

FOR INFORMATION USE ONLY.
Not to be used for performing the assay,
refer to the insert accompanying kit.



Uni-Gold™ Recombigen® HIV

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

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 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 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 is not approved for use to screen donors of blood, plasma, cells or tissues

SUMMARY

HIV-1 is one of the causes 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 blood-borne diseases and managing occupational and non-occupational exposures and prophylaxis (6,7).

PRINCIPLES OF THE PROCEDURE

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

Uni-Gold™ Recombigen® HIV uses proteins representing regions of the HIV virus. If antibodies to HIV-1 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 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 Positive Control, 1 vial (red cap), (0.5ml) 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 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 Immunodeficiency 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 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 **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.

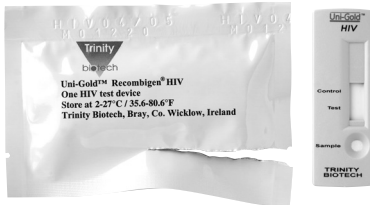
TEST PROCEDURE AND INTERPRETATION FOR CLIA WAIVED AND CLIA MODERATE SETTINGS

Test Procedure For Fingertick 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 devices from their pouches.

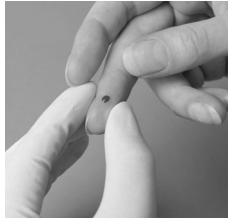
PERFORM ONLY ONE TEST AT A TIME.

3. Lay the device on a clean flat surface.
4. Label the device with the appropriate patient information / ID.

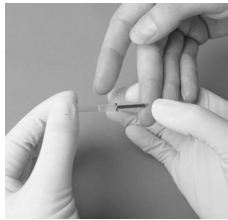


5. Sample collection and addition to device;
 - Using an antiseptic wipe, clean the finger of the person being tested. Allow the finger to dry thoroughly or wipe dry with a sterile gauze pad.
 - Using a sterile lancet capable of producing a 50µl blood let, puncture the skin just off the centre of the finger pad. Hold the finger downward. Apply gentle pressure beside the point of the puncture. Avoid squeezing

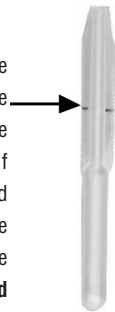
the finger to make it bleed. Wipe away the first drop of blood with a sterile gauze pad. Allow a new drop of blood to form. If blood flow is inadequate the subject's finger may have to be gently massaged at the finger base to produce a droplet of sufficient volume. Avoid 'milking' the finger.



- 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, (Figure 1). 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 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 red/pink line must appear adjacent to the word control. A red/pink 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 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.

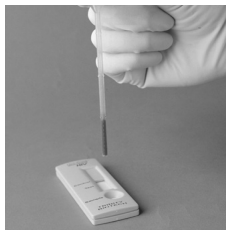
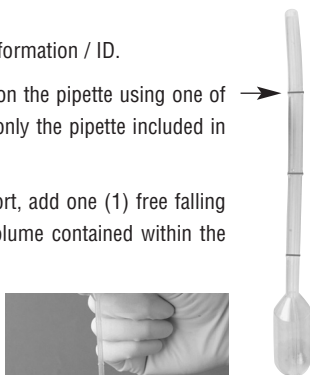
7. Holding the dropper bottle of Wash Solution in a vertical position, add four (4) drops of Wash Solution to the Sample Port.

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 red/pink line must appear adjacent to the word control. A red/pink line may appear adjacent to the word test. If no red color is seen in the sample port repeat test with fresh device.



Invalid Results

FOR A TEST TO BE VALID A CONTROL LINE MUST BE PRESENT AND THE SAMPLE PORT MUST



REPORT AS INVALID

Test line present
No control line present
Full red color at Sample Port

No line appears in the device window adjacent to word "Control" whether or not a line appears in the device window adjacent to word "Test".

The test should be repeated in duplicate with fresh devices.

REPORT AS INVALID

No test line present
No control line present
Full red color at Sample Port

No line appears in the device window adjacent to word "Control" whether or not a line appears in the device window adjacent to word "Test".

The test should be repeated in duplicate with fresh devices.

REPORT AS INVALID

No test line present
Control line present
No red color at Sample Port

Red color is not seen in the Sample Port.

The test should be repeated in duplicate with fresh devices.

REPORT AS INVALID

No test line present
Control line present
Not full red color at Sample Port

Red color is not seen in full sample well. White of sample pad remains.

The test should be repeated in duplicate with fresh devices.

WHOLE BLOOD SAMPLE

CONTAIN FULL RED COLOR



REPORT AS INVALID

Test line present
Control line present
No red color at Sample Port

Red color is not seen in the Sample Port.

The test should be repeated in duplicate with fresh devices.

Valid Results



REPORT AS PRELIMINARY POSITIVE

Test line present
Control line present
Full red color at Sample Port

Reactive Test Result

A line of **any** intensity appears in the device window adjacent to word "Test" AND a second 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 antibodies.



REPORT AS NEGATIVE

No test line present
Control line present
Full red color at Sample Port

Non-Reactive Test Result

A 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 line appears in the device window adjacent to "Test".

