

A rapid, one step test for the qualitative detection of human chorionic gonadotropin (hCG) in urine or serum.  
For professional *in vitro* diagnostic use only.

**INTENDED USE**

The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) is a rapid chromatographic immunoassay for the qualitative detection of human chorionic gonadotropin in urine or serum to aid in the early detection of pregnancy.

**SUMMARY**

Human chorionic gonadotropin (hCG) is a glycoprotein hormone produced by the developing placenta shortly after fertilization. In normal pregnancy, hCG can be detected in both urine and serum as early as 7 to 10 days after conception.<sup>1,2,3,4</sup> hCG levels continue to rise very rapidly, frequently exceeding 100 mIU/mL by the first missed menstrual period,<sup>2,3,4</sup> and peaking in the 100,000-200,000 mIU/mL range about 10-12 weeks into pregnancy. The appearance of hCG in both the urine and serum soon after conception, and its subsequent rapid rise in concentration during early gestational growth, make it an excellent marker for the early detection of pregnancy. The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) is a rapid test that qualitatively detects the presence of hCG in urine or serum specimens at the sensitivity of 25 mIU/mL. The test utilizes a combination of monoclonal and polyclonal antibodies to selectively detect elevated levels of hCG in urine or serum. At the level of claimed sensitivity, The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) shows no cross-reactivity interference from the structurally related glycoprotein hormones hFSH, hLH and hTSH at high physiological levels.

**PRINCIPLE**

The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) is a rapid chromatographic immunoassay for the qualitative detection of human chorionic gonadotropin in urine or serum to aid in the early detection of pregnancy. The test uses two lines to indicate results. The test line utilizes a combination of antibodies including a monoclonal hCG antibody to selectively detect elevated levels of hCG. The control line is composed of goat polyclonal antibodies and colloidal gold particles. The assay is conducted by adding a urine or serum specimen to the specimen well of the test device and observing the formation of coloured lines. The specimen migrates via capillary action along the membrane to react with the coloured conjugate. Positive specimens react with the specific antibody-hCG-coloured conjugate to form a coloured line at the test line region of the membrane. Absence of this coloured line suggests a negative result. To serve as a procedural control, a coloured line will always appear in the control line region indicating that proper volume of specimen has been added and membrane wicking has occurred.

**REAGENTS**

The test contains anti-hCG particles and anti-hCG coated on the membrane.

**PRECAUTIONS**

- For professional *in vitro* diagnostic use only. Do not use after the expiration date.
- The test should remain in the sealed pouch until use.
- All specimens should be considered potentially hazardous and handled in the same manner as an infectious agent.
- The used test should be discarded according to local regulations.

**STORAGE AND STABILITY**

Store as packaged in the sealed pouch at room temperature or refrigerated (2-30°C). The test is stable through the expiration date printed on the sealed pouch. The test must remain in the sealed pouch until use. **DO NOT FREEZE.** Do not use beyond the expiration date.

**SPECIMEN COLLECTION AND PREPARATION**

**Urine Assay**

A urine specimen must be collected in a clean and dry container. A first morning urine specimen is preferred since it generally contains the highest concentration of hCG; however, urine specimens collected at any time of the day may be used. Urine specimens exhibiting visible precipitates should be centrifuged, filtered, or allowed to settle to obtain a clear specimen for testing.

**Serum Assay**

Blood should be collected aseptically into a clean tube without anticoagulants. Separate the serum from blood as soon as possible to avoid hemolysis. Use clear non-hemolyzed specimens when possible.

**Specimen Storage**

Urine or serum specimens may be stored at 2-8°C for up to 48 hours prior to testing. For prolonged storage, specimens may be frozen and stored below -20°C. Frozen specimens should be thawed and mixed before testing.

**MATERIALS**

**Materials Provided**

- Test devices
- Droppers
- Package insert

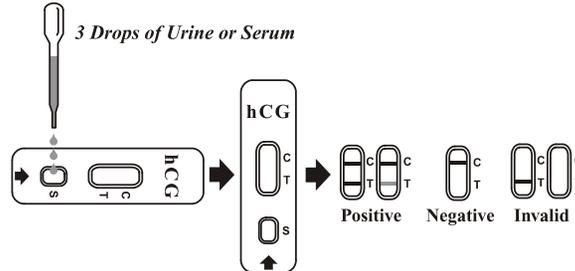
**Materials Required But Not Provided**

- Specimen collection container
- Timer

**DIRECTIONS FOR USE**

Allow the test, urine or serum specimen and/or controls to equilibrate to room temperature (15-30°C) prior to testing.

1. Bring the pouch to room temperature before opening it. Remove the test device from the sealed pouch and use it as soon as possible.
2. Place the test device on a clean and level surface. Hold the dropper vertically and transfer 3 full drops of urine or serum (approx. 100 µL) to the specimen well (S) of the test device, and then start the timer. Avoid trapping air bubbles in the specimen well (S). See the illustration below.
3. Wait for the coloured line(s) to appear. **Read the result at 3 minutes when testing a urine specimen, or at 5 minutes when testing a serum specimen.**  
NOTE: A low hCG concentration might result in a weak line appearing in the test region (T) after an extended period of time; therefore, do not interpret the result after 10 minutes.



**INTERPRETATION OF RESULTS**

(Please refer to the illustration above)

**POSITIVE:** \* Two distinct coloured lines appear. One line should be in the control line region (C) and another line should be in the test line region (T).

\*NOTE: The intensity of the colour in the test line region (T) may vary depending on the concentration of hCG present in the specimen. Therefore, any shade of colour in the test line region (T) should be considered positive.

