Trinity Biotech

Uni-Gold™ Recombigen® HIV-1/2

REF 1206506

Pour d'autres langues	Para outras línguas
Für andere Sprachen	Για τις άλλες λώσσες
Para otras lenguas	För andra språk
Per le altre lingue	For andre språk
Dla innych języków	For andre sprog

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Read this package insert completely before using the product. Follow the directions carefully. Not doing so may result in incorrect test results. Before performing testing, all operators MUST read and become familiar with Universal Precautions for Prevention of Transmission of Human immunodeficiency Virus, Hepatitis B Virus and Other Blood-Borne Pathogens in Health-Care Settings.

CLIA COMPLEXITY;

WAIVED FOR WHOLE BLOOD FINGERSTICK AND VENIPUNCTURE SAMPLES

MODERATE COMPLEXITY FOR SERUM AND PLASMA SAMPLES

NAME AND INTENDED USE

Uni-Gold™ Recombigen® HIV-1/2 is a single use rapid immunoassay, for the qualitative detection of antibodies to HIV-1 and/or HIV-2 in serum, plasma and whole blood (venipuncture and fingerstick). Uni-Gold™ Recombigen® HIV-1/2 is intended for use in point of care settings as an aid in diagnosis of infection with HIV-1 and/or HIV-2.

This test is suitable for use in appropriate multi-test algorithms designed for the statistical validation of rapid HIV test results.

RESTRICTIONS

- Sale of Uni-Gold™ Recombigen® HIV-1/2 is limited to clinical laboratories
  - that have an adequate quality assurance program, including planned systematic activities to provide adequate confidence that requirements for quality will be met.
  - where there is assurance that operators will receive and use the instructional materials.
- Uni-Gold™ Recombigen® HIV-1/2 is approved for use only by an agent of a clinical laboratory.
- The test subjects must receive the "Subject Information Leaflet" prior to specimen collection, and appropriate information when test results are provided.
- Uni-Gold™ Recombigen® HIV-1/2 is not approved for use to screen donors of blood, plasma, cells or tissues.

SUMMARY

HIV is the causative agent of AIDS (Acquired Immunodeficiency Syndrome). AIDS is the end stage of a drawn out process in which the immune system of an infected person and its ability to control infections or malignant proliferative disorders are progressively destroyed.[1] HIV is mainly transmitted by unprotected sexual intercourse or from mother to child.[1] Most frequently, HIV infection is diagnosed by tests that assess whether an individual's immune system has produced an HIV-specific immune response (antibodies to HIV).[1]

In the USA the standard laboratory test algorithm (set of different tests) may take 48 hours to one week before results may be made available. This algorithm consists of screening with an enzyme immunoassay (EIA) followed by confirmation by Western blot (WB) or immuno-fluorescent (IFA) methods.

During the last 20 years, HIV infection and severe HIV-related diseases (e.g., AIDS) have become a leading cause of illness and death in the United States. Approximately 800,000-900,000 persons in the United States are infected with HIV and approximately 275,000 of these persons might not know they are infected.[2]

Approximately 25 million persons each year in the United States are tested for HIV. Publicly funded counseling and testing programs conduct approximately 2.5 million of these tests each year. In 1995, 25% of these individuals testing HIV positive and 33% of persons testing HIV negative at publicly funded clinics did not return for their test results. Rapid tests to detect HIV antibody can be performed within 20 minutes, enabling health-care providers to supply definitive negative and preliminary positive results to patients at the time of testing, potentially increasing the overall effectiveness of counseling and testing programs. In comparison, results from enzyme immunoassays (EIAs) currently used for HIV screening often are not available for 1-2 weeks.[3] Using rapid tests, during 1995, a total of 697,495 more persons would have learned their HIV status.[3]

Many advances have been made in HIV/AIDS prevention and treatment, including the development of effective antiretroviral therapies that have reduced HIV related illness and death. Early knowledge of HIV infection is now recognized as a critical component in controlling the spread of HIV infection.[2] Rapid HIV testing allows clients to receive results the same day in a single visit, which is useful in urgent medical circumstances and settings where clients tend not to return for HIV test results (e.g., some STD clinics).[2] Advances in these areas have resulted in revised recommendations for HIV screening of pregnant women,[4,5] treating opportunistic infections and other sexually transmitted and bloodborne diseases and managing occupational and non-occupational exposures and prophylaxis.[6,7]

PRINCIPLES OF THE PROCEDURE

Uni-Gold™ Recombigen® HIV-1/2 was designed as a rapid immunoassay and is intended to detect antibodies to HIV-1 and/or HIV-2 in human serum, plasma and whole blood (venipuncture and fingerstick).

Uni-Gold™ Recombigen® HIV-1/2 uses proteins representing regions of the HIV virus. If antibodies to HIV-1 and/or HIV-2 are present in the sample, they combine with these proteins and a color reagent and this complex binds to the proteins in the test forming a visible pink/red band in the test region of the device adjacent to the word 'Test'.
The control line should always appear as a visible pink/red band in the control region of the device to indicate that the test device is functioning correctly. A reactive result is indicated by a pink/red band in the test region of the device. A non-reactive result occurs in the absence of detectable levels of antibodies to HIV-1 and/or HIV-2 in the specimen; consequently no visually detectable band develops in the test region of the device.

MATERIALS PROVIDED

Each kit contains:

a) 20 Test Devices (individually pouched)
b) Wash solution 5.0 ml
c) 20 Disposable Pipettes for use with serum, plasma or venipuncture whole blood. To be used also with Controls (Catalog number 1206530)
d) 20 Disposable Fingerstick Sample Collection and Transfer Pipettes for use with fingerstick whole blood
e) 20 Subject Information Leaflets
f) 1 Package Insert

Materials required and available as an accessory to the kit

- Uni-Gold™ Recombigen® HIV Kit Controls. Catalog number 1206530.
  Each pack of Kit Controls contains; HIV-1 Positive Control, 1 vial (red cap), (0.5ml), HIV-2 Positive Control, 1 vial (green cap), and Negative Control, 1 vial (black cap) (0.5ml) and a package insert.

