



Human IgA (total) ELISA Kit

Enzyme Immunoassay for the quantification of Human IgA (total) in serum, plasma, cell culture supernatants

Catalog number: ARG81182

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

TABLE OF CONTENTS

SECTION	Page
INTRODUCTION	3
PRINCIPLE OF THE ASSAY	3
MATERIALS PROVIDED & STORAGE INFORMATION	4
MATERIALS REQUIRED BUT NOT PROVIDED	4
TECHNICAL HINTS AND PRECAUTIONS	5
SAMPLE COLLECTION & STORAGE INFORMATION	5
REAGENT PREPARATION.....	6
ASSAY PROCEDURE	7
CALCULATION OF RESULTS	8
EXAMPLE OF TYPICAL STANDARD CURVE	8
QUALITY ASSURANCE.....	9

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INTRODUCTION

Immunoglobulin A (IgA, also referred to as sIgA (secretory IgA)) is an antibody that plays a crucial role in the immune function of mucous membranes. The amount of IgA produced in association with mucosal membranes is greater than all other types of antibody combined. In absolute terms, between three and five grams are secreted into the intestinal lumen each day. This represents up to 15% of total immunoglobulins produced throughout the body.

IgA has two subclasses (IgA1 and IgA2) and can be produced as a monomeric as well as a dimeric form. The IgA dimeric form is the most prevalent and is also called secretory IgA (sIgA). sIgA is the main immunoglobulin found in mucous secretions, including tears, saliva, sweat, colostrum and secretions from the genitourinary tract, gastrointestinal tract, prostate and respiratory epithelium. It is also found in small amounts in blood. The secretory component of sIgA protects the immunoglobulin from being degraded by proteolytic enzymes, thus sIgA can survive in the harsh gastrointestinal tract environment and provide protection against microbes that multiply in body secretions. sIgA can also inhibit inflammatory effects of other immunoglobulins. IgA is a poor activator of the complement system, and opsonises only weakly. [wikipedia]

PRINCIPLE OF THE ASSAY

This assay employs the quantitative sandwich enzyme immunoassay technique. An antibody specific for IgA (total) has been pre-coated onto a microtiter plate. Standards or samples are pipetted into the wells and any IgA (total) present is bound by the immobilized antibody. After washing away any unbound substances, a HRP-conjugated antibody specific for IgA (total) is added to each well and incubate. Following a washing to remove unbound

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substances, a substrate solution (TMB) is added to the wells and color develops in proportion to the amount of IgA (total) bound in the initial step. The color development is stopped by the addition of acid and the intensity of the color is measured at a wavelength of 450nm \pm 2nm. The concentration of IgA (total) in the sample is then determined by comparing the O.D of samples to the standard curve.

MATERIALS PROVIDED & STORAGE INFORMATION

Store the unopened kit at 2-8 °C. Use the kit before expiration date.

Component	Quantity	Storage information
Antibody-coated microplate	8 X 12 strips	4°C. Unused strips should be sealed tightly in the air-tight pouch.
Standard (Lyophilized)	2 X 100 ng/vial	4°C
Standard diluent buffer	20 ml	4°C
Antibody conjugate concentrate	1 vial (400 μ l)	4°C
Antibody diluent buffer	16 ml	4°C
20X Wash buffer	50 ml	4°C
TMB substrate	12 ml	4°C (Protect from light)
STOP solution	12 ml	4°C
Plate sealer	6 strips	Room temperature

MATERIALS REQUIRED BUT NOT PROVIDED

- Microplate reader capable of measuring absorbance at 450nm
- Pipettes and pipette tips
- Deionized or distilled water
- Automated microplate washer (optional)

TECHNICAL HINTS AND PRECAUTIONS

- Wear protective gloves, clothing, eye, and face protection especially while handling blood or body fluid samples.
- Store the kit at 4°C at all times.
- Briefly spin down the antibody conjugate concentrate and HRP-Streptavidin concentrate before use.
- If crystals are observed in the 20X Wash buffer, warm to RT (not more than 50°C) until the crystals are completely dissolved.
- Ensure complete reconstitution and dilution of reagents prior to use.
- It is highly recommended that the standards, samples and controls be assayed in duplicates.
- Change pipette tips between the addition of different reagent or samples.

SAMPLE COLLECTION & STORAGE INFORMATION

The sample collection and storage conditions listed below are intended as general guidelines. Sample stability has not been evaluated.