**NEGATIVE:** One coloured line appears in the control line region (C). No apparent coloured line appears in the test line region (T).

**INVALID:** Control line fails to appear. Insufficient specimen volume or incorrect procedural techniques are the most likely reasons for control line failure. Review the procedure and repeat the test with a new test. If the problem persists, discontinue using the test kit immediately and contact your local distributor.

**QUALITY CONTROL**

A procedural control is included in the test. A coloured line appearing in the control line region (C) is considered an internal procedural control. It confirms sufficient specimen volume and correct procedural technique. A clear background is an internal negative procedural control. If a background colour appears in the result window and interferes with the ability to read the test result, the result may be invalid. It is recommended that a positive hCG control (containing 25-250 mIU/mL hCG) and a negative hCG control (containing "0" mIU/mL hCG) be evaluated to verify proper test performance when a new shipment of tests are received.

**LIMITATIONS**

1. The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) is a preliminary qualitative test, therefore, neither the quantitative value nor the rate of increase in hCG can be determined by this test.
2. Very dilute urine specimens, as indicated by a low specific gravity, may not contain representative levels of hCG. If pregnancy is still suspected, a first morning urine specimen should be collected 48 hours later and tested.
3. Very low levels of hCG (less than 50 mIU/mL) are present in urine and serum specimen shortly after implantation. However, because a significant number of first trimester pregnancies terminate for natural reasons,<sup>5</sup> a test result that is weakly positive should be confirmed by retesting with a first morning urine or serum specimen collected 48 hours later.
4. This test may produce false positive results. A number of conditions other than pregnancy, including trophoblastic disease and certain non-trophoblastic neoplasms including testicular tumors, prostate cancer, breast cancer, and lung cancer, cause elevated levels of hCG.<sup>6,7</sup> Therefore, the presence of hCG in urine or serum specimens should not be used to diagnose pregnancy unless these conditions have been ruled out.
5. This test may produce false negative results. False negative results may occur when the levels of hCG are below the sensitivity level of the test. When pregnancy is still suspected, a first morning urine or serum specimen should be collected 48 hours later and tested. In case pregnancy is suspected and the test continues to produce negative results, see a physician for further diagnosis.
6. As with any assay employing mouse antibodies, the possibility exists for interference by human anti-mouse antibodies (HAMA) in the specimen. Specimens from patients who have received preparations of monoclonal antibodies for diagnosis or therapy may contain HAMA. Such specimens may cause false positive or false negative results.
7. This test provides a presumptive diagnosis for pregnancy. A confirmed pregnancy diagnosis should only be made by a physician after all clinical and laboratory findings have been evaluated.

**EXPECTED VALUES**

Negative results are expected in healthy non-pregnant women and healthy men. Healthy pregnant women have hCG present in their urine and serum specimens. The amount of hCG will vary greatly with gestational age and between individuals. The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) has a sensitivity of 25 mIU/mL, and is capable of detecting pregnancy as early as 1 day after the first missed menses.

**PERFORMANCE CHARACTERISTICS**

**Accuracy**

A multi-center clinical evaluation was conducted comparing the results obtained using The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) and another commercially available urine/serum membrane hCG test. The urine study included 159 specimens, and both assays identified 88 negative and 71 positive results. The serum study included 73 specimens and both assays identified 51 negative, 21 positive and 1 invalid results. The results demonstrated a >99% overall accuracy of The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) when compared to the other urine/serum membrane hCG test.

**hCG Reference Method (Urine)**

Method	Other hCG Rapid Test		Total Results
	Results		
hCG Test Device	Positive	71	71
	Negative	0	88
	Total Results	71	159

Sensitivity: 100% (95%-100%)\* Specificity: 100% (96%-100%)\* Accuracy: 100% (98%-100%)\*  
\* 95% Confidence Intervals

**hCG Reference Method (Serum)**

Method	Other hCG Rapid Test		Total Results
	Results		
hCG Test Device	Positive	21	21
	Negative	0	51
	Total Results	21	72

Sensitivity: 100% (84%-100%)\* Specificity: 100% (93%-100%)\* Accuracy: 100% (95%-100%)\*  
\* 95% Confidence Intervals

**Sensitivity and Specificity**

The ComfiTest™ hCG One Step Pregnancy Test Device (Urine/Serum) detects hCG at a concentration of 25 mIU/mL or greater. The test has been standardized to the W.H.O. International Standard. The addition of LH (300 mIU/mL), FSH (1,000 mIU/mL), and TSH (1,000 µIU/mL) to negative (0 mIU/mL hCG) and positive (25 mIU/mL hCG) specimens showed no cross-reactivity.

**Interfering Substances**

The following potentially interfering substances were added to hCG negative and positive specimens.

Acetaminophen	20 mg/dL	Caffeine	20 mg/dL
Acetylsalicylic Acid	20 mg/dL	Gentisic Acid	20 mg/dL
Ascorbic Acid	20 mg/dL	Glucose	2 g/dL
Atropine	20 mg/dL	Hemoglobin	1 mg/dL
Bilirubin (serum)	40 mg/dL	Bilirubin (urine)	2 mg/dL
Triglycerides (serum)	1,200 mg/dL		

None of the substances at the concentration tested interfered in the assay.

**BIBLIOGRAPHY**

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**Index of Symbols**

	Consult instructions for use		Tests per kit		Manufacturer
	For <i>in vitro</i> diagnostic use only		Use by		Do not reuse
	Store between 2-30°C		Lot Number		Catalog #

**Manufacturer**  
Williams Medical Supplies Ltd. Maerdy Industrial Estate,  
Rhyneym, Tredegar, NP22 5PY  
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