MATERIALS REQUIRED BUT NOT PROVIDED

Timer or stopwatch
Blood collection devices, for testing of venipuncture whole blood, serum or plasma
Biohazard disposal container
Disposable gloves

For Fingerstick samples the following additional material are required.

- Adhesive bandages
- Lancet capable of producing a 50µl droplet
- Sterile wipes and sterile gauze pads

WARNINGS

For *in vitro* diagnostic use

Read the package insert completely before use. It is very important that the correct procedure is followed. Not adding the patient sample may lead to a false negative result (i.e. a missed positive).

1. Read the package insert completely before using the product. The instructions must be followed carefully as not doing so may result in inaccurate results.
2. Before performing testing all operators must read and become familiar with the Universal Precautions for Prevention of Transmission of Human Immunodeficiency Virus, Hepatitis B Virus and other Blood-Borne Pathogens in Health-Care settings.[8]
3. The FDA has approved this kit for use with serum, plasma and whole blood (venipuncture and fingerstick) specimens. Use of the kit with specimens other than those specifically approved for use with this device may result in inaccurate test results.
4. This test kit is CLIA-waived for use only with fingerstick whole blood and venipuncture whole blood samples.
5. Uni-Gold™ Recombigen® HIV-1/2 is for diagnostic use only and is not to be used for screening donors of blood, plasma, cells or tissues.
6. Perform test at room temperature (15 – 27°C / 59.0 – 80.6°F).

PRECAUTIONS

Safety Precautions

1. Standard precautions for handling infectious agents should be observed when using this kit.
2. Wear standard protective clothing such as a lab coat and disposable gloves when handling specimens and assay reagents in accordance with local regulations.
3. Wash hands thoroughly after use.
4. In the case of Wash Solution contact with eyes, rinse immediately with plenty of water and seek medical advice.

Appropriate biosafety practices should be followed when handling specimens and reagents. These precautions include, but are not limited to, the following:

1. Do not smoke, eat, drink, apply cosmetics or handle contact lenses in areas where specimens are handled.
2. Dispose of all specimens, used devices and pipettes as though they are capable of transmitting infection. The preferred methods of disposal are by autoclaving at 121°C for a minimum of 60 minutes or by incineration. Disposable materials may be incinerated. Liquid waste may be mixed with appropriate chemical disinfectants. A solution of 10% bleach is recommended. Allow 60 minutes for effective decontamination. NOTE: Do not autoclave solutions containing bleach. For additional information on biosafety refer to "Universal Precautions for Prevention of Transmission of Human Immunodefeciency Virus, Hepatitis B virus and Other Blood-Borne Pathogens in Health Care Settings".[8]
3. When disposing of wash buffer, avoid contact with acid to prevent liberation of a toxic gas.
4. All spills should be wiped thoroughly using a suitable disinfectant such as a solution of 10% bleach.
5. Use a separate disposable pipette and device for each specimen tested.
6. Do not pipette by mouth.

Handling Precautions

1. Do not use any device if the pouches have been perforated.
2. Each device is for single use only.
3. Do not mix reagents from different kit lots.
4. Do not use the kit past the expiration date (this date is printed on the box).
5. Adequate lighting is required to read the test results.
6. Read results 10 minutes following the addition of Wash Solution. Do not read results more than 12 minutes following the addition of Wash Solution.
7. Lancets should be placed in a puncture resistant container prior to disposal.

STORAGE INSTRUCTIONS

Uni-Gold™ Recombigen® HIV-1/2 device and Wash Solution should be stored between 2-27°C / 35.6 – 80.6°F.
Kit components are stable until expiration date when stored as directed.
If stored refrigerated, ensure that the pouched device is brought to room temperature (15°C – 27°C / 59.0 – 80.6°F before opening).
Do not use beyond expiration date.
Do not freeze the kit.

Store the separately supplied Uni-Gold™ Recombigen® HIV Kit Controls at 2-8°C/ 35.6-46.4°F.

SPECIMEN COLLECTION AND STORAGE

For venipuncture whole blood and plasma: EDTA, acid citrate dextran (ACD) or heparin should be used as the anticoagulant. Other anticoagulants have not been tested and may give incorrect results.

Whole blood collected by fingerstick;

Whole blood samples collected by fingerstick should be used on the Uni-Gold™ Recombigen® HIV-1/2 immediately after collection.

Whole blood collected by venipuncture;

Using standard phlebotomy procedures, collect a venipuncture whole blood specimen using a blood collection tube containing either EDTA, acid citrate dextran (ACD) or heparin. Other anticoagulants have not been tested and may give incorrect results.
It is recommended that specimens should be tested immediately but can be tested within 8 hours of collection if stored at ambient temperature (15°C- 27°C / 59.0 – 80.6°F). If specimens are not to be tested within 8 hours of collection, a plasma sample should be generated and stored at 2-8°C / 35.6 – 46.4°F for up to five (5) days to allow testing. For long term storage plasma specimens should be frozen at -20°C or below. Grossly hemolysed or lipemic samples should not be used. Avoid multiple freeze thaw cycles. (note; Plasma may only be tested in laboratories certified to run moderate complexity tests).

Serum and Plasma (note; Serum and Plasma may only be tested in laboratories certified to run moderate complexity tests)
Using standard phlebotomy procedures, collect a venipuncture whole blood specimen using a blood collection tube. If collecting plasma use a blood collection tube containing either EDTA, acid citrate dextran (ACD) or heparin.