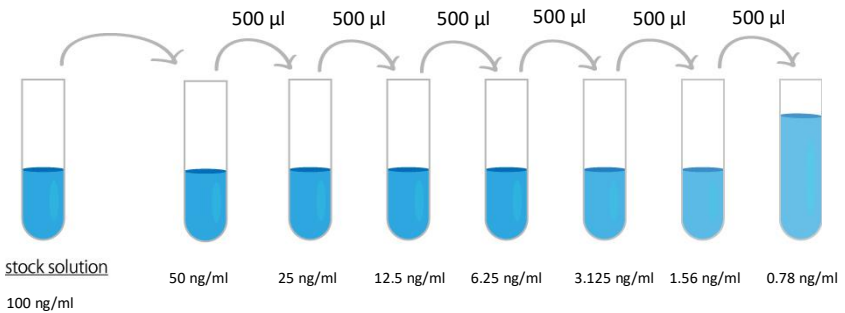
Cell Culture Supernatants - Remove particulates by centrifugation and aliquot & store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

Serum - Use a serum separator tube (SST) and allow samples to clot for 30 minutes before centrifugation for 15 minutes at 1000 x g. Remove serum and assay immediately or aliquot and store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

Plasma - Collect plasma using EDTA as an anticoagulant. Centrifuge for 15 minutes at 1000 x g within 30 minutes of collection. Assay immediately or aliquot and store samples at ≤ -20 °C. Avoid repeated freeze-thaw cycles.

REAGENT PREPARATION

- **1X Wash buffer:** Dilute 20X Wash buffer into distilled water to yield 1X Wash buffer.
- **1X Antibody conjugate:** Dilute 30X antibody conjugate concentrate into 1X antibody diluent buffer to yield 1X Detection antibody solution.
- **Standards:** Reconstitute the standard with 1 ml standard diluent buffer to yield a stock concentration of 100 ng/ml. Make sure the standard is dissolved completely before making serial dilutions. The standard diluent buffer serves as zero standard (0 ng/ml), and the rest of the standard serial dilution can be diluted as according to the suggested concentration below: 50 ng/ml, 25 ng/ml, 12.5 ng/ml, 6.25 ng/ml, 3.125 ng/ml, 1.56 ng/ml, 0.78 ng/ml.



ASSAY PROCEDURE

All materials should be equilibrated to room temperature (RT) before use. Standards, samples and controls should be assayed in duplicates.

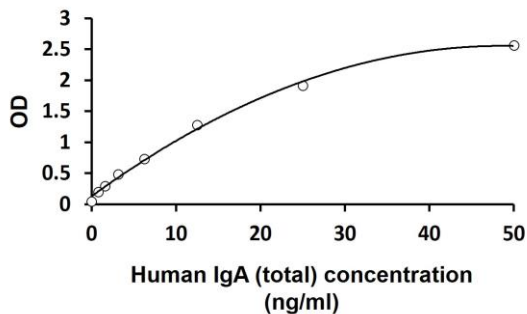
1. Remove excess microplate strips from the plate frame, return them to the foil pouch containing the desiccant pack, and reseal it.
2. Add 100 μ l of standards, samples and zero controls (standard diluent buffer) into wells. Incubate for 2 h at 36 °C.
3. Aspirate each well and wash, repeating the process four times for a total five washes. Wash by filling each well with 1 \times Wash Buffer (350 μ l) using a squirt bottle, manifold dispenser, or autowasher. Complete removal of liquid at each is essential to good performance. After the last wash, remove any remaining Wash Buffer by aspirating, decanting or blotting against clean paper towels.
4. Add 100 μ l 1X Antibody conjugate into each well. Cover wells and incubate for 60 min at 36°C.
5. Aspirate each well and wash as step 3.
6. Add 100 μ l of TMB Reagent to each well. Incubate for 15 minutes at 36°C in dark.
7. Add 100 μ l of Stop Solution to each well. The color of the solution should change from blue to yellow.
8. Read the OD with a microplate reader at 450nm immediately.

CALCULATION OF RESULTS

1. Calculate the average absorbance values for each set of standards, controls and patient samples.
2. Using linear graph paper, construct a standard curve by plotting the mean absorbance obtained from each standard against its concentration with absorbance value on the vertical (Y) axis and concentration on the horizontal (X) axis.
3. Using the mean absorbance value for each sample determine the corresponding concentration from the standard curve.
4. Automated method: The results in the IFU have been calculated automatically using a 4 PL (4 Parameter Logistics) curve fit. 4 Parameter Logistics is the preferred method. Other data reduction functions may give slightly different results.

EXAMPLE OF TYPICAL STANDARD CURVE

The following data is for demonstration only and cannot be used in place of data generations at the time of assay.



QUALITY ASSURANCE

Sensitivity

The minimum detectable dose (MDD) of Human IgA (total) ranged from 0.78-50 ng/ml. The mean MDD was 0.4 ng/ml.

Specificity

This assay recognizes natural and recombinant Human IgA (total).

This ELISA kit detects to serum and secretory IgA, and it might cross-react to primate IgA.

Intra-assay and Inter-assay precision

The CV values of both intra and inter precision fall below 10%.