repeated freeze-thaw cycles.

**Note:** It is recommended to conduct a pre-test before the formal experiment to determine the dilution ratio.

**REAGENTS PREPARATION**

1. **Temperature returning** - Bring all kit components and specimen to room temperature(20-25°C) before use.
2. **Wash Buffer** - Dilute 30mL of Wash Buffer Concentrate with 570mL of deionized or distilled water to prepare 600mL of Wash Buffer. If crystals have formed in the concentrate Wash Buffer, warm to room temperature and mix gently until the crystals have completely dissolved.

3. **Standard\Sample** - Reconstitute the Standard with 1mL of Standard/Sample Diluent. This reconstitution produces a stock solution of 5000 pg/mL. Allow the standard to sit for a minimum of 15 minutes with gentle agitation prior to making dilutions. Pipette 500 $\mu$ L of Standard/Sample Diluent into the remaining tubes. Use the high standard to produce a 2-fold dilution series (below). Mix each tube thoroughly(at least 30 seconds) and change pipette tips between each transfer. The 5000 pg/mL standard serves as the high standard. The Standard/Sample Diluent serves as the zero standard (0 pg/mL).

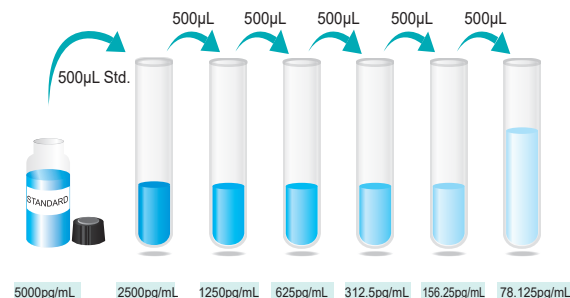
**\*If you do not run out of re-melting standard, store it at -20°C. Diluted standard shall not be reused.**

4. **Working solution of Biotin-Conjugate anti-Mouse IgE antibody:** Make a 1:100 dilution of the concentrated Biotin-Conjugate solution with the Biotin-Conjugate antibody Diluent in a clean plastic tube.

**\*The working solution should be used within one day after dilution.**

5. **Working solution of Streptavidin-HRP:** Make a 1:100 dilution of the concentrated Streptavidin-HRP solution with the Streptavidin-HRP Diluent in a clean plastic tube.

**\*The working solution should be used within one day after dilution.**



Preparation of Mouse IgE standard dilutions