Datasheet for ABIN996922

HCG beta ELISA Kit

Go to Product page

Overview

Quantity:	96 tests
Target:	HCG beta
Binding Specificity:	total
Reactivity:	Human
Method Type:	Sandwich ELISA
Detection Range:	0-300 mIU/mL
Minimum Detection Limit:	0 mIU/mL
Application:	ELISA

Product Details

Purpose:	Enzyme Immunoassay for the Quantitative Determination of Beta-Human Chorionic Gonadotropin in Human Serum
Sample Type:	Serum
Analytical Method:	Quantitative
Detection Method:	Colorimetric
Specificity:	97%
Sensitivity:	2.0 mIU/mL
Material not included:	1. Precision pipettes: 0.04 till approx. 0.2 mL ,0. mL 2. Disposable pipette tips 3. Distilled water

Product Details

4. Vortex mixer or equivalent
5. Absorbent paper or paper towel
6. Semi-log graph paper
7. Microtiter well reader

Target Details

Target:	HCG beta
Alternative Name:	beta hCG (HCG beta Products)
Background:	Human chorionic gonadotropin (hCG) is a sialoglycoprotein with a molecular weight of approximately 46,000 daltons. HCG is initially secreted by the trophoblastic cells of the placenta shortly after implantation of the fertilized ovum into the uterine wall. The rapid rise in hCG serum levels after conception makes it an excellent marker for early confirmation and monitoring of pregnancy. Physiologically, hCG appears to maintain the corpus luteum, thereby allowing synthesis of progesterone and estrogens that support the endometrium. As uncomplicated pregnancies progress, the placenta assumes the production of these hormones. The serum hCG levels increase to a peak concentration, then decrease and plateau. HCG circulates as the intact molecule in the serum of normal women who have an uncomplicated pregnancy. The subunits are cleared rapidly and excreted by the kidney. The placental hormone, hCG, is similar to luteinizing hommone (LH), follicle simulating hormone (FSH), and human thyroid stimulating hormone (hTSH). All are glycoproteins consisting of two noncovalently bound dissimilar subunits, designated alpha and beta, with attached carbohydrate sidechains. The alpha subunits of these glycoproteins are very similar. In contrast, the beta subunit portions determine the biological and immunochemical specificities. The beta subunits of hCG and LH exhibit considerable homology in amino acid content. Amino acid residues specific for the beta subunit of hCG confer the immuno-chemical specificity. With the availability of sensitive quantitative assays for the measurement of serum beta-hCG, it has been shown that hCG levels can be useful in predicting spontaneous abortions, aiding in the detection of ectopic pregnancy and multiple gestation. Elevated levels of hCG have also been detected in serum from patients with abnormal physiological con ditions not related to pregnancy. The hCG EIA test provides a rapid, sensitive and reliable assay. The antibodies developed for the test will determine a minimal concentration of 2 mIU/ml.

Application Details

Sample Volume:	10 µL
Assay Time:	1 - 2 h
Plate:	Pre-coated
Reagent Preparation:	1. All reagent should be brought to room temperature (18-22 °C) before use. 2. Dilute 1 volume of Concentrate Wash Buffer (50x) with 49 volumes of distilled water. For example, Dilute 15 mL of Concentrate Wash Buffer (50x) into 735 mL of distilled water to prepare 750 mL of washing buffer. Mix well before use.
Sample Preparation:	Serum should be prepared from a whole blood specimen obtained by acceptable medical techniques. This kit is for use with serum samples without additives only.
Assay Procedure:	1. Secure the desired number of coated wells in the holder. 2. Dispense 50 mL of standard, specimens, and controls into appropriate wells. 3. Dispense 100 mL of hCG Zero Buffer into each well. 4. Thoroughly mix for 10 seconds. It is very important to have complete mixing in this setup. 5. Incubate at room temperature (18-22 °C) for 30 minutes. 6. Remove the incubation mixture by flicking plate content into a sink. 7. Rinse and flick the microtiter wells 5 times with prepared washing buffer. 8. Strike the wells sharply onto absorbent paper or paper towels to remove all residual water droplets. 9. Dispense 150 mL of Enzyme Conjugate Reagent into each well. Gently mix for 5 seconds. 10. Incubate at room temperature for 30 minutes. 11. Remove the incubation mixture by flicking plate contents into sink. 12. Rinse and flick the microtiter wells 5 times with prepared washing buffer. 13. Strike the wells sharply onto absorbent paper or paper towels to remove all residual water droplets. 14. Dispense 100 mL TMB solution into each well. Gently mix for 5 seconds. 15. Incubate at room temperature in the dark for 2. minutes. 16. Stop the reaction by adding 100 mL of stop solution to each well. 17. Gently mix for 5 approx. 30 seconds. It is very important to make sure that the blue color changes to yellow color completely. 18. Read optical density at 450 nm with a microtiter plate reader within 30 minutes. Important Note: The wash procedure is critical. Insufficient washing will result in poor precision and falsely

