HUMAN IMMUNODEFICIENCY VIRUS TYPES 1 AND 2:  
(E. COLI, B. MEGATERIUM, RECOMBINANT ANTIGEN)  
HIVAB™ HIV-1/HIV-2 (rDNA) EIA

NAME AND INTENDED USE

HIVAB HIV-1/HIV-2 (rDNA) EIA is an in vitro enzyme immunoassay for the qualitative detection of antibodies to human immunodeficiency viruses type 1 and/or type 2 (HIV-1/HIV-2) in human serum, plasma, or cadaveric serum.

WARNING: A SOFTWARE UPGRADE AND/OR PROTOCOL EDITS MAY BE REQUIRED PRIOR TO IMPLEMENTING THIS ASSAY. PLEASE CONTACT YOUR LOCAL CUSTOMER SUPPORT CENTER.
NAME AND INTENDED USE

**HIVAB HIV-1/HIV-2 (rDNA) EIA** is an in vitro enzyme immunoassay for the qualitative detection of antibodies to human immunodeficiency viruses type 1 and/or type 2 (HIV-1/HIV-2) in human serum, plasma, or cadaveric serum.

**SUMMARY AND EXPLANATION OF THE TEST**

Enzyme immunoassays (EIA) based on recombinant DNA (rDNA) technology have been developed for the qualitative detection of antibodies to human immunodeficiency virus type 1 (HIV-1) and HIV-2. These EIAs have been isolated from patients with AIDS and AIDS-related complex (ARC), and from healthy persons at high risk for acquiring AIDS. HIV-1 and HIV-2 are transmitted by sexual contact, by exposure to blood or blood products, and by breastfeeding. Detection of HIV-1 antibodies is used in the diagnosis of AIDS and AIDS-related complex and in the assessment of patients at high risk. The HIV-2 antibody test has not been licensed for use in the diagnosis of HIV-2. The positive indication (result) of the test should be confirmed by another confirmatory test (e.g., Western Blot). In addition, the test can be used in high-risk populations (e.g. blood donors), it is appropriate to further investigate specimens found to be initially reactive by HIV-1/HIV-2 (rDNA) EIA by the use of proteins which correspond to viral proteins derived by bacterial assays for HIV-1 to react with certain sera from individuals with antibody to HIV-2.

- **2.** A specimen found to be initially reactive by (rDNA) EIA by the use of proteins which correspond to viral proteins derived by bacterial assays for HIV-1 to react with certain sera from individuals with antibody to HIV-2.

- **3.** A patient attending a sexually transmitted disease clinic in London.22

- **5.** Use of recombinant DNA derived antigen corresponding to the viral antigens, HIV-1 coat and envelope, HIV-2 coat, allows for the detection of anti-HIV-1 and/or anti-HIV-2 antibodies.

**REAGENTS**

- **1.** HIV-1 and HIV-2 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA probes. However, HIV-2 differs from HIV-1 as indicated by the following results:

  1. **HIV-1 antiserum containing sera have no neutralizing effect on HIV-2 isolates contrasting with the neutralizing activity of the HIV-1 antiserum on HIV-1 isolates.**

- **2.** The HIV-2 virus is similar to the HIV-1 virus in its morphology, cell tropism, interaction with the CD4-CD8 receptor, and in its cytopathic effect on CD4 cells, overall genomic structure, and its ability to cause AIDS.

- **3.** HIV-2 differs from HIV-1 as indicated by the following results:

  1. HIV-1 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA.

- **4.** HIV-2 DNA probes containing the protein coding regions of the gag and pol gene products and only 25% for the env gene.

- **5.** HIV-2 antibody containing sera have no neutralizing effect on HIV-1 isolates containing the gag and pol gene products and only 25% for the env gene.

**DIAGNOSTIC USE**

**NAME AND INTENDED USE**

**HIVAB HIV-1/HIV-2 (rDNA) EIA** is an in vitro enzyme immunoassay for the qualitative detection of antibodies to human immunodeficiency viruses type 1 and/or type 2 (HIV-1/HIV-2) in human serum, plasma, or cadaveric serum.

