CLINITEST® hCG
Pregnancy Test

SIEMENS

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Pregnancy Test

Contents

REF	Contents	Number of Tests
1760 (06484105)	25 individually wrapped Clinitest® hCG cassettes each containing a disposable pipette 1 package insert	25

06878007, 2008-08

Intended Use

The Siemens Healthcare Diagnostics Clinitest hCG Pregnancy Test is for *in vitro* diagnostic use as a qualitative method in the rapid detection of human chorionic gonadotropin (hCG) in urine specimens. The test is utilized with the Clinitek Status® analyzer and is intended for near patient (point of care) and centralized laboratory locations.

Materials Required But Not Provided

- Specimen collection container
- Clinitek Status analyzer

Summary and Explanation of the Test

Human chorionic gonadotropin (hCG) is a glycoprotein hormone secreted by the developing placenta shortly after fertilization. In normal pregnancy, hCG can be detected in serum as early as 7 days following conception.[1-4] Recent studies suggest that urine hCG concentrations are approximately one-half of, or less than one-half, of corresponding serum hCG concentrations.[5-8] Thus, hCG can likely be detected in urine as early as 14 days after conception (approximately 28 days since the last menstrual cycle), doubling in concentration about every two days until it peaks at approximately 8–10 weeks after the last menstrual period. The appearance of hCG soon after conception and its subsequent rise in concentration during early gestational growth makes it an excellent marker for the early detection of pregnancy.

The Clinitest hCG Pregnancy Test is a rapid chromatographic immunoassay for the qualitative determination of hCG in urine. Hormone levels greater than 25 mIU/mL are reported as positive. Samples reported as borderline are considered indeterminate and the operator is advised to repeat the test in 48–72 hours. The test uses monoclonal antibodies to selectively detect elevated levels of hCG in urine specimens. The immunological specificity of the test kit substantially eliminates cross-reactivity interference from the structurally related glycoprotein hormones hFSH, hLH and hTSH at physiological levels.

Information regarding CLIA waiver (U.S. only)

Clinitest hCG cassettes are CLIA waived when run on the Clintek Status analyzer. A certificate of CLIA waiver is required to perform these tests in a waived setting. To obtain a Certificate of Waiver, contact your state department of health or visit the CMS web site for an application, Form CMS-116.

Failure to adhere to the instructions for use, including instructions for limitations, intended use, and performing quality control testing, is off-label use, resulting in these tests being categorized as high complexity and subject to all CLIA regulations.

Assay Principle

The Clinitest hCG Pregnancy Test is a chromatographic immunoassay (CIA) for the rapid determination of hCG in urine. The membrane is precoated with anti-hCG capture antibody on the test line region (T) and goat anti-mouse IgG antibody on the control line region (C). During testing, the urine specimen is allowed to react with colloidal gold particles coated with anti-beta hCG monoclonal antibody. The mixture then chromatographically moves along the membrane by capillary action. For a positive or borderline result, a pink-colored line with a specific antibody-hCG-antibody-colloidal gold particle complex will form on the membrane in the test line region. A pink-colored line at the reference region (R), the area between the control line region and the test line region, has been adjusted to a level approximating 25 mIU/mL hCG. Absence of a pink-colored line in the test line region indicates a negative result. The appearance of a colored line in the control region and the reference region serves as verification that sufficient volume has been added and that proper flow has occurred.

Specimen Collection and Handling

- Collect urine into a clean, dry container.
- Specimens collected at any time of day may be used.
- Refrigerate specimens at 2° to 8°C (36° to 46°F) for up to 72 hours, if the testing is not performed immediately.
- If samples are refrigerated, bring them to room temperature before testing.

Storage and Stability

- The test kit can be stored either refrigerated or at room temperature, 2° to 30°C (36° to 86°F), for the duration of the shelf-life.
- Do not use the test beyond the expiration date.
- If refrigerated, bring the wrapped cassettes to room temperature before opening the protective pouch to avoid moisture condensation on the membrane.

Quality Control

Each test includes two procedural controls, which indicate that sufficient sample was added for capillary flow to occur and the correct procedural technique was used. If the instrument detects a failure of either of these two procedural controls, an error is reported and the test must be repeated.

