WHO Prequalification of In Vitro Diagnostics Programme
PUBLIC REPORT

Product: Bioline HIV 1/2 3.0
Number: PQDx 0027-012-00

Bioline HIV 1/2 3.0 with product codes 03FK10, 03FK16 and 03FK17, manufactured by Abbott Diagnostics Korea Inc., Rest of the World regulatory version was accepted for the WHO list of prequalified in vitro diagnostics and was listed on 20 May 2013.

Summary of prequalification status for Bioline HIV 1/2 3.0

<table>
<thead>
<tr>
<th>Status on PQ list</th>
<th>Date</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dossier assessment</td>
<td>11-Aug-2011</td>
<td>MR</td>
</tr>
<tr>
<td>Site inspection(s) of quality management system</td>
<td>19-Feb-2013</td>
<td>MR</td>
</tr>
<tr>
<td>Product performance evaluation</td>
<td>05-Apr-2013</td>
<td>MR</td>
</tr>
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</table>

MR: Meets Requirements

Report amendments and/or product changes

This public report has since been amended. Amendments may have arisen because of changes to the prequalified product for which WHO has been notified and has undertaken a review. Amendments to the report are summarized in the following table, and details of each amendment are provided below.

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1 SD BIOLINE HIV-1/2 3.0 to Bioline HIV 1/2 3.0
2 Product codes that were initially listed were 03FK10, 03FK16. Product code 03FK17 was added after acceptance of a change request.
3 change of manufacturer’s name from Standard Diagnostics, Inc to Abbott Diagnostics Korea Inc.
### Version Summary of amendment Date of report amendment

<table>
<thead>
<tr>
<th>Version</th>
<th>Summary of amendment</th>
<th>Date of report amendment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>Review of text updates in the public report</td>
<td>2013</td>
</tr>
<tr>
<td>3.0</td>
<td>Change of inner structure of device to capture a reasonable excess volume of buffer that might be added by the end user, thereby reducing the risk of overflow of buffer.</td>
<td>2013</td>
</tr>
<tr>
<td>4.0</td>
<td>Addition of a product code, which corresponds to the IVD supplied with the new safety lancets. Product code is 03FK17, 25 tests per kit, with 25 safety lancets</td>
<td>23-Feb-2017</td>
</tr>
<tr>
<td>5.0</td>
<td>Change of product name from SD BIOLINE HIV-1/2 3.0 to Bioline HIV 1/2 3.0 and change of manufacturer’s name from Standard Diagnostics, Inc to Abbott Diagnostics Korea Inc.</td>
<td>20-Aug-2020</td>
</tr>
</tbody>
</table>

### Intended use:

According to the claim of intended use from Abbott Diagnostics Korea Inc, “The Bioline HIV 1/2 3.0 kit is a rapid, qualitative test for the detection of antibodies to all isotypes (IgG, IgM, IgA) specific to HIV-1 and HIV-2 simultaneously in human serum, plasma or whole blood. The Bioline HIV 1/2 3.0 kit is intended only for professional use and for in vitro diagnostic use. This test may not be suitable for diagnosis of early infection or blood donation screening. Positive samples should be confirmed by a supplemental assay such as ELISA or Western Blot test”.

### Assay description:

According to the claim of assay description from Abbott Diagnostics Korea Inc, “BiolineHIV 1/2 3.0 test contains a membrane strip, which is precoated with recombinant HIV-1 capture antigen (gp41, p24) on test line 1 region and with recombinant HIV-2 capture antigen (gp36) on test line 2 region respectively. The recombinant HIV 1/2 antigen (gp41, p24 and gp36)-colloid gold conjugate and the sample move along the membrane chromatographically to the test region (T) and forms a visible line as the antigen-antibody-antigen gold particle complex forms with high degree of sensitivity and specificity”.