**SUMMARY AND EXPLANATION OF THE TEST**

Enzyme immunoassays (EIA) based on recombinant DNA (rDNA) technology have been developed for the qualitative detection of antibodies to human immunodeficiency virus type 1 (HIV-1) and HIV-2. These EIAs have been isolated from patients with AIDS and AIDS-related complex (ARC), and from healthy persons at high risk for acquiring AIDS. HIV-1 and HIV-2 are transmitted by sexual contact, by exposure to blood or blood products, and by breastfeeding. Detection of HIV-1 antibodies is used in the diagnosis of AIDS and AIDS-related complex and in the assessment of patients at high risk. The HIV-2 antibody test has not been licensed for use in the diagnosis of HIV-2. The positive indication (result) of the test should be confirmed by another confirmatory test (e.g., Western Blot). In addition, the test can be used in high-risk populations (e.g. blood donors), it is appropriate to further investigate specimens found to be initially reactive by HIV-1/HIV-2 (rDNA) EIA by the use of proteins which correspond to viral proteins derived by bacterial assays for HIV-1 to react with certain sera from individuals with antibody to HIV-2.

- **2.** A specimen found to be initially reactive by (rDNA) EIA by the use of proteins which correspond to viral proteins derived by bacterial assays for HIV-1 to react with certain sera from individuals with antibody to HIV-2.

- **3.** A patient attending a sexually transmitted disease clinic in London.22

- **5.** Use of recombinant DNA derived antigen corresponding to the viral antigens, HIV-1 coat and envelope, HIV-2 coat, allows for the detection of anti-HIV-1 and/or anti-HIV-2 antibodies.

**REAGENTS**

- **1.** HIV-1 and HIV-2 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA probes. However, HIV-2 differs from HIV-1 as indicated by the following results:

  1. **HIV-1 antiserum containing sera have no neutralizing effect on HIV-2 isolates contrasting with the neutralizing activity of the HIV-1 antiserum on HIV-1 isolates.**

- **2.** The HIV-2 virus is similar to the HIV-1 virus in its morphology, cell tropism, interaction with the CD4-CD8 receptor, and in its cytopathic effect on CD4 cells, overall genomic structure, and its ability to cause AIDS.

- **3.** HIV-2 differs from HIV-1 as indicated by the following results:

  1. HIV-1 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA.

- **4.** HIV-2 DNA probes containing the protein coding regions of the gag and pol gene products and only 25% for the env gene.

- **5.** HIV-2 antibody containing sera have no neutralizing effect on HIV-1 isolates containing the gag and pol gene products and only 25% for the env gene.

**REAGENTS**

- **1.** HIV-1 and HIV-2 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA probes. However, HIV-2 differs from HIV-1 as indicated by the following results:

  1. **HIV-1 antiserum containing sera have no neutralizing effect on HIV-2 isolates contrasting with the neutralizing activity of the HIV-1 antiserum on HIV-1 isolates.**

- **2.** The HIV-2 virus is similar to the HIV-1 virus in its morphology, cell tropism, interaction with the CD4-CD8 receptor, and in its cytopathic effect on CD4 cells, overall genomic structure, and its ability to cause AIDS.

- **3.** HIV-2 differs from HIV-1 as indicated by the following results:

  1. HIV-1 DNA probes constructed with the entire genome fail to hybridize with HIV-2 DNA.

- **4.** HIV-2 DNA probes containing the protein coding regions of the gag and pol gene products and only 25% for the env gene.

- **5.** HIV-2 antibody containing sera have no neutralizing effect on HIV-1 isolates containing the gag and pol gene products and only 25% for the env gene.
3. Avoid contact of OPD and Sulfuric Acid with skin and mucous membranes. If these reagents come into contact with skin, wash thoroughly with cool water.

4. Some components of this product symbol Sodium Acite are a preservative. For a specific dilution, refer to the REAGENTS section of this package insert. Sodium Acite had been reported to induce or promote ulceration in rabbits when used topically. These earlier may expire on occasion, such as thinning. To prevent formation of lead or copper acetate, transfer solutions and wash-glassware with water after dispensation of solutions containing Sodium Acire. See appropriate Risk (R) and Safety (S) phrases.

5. If the desiccant obstructs the flow of beads, remove from bead bottle prior to dispensing. Do not reinsert desiccant to bottle immediately, if removed to obtain a tablet, and close bottle tightly.

6. Do not use kit beyond the expiration date.

7. If serum, plasma or cadaveric serum specimens are to be stored, they may be stored at 2 to 8°C for a maximum of five days. For long term storage, the specimens should be stored frozen. Samples have been tested after three freeze/thaw cycles and no performance difference was seen.