	elevated absorbance reading.
Calculation of Results:	Calculate the mean absorbance value (A450) for each set of reference standards, specimens, controls and patient samples. Construct a standard curve by plotting the mean absorbance obtained from each reference standard against its concentration in mIU/mL on semi-log graph paper, with absorbance values on the vertical or Y axis and concentrations on the horizontal or X axis. Use the mean absorbance values for each specimen to determine the corresponding concentration of total beta-hCG in mLU/mL from the standard curve. I. Accuracy: Comparison between our kits and Commercial Available Kits provides the following data N = 122 Correlation Coefficient = 0.988 Slope = 0.930 Intercept = 1.08 Our Mean = 24.3 Mean (Abbott's Kits) = 25.0 C Precision. 1. Intra-Assay III. Linearity Two patient sera were serially diluted with 0 mLU/mL standard in a linearity study. The average recovery was 10 2.9 %. Concentrations Replicates Mean S.D. % CV Level I 20 5.98 0.295 5.01 Level II 20 2 1.45 1.002 4.67 Level III 20 189.37 0.704 3.72 2. Inter-Assay Concentrations Replicates Mean S.D. % CV Level I 20 6.32 0.624 9.87 Level II 20 2 2.98 1.583 6.89 Level III 20 194.39 9.875 5.08 Sample A Dilution Expected Observed % Recov. undiluted 210.0 210.0 2x 105.0 107.8 10 2.7 % 4x 5 2.5 54.8 104.4 % 8x 26.3 25.9 98.6 % 16x 1 3.1 14.1 107.5 % Average Recovery: 10 3.3 % Sample B Dilution Expected Observed % Recov. undiluted 168.20 168.20 2x 84.10 8 3.11 98.8 % 4x 4 2.05 40.98 97.5 % 8x 2 1.03 2 2.34 106.3 % 16x 10.51 1 1.29 107.4 % Average Recovery: 10

Application Details

	2.5 % VI. Cross-reactivity The following human materials were tested for cross reactivity of the assay: Antigens Concentration Equivalent HCG % Cross-react. LH 500 mIU/mL 1.8 mIU/mL 0.36 TSH 500 µL/mL 0.0 mIU/mL 0.00 FSH 500 mIU/mL 0.0 mIU/mL 0.00 Prolactin 1,000 ng/mL 0.0 mIU/mL 0.00 VII. Hook Effect No hook effect was observed in this assay. SENSITIVITY Each laboratory must establish its own normal ranges based on patient population. hCG is not normally detected in the serum of healthy men or healthy non-pregnant women. The concentration of hCG in the serum of pregnant women increases to 5-50 mLU/mL one week after implantation and continues increasing exponentially during the first ten weeks, reaching a maximum of 100,000-200,000 mIU/mL at the end of the first trimester. The minimum detectable concentration of hCG by this assay is estimated to be 2.0 mIU/mL. Results of typical standard run with optical density reading at 450nm shown in the Y axis against hCG concentrations shown in the X axis. This standard curve is for the purpose of illustration only, and should not be used to calculate unknowns. Each user should obtain his or her own data and standard curve.
Restrictions:	For Research Use only

Handling

Storage:	4 °C
Expiry Date:	12-14 months