CLIA Waived Laboratories

Test negative and positive liquid ready-to-use controls whenever a new reagent kit is first opened. Contact the Technical Care Center for recommendations. Water should not be used as a negative control. Compare control results to those listed as acceptable by the manufacturer of the control material. If controls results are not acceptable, do not test patient samples until the problem is resolved and repeat control results are acceptable. For assistance, call the Siemens Technical Care Center (in the U.S.: 877-229-3711).

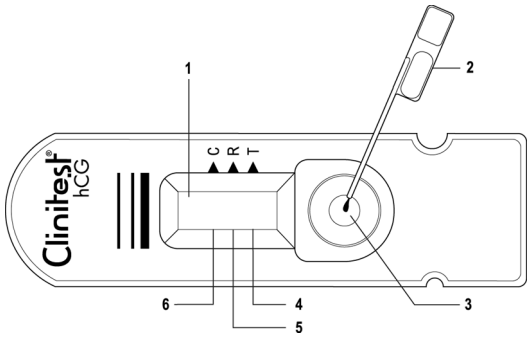
All Other Laboratories

It is recommended that each laboratory run control materials following its established quality control procedures to ensure compliance to regulatory requirements. Contact your local technical support provider or distributor for a list of recommended quality control materials. Refer to the quality control materials product insert for the Expected Values and directions for use. If the quality control results do not fall within the Expected Values or within the laboratory's established values, then do the following:

- review these instructions to ensure that the assay was performed according to the procedures recommended by Siemens
- verify that the cassettes and control materials are not expired
- if necessary, rerun the quality control samples or contact Siemens for more assistance

Sample Volume

This assay requires approximately 200 µL for a single test.

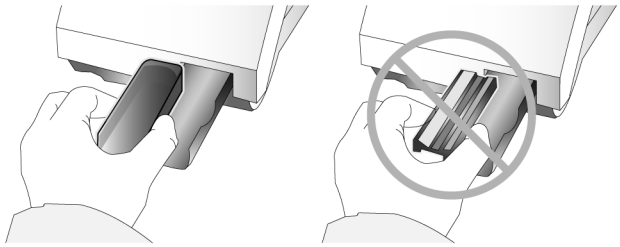


1 Results Window
2 Pipette
3 Sample Well
4 Test Region (T)
5 Reference Region (R)
6 Control Region (C)

Assay Procedure

1 Review Clinitek Status Analyzer Operator's Manual.

2 Turn on Clinitek Status and turn the table insert so cassette holder is facing upwards.



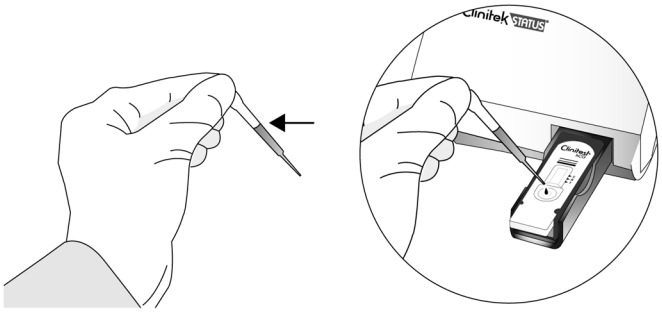
3 Touch the **Cassette Test** screen button. Remove a cassette from the pouch and place it onto the test table. Touch the **Clinitest hCG** screen button.

4 Touch **Start**. (You have 8 seconds to complete step 5.)

CAUTION! POTENTIAL BIOHAZARD

Wear personal protective equipment. Use universal precautions. Refer to your Clinitek Status Operator's Guide *Appendix H* for recommended precautions when working with biohazardous materials.

5 Holding the pipette at a slight angle, squeeze the upper bulb and draw enough sample into the pipette to fill the stem completely, with an overdrawn amount going into the reservoir (lower bulb). Then discharge the sample in the pipette stem into the sample well of the test cassette by squeezing the upper bulb in one squeeze. The excess fluid will remain in the reservior. Do not push or pull the test table. Do not reuse the provided pipette or use any other pipette with the Clinitest hCG product.