8. Do not use heat-inactivated serum, plasma, or cadaveric serum specimens.

9. Do not use kit expired. For the COMMANDER System; the product may be used with a suitable spectrophotometer or microplate reader.

Materials Provided:
- HIVAB HIV-1/HIV-2 (rDNA) EIA 100/1000/5000 Tests
- OPD Tablets
- OPD Diluent
- Assay Tubes with Identifying Cartons
- Cover Seals
- Reaction Trays
- Tableysis with Identifying Cartons
- Assay Tubes

OPD PREPARATION CHART

<table>
<thead>
<tr>
<th>No. of Tests</th>
<th>OPD Tablets</th>
<th>OPD Diluent</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>1</td>
<td>3 mL</td>
</tr>
<tr>
<td>28</td>
<td>1</td>
<td>6 mL</td>
</tr>
<tr>
<td>43</td>
<td>3</td>
<td>15 mL</td>
</tr>
<tr>
<td>58</td>
<td>4</td>
<td>20 mL</td>
</tr>
<tr>
<td>73</td>
<td>5</td>
<td>25 mL</td>
</tr>
<tr>
<td>88</td>
<td>6</td>
<td>30 mL</td>
</tr>
<tr>
<td>118</td>
<td>8</td>
<td>40 mL</td>
</tr>
<tr>
<td>135</td>
<td>10</td>
<td>50 mL</td>
</tr>
<tr>
<td>148</td>
<td>10</td>
<td>50 mL</td>
</tr>
</tbody>
</table>

NOTE: All of OPD Substrate solutions are supplied in a buffer and should be used within 60 minutes of preparation and mixing. Following is the appropriate Risk (R) and Safety (S) phrases.

R40/22 Possible risks of irreversible effects if swallowed.
R43 May cause sensitization by skin contact.
S35 This material and its container must be disposed of in a safe manner.
S60/70/19 Harmful (Xn) and Dangerous for the environment (N). The following are the appropriate Risk (R) and Safety (S) phrases.

R40 May cause serious damage to the environment by leaking into the aquatic environment.
S36/27/29 Inhaling dusts, fumes, mists, smoke, and vapors can cause serious injuries to the body.
S45/37 Use of protective clothing and equipment is mandatory to protect the user against direct contact with the substance.

IINDICATIONS OF INSTABILITY OR DETERIORATION OF REAGENTS

The OPD Substrate Solution (OPD) is used. For the OPD substrate, use yellow for positive. A yellow-orange color indicates that the reagent has been contaminated and must be discarded.

An absorption value of plus 0.080 for either HIV-1 Positive Control replicate and an absorbance value of less than 0.080 for either HIV-2 Negative Control replicate may indicate technical errors or deterioration of the HIV reagents or OPD reagents. Such runs should be repeated.

693960.p65 3 6/1/02, 8:30 AM
2. When pipetting with the COMMANDER Flexible Pipetting Center (FPC), use System Sample Pipetting and Dilution Procedural Notes.

2. If using Flexible Pipetting Center (FPC™) the Specimen Diluent must be

1. Assay three Negative and two HIV-1 Positive Controls, and two HIV-2 Positive Controls

Preliminary Comments

COMMANDER Operations Manual(s) and note special COMMANDER instructions below.

Laboratories using the COMMANDER System should refer to the appropriate

• Bead Dispenser.
• Nonmetallic forceps.
• COMMANDER Dynamic Incubator (DI).
• QwikWash ® ; or device for washing beads with a vacuum source and a double trap for


(rDNA) EIA. When configuring the Assay Protocols in the FPC, ensure the Assay Procedure

with the assay package insert specifications and are supported by documentation at

Specimen Diluent must be

between processing trays. Once the assay has been started, complete all subsequent

In the General Information section change the Analyzer Test Number to 71.

When using ROW Version 2.5.2, create an edited assay protocol. Use the protocol

2 Conjugate 200 µL


4. In the Pipetting Section for the PCN2, change the Component Location to

3. A determination of the absorbance of the substrate blank must be made. The

Note: Always use a separate pipette tip for each reaction and incubation method. The same incubation method should be used throughout

5. When using the COMMANDER Dynamic Incubator, select the ROTATION incubation method. The same incubation method should be used throughout

NOTE: Use ABBOTT COMMANDER Reagent Blanking Beads

3. A determination of the absorbance of the substrate blank must be made. The

NOTE: Use ABBOTT COMMANDER Reagent Blanking Beads

3. Dispense acid in same tube sequence as OPD Substrate Solution.

2. Avoid strong light during Color Development.

CAUTION: V erify that dispensing equipment is calibrated according to

SPECTROPHOTOMETER. For PPC color development and reading instructions, refer to

PPC, and SPECTROPHOTOMETER. The following COLOR DEVELOPMENT and

COLOR DEVELOPMENT (QUANTUM II and SPECTROPHOTOMETER)

2. Avoid strong light during Color Development.

Color Development: 11. Remove and discard cover seal. Wash each bead.