Other anticoagulants have not been tested and may give incorrect results.
Centrifuge the tube of blood (1000-1300 x g, for approximately 5 minutes, no refrigeration required) to separate the cells from the plasma. Carefully uncap the tube by gently rocking the stopper towards you so that it vents away from you.

Specimens may be tested immediately upon receipt or stored at 2-8°C / 35.6 – 46.4°F for up to five (5) days to allow testing. Specimens should be stored at -20°C or below if storage is necessary for more than five (5) days. Grossly hemolysed or lipemic samples should not be used. Avoid multiple freeze thaw cycles.

TEST PROCEDURE AND INTERPRETATION FOR CLIA WAIVED AND CLIA MODERATE SETTINGS

Test Procedure For Fingerstick Whole Blood

1. Ensure that the Subject Information Leaflet has been given to the subject.
2. Allow the kit (unopened devices and Wash Solution) to reach room temperature (15 – 27°C / 59.0 – 80.6°F) (at least 20 minutes) if previously stored in the refrigerator. Once at room temperature remove the required number of Uni-Gold™ Recombigen® HIV-1/2 devices from their pouches. PERFORM ONLY ONE TEST AT A TIME.
3. Lay the device on a clean flat surface.
4. Label the device with the appropriate patient information / ID.

5. Sample collection and addition to device;
   - Using an antiseptic wipe, clean the finger of the person being tested. Allow the finger to dry thoroughly or wipe dry with a sterile gauze pad.
   - Using a sterile lancet capable of producing a 50µl blood let, puncture the skin just off the centre of the finger pad. Hold the finger downward. Apply gentle pressure beside the point of the puncture. Avoid squeezing the finger to make it bleed. Wipe away the first drop of blood with a sterile gauze pad. Allow a new drop of blood to form. If blood flow is inadequate the subject's finger may have to be gently massaged at the finger base to produce a droplet of sufficient volume. Avoid 'milking' the finger.

   - Collect the blood into the fingerstick sample transfer pipette provided following the procedure and figure presented below.

   a) Hold the Pipette bulb gently in a horizontal position to the sample to be collected. This is important, as the specimen may not be adequately drawn in the pipette if the Pipette is held in a vertical position.

   b) Place the tip of the Pipette into the sample, taking care not to squeeze the bulb. Maintain this position until the flow of sample into the Pipette has stopped. The sample should fill to the mark on the Pipette. If sample is not collected to the mark, the Pipette should be safely discarded and another specimen should be collected from another finger by repeating the sample collection process. The sample should be used immediately.

   c) Squeeze the bulb until the sample is fully discharged into the Uni-Gold™ Recombigen® HIV-1/2 sample port. Should the sample not fully discharge, cover the small opening at the mark on the Pipette with a gloved finger. Then squeeze the bulb until the sample is fully discharged. Allow the sample to absorb into the paper in the sample port. Ensure air bubbles are not introduced into the sample port.

   d) Dispose the Pipette in biohazard waste.

6. Holding the dropper bottle of Wash Solution in a vertical position, add four (4) drops of Wash Solution to the Sample Port.

7. Set the timer for 10 minutes and start timing the test.
8. Read test results after 10 minutes but not more than 12 minutes incubation time.

9. Refer to the Test Results and Interpretation of Whole Blood Samples below. Note there is a different interpretation for Whole Blood Samples from that for Plasma or Serum Samples.
10. If testing whole blood check for full red color in sample port. The sample port must contain red color for test to be valid. A pink/red line must appear adjacent to the word control. A pink/red line may appear adjacent to the word test. If no red color is seen in the sample port repeat test with fresh device.

Test Procedure Venipuncture Whole Blood

1. Ensure that the Subject Information Leaflet has been given to the subject.
2. Allow the kit (unopened devices and wash solution) to reach room temperature (15 – 27°C / 59.0 – 80.6°F) (at least 20 minutes) if previously stored in the refrigerator. Once at room temperature remove the required number of Uni-Gold™ Recombigen® HIV-1/2 devices from their pouches. Perform no more than 10 tests at one time.

3. Lay the devices on a clean flat surface.

4. Label each device with the appropriate patient information / ID.
5. Draw up adequate sample to the first gradation on the pipette using one of the disposable pipettes included in the kit. Use only the pipette included in the kit and do not reuse.

6. Holding the pipette vertically over the sample port, add one (1) free falling drop of sample carefully. Do not add the full volume contained within the pipette.
   Allow the sample to absorb into the paper in the sample port. Ensure air bubbles are not introduced into the sample port. Discard the pipette in a biohazard waste container.

7. Holding the dropper bottle of Wash Solution in a vertical position, add four (4) drops of Wash Solution to the Sample Port.

8. Set the timer for 10 minutes and start timing the test.
9. Read test results after 10 minutes but not more than 12 minutes incubation time.

10. Refer to the Test Results and Interpretation of Whole Blood Samples below. Note there is a different interpretation for Whole Blood Samples from that for Plasma or Serum Samples.
11. If testing whole blood check for full red color in sample port. The sample port must contain red color for test to be valid. A pink/red line must appear adjacent to the word control. A pink/red line may appear adjacent to the word test. If no red color is seen in the sample port repeat test with fresh device.