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4 This product is one that uses Protein A to detect human IgG antibodies. Protein is also able to detect other classes of human antibody (IgA, IgD, IgE and IgM) but not as reliably as it does IgG. This product has been prequalified with respect to its ability to detect human IgG antibodies. Any claim to detect other types of antibodies on this kind of product has not been validated based on WHO prequalification requirements.
### Test kit contents:

<table>
<thead>
<tr>
<th></th>
<th>30T/kit (product code 03FK10)</th>
<th>25T/kit (product code 03FK16)</th>
<th>25T/kit (product code 03FK17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test cassettes</td>
<td>30 test devices</td>
<td>25 test devices</td>
<td>25 test devices</td>
</tr>
<tr>
<td></td>
<td>individually packed in foil</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>pouch with a desiccant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assay diluent</td>
<td>1 x 4ml/bottle</td>
<td>1 x 4ml/bottle</td>
<td>1 x 4ml/bottle</td>
</tr>
<tr>
<td>Dispensed in plastic bottle</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specimen transfer devices</td>
<td>N/A</td>
<td>25 units of 20 μl</td>
<td>25 units of 20 μl</td>
</tr>
<tr>
<td>Disposable (20μl)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lancets</td>
<td>N/A</td>
<td>25 units</td>
<td>25 units (safety lancet)</td>
</tr>
<tr>
<td>Disposable, sterilized</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol swabs</td>
<td>N/A</td>
<td>25 units</td>
<td>25 units</td>
</tr>
<tr>
<td>Disposable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Instructions for use</td>
<td>1 copy</td>
<td>1 copy</td>
<td>1 copy</td>
</tr>
</tbody>
</table>

### Storage:
The test kit should be stored at 1 - 30 °C.

### Shelf-life:
24 months.

### Warnings/limitations:
1. The reading time for this product was changed, the revised instructions for use now state: “Time to result is 10 to 20 minutes. After adding the diluent, read the result after 10 minutes but not more than 20 minutes.”
2. If the test result is not legible after 10 minutes due to high background colour, read again later but within 20 minutes of adding the diluent. Do not read after 20 minutes.
3. Dual infection of HIV-1 and HIV-2 within one individual is quite rare. Dual reactivity observed in Bioline™ HIV 1/2 3.0, i.e. HIV-1 line and HIV-2 line both reactive, is more likely to be caused by cross-reactivity given certain homology in the amino acid sequences of HIV-1 and HIV-2. To determine the virus type or diagnose a co-infection, confirmatory testing must be performed.

### Prioritization for prequalification
Based the established eligibility criteria, Bioline HIV 1/2 3.0 was given priority for prequalification assessment.
Dossier assessment

Abbott Diagnostics Korea Inc submitted a product dossier for Bioline HIV 1/2 3.0 as per the “Instructions for compilation of a product dossier” (PQDx_018 v1). The information submitted in the product dossier was reviewed by WHO staff and external experts (assessors) appointed by WHO.

The manufacturer’s response to the nonconformities found during the dossier assessment were accepted on 23 November 2011.

Commitments for prequalification:
1. Analytical performance studies
2. Clinical performance studies
3. Stability studies
4. A new version of the labels and instructions for use.

Commitments for prequalification are under review.

Based on the product dossier assessment findings, the product dossier for Bioline HIV 1/2 3.0 meets WHO prequalification requirements.

Manufacturing site inspection

A comprehensive second re-inspection was performed at the sites of the legal manufacturer of Bioline HIV 1/2 3.0 at 156-68 Hagal-dong Giheung-gu, Yongin-si, Kyonggi-do 446-930, Republic of Korea and 473-4 Bora-dong Giheung-gu, Yongin-si, Kyonggi-do, 446-904, Republic of Korea in November 2012\(^5\), as per “Information for manufacturers on prequalification inspection procedures for the sites of manufacture of diagnostics.” (PQDx_014 v1).

Note: the inspection team were not able to review the batch manufacturing records of the lots submitted for the repeat WHO laboratory evaluation for the Bioline HIV 1/2 3.0. The lots for retesting had not been requested at the time of the inspection (November 2012) and were submitted subsequent to the inspection.

The manufacturer’s responses to the nonconformities found at the time of the inspection were accepted 19 February 2013.

Commitments for prequalification:

1. The manufacturer has committed to continuing improvements in the quality management system particularly in the areas of clear lines of authority, identification and traceability, warehousing and clarity of work instructions and batch manufacturing records.