FIRST INCUBATION

1. When transferring beads from wells to assay tubes, align inverted carton of tubes over

Color Development (QUANTUM II and SPECTROPHOTOMETER)

Laboratories using the COMMANDER Flexible Pipetting Center or Parallel Processing

ASSAY SELECTION ON THE PPC

1. Insert tip and select the appropriate assay number for the (HIHAB HIV-1/HIV-2 EXA). An operator-edited version may be used if the edited tips are consistent with the assay package insert specifications and are supported by documentation at

3. When pipetting with the PPC, the Assay List Number and Assay Procedure Code must match that contained in the appropriate PPC Assay Protocol for (HIHAB HIV-1/HIV-2 EXA). When configuring the Assay Protocols in the FPC, the assay list number and procedure code must be identical to the one contained in the appropriate PPC Assay Protocol.

2. Verify the reagent dispenser assignment on the PPC.

2. When pipetting with the COMMANDER Flexible Pipetting Center (FPC), use System Sample Pipetting and Dilution Procedural Notes.

2. If using Flexible Pipetting Center (FPC™) the Specimen Diluent must be

1. Assay three Negative and two HIV-1 Positive Controls, and two HIV-2 Positive Controls

Preliminary Comments

COMMANDER Operations Manual(s) and note special COMMANDER instructions below.

Laboratories using the COMMANDER System should refer to the appropriate

• Bead Dispenser.
• Nonmetallic forceps.
• COMMANDER Dynamic Incubator (DI).
• QwikWash ® ; or device for washing beads with a vacuum source and a double trap for


(rDNA) EIA. When configuring the Assay Protocols in the FPC, ensure the Assay Procedure

with the assay package insert specifications and are supported by documentation at

Specimen Diluent must be

between processing trays. Once the assay has been started, complete all subsequent

In the General Information section change the Analyzer Test Number to 71.

When using ROW Version 2.5.2, create an edited assay protocol. Use the protocol

2 Conjugate 200 µL


4. In the Pipetting Section for the PCN2, change the Component Location to

3. A determination of the absorbance of the substrate blank must be made. The

NOTE: Use ABBOTT COMMANDER Reagent Blanking Beads

3. Dispense acid in same tube sequence as OPD Substrate Solution.

2. Avoid strong light during Color Development.

CAUTION: V erify that dispensing equipment is calibrated according to

SPECTROPHOTOMETER. For PPC color development and reading instructions, refer to

PPC, and SPECTROPHOTOMETER. The following COLOR DEVELOPMENT and

COLOR DEVELOPMENT (QUANTUM II and SPECTROPHOTOMETER)

Laboratories using the COMMANDER Flexible Pipetting Center or Parallel Processing

ASSAY SELECTION ON THE PPC

1. Insert tip and select the appropriate assay number for the (HIHAB HIV-1/HIV-2 EXA). An operator-edited version may be used if the edited tips are consistent with the assay package insert specifications and are supported by documentation at

3. When pipetting with the PPC, the Assay List Number and Assay Procedure Code must match that contained in the appropriate PPC Assay Protocol for (HIHAB HIV-1/HIV-2 EXA). When configuring the Assay Protocols in the FPC, the assay list number and procedure code must be identical to the one contained in the appropriate PPC Assay Protocol.

2. Verify the reagent dispenser assignment on the PPC.
COLOR DEVELOPMENT (QUANTUM II and SPECTROPHOTOMETER)

10. Immediately transfer beads to assay tubes.

11. Prime QPC Dispenser immediately prior to dispensing QPC Substrate Solution.

12. Pipette: 300 µL of freshly prepared QPC Substrate Solution into two empty tubes (substrate blank) and then into each tube containing a bead.