INTERPRETATION FOR WHOLE BLOOD SAMPLE

Invalid Results

FOR A TEST TO BE VALID A CONTROL LINE MUST BE PRESENT AND THE SAMPLE PORT MUST CONTAIN FULL RED COLOUR

REPORT AS INVALID	REPORT AS INVALID	REPORT AS INVALID	REPORT AS INVALID	REPORT AS INVALID
Test line present No control line present Full red color at Sample Port	No test line present No control line present Full red color at Sample Port	No test line present Control line present No red color at Sample Port	No test line present Control line present Not full red color at Sample Port	Test line present Control line present No red color at Sample Port
No pink/red line appears in the device window adjacent to word "Control" whether or not a pink/red line appears in the device window adjacent to word "Test".	No pink/red line appears in the device window adjacent to word "Control" whether or not a pink/red line appears in the device window adjacent to word "Test".	Red color is not seen in the Sample Port.	Red color is not seen in full sample well. White of sample pad remains.	Red color is not seen in the Sample Port.
The test should be repeated in duplicate with fresh devices.	The test should be repeated in duplicate with fresh devices.	The test should be repeated in duplicate with fresh devices.	The test should be repeated in duplicate with fresh devices.	The test should be repeated in duplicate with fresh devices.

Valid Results

REPORT AS PRELIMINARY POSITIVE	REPORT AS NEGATIVE
Test line present Control line present Full red color at Sample Port	No test line present Control line present Full red color at Sample Port
Reactive Test Result A pink/red line of any intensity appears in the device window adjacent to word "Test" AND a second pink/red line of any intensity appears adjacent to word "Control" AND a full red color appears in the Sample Port. This indicates a Reactive result that is interpreted as Preliminary Positive for HIV-1 and/or HIV-2 antibodies.	Non-Reactive Test Result A pink/red line of any intensity appears in the device window adjacent to word "Control" AND a full red color appears in the Sample Port, but no pink/red line appears in the device window adjacent to "Test". This indicates a Non-Reactive result that is interpreted as Negative for HIV-1 and/or HIV-2 antibodies.

TEST PROCEDURE SERUM, PLASMA AND CONTROLS; SERUM AND PLASMA SUITABLE FOR CLIA MODERATE SETTING ONLY

Test Procedure

1. Ensure that the Subject Information Leaflet has been given to the subject.
2. Allow the kit (unopened devices and wash solution) to reach room temperature (15 – 27°C / 59.0 – 80.6°F) (at least 20 minutes) if previously stored in the refrigerator. Once at room temperature remove the required number of Uni-Gold™ Recombigen® HIV-1/2 devices from their pouches. Perform no more than 10 tests at one time.
3. Lay the devices on a clean flat surface.
4. Label each device with the appropriate patient information / ID.
5. Draw up adequate sample to the first gradation on the Pipette using one of the disposable pipettes included in the kit. Use only the Disposable Pipette included in the kit and do not reuse. If Kit Controls are being run, these must be used as described in the package insert provided with the Kit Controls.

6. Holding the Disposable Pipette vertically over the sample port, add one (1) free falling drop of sample carefully. Do not add the full volume contained within the Disposable Pipette Allow the sample to absorb into the paper in the sample port. Ensure air bubbles are not introduced into the sample port. Discard the Disposable Pipette in a biohazard waste container.

7. Holding the dropper bottle of Wash Solution in a vertical position, add four (4) drops of Wash Solution to the Sample Port

8. Set the timer for 10 minutes and start timing the test.
9. Read test results after 10 minutes but not more than 12 minutes incubation time.

10. Refer to the interpretation guide for serum and plasma. A pink/red line must appear adjacent to the word control. A pink/red line may appear adjacent to the word test.

INTERPRETATION FOR SERUM AND PLASMA SAMPLE; SERUM AND PLASMA SAMPLES SUITABLE FOR CLIA MODERATE SETTING ONLY

TEST RESULTS AND INTERPRETATION OF RESULTS

Reactive Test Result
A pink/red line of any intensity appears in the device window adjacent to word "Test" and a second pink/red line of any intensity appears adjacent to word "Control".

This indicates a Reactive result that is interpreted as Preliminary Positive for HIV-1 and/or HIV-2 antibodies.

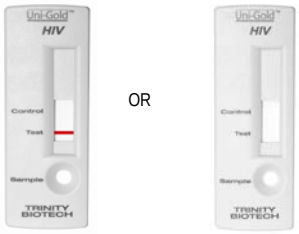
Non-Reactive Test Result
A pink/red line of any intensity appears in the device window adjacent to word "Control", but no pink/red line appears in the device window adjacent to "Test".

This indicates a Non-Reactive result that is interpreted as Negative for HIV-1 and/or HIV-2 antibodies.

Invalid Result

No pink/red line appears in the device window adjacent to word "Control" whether or not a pink/red line appears in the device window adjacent to word "Test". This is an Invalid result that cannot be interpreted.

The test should be repeated in duplicate with fresh devices.



QUALITY CONTROL

Built-In Control Features;

The Uni-Gold™ Recombigen® HIV-1/2 test has a built in procedural control that demonstrates assay validity. A pink/red line appearing adjacent to the word 'control' indicates that the test is running correctly.
In addition, when using whole blood samples, there must be a red color in the sample port to validate the addition of the sample. The pink/red control line will appear on all valid tests, whether or not the sample is Reactive or Non-Reactive (refer to the test results and interpretation sections).

External Quality Control;

Uni-Gold™ Recombigen® HIV Kit Controls (Product Code: 1206530) are available separately for use only with the Uni-Gold™ Recombigen® HIV-1/2 test. The Kit Controls are used to verify your ability to perform the test and interpret the test result. The Positive Control will produce a Reactive test result and has been manufactured to produce a very faint pink/red Test line. The Negative Control will produce a Non-Reactive test result (refer to the test results and interpretation section). Note that a red color at the sample port will not be seen if using the Uni-Gold™ Recombigen® HIV kit controls (Product Code: 1206530).