2. The manufacturer has committed to continuing close supervision of the lot release procedures together with ongoing communication over time to finalize any outstanding issues noted in the WHO responses to the inspection findings.

Based on the site inspection and corrective action plan review, the quality management system for BiolineHIV 1/2 3.0 meets WHO prequalification requirements.

**Product performance evaluation**

Bioline HIV 1/2 3.0 was evaluated by WHO at the Institute of Tropical Medicine, Antwerp, Belgium, in the last quarter of 2012 using serum/plasma specimens. From this evaluation, we drew the following conclusions:

Bioline HIV 1/2 3.0 is a lateral flow immunochromatographic assay for the discriminatory detection HIV-1 and HIV-2 antibodies in human serum/plasma and whole blood. A volume of 10µL of serum/plasma or 20µl of whole blood is required to perform the assay. This type of assay requires no sophisticated equipment and can therefore be performed in laboratories with limited facilities and non-laboratory settings. Reading of the results is performed visually i.e. subjectively read.

In this limited evaluation on a panel of 1118 clinically-derived specimens, we found an initial sensitivity (95% CI) of 99.8% (98.8% - 100%) and an initial specificity (95% CI) of 99.9% (99.2% - 100%) compared to the reference assays (Vironostika HIV Ag/ab [bioMérieux] and Enzygnost Anti-HIV 1/2 in parallel; followed by INNO-LIA HIV H/II Score [Innogenetics] ). The final sensitivity (95% CI) was 100% (99.2% - 100%) and the final specificity (95% CI) was 99.9% (99.2% - 100%) compared to the reference assays. Lot to lot variation observed was within the acceptance criteria.

Bioline HIV 1/2 3.0 was unable to discriminate between HIV-1 and HIV-2 for seven HIV-2 specimens, and 22 HIV-1 specimens (6.3% of 460 HIV positive specimens), as two test bands of equal intensity were observed.

For eight seroconversion panels, Bioline HIV 1/2 3.0 detected on average 0.125 specimens later than the benchmark assay (Enzygnost Anti-HIV 1/2 Plus [Siemens Healthcare Diagnostics]).
For the mixed titer panel, Bioline HIV 1/2 3.0 correctly classified all specimens. For the 1st International Reference Panel for anti-HIV [NIBSC code 02/210], Bioline HIV 1/2 3.0 detected all HIV-1 subtypes tested (HIV-1 A, HIV-1 B, HIV-C, HIV-1 CRF01_AE, and HIV-2).

In this study, 0% of the results were recorded as indeterminate. Results were interpreted independently by three technicians; the overall inter-reader variability was 1.9% (0.2% for HIV-1 band, 1.8% for HIV-2 band). The invalid rate was 0%.

Based on these results, the performance evaluation for Bioline HIV 1/2 3.0 meets the WHO prequalification requirements.
Labelling

1. Labels
2. Instructions for use

*Note: Labelling has been changed as per site name change and product rebranding. But temporarily labelling of legacy brand (SD BIOLINE) will be used in the market according to registration status in each country.
1. Labels

1.1 Package box for 03FK10
1.2 Package box for 03FK16
1.3 Package box for 03FK17
1.4 Device pouch for 03FK10, 03FK16, 03FK17
2. Instructions for use

6 English version of the IFU was the one that was assessed by WHO. It is the responsibility of the manufacturer to ensure correct translation into other languages.
2.1 IFU for 03FK10 and 03FK16
Entidad: HIV 1/2 3.0

The Bioline™ HIV 1/2 3.0 Test

Certificado con el número de catálogo 03FK10/03FK16.

Líneas de referencia
- La tercera generación de anticuerpos para la prueba de VIH 1 o 2

[Todo el texto en español no se puede leer claramente en la imagen proporcionada. Se requiere una lectura visual para entender el contenido completo.]

Material y equipos necesarios

1. El kit de prueba se debe almacenar a una temperatura entre 1 °C y 30 °C. No congele el kit de prueba. Para los reactivos de dilución, el rango recomendado de almacenamiento es entre 2 °C y 8 °C.
2. Plasma o suero a temperatura entre 15 °C y 30 °C para uso.
3. Para almacenamiento por más de 2 semanas, congele (por debajo de -20 °C). Lleve los muestras de plasma o suero a temperatura ambiente.

