



## Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) INV-FHC-U102

Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) is a rapid, one step test for the qualitative detection of human chorionic gonadotropin (hCG) in urine.

*Intended for professional in vitro diagnostic use only.*

### INTENDED USE

The Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) is a rapid, chromatographic immunoassay for the qualitative detection of human chorionic gonadotropin (hCG) in urine. It detects the presence of hCG at a concentration of 10 mIU/ml or above, to aid in the early detection of pregnancy.

### PRINCIPLE

Human chorionic gonadotropin (hCG) is one of the glycoproteins secreted by the placenta. It contains  $\alpha$  and  $\beta$  subunits. The  $\alpha$  subunit of hCG shows cross-reactivity with the structurally related glycoproteins hLH, hTSH and hFSH, however the  $\beta$  subunit does not. The Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) uses a monoclonal antibody directed against highly purified  $\beta$  hCG.

The Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) is a rapid qualitative immunoassay, based on the principle of a double antibody sandwich, for determination of hCG in urine. When a sample is added to the cassette, capillary action allows it to migrate along the membrane, where any hCG in the sample will be captured by an anti-hCG monoclonal antibody in the sample pad, which will then meet an anti-hCG monoclonal antibody in the test zone (T). The sample will continue to migrate and will meet anti-mouse IgG in the control zone (C).

If the level of hCG in the sample is at or above 10 mIU/ml, red lines will appear in both the test (T) and control (C) zones, indicating a positive result. If the level of hCG in the sample is below 10 mIU/ml, a red line will only appear in the control (C) zone, suggesting a negative result. A red line will always appear in the control (C) zone if the test has been performed correctly.

### REQUIRED MATERIAL

### MATERIAL PROVIDED

1. Test cassettes
2. Disposable pipettes
3. Instructions for use
4. Pictorial, easy-to-follow instructions

### MATERIAL NOT PROVIDED

1. Clean, dry plastic or glass specimen container
2. Timer

### PRECAUTIONS

1. For professional in vitro diagnostic use only
2. Do not use after the expiry date
3. Discard after first use. Do not reuse
4. Do not use the test cassette if the foil pouch is punctured or damaged
5. Do not use the test cassette if the desiccant pouch is pink or is missing
6. Do not open the foil pouch until you are ready to perform the test
7. Dispose of the test cassette in a biohazard container after testing

### STORAGE AND STABILITY

1. Store at 4 - 30°C as packaged in the sealed pouch, up to the expiration date
2. Keep away from direct sunlight, moisture and heat
3. Open the foil pouch immediately before performing the test
4. DO NOT FREEZE

### SPECIMEN COLLECTION AND PREPARATION

### SPECIMEN COLLECTION

A urine sample must be collected in a clean, dry container. An early morning (first) urine sample is strongly recommended, as it will contain the highest concentration of hCG. Urine specimens exhibiting visible precipitates should be centrifuged, filtered, or allowed to settle, to obtain a clear specimen for testing.

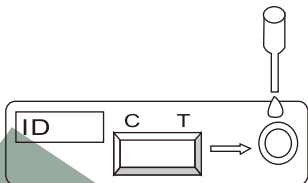
### SPECIMEN STORAGE

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

### DIRECTIONS FOR USE

1. Allow the test cassette and urine sample to equilibrate to room temperature (15 - 30°C) prior to testing
2. Remove the test cassette from the foil pouch by tearing at the nick, immediately prior to testing. Check that the desiccant pouch is present and not pink in colour
3. Place the test cassette on a clean, level surface

4. Holding the pipette vertically, add 3 - 4 full drops of urine to the sample well (marked with an arrow), then start the timer. Avoid air bubbles in both the pipette and the sample well
5. Read the result at 5 minutes. **Do not read before 5 minutes**



### INTERPRETATION OF RESULTS

(Please refer to the illustration below)

#### Negative:

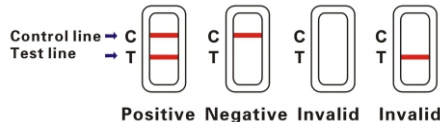
**One red line appears** in the control zone (C). No line appears in the test zone (T).

#### Positive:

**Two red lines appear**, one in the test zone (T) and one in control zone (C). **Any** line in the test zone (T), however faint, should be interpreted as a positive result.

#### Invalid:

**No visible lines** at all, or a visible line in the test zone (T) but not in the control zone (C). The most likely cause of an invalid result is incorrect technique, or insufficient sample. Repeat using a new test cassette. If the test still fails, discontinue using the kit and contact Invitech Ltd on 0845 313 3348.



### QUALITY CONTROL

Internal procedural controls are included in the test. A red line in the control zone (C) is the internal procedural control, confirming sufficient specimen volume and correct technique. A clear background is an internal negative background control. If the test is working properly, the background in the result area should be white to very pale pink and should not interfere with the ability to read the test result.

It is recommended that a positive hCG control (containing between 10 and 200 mIU/ml hCG) and a negative control (containing no hCG) should be used to verify test performance, as required by your laboratory.

