



## Uni-Gold™ Recombigen® HIV

**Read this package insert completely before using the product. Follow the instructions carefully. Not doing so may result in inaccurate test results.**

### NAME AND INTENDED USE

Uni-Gold™ Recombigen® HIV is a single use rapid test, for the detection of antibodies to HIV-1 in plasma, serum and whole blood (venipuncture). 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 restricted 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 and 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 causative agents of AIDS. AIDS is the end stage of a protracted 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 predominantly transmitted by unprotected sexual intercourse, perinatally from mother to child, postnatally by breast feeding or parenteral transmission (1). The most frequently HIV infection is diagnosed by tests that assess whether an individual's immune system has produced an HIV-specific immune response (1).

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

During the past two decades, HIV infection and severe HIV-related diseases (e.g., acquired immunodeficiency syndrome [AIDS]) have become a leading cause of illness and death in the United States. As of December 31, 2000, a total of 774,467 persons were reported with AIDS and 448,060 of these persons had died; the number of persons living with AIDS (322,865) was the highest ever reported. 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 a revised recommendations for HIV screening of pregnant women (4,5), treating opportunistic infections and other sexually transmitted and bloodborne disease 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 based on the immunochromatographic sandwich principle and is intended to detect antibodies to HIV-1 in human serum, plasma and whole blood (venipuncture).

Uni-Gold™ Recombigen® HIV Test employs genetically engineered recombinant proteins representing the immunodominant regions of the envelope proteins of HIV-1. The recombinant proteins are immobilised at the test region of the nitrocellulose strip. These proteins are also linked to colloidal gold and impregnated below the test region of the device. A narrow band of the nitrocellulose membrane is also sensitized as a control region.

If antibodies to HIV-1 are present in the sample, they combine with an HIV-1 antigen/colloidal gold reagent and this complex binds to the immobilized antigens in the test region of the device forming a visible pink/red band. 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 positive result is visualized by a pink/red band in the test region of the device. A negative reaction occurs in the absence of detectable levels of human immunoglobulin 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
- d) 20 Subject Information Leaflets
- e) 1 Package Insert

Picture of the device contents will be presented here

## Materials required and available as an accessory to the kit

Uni-Gold™ Recombigen® HIV kit controls. Catalogue number 1206530.

Each pack of 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
- Biohazard disposal container
- Disposable gloves

## WARNINGS

For in vitro diagnostic use

**Read the package insert completely before use. It is very important that the correct procedure is followed. Failure to add the patient sample may lead to a false negative result (i.e. a missed positive).**

1. The package insert instructions must be followed to ensure optimum test performance.
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) specimens. Use of the kit with specimens other than those specifically approved for use with this device may result in inaccurate test results.
4. Uni-Gold™ Recombigen® HIV is for diagnostic use only and not to be used for screening donors of blood, plasma, cells or tissues.
5. Perform test at ambient temperature (15 – 27° C).

## PRECAUTIONS

### Safety Precautions

1. Standard precautions for handling infectious agents should be observed when using this kit.
2. Wear standard protective clothing such as 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 buffer 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 sodium hypochlorite solution.
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.
5. Adequate lighting is required to read the test results.
6. Read results 10 minutes following the addition of the sample and wash solution.

### **STORAGE INSTRUCTIONS**

Uni-Gold™ Recombigen® HIV device and wash solution should be stored between 2-27°C.

Kit components are stable until expiration date when stored as directed.

If stored refrigerated, ensure that the pouched device is brought to ambient temperature (15° – 27°C 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.**

### **SPECIMEN COLLECTION AND STORAGE**

Serum, plasma or whole blood collected by venipuncture may be used.

EDTA, Citrate or Heparin should be used as the anticoagulant.

Samples can be stored at ambient temperature (15° - 27°C) for up to 8 hours after which they should be refrigerated, or frozen for long term storage.