Run the Kit Controls under the following circumstances:

- All new operators performing testing on patient specimens
- Each new kit lot
- Whenever a new shipment of test kits is received
- If the temperature of the test kit storage area falls outside of 2-27°C / 35.6 – 80.6°F
- If the temperature of the testing area falls outside of 15 – 27°C / 59.0 – 80.6°F
- At periodic intervals as specified in your Quality Assurance program

The Kit Controls must give the expected reactive or non-reactive results, otherwise the test results are not valid. Refer to the Uni-Gold™ Recombigen® HIV Kit Control package insert for instructions on the use of these reagents. It is the responsibility of each laboratory using the Uni-Gold™ Recombigen® HIV-1/2 test to establish an adequate quality assurance program to assure the performance of the device under its specific locations and conditions of use. Contact Trinity Biotech Customer Service if the Kit Controls do not produce the expected results.

LIMITATIONS

1. Uni-Gold™ Recombigen® HIV-1/2 must be used in accordance with the instructions in this package insert to obtain an accurate result.
2. Uni-Gold™ Recombigen® HIV-1/2 is designed to detect antibodies to HIV-1 and/or HIV-2 in undiluted whole blood (venipuncture and fingerstick) serum, and plasma. For venipuncture whole blood and plasma, EDTA, acid citrate dextran (ACD) or heparin should be used as the anticoagulant. Other anticoagulants have not been tested and may give incorrect results. Other body fluids may not give accurate results and must not be used.
3. Immunosuppressed or immunocompromised individuals infected with HIV-1 and/or HIV-2 may not produce antibodies to the virus. Testing with any kit designed to detect antibodies may give negative results in this incidence and would not be a reliable test method for such patients.
4. The intensity of a pink/red line at the "Test" region is not an indication of the level of antibody in the specimen.
5. A Reactive result by Uni-Gold™ Recombigen® HIV-1/2 suggests the presence of anti-HIV-1 and/or HIV-2 antibodies in the specimen. Uni-Gold™ Recombigen® HIV-1/2 is intended as an aid in the diagnosis of infection with HIV-1 and/or HIV-2. AIDS and AIDS related conditions are clinical symptoms and their diagnosis can only be established clinically.
6. Reading test results earlier than 10 minutes or later than 12 minutes may give incorrect results.
7. A Non-Reactive result with Uni-Gold™ Recombigen® HIV-1/2 does not exclude the possibility of infection with HIV. A false negative result may occur in the following circumstances:
   - Recent infection. Antibody response to a recent exposure may take several months to reach detectable levels.
   - The test procedure has not been correctly followed.
   - Antibodies to a variant strain of HIV-1 and/or HIV-2 in the patient that do not react with specific antigens utilized in the assay configuration.
   - Improper specimen handling.
   - Failure to add sample.
8. A person who has antibodies to HIV-1 and/or HIV-2 is presumed to be infected with the virus, except that a person who has participated in an HIV vaccine study may develop antibodies to the vaccine and may or may not be infected with HIV. Clinical correlation is indicated with appropriate counseling, medical evaluation and possibly additional testing to decide whether a diagnosis of HIV infection is accurate.

PERFORMANCE CHARACTERISTICS

SENSITIVITY

The sensitivity of Uni-Gold™ Recombigen® HIV-1/2 was evaluated testing fresh serum, plasma and whole blood (venipuncture) samples. A total of 1032 HIV-1 positive samples were run on Uni-Gold™ Recombigen® HIV-1/2. 1000 of these were collected from individuals known to be HIV-1 sero-positive, and previously confirmed as positive by Western blot.

A further 32 samples were collected from individuals from high risk populations of unknown HIV serostatus who were subsequently found to be repeatedly reactive using a licensed HIV-1 EIA and positive by Western Blot.

The sensitivity of the Uni-Gold™ Recombigen® HIV-1/2 was also evaluated testing fresh venipuncture whole blood and fresh fingerstick whole blood from the same person. 100% agreement was achieved.

Uni-Gold™ Recombigen® HIV-1/2 test was reactive for all these samples when tested using the serum, plasma and whole blood (venipuncture) portion of each sample set, to give 100% sensitivity in these studies (1032/1032 = 100% 95% C.I. = 99.5 – 100.0%).

Two samples reactive by Uni-Gold™ Recombigen® HIV-1/2, from individuals known to be positive for HIV-1 were initially non-reactive by the FDA licensed screening assay. These samples were treated as per the protocol as positive samples and included in the calculations presented in Table 1. In the calculations the sensitivity of Uni-Gold™ Recombigen® HIV-1/2 has been based on the initial and not repeat test result.

Table 1: Performance of Uni-Gold™ Recombigen® HIV-1/2 on initial serum, plasma and whole blood venipuncture samples, in comparison to EIA and Western blot from individuals seropositive for HIV-1

Test Group	Uni-Gold Recombigen HIV Serum Positive	Uni-Gold Recombigen HIV Plasma Positive	Uni-Gold Recombigen HIV Whole Blood Positive	EIA Reactive	Western Blot positive
High risk(n=1000)	35	34	34	32	32
Known HIV positive (n=1000)	1000	1000	1000	*998	1000
TOTAL	1035	1034	1034	1030	1032

*2 samples were initially non-reactive by the EIA. These samples were reactive on EIA repeat testing.

The sensitivity of Uni-Gold™ Recombigen® HIV-1/2 in detecting known HIV-2 antibody positive samples was assessed using a total of 268 samples that were previously shown to be positive for only HIV-2 antibodies using an FDA approved HIV-1/HIV-2 differentiation Rapid test (Table 2). All samples were frozen plasma sourced from Sierra Leone (n=66) and Ivory Coast (n=202). The Uni-Gold™ Recombigen® HIV-1/2 detected 266 of the 268 specimens known to be positive for only HIV-2 antibodies.