13. Cover and incubate at room temperature (15 to 25°C) for 20 ± 2 minutes.

14. Add 16 µL of 1 N Sulfuric Acid to each tube. If necessary, agitate to mix.

PREPARATION OF THE WATER TUBE

15. Pipette approximately 2 mL of distilled or deionized water into an empty tube.

READING QUALITY (QUANTUM II and SPECTROPHOTOMETER)

16. In Mode 0, blank the instrument with the water tube. (See appropriate Operations Manual for running Mode 0).

QUALITY CONTROL PROCEDURES

1. Substrate Blank Acceptance Criteria

   a. Quantum II users: An assay run is considered valid with respect to the substrate blank if the blank has an absorbance value that is greater than or equal to -0.020 and less than or equal to 0.040. The determination of assay validity with respect to substrate blank is to be done by user.

   b. COMMANDER users: Quality control with respect to the substrate blank is determined automatically by the COMMANDER PPC and Quantum II software according to the protocol described in the PPC Operations Manual. If the run is invalid, technique errors in preparation of the QPC substrate solution are suspected and the run must be repeated.

   c. QPC and Quantum II Software will perform all calculations. Refer to the appropriate manual for specific PPC/Quan II calculations performed. If PPC or Quantum II are not used, perform the following calculations on the assay data.

   d. An absorbance value of less than 0.000 for either HIV-1 Positive Control replicate and/or absorbance value of less than 1.500 for either HIV-2 Positive Control replicate may indicate technique errors or deterioration of the kit reagents or QPC reagents. Monitoring absorbance values should be used for each assay run. When absorbance values are outside the acceptable range, the assay is invalid, and the test must be repeated.

2. Flagging Criteria

   a. A Flagging Criteria of 0.100% is used for the HIV-1 and HIV-2 Positive Control replicates.

   b. The Cutoff Value is the Negative Control Mean Absorbance plus 0.100.

   c. HIV-2 is determined by relating the absorbance of the specimen to the Cutoff Value. The Cutoff Value is the Negative Control Mean Absorbance plus 0.100.

   d. Calculation of Negative Control Mean Absorbance (NCx)

   
   Example:

   Negative Control Sample No. | Absorbance
   1 | 0.014
   2 | 0.014
   3 | 0.014

   Total | 0.042
   Average | 0.014 (NCx)

   Individual Negative Control Values must be less than equal to 0.100 and greater than or equal to 0.000 and within the range 0.5 to 1.5 times the Negative Control Mean (NCx). When the NCx is below 0.012, the calculation of 0.0 to 1.5 times the NCx may be discarded. In such cases, all negative control values should be within the range 0.5 to 1.5 times the NCx.

   d. Calculation of Flagging Criteria

   Example:

   HIV-1 Positive Control Mean Absorbance (PC1x)

   Example:

   HIV-2 Positive Control Mean Absorbance (PC2x)

   Example:

   Total | 0.120
   Average | 0.040 (PC2x)

   Individual HIV-2 Positive Control Values must be greater than or equal to 0.000 and within the range 0.5 to 1.5 times the PC2x.

   Each replicate must meet both of the above criteria or the test must be repeated.

   d. Calculation of HIV-2 Positive Control Mean Absorbance (FC2x)

   Example:

   Total | 0.120
   Average | 0.040 (FC2x)

   Individual HIV-2 Positive Control Values must be greater than or equal to 0.000 and within the range 0.5 to 1.5 times the FC2x.

   Each replicate must meet both of the above criteria or the test must be repeated.
RESULTS

1. Calculation of the Cut-off Value
   Cut-off Value = NC + 3 x SD
   Example:
   NC = 0.014
   SD = 0.003
   Cut-off Value = 0.014 + 3 x 0.003 = 0.043

2. Calculation of the Unknown
   The presence or absence of antibody to HIV-1 and/or HIV-2 is determined by relating the absorbance of the unknown specimen to the Cut-off Value. If the absorbance of the unknown specimen is greater than or equal to the Cut-off Value, it is considered reactive. 

LIMITATIONS OF THE PROCEDURE

1. Specimens with absorbance values equal to or greater than -0.015 but less than the Cut-off Value are considered repeatedly reactive. Reactivity at or only slightly above the Cutoff Value is more frequently nonspecific, and the presence or absence of antibody must be confirmed by additional, more specific or supplemental testing.

2. The reactivity of a specimen that has an absorbance value greater than or equal to the Cut-off Value is determined by relating the absorbance of the unknown specimen to the Cut-off Value. If the absorbance of the unknown specimen is greater than or equal to the Cut-off Value, it is considered reactive. Further testing is not required.