## TEST PROCEDURE

- 1) Ensure that the Subject Information Leaflet has been given to the subject and subject consent obtained in accordance with local regulations.
- 2) Allow the kit and samples to reach room temperature (15 – 27°) (at least 20 minutes) if previously refrigerated. Remove the required number of Uni-Gold™ Recombigen® HIV devices from their pouches. Perform no more than 10 tests simultaneously.
- 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 (serum or plasma or whole blood, venipuncture) using one of the disposable pipettes supplied. Use only the pipette supplied and do not reuse. See picture. If controls are being run these must be used as described in the package insert provided with the controls.
- 6) Holding the pipette vertically over the sample port, add one (1) drop of sample carefully and allow to absorb. Ensure air bubbles are not introduced into the sample port.
- 7) Holding the bottle in a vertical position, add four (4) drops of the wash solution from the dropper bottle to the sample port.
- 8) Set timer for 10 minutes .
- 9) Read test results immediately after 10 minutes incubation time.
- 10) Follow CDC Guidance to report to the test subjects the test results and its interpretation (9)

*Picture of pouched device and wash buffer to be added here*

*Picture of pipette with gradation to be added here*

*Picture of an open device with sample being dropped on by the pipette (write a patient number on the device)*

*Picture of open device with wash buffer being dropped*

Allow 10 minutes from the time of wash solution addition for reaction to occur. The result should be read immediately after the 10 minute incubation time.

## QUALITY CONTROL

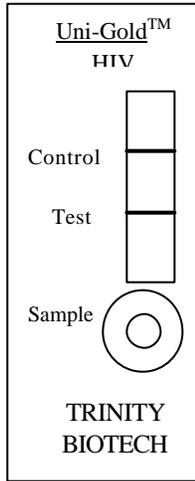
Good Laboratory Practices necessitate the use of control specimens to ensure proper device performance. Uni-Gold™ Recombigen® HIV kit controls (Product Code : 1206530) must be run by all new operators of the device, each new kit lot, a change in the conditions of testing and at periodic intervals as specified in your Quality Assurance program. These controls must give the expected positive or negative results. Otherwise the test results are not valid.

A built-in control on the test device indicates that the test is functioning correctly. A pink/red band should always appear at the control region. The formation of this control line does not validate the addition of patient sample.

**As with the running of all diagnostic tests extreme care must be employed to follow the correct procedure.**

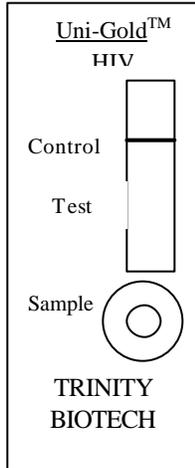


# TEST RESULTS AND INTERPRETATION OF RESULTS



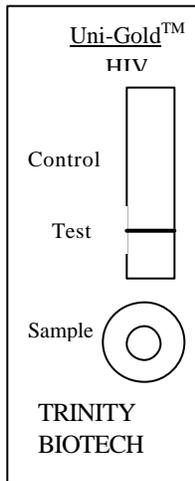
**Reactive Test Result**

A line appears adjacent to “Control” and adjacent to “Test” in the device window.  
A line of any intensity at both “Test” and “Control” regions indicates a reactive result that is interpreted as **Preliminary Positive** for HIV-1 antibodies

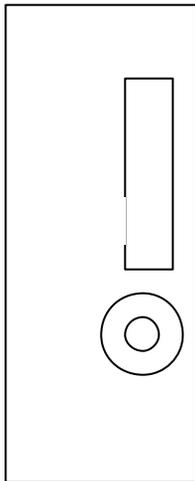


**Non-Reactive Test Result**

A line appears only adjacent to “Control” in the device window. No line appears at the “Test” region.  
A line at the “Control” region only indicates a non-reactive result that is interpreted as **Negative** for HIV-1 antibodies.



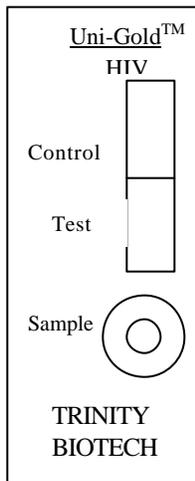
OR



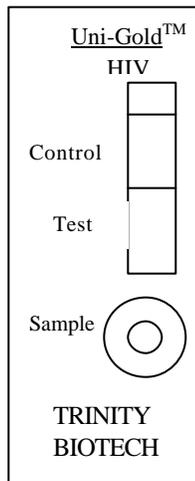
**Invalid Result**

No line appears at the “Control” region irrespective of a line developing at the “Test” region. This is an Invalid result that cannot be interpreted.