In a separate study, a total of 500 plasma samples from two HIV-2 endemic areas in West Africa (Ivory Coast n=250 and Sierra Leone n=250) were initially screened using Uni-Gold™ Recombigen® HIV-1/2 and an FDA licensed anti HIV-1/2 EIA. Further confirmatory testing was performed using an FDA licensed HIV-1 Western blot and both a research use HIV-2 Western blot and an FDA approved HIV-1/HIV-2 differentiation rapid test for determination of the HIV-2 status. Twenty (20) samples were HIV-2 positive on the HIV-2 detection tests; of these, 5 samples were classified as HIV-2 positive only. The remaining 15 specimens were also positive on the HIV-1 Western blot and were likely co-infected with HIV-1. Uni-Gold™ Recombigen® HIV-1/2 detected all 20 HIV-2 positive samples including the 5 HIV-2 only positive samples.

Table 2 presents a summary of the HIV-2 results. The overall sensitivity of Uni-Gold™ Recombigen® HIV-1/2 for the detection of antibodies to HIV-2 was shown to be 271/273 = 99.3% (95% C.I. = 97.1% - 99.9%).

Table 2: Performance of Uni-Gold™ Recombigen® HIV-1/2 with known HIV-2 reactive samples and endemic samples.

Test Group	Samples	HIV-2 Antibody Reactive on HIV-1/HIV-2 Differentiation test	Reactive with Uni-Gold™ Recombigen® HIV-1/2	True HIV-2 Only Antibody Positive Specimens Detected by Uni-Gold™ Recombigen® HIV-1/2
Known HIV-2 antibody positive samples	268	268	266	266
HIV-2 endemic samples of unknown status	*500	**20	20	***5
Total	768	288	286	271

* Of these 500 samples, 441 were negative on the FDA licensed tests, of which all 441 tested negative on Uni-Gold™ Recombigen® HIV-1/2.

** Of the remaining 59 samples, 20 samples were HIV-2 antibody positive based on an HIV-1 and HIV-2 differentiation test and research use HIV-2 Western blot, of which 15 samples were positive on an FDA licensed HIV-1 Western blot (likely co-infection with HIV-1). In addition, using HIV-1 Western blot, 11 specimens were HIV-1 only positive and 28 samples were HIV-1 Indeterminate.

*** The 5 samples that were true HIV-2 only antibody positive were both positive on HIV-2 Western blot and HIV-2 only positive (i.e., HIV-1 negative) on the FDA approved HIV-1/HIV-2 differentiation rapid test.

Eleven HIV-1 seroconversion panels were tested in comparison to FDA licensed EIA and Western blot tests. Each panel consisted of sequential specimens obtained from a single individual during seroconversion. The eleven seroconversion panels consisted of 79 specimens. The results of this study are shown in Table 3. The Uni-Gold™ Recombigen® HIV-1/2 test detected HIV-1 antibodies at the same bleed or at an earlier bleed than the most sensitive of the licensed EIA's in 8 out of 11 panels. In the remaining 3 panels the Uni-Gold™ Recombigen® HIV-1/2 test detected HIV-1 antibodies one bleed later that the most sensitive EIA.

Table 3: Summary of Seroconversion panel results in comparison to FDA licensed EIAs.

Panel	Relative Day of Bleed	Uni-Gold™ Recombigen® HIV-1/2	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
D	0	NR	NR	NR	NR	NR	NR	NEG
	21	NR	NR	NR	NR	NR	NR	NEG
	49	NR	NR	NR	NR	NR	NR	NEG
	92	R	RR	RR	RR	RR	RR	POS
	99	R	RR	RR	RR	RR	RR	POS
P	0	NR	NR	NR	NR	NR	NR	NEG
	4	NR	NR	NR	NR	NR	NR	NEG
	9	NR	NR	NR	NR	NR	NR	NEG
	15	NR	NR	NR	NR	NR	NR	NEG
	30	R	RR	RR	RR	RR	RR	NEG
	35	R	RR	RR	RR	RR	RR	POS
X	0	NR	NR	NR	NR	NR	NR	NEG
	2	NR	NR	NR	NR	NR	NR	NEG
	8	NR	NR	NR	NR	NR	NR	NEG
	10	NR	NR	NR	NR	NR	NR	NEG
	26	NR	NR	NR	NR	NR	NR	NEG
	33	R	NR	RR	NR	NR	NR	NEG
	35	R	RR	RR	NR	NR	NR	NEG
	40	R	RR	RR	NR	NR	RR	POS

Table 3 continued

Panel	Relative Day of Bleed	Uni-Gold™ Recombigen® HIV-1/2	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
AD	0	NR	NR	NR	NR	NR	NR	NEG
	4	NR	NR	NR	NR	NR	NR	NEG
	14	NR	NR	NR	NR	NR	NR	NEG
	18	NR	NR	NR	NR	NR	NR	NEG
	21	NR	NR	NR	NR	NR	NR	NEG
	25	R	NR	RR	NR	NR	NR	IND
	28	R	NR	RR	NR	RR	RR	POS
AF	0	NR	NR	NR	NR	NR	NR	NEG
	2	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	9	NR	NR	NR	NR	NR	NR	NEG
	15	NR	NR	NR	NR	NR	NR	NEG
	28	R	NR	RR	NR	NR	NR	NEG
	33	R	RR	RR	NR	RR	RR	POS
	35	R	RR	RR	RR	RR	RR	POS
	42	R	RR	RR	RR	RR	RR	POS
AJ	0	NR	NR	NR	NR	NR	NR	NEG
	10	NR	NR	NR	NR	NR	NR	NEG
	16	NR	NR	NR	NR	NR	NR	NEG
	21	NR	NR	NR	NR	NR	NR	NEG
	24	NR	NR	NR	NR	NR	NR	NEG
	28	NR	NR	NR	NR	NR	NR	NEG
	43	R	RR	RR	RR	NR	RR	POS
AK	0	NR	NR	NR	NR	NR	NR	NEG
	5	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	12	NR	NR	NR	NR	NR	NR	NEG
	14	NR	NR	NR	NR	NR	NR	NEG
	19	NR	NR	RR	NR	NR	NR	NEG
	21	R	RR	RR	NR	NR	RR	IND
AL	0	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	9	NR	NR	NR	NR	NR	NR	NEG
	14	NR	NR	NR	NR	NR	NR	NEG
	16	NR	NR	NR	NR	NR	NR	NEG
	21	NR	NR	RR	NR	NR	NR	NEG
AN (e)	0	NR	NR	NR	NR	NR	NR	NEG
	2	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	9	NR	NR	NR	NR	NR	NR	NEG
	14	NR	NR	NR	NR	NR	NR	NEG
	16	NR	NR	NR	NR	NR	NR	NEG
	21	NR	NR	NR	NR	NR	NR	NEG
	23	NR	NR	NR	NR	NR	NR	NEG
	103	R	RR	RR	RR	RR	RR	POS
AP	0	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	11	R	NR	RR	NR	NR	NR	NEG
	15	R	NR	RR	NR	NR	NR	IND
	18	R	RR	RR	NR	NR	RR	IND
	22	R	RR	RR	NR	RR	RR	IND
	25	R	RR	RR	RR	RR	RR	IND
	29	R	RR	RR	NR	RR	RR	IND
AS	0	NR	NR	NR	NR	NR	NR	NEG
	5	NR	NR	NR	NR	NR	NR	NEG
	7	NR	NR	NR	NR	NR	NR	NEG
	12	NR	NR	NR	NR	NR	NR	NEG
	14	NR	NR	RR	NR	NR	NR	NEG
	19	R	NR	RR	NR	NR	NR	NEG
	21	R	RR	RR	NR	NR	NR	IND

