

Lab Name:

Procedure #:

| |
|------------------------------------------------------------------------------|
| Procedure: CLIA Complexity: Moderate for Serum, Plasma or Whole Blood |
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| Prepared By | Date Adopted | Supersedes Procedure # |
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| Review Date | Revision Date | Signature |
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This Procedural Bulletin is intended to provide a ready outline reference for performance of the assay. These abbreviated directions for use are not intended to replace the complete package insert. It is the obligation of every manufacturer of medical devices labeled FOR *IN VITRO* DIAGNOSTIC USE to provide a complete package insert in accordance with FDA labeling regulation (21 CFR 809.10). Prepared in accordance with the guidelines recommended by the Clinical and Laboratory Standards Institute, Wayne, PA 19087; CLSI Document GP2-A2.

Quidel Corporation provides CLSI procedures for your use. The procedures are required to include the same information as listed in the package insert. Any modifications to this document are the sole responsibility of the Laboratory.

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CLIA Complexity: MODERATE

INTENDED USE

The QuickVue H. pylori gII test is a lateral-flow immunoassay intended for the rapid, qualitative detection of IgG antibodies specific to *Helicobacter pylori* in human serum, plasma or whole blood as an aid in the diagnosis of *H. pylori* infection in patients with clinical signs and symptoms of gastrointestinal disease. The test is intended for use by health care professionals.

SUMMARY AND EXPLANATION

Helicobacter pylori is implicated in the etiology of a variety of gastrointestinal diseases, including non-ulcer dyspepsia, duodenal and gastric ulcer, and active and chronic gastritis^{1,2}. Studies also suggest an association of *H. pylori* infection with stomach cancer; the role of *H. pylori* and the factors involved in the development of these diseases are still under investigation.³

Several treatment regimens using antibiotics in combination with bismuth compounds have been shown to be effective in treating active *H. pylori* infection.^{4,5} Successful eradication of *H. pylori* is associated with clinical improvement in patients with chronic active gastritis, gastric ulcer and duodenal ulcer.^{4,5}

Individuals infected with *H. pylori* develop serum antibodies which correlate strongly with histologically confirmed *H. pylori* infection.^{6,7,8} The QuickVue H. pylori gII test detects *H. pylori*-specific IgG antibodies produced by individuals colonized or infected with the organism. The QuickVue H. pylori gII test is simple to perform, requires no instrumentation and yields rapid, qualitative test results in minutes.

PRINCIPLE OF THE TEST

To perform the test, 1 drop (approximately 50 µL) of serum, plasma or whole blood is added to the Test Cassette. If the patient sample contains *H. pylori*-specific IgG antibodies, a faint pink-to-red Test Line will be visible in the Result Window along with a blue procedural Control Line, indicating a positive result. If *H. pylori*-specific IgG antibody is not present or is present at very low levels in the patient sample, only a blue procedural Control Line will be visible. If the blue procedural Control Line does not develop within 5 minutes, the test is considered invalid.

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REAGENTS AND MATERIALS SUPPLIED

| Reagents | Catalog # | |
|-------------------------------------------------------------------------------------------------------------------|-----------|-------|
| | 0W009 | 0W010 |
| Test cassettes, murine monoclonal antibody to human IgG (Test Line) and rabbit polyclonal antibody (Control Line) | 10 | 30 |
| Disposable droppers | 10 | 30 |
| Capillary tubes | 10 | 30 |
| Positive Control, diluted human plasma containing <i>H. pylori</i> -specific IgG, 0.01% thimerosal | 1 | 1 |
| Negative Control, diluted human plasma, 0.01% thimerosal | 1 | 1 |
| Package Insert | 2 | 2 |
| Procedure Card | 1 | 1 |

WARNINGS AND PRECAUTIONS

- For *In Vitro* Diagnostic Use.
- Do not use kit contents after the expiration date printed on the outside of the box.
- Use appropriate precautions in the collection, storage, handling and disposal of patient samples and used kit contents.
- Use of Nitrile or Latex gloves is recommended when handling patient samples.⁹
- Dispose of containers and used contents in accordance with Federal, State and Local requirements.
- Thimerosal is used as a preservative. Incidental contact with or ingestion of Positive or Negative controls can lead to increased hypersensitivity reactions including irritation to the skin, eyes or mouth. Seek medical attention if symptoms are experienced.
- The Test Cassette must remain sealed in the protective foil pouch until just prior to use.
- To obtain accurate results, you must follow the Package Insert instructions.