3. Initial reactive specimens which do not react in either of the duplicate retests are considered negative for antibodies to HIV-1 and HIV-2.

4. Sera that have absorbance values less than -0.015 but may contain antibody are considered repeatedly reactive (i.e., the specimen is reactive in at least one of the duplicate retests). Such specimens must be retested to verify the initial result. If either or both duplicate retests are reactive, the specimen is considered repeatedly reactive.

5. Specimens found to be repeatedly reactive by the HIVAB HIV-1/HIV-2 (rDNA) EIA must be investigated by additional, more specific supplemental tests. If not found to be reactive by these tests, the specimens are considered negative for antibodies to HIV-1 and/or HIV-2.

6. The results of testing specimens found to be repeatedly reactive by the HIVAB HIV-1/HIV-2 (rDNA) EIA and negative or indeterminate on additional more specific supplemental testing are uncertain. Further verification may be obtained by testing another specimen taken at least 3 months later.

SENSITIVITY AND SPECIFICITY

At present, there is no recognized standard for establishing the presence or absence of antibodies to HIV-1 and HIV-2 in human blood. Sensitivity for HIV-1 antibodies was shown to be equivalent to a previously licensed test based on comparative studies of in vitro clinical groups including AIDS, ARC, and high-risk individuals. The ABBOTT studies show that:

1. Specificity based on assayed sera previously confirmed by the HIV-1 and HIV-2 EIA and confirmed by Western Blot and has been excluded.

2. HIV-1 sensitivity was equivalent to a previously licensed test in a population of 352 known positive samples. Sensitivity for HIV-1 antibodies was computed based on the clinical diagnosis of AIDS. For HIV-2, sensitivity was expressed in terms of detection rate using investigational confirmation of results. HIV-1 sensitivity was 99.71 - 100%, compared to a previously licensed HIV-2 EIA which is 99.59% (244 out of 245). Similarly the HIV-1 sensitivity was equivalent to a previously licensed test for 1042 known positive samples from other groups with ARC, high risk or clinical status unknown (104 out of 104 detected for an estimated sensitivity of 100% with a 95% confidence interval: 99.15 - 100%, Table II).

3. HIV-2 antibody detection rate in a population of 246 HIV-2 confirmed antibody positive individuals (246 out of 246) is estimated to be 100% with a 95% confidence interval: 99.83-99.94% (Table II).

4. Sensitivity and Specificity

AIDS and AIDS-related conditions are clinical syndromes and their diagnosis can only be established by clinical criteria. It is not used in this diagnostic AIDS test. The recommended investigation of reactive specimens suggests that the antibodies to HIV are present.

B. Reactivity in Random Donor Population

The results of testing specimens from random blood donors for antibodies to HIV-1 and/or HIV-2 are shown in Table II. The data include 17036 samples obtained from random blood donors at all four geographic regions of the United States. The data include 17036 samples obtained from random blood donors at all four geographic regions of the United States.

TABLE II

<table>
<thead>
<tr>
<th>Table I</th>
<th>HIVAB HIV-1/HIV-2 (rDNA) EIA Reproducibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Specimen</td>
</tr>
<tr>
<td>HIV-1 Positive</td>
<td>0.959</td>
</tr>
<tr>
<td>Negative</td>
<td>0.014</td>
</tr>
<tr>
<td>Mean Control</td>
<td>0.003</td>
</tr>
<tr>
<td>Study 2</td>
<td>Specimen</td>
</tr>
<tr>
<td>HIV-1 Positive</td>
<td>1.327</td>
</tr>
<tr>
<td>Negative</td>
<td>0.850</td>
</tr>
<tr>
<td>Mean Control</td>
<td>0.850</td>
</tr>
</tbody>
</table>

EXPECTED RESULTS

1. Retrospective Studies

The reactivity of (HIVAB HIV-1/HIV-2 (rDNA) EIA was determined by testing specimens from patients clinically diagnosed as having AIDS, AIDS-related complex, asymptomatic individuals who were HIV antibody positive, patients treated with AZT, patients treated with zidovudine, and antibody positive individuals for whom the clinical status was unknown (Table II).

2. Reactivity in Patient Populations

The results of testing patients with signs or symptoms of AIDS and in establishing prior infection are shown in Table II. The data include 17036 samples obtained from patients with signs or symptoms of AIDS and in establishing prior infection.