Precauciones

1. La muestra de sangre se debe almacenar a una temperatura entre 2 °C y 8 °C. Si no se puede almacenar a esta temperatura, congele (por debajo de -20 °C) inmediatamente después de retirar el dispositivo de prueba de la bolsa de aluminio.
2. Antígenos de núcleo se presentan en cantidad muy inferior a los antígenos de envoltura.

Especificaciones de reactivos

1. El kit de prueba contiene un frasco de diluyente de prueba preconcentrado (que contiene azida de sodio), que puede reaccionar con los materiales de plomería con alto contenido de cobre o plomo.

Medidas de seguridad

1. En caso de contacto ocular con el diluyente de prueba, lave los ojos con mucha agua durante 15 minutos. Lleve a un médico. En caso de contacto con la piel, lave con agua y jabón. No ingiera.

Ensayo de punto de referencia

1. Cuando el ensayo funcione correctamente, aparece una línea de control de color en la letra "C". Vea la imagen.

Interpretación de resultados

1. Resultado negativo: La prueba es negativa y el resultado del ensayo es negativo.
2. Resultado positivo para VIH-1: La prueba está positiva para VIH-1 y el resultado del ensayo es positivo para VIH-1.
4. Resultado positivo para ambos VIH-1 y VIH-2: La prueba está positiva para ambos VIH-1 y VIH-2 y el resultado del ensayo es positivo para ambos VIH-1 y VIH-2.

Limitaciones del ensayo

1. Si el resultado del ensayo no es legible después de 10 minutos debido a una mezcla inadecuada, se considera que el resultado es inválido y no se puede proporcionar.

Limpieza y descontaminación

1. Desinfecte los accesorios de plomería grande junto con el desecho que presenta riesgos.

Definiciones de símbolos

- Riesgo de transmisión de VIH: dispositivos utilizados para el diagnóstico de VIH no son reutilizables. No se recomienda la reutilización del dispositivo.

Bibliografía de registros regulados

Bibliografía de los Bowen registrados

Bibliografía de los Bowen declarada para uso profesional y de uso diagnóstico

Fecha de revisión: 2021-06
A continuación, etiquete el dispositivo con el
1. Dispositivo de prueba
2. Dessecante
3. Instrucciones de uso
4. Pipeta capilar (20 μl)
5. Lanceta estéril
6. Alcohol swab

Verifique la data de validade na parte posterior da bolsa de alumínio. Se a data de validade tiver expirado, utilize outro kit. Para evitar resultados falsos, assegure-se de que diluição tiver sido extraída do mesmo kit da nova ferramenta.

Dispense 4 gotas (aproximadamente 120 μl) de diluente de ensaio no tubo de ensaio. Insira a ponta da tubulação no tubo de ensaio e vide assegurar a consistência do tubo. Asseurez-vous que l'embout du flacon ne touche pas le dispositif afin d'éviter toute contamination croisée.

Si la intensidad del color de la línea de prueba 2 es más oscura que la de la línea de prueba 1, se considera positivo. Si la línea de prueba 2 es del mismo color o más débil que la línea de prueba 1, se considera negativo.
2.2 IFU for 03FK17
1. Sensibilidad y especificidad

- Si la intensidad del color de la línea de prueba 2 es más oscura que la de la línea de prueba 1 en el resultado de la ventana, debe realizar un test confirmatorio como Western Blot, etc.

2. Componentes activos de los componentes principales

3. Test principal

4. Material médico de diagnóstico

5. Bioline™ HIV 1/2 3.0 Total Results

6. Diagnóstico de infección de VIH-1/2. La prueba no es adecuada para el diagnóstico de infección temprana o para el cribado de donación de sangre.