6 The test table will automatically be pulled into the instrument. When analysis is complete, the “Results” screen will be displayed.

7 Remove the cassette when the analysis is complete.

Interpretation of Results

1 **POSITIVE**: The instrument will automatically determine if the Test (T) region intensity is equal to or more intense than a 25 mIU/mL urine sample and confirm that the Control (C) and Reference (R) regions meet minimum intensity specifications.

2 **BORDERLINE:** Result is indeterminate, repeat in 48–72 hours.

3 **NEGATIVE**: The instrument will automatically determine that the Test (T) region is less intense than the 25 mIU/mL hCG concentration level that the device can detect, and confirms that the Control (C) and Reference (R) regions meet minimum intensity specifications.

4 **INVALID:** The instrument will automatically determine if a procedural error or test reagent deterioration has occurred by confirming that the Reference (R) and Control (C) regions meet minimum intensity requirements. If not, the user will be advised to repeat the test and to contact your local technical support provider or distributor if the problem persists.

NOTE: Negative test results in patients suspected to be pregnant should be retested with a sample obtained 48 to 72 hours later, or by performing a quantitative assay.

Disposal

Dispose of hazardous and biologically contaminated materials in compliance with the practices of your institution.

Limitations

- The test is not intended to detect conditions other than pregnancy. A number of conditions other than pregnancy, including trophoblastic disease and certain nontrophoblastic neoplasms, can cause elevated levels of hCG.
- As is true with any diagnostic test, clinical diagnosis should not be based solely on a single test result. Clinical diagnosis should incorporate all clinical and laboratory data.
- Because of the lag between conception and the appearance of hCG in urine (see Summary and Explanation of the Test), to exclude pregnancy with the highest degree of certainty, it is traditional to repeat the test on a fresh sample obtained 2–3 days after obtaining a "negative" result on the initial sample.
- Patients on antibody therapies may obtain invalid results due to the presence of interfering antibodies in the medications.
- The presence of heterophile antibodies or non-specific protein binding may cause false-positive results in sensitive immunoassays. If a qualitative interpretation is inconsistent with the clinical evidence, results should be confirmed by an alternative hCG detection method.

Expected Results

Healthy men and healthy non-pregnant women do not have detectable hCG levels when using the Clinitest hCG Pregnancy Test. For pregnant women, hCG levels of 100 mIU/mL can be reached on the first day of the missed menstrual period. hCG levels peak about 8–10 weeks after the last menstrual period and then decline to lower values for the remainder of the pregnancy. hCG levels rapidly decrease and usually return to normal within days after delivery.

Performance Characteristics

CLIA Waiver Accuracy

To evaluate the expected performance of the Siemens Clinitest hCG urinalysis product used on the Clinitek Status Analyzer in a CLIA-waived setting, a lay user field study was performed at three non-laboratory study sites. The 60 participants represented diverse demographics, had no previous laboratory experience, and received no training for the study. Participants were provided with five (5) masked samples at various hCG concentrations: negative (1.8 mIU/mL), weak negative (9 mIU/mL), very weak positive (29 mIU/mL), weak positive (48 mIU/mL), and positive (106 mIU/mL). The lay user results were compared to results using a comparator quantitative method. A summary of the performance is shown below.

Lay User Results: 300

Lay Users: 60

The overall accuracy rates for hCG were:

Negative	**100%** (60/60) with 95% CI: (**94.0%–100.0%**)
Weak Negative	**97.3%** (36/37*) with 95% CI: (**85.8%–99.9%**)
Very Weak Positive	**100%** (60/60) with 95% CI: (**94.0%–100.0%**)
Weak Positive	**100%** (60/60) with 95% CI: (**94.0%–100.0%**)
Positive	**100%** (60/60) with 95% CI: (**94.0%–100.0%**)

*The remaining 23 users obtained a result of “repeat in 48 to 72 hours.”

Statistical analysis (Fisher’s Exact Test) demonstrated that the observed differences among the three study sites were not significant.