TABLE II

<table>
<thead>
<tr>
<th>Table II</th>
<th>Detection of Antibodies to HIV-1 and/or HIV-2 in Serum Specimens and Plasma Specimens from Blood and Plasma Donors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study 1</td>
<td>Specimen</td>
</tr>
<tr>
<td>HIV-1 Positive</td>
<td>0.959</td>
</tr>
<tr>
<td>Negative</td>
<td>0.014</td>
</tr>
<tr>
<td>Mean Control</td>
<td>0.003</td>
</tr>
<tr>
<td>Study 2</td>
<td>Specimen</td>
</tr>
<tr>
<td>HIV-1 Positive</td>
<td>1.327</td>
</tr>
<tr>
<td>Negative</td>
<td>0.850</td>
</tr>
<tr>
<td>Mean Control</td>
<td>0.850</td>
</tr>
</tbody>
</table>

3. Reactivity in Random Donor Population

The results of testing specimens from random blood donors for antibodies to HIV-1 and/or HIV-2 are shown in Table II. The data include 17036 samples obtained from random blood donors at all four geographic regions of the United States. The data include 17036 samples obtained from random blood donors at all four geographic regions of the United States.
TABLE III
Detection of Antibodies to HIV-1 and/or HIV-2 in Specimens from Individuals Preselected as Positive for HIV-1 Antibodies

<table>
<thead>
<tr>
<th>Donor</th>
<th>Number Tested</th>
<th>Number of HIVAB HIV-1/EIA Reactive</th>
<th>Number of HIV-2 EIA Reactive</th>
<th>Number of Western Blot Bands Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1</td>
<td>15/16 confirmed for the previously licensed HIV-1 EIA. The same 15 samples were reactive in both tests.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-2</td>
<td>2 specimens were HIV-1 and HIV-2 WB positive, 5 specimens were HIV-2 WB positive.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIDS</td>
<td>150</td>
<td>150 (100.0%)</td>
<td>-</td>
<td>None</td>
</tr>
<tr>
<td>ARC</td>
<td>83</td>
<td>83 (100.0%)</td>
<td>70 (85.1%)</td>
<td>4 (4.9%)</td>
</tr>
<tr>
<td>AIDS</td>
<td>50</td>
<td>50 (100.0%)</td>
<td>50 (100.0%)</td>
<td>None</td>
</tr>
<tr>
<td>Total</td>
<td>246**</td>
<td>246 (100.0%)</td>
<td>244 (99.59%)</td>
<td>2 (0.81%)</td>
</tr>
</tbody>
</table>

** 1308 specimens tested by the licensed HIV-1 EIA due to insufficient volume of seven samples.
** 1345 specimens tested by the licensed HIV-1 EIA due to insufficient volume of seven samples.

TABLE IV
Detection of Antibodies to HIV-1 and/or HIV-2 in Specimens from an HIV-2 Endemic Area

<table>
<thead>
<tr>
<th>Donor</th>
<th>Number Tested</th>
<th>Number of HIVAB HIV-1/HIV-2 (rDNA) EIA Reactive</th>
<th>Number of HIV-2 EIA Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1</td>
<td>130 specimens tested by the licensed HIV-2 EIA due to insufficient volume of one sample.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIV-2</td>
<td>24 specimens were HIV-1 and HIV-2 WB positive, 5 specimens were HIV-2 WB positive.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AIDS</td>
<td>83</td>
<td>83 (100.0%)</td>
<td>-</td>
</tr>
<tr>
<td>ARC</td>
<td>24</td>
<td>24 (100.0%)</td>
<td>-</td>
</tr>
<tr>
<td>AIDS</td>
<td>10</td>
<td>10 (100.0%)</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>246**</td>
<td>246 (100.0%)</td>
<td>244 (99.59%)</td>
</tr>
</tbody>
</table>

** 1394 specimens tested by the licensed HIV-1 EIA due to insufficient volume of seven samples.

TABLE V
Detection of Antibodies to HIV-1 in Specimens from Individuals at High Risk for HIV Infection in the United States