The test should be repeated in duplicate with fresh devices.



OR



**Invalid Result**  
**Lines do not appear ADJACENT to “Control” or “Test” regions in the window. This is an invalid result that cannot be interpreted. The test should be repeated in duplicate with fresh devices.**

## LIMITATIONS

1. Uni-Gold™ Recombigen® HIV procedure and interpretation of results must be followed closely as described in the package insert when testing for the presence of HIV-1 antibodies in serum, plasma or whole blood (venipuncture).
2. Uni-Gold™ Recombigen® HIV is designed to detect antibodies to HIV-1 in undiluted human serum, plasma and whole blood collected or whole blood (venipuncture). 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 does not necessarily correlate to the titre of antibody in the specimen.
5. A Reactive result by Uni-Gold™ Recombigen® HIV should be interpreted as preliminary positive for HIV-1 antibodies.
6. 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.
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.
  - Infection with a variant of the virus that is less detectable by Uni-Gold™ Recombigen® HIV assay configuration.
  - Antibodies to variant strain of HIV-1 in the patient that do not react with specific antigens utilized in the assay configuration.
  - Adverse specimen handling conditions.
  - Failure to add sample.

Reading test results earlier or later than 10 minutes may give erroneous results.

## 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. 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 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	
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
0	NR	NR	NR	NR	NR	NR	NEG	

Panel	Relative Day of Bleed	Uni-Gold™ Recombigen® HIV	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
AL	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

**Table 2: continued**

Panel	Relative Day of Bleed	UniGold™ Recombigen® HIV result	EIA 1	EIA 2	EIA 3	EIA 4	EIA 5	Western Blot
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 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 persons with unrelated medical conditions and 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 Auto immune diseases, other disease states and samples from persons recently vaccinated against Viruses do not affect the performance of Uni-Gold™ Recombigen® HIV. In addition, 20 samples with interfering substances, such as haemolysed, lipemic, high protein, high bilirubin, sarcoid and multiple myeloma samples were spiked with HIV-1 antibody positive serum and tested. These potentially interfering substances do not affect the performance of Uni-Gold™ Recombigen® HIV.

## SPECIFICITY

The specificity of Uni-Gold™ Recombigen® HIV was evaluated testing fresh serum, plasma and venipuncture whole blood samples. 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 sero-status, 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.

This data is combined and summarized in Table 6.

**Table 6: Performance of Uni-Gold™ Recombigen® HIV from individuals presumed negative for HIV infection. Protocols 1 and 2 (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

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 to verify that samples of various antibody positive viral infections do not interfere with expected results. 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 haemolysed, lipemic, high protein, high bilirubin, sarcoid and multiple myeloma samples were tested. These potentially interfering samples 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 evaluation of the sensitivity and specificity of Uni-Gold™ Recombigen® HIV test involved 15 operators, at 3 separate sites (5 per site), running 3000 samples per site over a period of 3 months. When the sensitivity and specificity achieved by each operator is evaluated there is no statistical difference in the performance of the product from one operator to another.

Concordant results were observed when 3 lots of Uni-Gold™ Recombigen® HIV were tested on the 14 member FDA HIV-1 lot release panel. All Uni-Gold™ Recombigen® HIV results matched with the expected results as indicated on the data sheet provided by the FDA.

## REFERENCES

- (1) Schupbach et al, Clinical Virology Manual. 3<sup>rd</sup> 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 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 irections 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)

Manufacturer:  
TRINITY BIOTECH PLC  
IDA Business Park  
Bray  
Co. Wicklow  
Ireland  
**Phone:** 353-1-276 9800  
**Fax:** 353-1-276 9888  
**E-mail:** info@trinitybiotech.ie  
www.trinitybiotech.com

USA Distributor  
TRINITY BIOTECH USA  
2823 Girls Road  
P.O Box 1059  
Jamestown  
N.Y 14702-1059  
USA

545-030 01/04