KIT STORAGE AND STABILITY

Store kit at room temperature 59–86°F (15–30°C) out of direct sunlight. Do not freeze. Kit contents are stable until the expiration date printed on the outer box.

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SPECIMEN COLLECTION AND STORAGE

Serum: Collect and prepare serum samples by standard laboratory procedures. Serum samples may be stored refrigerated at 2–8°C for up to 72 hours. For longer storage, freeze at or below –20°C in vials with air tight seals.

Plasma: Collect an anticoagulated blood sample [sodium heparin (green-top tubes), lithium heparin (green-top tubes) or potassium EDTA (lavender-top tubes)] using standard laboratory procedures. Separate plasma by centrifugation. Plasma samples may be stored refrigerated at 2–8°C for up to 72 hours; for longer storage, freeze at or below –20°C.

Whole Blood: Collect an anticoagulated blood sample [sodium heparin (green-top tubes), lithium heparin (green-top tubes) or potassium EDTA (lavender top tubes)] following standard laboratory procedures. Whole blood samples may be stored up to 4 hours at room temperature or either on ice or refrigerated (2–8°C) for up to 72 hours prior to testing.

Fresh Capillary Blood Sample:

To use a capillary tube

- Ensure that the finger is clean, dry and warm.
- Puncture the side of the middle or ring finger skin with the lancet. Wipe away the first sign of blood.
- Gently rub the hand from palm to finger to obtain a rounded drop of blood.
- Touch the capillary tube to the blood until filled to the black line (Do not squeeze the bulb at the end of the capillary tube while obtaining the sample).
- Squeeze the bulb end of the capillary tube to dispense the whole blood sample.

To use hanging drop

- Ensure that the finger is clean, dry and warm.
- Puncture the side of the middle or ring finger skin with the lancet. Wipe away the first sign of blood.
- Gently rub the hand from palm to finger to obtain a rounded drop of blood.
- Position the finger so that the drop of blood is just above the Sample Well of the Test Cassette.

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QUALITY CONTROL

Built-in Control Features

The QuickVue H. pylori gII test contains built-in procedural control features. The manufacturer's recommendation for daily quality control is to document these built-in procedural controls for the first sample tested each day.

The two-color result format provides a clear-cut readout for positive and negative results. The appearance of a blue procedural Control Line provides several forms of internal control: (1) capillary flow occurred; and (2) functional integrity of the test strip was maintained. If the blue procedural Control Line does not develop at 5 minutes, the test result is considered invalid.

A built-in negative control is provided by the clearing of red background color, verifying that the test has been performed correctly. The result area should be white-to-light pink within 5 minutes and not interfere with interpretation of the test result. If background color appears which interferes with interpretation of the test result, the result is considered invalid. Should this occur, review the procedure and repeat the test with a new Test Cassette.

External Quality Control

External controls also may be used to demonstrate that the reagents and assay procedure perform properly. Positive and Negative Control Solutions are supplied with the kit. Add **two drops** of the Positive or Negative Control Solution to the Sample Well using a new Test Cassette; continue with the assay as described in the **Test Procedure** using these controls in place of a patient sample.

If used, controls should be run with each new lot or shipment of materials, and as otherwise required by your laboratory's standard Quality Control procedures.

If the Positive and Negative Controls do not perform as expected, repeat the test or contact Quidel Technical Support.

TEST PROCEDURE

All test materials and patient samples must be at room temperature before beginning.

Note: Sample volumes of less than 1 drop may yield an incorrect result.

Caution: Follow universal precautions when handling potentially infectious materials.

Test Procedure: Remove the Test Cassette from the foil pouch. Place it on a clean, dry, level surface.

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Add 1 drop of SERUM, PLASMA or WHOLE BLOOD using a clean disposable dropper to the round Sample Well on the Test Cassette.

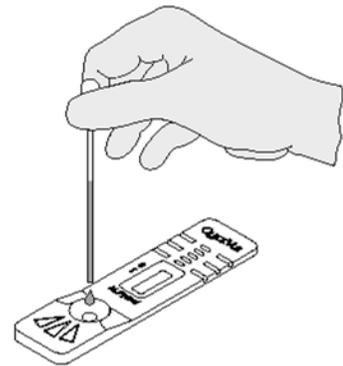
The Test Cassette should not be moved until the assay is complete and ready for interpretation.