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

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

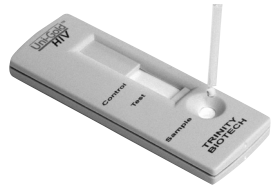
Test Procedure

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 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 red/pink line must appear adjacent to the word control. A red/pink line may appear adjacent to the word test.



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

TEST RESULTS AND INTERPRETATION OF RESULTS

Reactive Test Result

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

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



Non-Reactive Test Result

A line of any intensity appears in the device window adjacent to word "Control", but no line appears in the device window adjacent to "Test".

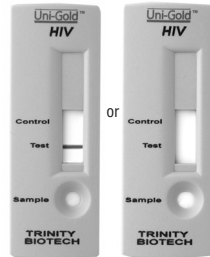
This indicates a Non-Reactive result that is interpreted as Negative for HIV-1 antibodies.



Invalid Result

No line appears in the device window adjacent to word "Control" whether or not a 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 test has a built in procedural control that demonstrates assay validity. A red / pink 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 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 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 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 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 must be used in accordance with the instructions in this package insert to obtain an accurate result.
2. Uni-Gold™ Recombigen® HIV is designed to detect antibodies to HIV-1 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 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 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 suggests the presence of anti-HIV-1 antibodies in the specimen. Uni-Gold™ Recombigen® HIV is intended as an aid in the diagnosis of infection with HIV-1. 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 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 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 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 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. 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 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 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, 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 has been based on the initial and not repeat test result.

Table 1: Performance of Uni-Gold™ Recombigen® HIV on initial serum, plasma and whole blood venipuncture samples, in comparison to EIA and western blot from individuals sero-positive 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.

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 2. The Uni-Gold™ Recombigen® HIV 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 test detected HIV-1 antibodies one bleed later than the most sensitive EIA.

Table 2: Summary of Seroconversion panel results in comparison to FDA licensed EIAs.

Panel	Relative Day of Bleed	Uni-Gold™ Recombigen® HIV	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
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

Table 2 continued

Panel	Relative Day of Bleed	Uni-Gold™ Recombigen® HIV	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
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
A N (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 in comparison with FDA licensed EIA tests. In this study, Uni-Gold™ Recombigen® HIV was shown to have comparable sensitivity to FDA licensed EIAs. Results are presented in Tables 3, 4 and 5.

Table 3: Result Summary of First Low Titre Panel: PRB 107

Panel Member PRB 107	UniGold™ Recombigen® HIV	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 4:Result Summary of Second Low Titre Panel: PRB 108

Panel Member PRB 108	UniGold™ Recombigen® HIV	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 5: Third Low Titre Panel: In-House

In- House Panel Member	UniGold™ Recombigen® HIV	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 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. 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.

SPECIFICITY

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

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.

Therefore in a low risk population the specificity of Uni-Gold™ Recombigen® HIV 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.

Therefore in a high risk population the specificity of Uni-Gold™ Recombigen® HIV 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 6.

Table 6: Performance of Uni-Gold™ Recombigen® HIV from individuals presumed negative for HIV infection. (Combining negative samples from low and high risk populations)

Test Group	Uni-Gold™ Recombigen® HIV Serum Negative	Uni-Gold™ Recombigen® HIV Plasma Negative	Uni-Gold™ Recombigen® HIV 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 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, 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 7:

Table 7: 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.

REPRODUCIBILITY

Uni-Gold™ Recombigen® HIV was found to be consistent and stable when three different lots of Uni-Gold™ Recombigen® HIV 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 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. Each participant in the study was asked to perform Uni-Gold™ Recombigen® HIV 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 8 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 8; 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 (98.2-1.0)	95%CI (96.1-98.7)

REFERENCES

- (1) Schupbach et al, *Clinical Virology Manual*. 3rd Edition 2000; 37: 513-541.
- (2) CDC. Revised Guidelines for HIV Counseling, Testing and Referral and Revised Recommendations for HIV screening of Pregnant Women. *MMWR* 2001; 50(19):32-35.
- (3) CDC. Update: HIV Counseling and Testing using Rapid Tests-United States, 1995. *MMWR* 1998; 47(11).
- (4) Dabis et al., 6-month efficacy, tolerance and acceptability of a short regimen of oral zidovudine to reduce vertical transmission of HIV in breastfed children in Cote d'Ivoire and Burkina Faso: a double-blind placebo controlled multicentre trial. *Lancet* 1999; 353:786-92
- (5) Mofenson et al. Advances and research directions in the prevention of mother-to-child HIV-1 transmission. *Lancet* 2000; 355:2237-44
- (6) Correspondence, *Lancet* 2000; 355: 9214
- (7) Rapparini et al. The impact of rapid HIV testing to limit unnecessary post exposure prophylaxis following 9.442 occupational exposures. (Abstract MoOrD1106) XIV International AIDS conference. July 7-12 2002 Barcelona
- (8) CDC. Universal precautions for prevention of transmission of human immunodeficiency virus, hepatitis B virus and other blood-borne pathogens in health-care settings. *MMWR* 1988; 37(24):377-388.
- (9) CDC Revised guidelines for HIV counseling *MMWR* Recommendations and Reports, 2001; 50 (RR-19)

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