### LIMITATIONS

1. As with any diagnostic test, a confirmed pregnancy diagnosis should only be made by a physician, after evaluating all clinical and laboratory findings
2. Dilute urine samples (i.e. with a low specific gravity) may not contain a representative level of hCG, potentially leading to a false negative result. If pregnancy is suspected, an early morning (first) urine sample should be collected and retested. Alternatively, perform a serum hCG test
3. In very early pregnancy, false negative results may occur when the level of hCG is below the sensitivity level of the test. If pregnancy is suspected, an early morning (first) urine sample should be collected and retested 48 hours later
4. Very low levels of hCG are present in urine shortly after implantation. However, a significant number of first trimester pregnancies terminate for natural reasons. It is recommended that weakly positive test results are confirmed by retesting an early morning (first) urine sample 48 hours later, or by performing serum hCG tests on consecutive days
5. Elevated levels of hCG can be caused by a number of conditions other than pregnancy, including trophoblastic disease and some non-trophoblastic neoplasms such as testicular tumours, seminoma, choriocarcinoma, germ cell tumours, hydatidiform mole formation, teratoma with elements of choriocarcinoma, and islet cell tumour. Therefore, the presence of hCG in urine should not be used to diagnose pregnancy unless these conditions have been ruled out
6. Serious urinary tract infections (with high levels of WBC, RBC and nitrite) can occasionally cause a false positive pregnancy test result. If a urinary tract infection is suspected, perform a serum hCG test
7. Ectopic pregnancies typically produce lower levels of hCG than normal pregnancies. As this will be accentuated by the dilution effect in urine, use a serum hCG test when ectopic pregnancy is suspected
8. Fertility treatments based on hCG may cause false positive results
9. This test detects intact hCG up to 100,000 mIU/ml. Levels above this may give false negative results due to hook effect. If hook effect is suspected, dilute the urine by adding 1 drop of urine to 9 drops of water, using the pipette supplied with the cassette, and retest
10. This test does not reliably detect hCG degradation products, such as free- $\beta$  hCG and  $\beta$  core fragments. Therefore quantitative hCG assays that do detect hCG degradation products may disagree with the results of this test

### EXPECTED VALUES

Negative results are expected in healthy, non-pregnant women and in healthy men. Healthy pregnant women have hCG in their urine and serum. The amount varies greatly with gestational age

and between individuals.

The Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) is capable of detecting pregnancy as early as the day of the first missed menses.

### PERFORMANCE CHARACTERISTICS

### ACCURACY

The result from Wondfo One Step hCG Urine Test is compared with that from a commercially available Urine membrane hCG test. 170 urine specimens were obtained for testing, Wondfo One Step hCG Urine Test showed 98.8% overall agreement.

### REFERENCE HCG METHOD

| Comparison reagent | Wondfo cassette |    |     |       |
|--------------------|-----------------|----|-----|-------|
|                    |                 | +  | -   | Total |
|                    |                 | 69 | 1   | 70    |
|                    | -               | 1  | 99  | 100   |
|                    | Total           | 70 | 100 | 170   |

Agreement of the positive with comparison reagent: 98.6 %

Agreement of the negative with comparison reagent: 99%

Total Agreement with comparison reagent : 98.8%

### SENSITIVITY AND SPECIFICITY

The Invitech One Step hCG Urine Pregnancy Test (10 mIU/ml) detects hCG at a concentration of 10 mIU/ml or greater. The test has been standardised to the W.H.O. Standard hCG IS 75/537. No cross reaction was observed when LH (300 mIU/ml), FSH (300 mIU/ml) and TSH (1,000  $\mu$ IU/ml) were added to a sample containing 0 mIU/ml hCG and a sample containing 10mIU/mL hCG.

### INTERFERING SUBSTANCE

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

|                      |         |               |         |
|----------------------|---------|---------------|---------|
| Acetaminophen        | 20mg/dl | Centesic acid | 20mg/dl |
| Acetylsalicylic acid | 20mg/dl | Glucose       | 2mg/dl  |
| Ascorbic acid        | 20mg/dl | Hemoglobin    | 20mg/dl |
| Atropine             | 20mg/dl | Tetracycline  | 20mg/dl |
| Caffeine             | 20mg/dl | Ampicilline   | 20mg/dl |
| Albumin              | 20mg/dl |               |         |

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

### LINEARITY/ASSAY REPORTABLE RANGE

To investigate hook effect in the test, negative urine was spiked with hCG at concentrations ranging from 5 mIU/ml to 500,000 mIU/ml and each sample was tested repeatedly.

| HCG concentration | Test result |
|-------------------|-------------|
| HCG 5 mIU/ml      | -           |
| HCG 10 mIU/ml     | +           |
| HCG 15mIU/ml      | +           |
| HCG 20 mIU/ml     | +           |
| HCG 25mIU/ml      | +           |
| HCG100mIU/ml      | ++          |
| HCG500mIU/ml      | +++         |
| HCG1000mIU/ml     | +++         |
| HCG5IU/ml         | ++          |
| HCG25IU/ml        | +           |
| HCG100IU/ml       | +           |
| HCG200IU/ml       | -/+         |
| HCG500IU/ml       | -           |

The results indicated that the test can detect hCG at a range between 10 mIU/ml and 100,000 mIU/ml. Above this level, a hook effect may be observed.

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### MEANING OF SYMBOLS ON PACKAGE



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