OR

Add 1 drop of anticoagulated WHOLE BLOOD using a clean disposable dropper to the round Sample Well on the Test Cassette.

The Test Cassette should not be moved until the assay is complete and ready for interpretation.



OR

Add 1 CAPILLARY TUBE of WHOLE BLOOD from a fingerstick to the round Sample Well on the Test Cassette.

The Test Cassette should not be moved until the assay is complete and ready for interpretation.



OR

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Add 2 hanging drops of WHOLE BLOOD from a fingerstick to the round Sample Well on the Test Cassette. Allow 2 drops of blood to fall into the center of the Sample Well, or move the patient's finger so that the drop touches the center of the Sample Well. Avoid touching the finger directly to the center of the Sample Well.



The Test Cassette should not be moved until the assay is complete and ready for interpretation.

READ RESULTS AT 5 MINUTES. Some positive results may be seen earlier.

INTERPRETATION OF RESULTS

Refer to Procedure Card for interpretation of test results.

Positive Result:

Any shade of a pink-to-red Test Line near the letter "T" and a blue procedural Control Line near the letter "C" within 5 minutes indicates the presence of *H. pylori*-specific IgG antibodies.

Negative Result:

Only a blue procedural Control Line near the letter "C" at 5 minutes indicates the absence of *H. pylori*-specific IgG antibodies.

Invalid Result:

The test result is considered invalid if the blue procedural Control Line is not visible at 5 minutes after sample application, even if the Test Line is visible. If the result is invalid, retest using a new Test Cassette or contact Quidel Technical Support.

LIMITATIONS

The contents of this kit are for use in the qualitative detection of *H. pylori*-specific IgG antibodies and do not indicate the titer of the antibody in the sample. The test should be used only to evaluate adult patients with clinical signs and symptoms suggestive of gastrointestinal disease.

The test is not intended for use with asymptomatic patients. Performance characteristics for persons under the age of 18 have not been established with this test.

A positive QuickVue result only indicates the presence of specific IgG antibodies to *H. pylori*, but determination of an active or inactive infection cannot be made.

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A negative QuickVue result indicates that *H. pylori* -specific IgG antibody is not present, or is present at a level below the detection threshold of the test.

Test results must always be evaluated with other data available to the physician. Additional follow-up testing is recommended if the QuickVue result is negative and *H. pylori* infection is suspected.

EXPECTED VALUES

In the United States, approximately 11% of symptomatic individuals with normal gastric histology have been reported to be colonized with *H. pylori*, while 63% of those with chronic gastritis yielded positive culture biopsies. The factors that lead from colonization with the organism to infection are unknown.

The prevalence rate of colonization appears to be age related with 50% of adults shown to be colonized with the organism by age sixty. Eighty to 100% of individuals with signs and symptoms of other gastrointestinal conditions such as duodenal ulcers, are reported to be positive for *H. pylori* infection.¹⁰

PERFORMANCE CHARACTERISTICS

Clinical Sensitivity, Specificity, and Accuracy

The performance of the QuickVue H. pylori gII test was determined in a multi-center clinical evaluation. Serum specimens were obtained from 342 patients undergoing endoscopic examination.

For this study, each patient was evaluated by the QuickVue H. pylori gII test, an EIA *H. pylori* antibody detection assay and histology and/or culture.

Table 1 presents a comparison of the QuickVue H. pylori gII test to biopsy (culture and/or histology).

TABLE 1

| | | Biopsy | |
|----------------------------------------------------|-----|----------|----------|
| | | Positive | Negative |
| QuickVue H. pylori gII Test Results | Pos | 158 | 36 |
| | Neg | 18 | 130 |

Sensitivity: 158 / 176 = 90% [95% C.I. 86% - 93%]
Specificity: 130 / 166 = 78% [95% C.I. 73% - 82%]
PPV: 158 / 194 = 81%
NPV: 130 / 148 = 88%
Agreement: 288 / 342 = 84%

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The 36 QuickVue positive, biopsy negative specimens were tested by an EIA *H. pylori* antibody detection assay. Three (3) specimens were equivocal and 21 were positive, indicating the presence of *H. pylori*-specific IgG antibodies in those specimens.