7. Anticuerpos anti-VIH-1 y anti-VIH-2. El VIH-1 y el VIH-2 tienen varias estructuras genéticas. Las pruebas sérologicas han determinado que el VIH-1 y el VIH-2 tienen varios riesgos de desarrollar SIDA. Los pacientes infectados con VIH-2 se encuentran principalmente en personas de alto riesgo de desarrollar SIDA. Los resultados de la prueba deben ser legibles en un entorno clínico, si una persona cumple con la definición de caso de SIDA establecida por el gobierno.

8. No intercambiar componentes de diferentes lotes o con otros productos.

9. No consumir la desecante del paquete de aluminio.

10. No mezclar componentes de diferentes lotes o con otros productos.

11. No deben mezclarse componentes de diferentes lotes o con otros productos.

12. Evitar la contaminación del embudo del frasco cuando se vierta el diluyente de dosificación en el recipiente de consumos.

13. Si los muestras de plasma o sangre no se prueban de inmediato, deben refrigerarse entre 2 °C y 8 °C.

14. N'Au utiliser un échantillon de sang conservé pendant plus de 3 jours ; il risquerait de

15. Si los muestras de plasma o sangre no se prueban de inmediato, deben refrigerarse entre 2 °C y 8 °C.

16. Si el color de intensidad de la línea de prueba 1 es más oscuro que una de las líneas de prueba 2 en la ventana de resultado, debe realizar un test confirmatorio como Western Blot, etc.

17. Si se producen signos de toxicidad, busque atención médica.

18. Si el resultado del test no es legible después de 10 minutos debido a una coloración inconsistente en las muestras, se deben realizar pruebas adicionales.

19. El VIH (virus de la inmunodeficiencia humana) se reconoce como el agente relacionado con SIDA y de personas sanas con alto riesgo potencial de desarrollar SIDA. Los resultados de la prueba deben ser legibles en un entorno clínico, si una persona cumple con la definición de caso de SIDA establecida por el gobierno.

20. Sensibilidad y especificidad: ± 0,125 μg), línea de prueba 2: antígeno de VIH-2 recombinante (gp36) (0,5 ± 0,1 μg), línea de prueba 3: antígeno de VIH-1 recombinante (gp160) (0,5 ± 0,1 μg), línea de control: antígeno de VIH-1 recombinante (gp160) (0,5 ± 0,1 μg).

21. Instrucciones de uso

22. Material médico de diagnóstico

23. La prueba Bioline™ HIV 1/2 3.0 contiene una tira de membrana que viene

24. Para generar una muestra de plasma.

25. Con un transductor de agar, coloque el plasma total en el recipiente de consumos (que NO contenga anticoagulante).
1. Blind Test procedure: Place the Seveso II blank or Seveso II positive samples in the sample wells. Add 20 μl of assay diluent (per sample) to each well. Use 4 gouttes (120 μl) of assay diluent in the specimen well. Make sure the match of the bar code of the blank and the positive samples.

2. Prepare the 4 blank and 4 positive samples.

3. Dispense 20 μl of blood specimen into the specimen well.

4. The presence of only the control line (C) is positive. If the test results are uncertain, perform a new test with a new test kit.

5. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

6. Weak line means a faint line similar to the control line. It indicates a positive result for anti-HIV-1 and/or anti-HIV-2.

7. Medium line means a line similar to the control line on the test strip. It indicates the presence of antibodies to HIV-1 and/or HIV-2.

8. Strong line means a line similar to the control line on the test strip. It indicates the presence of antibodies to HIV-1 and/or HIV-2.

9. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

10. The result is a non-valid result. It is possible that the instructions have not been followed correctly.

11. The next blood test should be performed after 10 to 20 minutes. It is possible that the instructions have not been followed correctly.

12. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

13. If you observe any line on the test strip, regardless of its thinness, it indicates a positive result.

14. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

15. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

16. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

17. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

18. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

19. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

20. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

21. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

22. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

23. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

24. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

25. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

26. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

27. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

28. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

29. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

30. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

31. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

32. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

33. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

34. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

35. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

36. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

37. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

38. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

39. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

40. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

41. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

42. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

43. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

44. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

45. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

46. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

47. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

48. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

49. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

50. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

51. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.

52. The result obtained is a non-valid result. It is possible that the instructions have not been followed correctly.