Table Key: R= Reactive, NR = Not Reactive, RR = Repeat Reactive;
POS = Positive, NEG = Negative, IND = Indeterminate. EIA = FDA licensed EIA

Two commercially available low titre HIV-1 panels and one in-house low titre panel were tested by Uni-Gold™ Recombigen® HIV-1/2 in comparison with FDA licensed EIA tests. In this study, Uni-Gold™ Recombigen® HIV-1/2 was shown to have comparable sensitivity to FDA licensed EIAs. Results are presented in Tables 4, 5 and 6.

Table 4: Result Summary of First Low Titre Panel: PRB 107

Panel Member PRB 107	Uni-Gold™ Recombigen® HIV-1/2	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
01	R	NR	RR	RR	NR	NR	NEG
02	R	NR	RR	RR	RR	NR	IND
03	R	NR	RR	NR	NR	NR	NEG
04	R	RR	RR	RR	RR	NR	NEG
05	NR	NR	NR	NR	NR	NR	NEG
06	R	RR	RR	RR	RR	NR	NEG
07	NR	NR	RR	RR	NR	NR	NEG
08	R	NR	RR	NR	RR	NR	NEG
09	NR	NR	RR	NR	NR	NR	NEG
10	R	RR	RR	RR	RR	RR	NEG
11	R	RR	RR	NR	RR	RR	POS
12	R	NR	RR	NR	NR	NR	NEG
13	R	NR	RR	RR	NR	NR	IND
14	R	RR	RR	RR	RR	RR	POS
15	R	RR	RR	RR	RR	RR	IND

Key: R= Reactive, NR = Not Reactive, RR = Repeatedly Reactive
POS = Positive, NEG = Negative, IND = Indeterminate

Table 5: Result Summary of Second Low Titre Panel: PRB 108

Panel Member PRB 108	Uni-Gold™ Recombigen® HIV-1/2	EIA 1	EIA 2	EIA 3	Western Blot	Rapid Test
01	R	RR	RR	RR	POS	R
02	NR	NR	NR	NR	NEG	NR
03	R	RR	RR	RR	IND	R
04	R	RR	RR	RR	POS	NR
05	R	RR	RR	RR	POS	R
06	R	RR	RR	RR	IND	NR
07	R	RR	RR	RR	POS	R
08	R	RR	RR	RR	POS	R
09	R	RR	RR	NR	POS	NR
10	R	RR	NR	NR	IND	NR
11	R	RR	RR	RR	POS	R
12	NR	RR	NR	NR	NEG	NR
13	R	RR	NR	NR	IND	R
14	NR	RR	NR	NR	NEG	NR
15	R	RR	RR	RR	IND	NR

Key: R= Reactive, NR = Not Reactive, RR = Repeatedly, Reactive POS = Positive, NEG = Negative, IND = Indeterminate (according to Western blot specifications)

Table 6: Third Low Titre Panel: In-House

In- House Panel Member	Uni-Gold™ Recombigen® HIV-1/2	EIA 1	EIA 2	Western Blot
CRC 42015	R	R	NR	POS
CRC 42013	R	R	NR	POS
CRC 42025	R	R	NR	IND
CRC 42049	R	R	NR	IND
CRC 42071	R	R	NR	POS
CRC 42075	R	R	NR	POS
CRC 42119	R	R	NR	POS

Key: R= Reactive, NR = Not Reactive, POS = Positive, NEG = Negative, IND = Indeterminate, EIA = FDA licensed EIA

The sensitivity of Uni-Gold™ Recombigen® HIV-1/2 was further investigated by testing samples from people with unrelated medical conditions and samples containing interfering substances. 200 samples from subjects with other medical conditions were spiked with HIV-1 antibody positive serum. The medical conditions included Cytomegalovirus, Rubella IgG, Epstein Barr Virus, Anti-Nuclear Antibody, Hepatitis B Core Antibody, Hepatitis B Surface Antigen, Hepatitis C Virus Antibody, other autoimmune diseases, other disease states and samples from persons recently vaccinated against viruses. None of the unrelated medical conditions affected the sensitivity of Uni-Gold™ Recombigen® HIV-1/2. In addition, 20 samples with interfering substances, such as hemolyzed, lipemic, high protein, high bilirubin, sarcoid and multiple myeloma samples were spiked with HIV-1 antibody positive serum and tested. These potentially interfering conditions do not affect the performance of Uni-Gold™ Recombigen® HIV-1/2.