The 18 QuickVue negative, biopsy positive specimens were tested by an EIA *H. pylori* antibody detection assay. Two (2) were equivocal and 9 were negative by EIA, indicating the absence of *H. pylori*-specific IgG antibodies in those specimens.

The QuickVue *H. pylori* gII test was also compared directly to an EIA *H. pylori* antibody detection assay. Because sampling errors may occur during biopsy due to the sporadic distribution of the bacteria in the gastric mucosa, the actual bacteria may not be sampled during biopsy, making it difficult to detect the bacterium by histology. Antibody detection tests, therefore, are more likely to determine if an infection is present, provided that the patient is not immunosuppressed and is actually producing antibodies to *H. pylori*. In this study, the overall agreement between the two tests was 92%. Table 2 presents the results of this study.

TABLE 2

| | | EIA | |
|----------------------------------------------------|-----|----------|----------|
| | | Positive | Negative |
| QuickVue H. pylori gII Test Results | Pos | 174 | 14 |
| | Neg | 12 | 128 |

Cross-Reactivity

Sera containing known amounts of antibodies to *H. pylori* were tested with *C. jejuni*, *C. fetus*, *C. coli* and *E. coli*. All species tested showed no cross-reactivity, indicating that the QuickVue *H. pylori* gII test has a high degree of specificity for human antibodies to *H. pylori*.

Interference Studies

QuickVue *H. pylori* gII test results were not affected by elevated levels of serum albumin, bilirubin or hemoglobin. Altering the hematocrit ranging from 20 to 60% did not affect the accuracy of the test.

Reproducibility

The within-run and between-run performance of the QuickVue *H. pylori* gII test was evaluated using negative, low positive and high positive samples for antibodies to *H. pylori*. All results obtained were 100% in agreement with the expected results.

Physician's Office Laboratory (POL) Studies

An evaluation of the QuickVue *H. pylori* gII test was conducted at three Physicians' Offices using a panel of coded test specimens. Testing was performed by physician

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office personnel with diverse educational backgrounds and work experience at three different locations. The proficiency panel contained negative, moderate positive and high positive specimens. Each specimen level was tested a minimum of six replicates at each site over a period of three days.

The results obtained at each site agreed 100% with the expected results. No significant differences were observed within run (6 replicates), between runs (3 different assay days) or between sites (3 different POL sites).

ASSISTANCE

If you have any questions regarding the use of this product, please call Quidel's Technical Support Number, (800) 874-1517 (toll-free in the U.S.A.) or (858) 552-1100, Monday through Friday, between 7:00 a.m. and 5:00 p.m., Pacific Time, U.S.A. If outside the United States, contact your local distributor or technicalsupport@quidel.com.

REFERENCES

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REF

0W009 – QuickVue H. pylori gII 10 Test Kit
0W010 – QuickVue H. pylori gII 30 Test Kit

IVD



EC REP

MDSS
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30175 Hanover,
Germany



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QUIDEL[®]

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| <p>EC REP Authorized Representative in the European Community</p> | <p>REF Catalogue number</p> |
| <p>CONTROL + Positive control</p> | <p>CONTROL - Negative control</p> |
| <p> Use by</p> | <p>IVD For <i>In Vitro</i> diagnostic use</p> |
| <p>LOT Batch code</p> | <p> Consult instructions for use</p> |
| <p> Manufacturer</p> | <p> Temperature limitation</p> |

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LOG SHEET



Record Built-in Procedural Controls on the first patient tested each day.

| | Date | Patient Name | Negative Procedural Control (Clear Bkgd) | Positive Procedural Control (Blue Line) | Test Results At 5 minutes | Lot Number and Exp. Date | Technician |
|----|------|--------------|------------------------------------------|-----------------------------------------|---------------------------|--------------------------|------------|
| 1 | | | | | | | |
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| 15 | | | | | | | |

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Need to run external Positive and Negative Controls once per lot or shipment of material per CLIA package insert requirements.

| | Date/Date Received | External Positive Control | External Negative Control | Lot Number and Exp. Date | Technician |
|----|--------------------|---------------------------|---------------------------|--------------------------|------------|
| 1 | | | | | |
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