Sensitivity

The Clinitest hCG Pregnancy Test detects urinary hCG concentrations of at least 25 mIU/mL (calibrated to the World Health Organization 3rd International Reference Preparation).

To evaluate the Clinitest hCG Pregnancy Test performance at low levels of hCG, the following experiment was carried out.

Urine samples from five known non-pregnant subjects were pooled and spiked to various hCG levels. The results were reported from triplicates measured on each of 6 instruments, using two different reagent lots, for a total of 36 determinations per hCG concentration. Typical Clinitest hCG results are shown in the following table.

Example Clinitest hCG Study
2 Lots reagents
Triplicates on each of 6 Instruments

hCG (mIU/mL)	Percent Positive
0	0*
2	0
5	0
10	0
15	16.6
20	72.2
25	100
50	100
100	100

*All samples reported as negative.

Specificity

The specificity of the Clinitest hCG Pregnancy Test was determined from cross-reactivity studies with known amounts of human Luteinizing Hormone (hLH), human Follicle Stimulating Hormone (hFSH) and human Thyroid Stimulating Hormone (hTSH). All tests yielded negative results when used with 300 mIU/mL hLH, 1000 mIU/mL hFSH and 1000 μIU/mL hTSH.

Interference Testing

The following substances were added to hCG-free urine and 20 mIU/mL hCG-spiked urine and tested with the assay. No interference was observed with the following substances at the concentrations listed below. In addition, the effect of urine pH from 5 to 9 was tested at these hCG concentrations. The pH of the urine did not affect the outcome of the result.

Substance	Amount Added	Substance	Amount Added
Acetaminophen	20 mg/dL	Diphenhydramine	20 mg/dL
Acetylsalicylic Acid	20 mg/dL	Ephedrine	10 mg/dL
Albumin, Human Serum	10 mg/dL	Ethanol	1 %
Ampicillin	20 mg/dL	Gentesic Acid	20 mg/dL
Ascorbic Acid	20 mg/dL	Glucose	2 g/dL
Atropine	20 mg/dL	Hemoglobin	1 mg/dL
Bilirubin	1 mg/dL	Ibuprofen	20 mg/dL
Brompheniramine	20 mg/dL	Methamphetamine	10 mg/dL
Caffeine	20 mg/dL	Morphine	600 μg/dL
Cannabinol	10 mg/dL	Ranitidine	20 mg/dL
Codeine	10 mg/dL	Salicylic Acid	20 mg/dL
Dextromethorphan	20 mg/dL		

Method Comparison

Greater than 3,000 routine samples, being tested to detect pregnancy, were analyzed on the Clinitek Status instrument at four study sites. Results were compared to the same samples tested and visually read on a comparative device. Discrepant results were analyzed using a commercially available urine hCG RIA test kit. These example results were obtained from a total of 16 different instruments with 2 different Clinitest hCG lots.

Clinical Samples Clinitest hCG Compared to a Comparative Device

		Comparative Device Result		
	Frequency Percent (N)	**Negative**	**Positive**	**Total**
Clinitest hCG using the Clinitek Status	**Negative**	99.7% (1999)	0.3% (3)	2002
	Borderline	0.3% (7)	0.6% (7)	14
	Positive		99.1% (1051)	1051
	Total	2006	1061	3067

Standardization

The Clinitest hCG Pregnancy Test has been standardized using the World Health Organization Third International Reference Preparation (3rd IRP).

High-Dose Hook Effect

High-dose hook effects are not seen with this product until the urine hCG level exceeds 600,000 mIU/mL, a level two to three times higher than the highest level seen for pregnant individuals.

Technical Assistance

For customer support, please contact your local support provider or distributor.

www.siemens.com/diagnostics

Understanding the Symbols

Symbol	Definition	Symbol	Definition
IVD	*In vitro* diagnostic medical device		Consult instructions for use
REF	Catalog Number	2°C 30°C	Temperature limitation (2–30°C)
	Manufacturer	LOT	Batch code
EC REP	Authorized Representative in the European Community		Use by
CE	CE Mark	Σ XXX テスト	Contains sufficient for (n) tests
	Caution! Potential Biohazard		Single use only