SPECIFICITY

A total of 1968 HIV-1 EIA negative individual samples were run as serum, plasma and whole blood on Uni-Gold™ Recombigen® HIV-1/2.

1000 of these were collected from individuals of unknown HIV-1 serostatus in a low risk population, and subsequently confirmed as negative by EIA. Of these 1000 samples 2 were reactive in initial test by plasma and serum and 3 by whole blood when tested by Uni-Gold™ Recombigen® HIV-1/2.

Therefore in a low risk population the specificity of Uni-Gold™ Recombigen® HIV-1/2 in these studies was

99.8% (95% Confidence interval = 99.3 - 100%) for serum,
99.8% (95% Confidence interval = 99.3 - 100%) for plasma and
99.7% (95% Confidence interval = 99.0 - 100%) for whole blood.

A further 968 samples were collected from individuals of unknown HIV-1 serostatus, from a high risk population, who were subsequently found to be HIV-1 sero-negative by EIA. Of these 968 samples, 2 were reactive by plasma and whole blood and 3 by serum when tested by Uni-Gold™ Recombigen® HIV-1/2.

Therefore in a high risk population the specificity of Uni-Gold™ Recombigen® HIV-1/2 in these studies was

99.7% (95% Confidence interval = 99.0 - 100%) for serum,
99.8% (95% Confidence interval = 99.2 - 100%) for plasma and
99.8% (95% Confidence interval = 99.2 - 100%) for whole blood.

These data are combined and summarized in Table 7.

Table 7: Performance of Uni-Gold™ Recombigen® HIV-1/2 from individuals presumed negative for HIV infection. (Combining negative samples from low and high risk populations)

Test Group	Uni-Gold™ Recombigen® HIV-1/2 Serum Negative	Uni-Gold™ Recombigen® HIV-1/2 Plasma Negative	Uni-Gold™ Recombigen® HIV-1/2 Whole Blood Negative	EIA Negative
Low risk (n=1000)	998	998	997	1000
High Risk* (n=1000)	965	966	966	968

*This sample set consisted of 32 true HIV-1 positive samples

The specificity of the Uni-Gold™ Recombigen® HIV-1/2 was also evaluated testing fresh venipuncture whole blood and fresh fingerstick whole blood from the same person. 100% agreement was achieved.

To further evaluate the specificity of Uni-Gold™ Recombigen® HIV-1/2, the product was challenged for antibody cross reactivity with sera from individuals with other disease states. Two hundred (200) specimens from patients with non HIV-1 medical conditions, and confirmed as HIV – 1 negative were tested. The results are summarized in Table 8:

Table 8: Results from samples with other medical conditions

Disease State Sample Tested	Number Tested	Number Correctly Identified (Non-Reactive)	%
Cytomegalovirus Positive	20	20	100%
Rubella IgG Positive	20	20	100%
Epstein Barr Virus Positive	20	20	100%
Rheumatoid Factor Positive	10	10	100%
Anti-Nuclear Antibody Positive	20	20	100%
Hepatitis B Core Antibody Positive	20	20	100%
Hepatitis B Surface Antigen Positive	20	20	100%
Hepatitis C Virus Antibody Positive	30	30	100%
Other auto immune samples	10	10	100%
Other disease states	20	20	100%
Recently Vaccinated against Viruses	10	10	100%
Total	200	200	100%

In addition, 20 samples with interfering substances, such as hemolysed, lipemic, high protein, high bilirubin, sarcoid and multiple myeloma samples were tested. These potentially interfering conditions do not affect the performance of Uni-Gold™ Recombigen® HIV-1/2.

REPRODUCIBILITY

Uni-Gold™ Recombigen® HIV-1/2 was found to be consistent and stable when three different lots of Uni-Gold™ Recombigen® HIV-1/2 were tested by 2 operators, at 2 separate sites, testing 7 coded and blinded samples, 5 times a day, over 4 days. 840 tests were run (420 per site), with a total of 60 tests per sample. The overall reproducibility of the device was found to be excellent. The overall reproducibility of the Uni-Gold™ Recombigen® HIV-1/2 was found to be 100% (840/840).

RESULTS FROM UNTRAINED USER STUDY

An 'Untrained' user study was conducted at 3 sites with 100 participants in total who had no professional medical laboratory training, personnel or prior experience using Uni-Gold™ Recombigen® HIV-1/2. Each participant in the study was asked to perform Uni-Gold™ Recombigen® HIV-1/2 tests with a blinded panel of 6 samples without prior training, solely by using the provided package insert.

Three different samples were included in the study with each participant testing all three in duplicate and in a blinded manner. The samples consisted of a negative sample, a positive sample and a low positive sample. The low positive sample represented a weak positive sample close to the visual detection limit of the test.

The overall rate of correct results for the study was 97.7% (586/600). Table 9 below summarizes the study findings. There were no invalid results reported in the study. As part of the untrained user study each participant completed a questionnaire on the use of the product.

TABLE 9; Untrained users rate of correct results

Untrained Users Rate of Correct Test Results			
Negative	Low Positive	High positive	Total
99.0% (198/200)	94.0% (188/200)	100% (200/200)	97.7% (586/600)
95%CI (96.4-99.9)	95%CI (89.8-96.9)	95%CI (98.2-100)	95%CI (96.1-98.7)

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GUIDE TO SYMBOLS

Consult Instructions for Use

Temperature limitation

Catalogue number

For *in vitro* Diagnostic Use

Manufacturer

Batch code

Use by

Manufacturer:
TRINITY BIOTECH PLC
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1206506-29 Rev D
12/2012