<table>
<thead>
<tr>
<th>Population</th>
<th>Specimen Tested</th>
<th>HIVAB HIV-1/HIV-2 (rDNA) EIA Reaction</th>
<th>Number of HIV-2 EIA Reactive</th>
<th>Number of Western Blot Bands Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Donor</td>
<td>50</td>
<td>150 (100.0%)</td>
<td>0 (0.0%)</td>
<td>None</td>
</tr>
<tr>
<td>Postmortem</td>
<td>50</td>
<td>150 (100.0%)</td>
<td>0 (0.0%)</td>
<td>None</td>
</tr>
</tbody>
</table>
| Inter-assay reproducibility of HIVAB HIV-1/HIV-2 (rDNA) EIA was assessed using 20 postmortem and 20 normal donor sera. These sera specimens were spiked with human plasma reagent for anti HIV-1 to create low-level reactive specimens. Each of the specimens was tested once on six different days on each of three lots of HIVAB HIV-1/HIV-2 (rDNA) EIA. The reactivity of 2 samples was tested once on six different days on each of three lots of HIVAB HIV-1/HIV-2 (rDNA) EIA. The results are shown in Table VI.

TABLE VI
Detection of Antibodies to HIV-2 in Unselected Specimens from an HIV-2 Endemic Area

<table>
<thead>
<tr>
<th>Donor</th>
<th>Number Tested</th>
<th>HIVAB HIV-1/HIV-2 (rDNA) EIA Reaction</th>
<th>Number of HIV-2 EIA Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Donor</td>
<td>3</td>
<td>6 (100.0%)</td>
<td>6 (100.0%)</td>
</tr>
</tbody>
</table>
| Inter-assay reproducibility of HIVAB HIV-1/HIV-2 (rDNA) EIA was assessed using 20 postmortem and 20 normal donor sera. These sera specimens were spiked with human plasma reagent for anti HIV-1 to create low-level reactive specimens. Each of the specimens was tested once on six different days on each of three lots of HIVAB HIV-1/HIV-2 (rDNA) EIA. The reactivity of 2 samples was tested once on six different days on each of three lots of HIVAB HIV-1/HIV-2 (rDNA) EIA. The results are shown in Table VI.

TABLE VII
Performance of the HIVAB HIV-1/HIV-2 (rDNA) EIA on a Serocorrelating Panel versus the Current FDA licensed HIV-1 EIA and a Western Blot

<table>
<thead>
<tr>
<th>Donor</th>
<th>No. Days of Test</th>
<th>HIVAB HIV-1/HIV-2 (rDNA) EIA Reaction</th>
<th>Number of HIV-2 EIA Reactive</th>
<th>Number of Western Blot Bands Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>49</td>
<td>49 (100.0%)</td>
<td>49 (100.0%)</td>
<td>None</td>
</tr>
<tr>
<td>Asymptomatic</td>
<td>162</td>
<td>162 (100.0%)</td>
<td>162 (100.0%)</td>
<td>None</td>
</tr>
<tr>
<td>AIDS</td>
<td>352</td>
<td>352 (100.0%)</td>
<td>344 (99.71%)</td>
<td>None</td>
</tr>
</tbody>
</table>

** 1387 specimens tested by the licensed HIV-1 EIA due to insufficient volume of seven samples.
** 1345 specimens tested by the licensed HIV-1 EIA due to insufficient volume of seven samples.

TABLE VIII
Reactivity of the HIVAB HIV-1/HIV-2 (rDNA) EIA

<table>
<thead>
<tr>
<th>Population</th>
<th>No. of Specimens</th>
<th>HIV-1 EIA Reactive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients</td>
<td>50</td>
<td>100 (100.0%)</td>
</tr>
<tr>
<td>Normal Donor</td>
<td>50</td>
<td>100 (100.0%)</td>
</tr>
</tbody>
</table>

The reactivity of the HIVAB HIV-1/HIV-2 (rDNA) EIA has an estimated specificity of 100% (100%; binomial confidence interval = 97.57%, 100%) for postmortem specimens.
SENSITIVITY

Sensitivity was evaluated using 50 postmortem and 60 normal donor specimens that were pre-screened for HIV-1 and HIV-2 and found to be negative. Different aliquots of the 60 postmortem and 60 normal donor specimens were spiked with human plasma reactive for HIV-1 and HIV-2 and found to be negative. Different aliquots of the 50 postmortem and 25 normal donor specimens with three reagent lots were 3.718 and the mean S/CO ratio for the 150 normal donor HIV-1 and HIV-2 replicates was 3.500. The sensitivity for the 150 postmortem HIV-1 and HIV-2 replicates (S/CO ratio 3.718) with three reagent lots was determined by the F test analysis to be statistically significant (p-value ≤ 0.05).