

## REFERENCES:

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Cat#: TI244A (96 Tests)  
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## Immunoglobulin E (IgE) ELISA

Catalog No. TI244A (96 Tests)

### INTENDED USE

The Calbiotech IgE ELISA Kit is intended for the quantitative measurement of IgE in human serum. For research use only.

### SUMMARY AND EXPLANATION

IgE constitutes a fraction of the total antibody in serum 50-300 ng/ml (compared to 10 mg/ml for IgG) and together with its Fc receptor is important in primary immune responses. The immunogenetic mechanisms underlying IgE responsiveness seen in the atopic diseases can be divided into antigen-specific and non-antigen-specific responses. IgE antibodies to common antigens are reported in the serum of 13% of normal blood donors. Autoantibodies to the IgE Fc-*epsilon*-R11 (high affinity receptors) reported in the sera of patients with chronic urticaria, can induce histamine release from mast cells. Patients with atopic allergic diseases such as atopic asthma, atopic dermatitis, and hay fever have been shown to exhibit increased total immunoglobulin E (IgE) levels in blood. IgE is also known as the reaginic antibody. In general, elevated levels of IgE indicate an increased probability of an IgE-mediated hypersensitivity, responsible for allergic reactions. Parasitic infestations such as hookworm, and certain clinical disorders including aspergillosis, have also been demonstrated to cause high levels of IgE. Decreased levels of IgE are found in cases of hypogammaglobulinemia, autoimmune diseases, ulcerative colitis, hepatitis, cancer, and malaria. Cord blood or serum IgE levels may have prognostic value in assessing the risk of future allergic conditions in children. Certain groups of white blood cells, including basophils and tissue mast cells, have membrane receptors for the IgE molecule.

### PRINCIPLE OF THE TEST

The Calbiotech Inc. IgE ELISA kit is a solid phase sandwich assay method, based on a streptavidin-biotin principle. The standards, samples and the biotinylated Anti-IgE antibody reagent are added into designated wells, coated with Streptavidin. Endogenous IgE in the patient's serum binds to the antigenic site of the biotinylated Anti-IgE antibody. Simultaneously, the biotinylated antibody is immobilized onto the wells through the high affinity Streptavidin-Biotin interaction. Unbound protein and excess biotin conjugated antibody are washed off by wash buffer. Upon the addition of the Peroxidase (HRP) conjugated Anti-IgE antibody reagent, a sandwich complex is formed, the analyte of interest being in between the two highly specific antibodies, labeled with Biotin and HRP. Unbound excess enzyme conjugated antibody reagent is washed off by wash buffer. Upon the addition of the substrate, the intensity of color developed is directly proportional to the concentration of IgE in the samples. A standard curve is prepared relating color intensity to the concentration of the IgE.

MATERIALS PROVIDED	96 Tests
1. Microwell coated with Streptavidin	12x8x1
2. IgE Standard: 6 vials ( ready to use)	0.5ml
3. IgE Biotin Conjugate: 1 bottle (ready to use)	12 ml
4. IgE Enzyme Conjugate: 1 bottle (ready to use)	12 ml
5. TMB Substrate: 1 bottle (ready to use)	12ml
6. Stop Solution: 1 bottle (ready to use)	12ml
7. 20X Wash concentrate: 1 bottle	25ml

#### MATERIALS NOT PROVIDED

1. Distilled or deionized water
2. Precision pipettes
3. Disposable pipette tips
4. ELISA reader capable of reading absorbance at 450nm
5. Absorbance paper or paper towel
6. Graph paper

#### STORAGE AND STABILITY

1. Store the kit at 2 - 8° C.
2. Keep microwells sealed in a dry bag with desiccants.
3. The reagents are stable until expiration of the kit.

#### WARNINGS AND PRECAUTIONS

1. Potential biohazardous materials:  
The calibrator and controls contain human source components, which have been tested and found non-reactive for hepatitis B surface antigen as well as HIV antibody with FDA licensed reagents. However, as there is no test method that can offer complete assurance that HIV, Hepatitis B virus or other infectious agents are absent, these reagents should be handled at the Biosafety Level 2, as recommended in the Centers for Disease Control/National Institutes of Health manual, "Biosafety in Microbiological and Biomedical Laboratories." 1984
2. This test kit is designed for research use only.
3. Do not pipette by mouth. Do not smoke, eat, or drink in the areas in which specimens or kit reagents are handled.
4. The components in this kit are intended for use as an integral unit. The components of different lots should not be mixed.
5. It is recommended that serum samples be run in duplicate.
6. Optimal results will be obtained by strict adherence to this protocol. Accurate and precise pipetting, as well as following the exact time and temperature requirements prescribed are essential. Any deviation from this may yield invalid data.

#### SPECIMEN COLLECTION HANDLING

1. Collect blood specimens and separate the serum immediately.
2. Specimens may be stored refrigerated at (2-8°C) for 5 days. If storage time exceeds 5 days, store frozen at (-20° C) for up to one month.
3. Avoid multiple freeze-thaw cycles.
4. Prior to assay, frozen sera should be completely thawed and mixed well.

5. Do not use grossly lipemic specimens.

#### REAGENTS PREPARATION

Prepare 1X Wash buffer by adding the contents of the bottle (25 ml, 20X) to 475 ml of distilled or deionized water. Store at room temperature (18-26° C).

#### ASSAY PROCEDURE

Prior to assay, allow reagents to stand at room temperature.

Gently mix all reagents before use.

1. Place the desired number of coated strips into the holder
2. Pipette 25 µl of IgE standards, controls, and samples in to appropriate wells.
3. Add 100 µl of Biotin Reagent into each well. Shake the plate for (10-30) sec.
4. Cover the plate and incubate for 30 minutes at room temperature (18-26° C).
5. Remove liquid from all wells. Wash wells three times with 300 µl of 1X wash buffer. Blot on absorbance paper or paper towel.
6. Add 100 µl of Enzyme Reagent into each well.
7. Cover the plate and incubate for 30 minutes at room temperature (18-26° C).
8. Remove liquid from all wells. Wash wells three times with 300 µl of 1X wash buffer. Blot on absorbance paper or paper towel.
9. Add 100 µl of TMB substrate to all wells.
10. Incubate for 15 minutes at room temperature.
11. Add 50 µl of stop solution to all wells. Shake the plate gently to mix the solution.
12. Read absorbance on ELISA Reader at 450 nm within 15 minutes after adding the stopping solution.

#### CALCULATION OF RESULTS

The standard curve is constructed as follows:

1. Check IgE standard value on each standard vial. This value might vary from lot to lot. Make sure you check the value on every kit. See example of the standard attached.
2. To construct the standard curve, plot the absorbance for the IgE standards (vertical axis) against its concentration in IU/ml (horizontal axis) on a linear graph paper. Draw the best curve through the points.
3. Use the absorbance for controls and each unknown sample to determine the corresponding concentration of IgE from the standard curve.

#### EXPECTED VALUES

It is recommended that each laboratory establish its own normal ranges based on a representative sampling of the local population. The following values for IgE may be used as initial guideline ranges only:

IgE Normal Range: **MALE** = Less than 250 IU/ml, **FEMALE** = Less than 175 IU/ml

#### LIMITATIONS OF THE TEST

1. Do not use sodium azide as preservative. Sodium azide inhibits HRP enzyme activities.