Medicines & Healthcare products Regulatory Agency

NIBSC Confidence in Biological Medicines

WHO International Standard
4th WHO International Standard for HIV-1 RNA for Nucleic Acid Amplification Techniques
NIBSC code: 16/194
Instructions for use
(Version 6.0, Dated 25/06/2025)

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N/A

1. INTENDED USE

This 4th WHO IS for HIV-1 RNA for Nucleic Acid Amplification Techniques (NAT) was established in 2017 [1]. It is intended for calibration of HAT assays for HIV-1 RNA. It replaces the 3rd IS, coded 10/152. A WHO IS for HIV-1 RNA NAT assay calibration has been available since 1998.

This standard is based on a subtype B (env V3, gag) field isolate of HIV-1, determined by complete genome sequencing [2]. The virus was isolated post-mortem from a patient that had died from an AIDS-defining illness, was propagated on PBMCs and a low passage stock stored down. The virus has been heat inactivated at 60^{0}C for 1 hour, sucessful inactivation have been shown by the absence of reverse transcriptase activity using a commercially available assay. The inactivated virus was then diluted in pooled human plasma, shown to be negative for HIV, HBV and HCV, prior to freeze-drying.

2. CAUTION

This preparation is not for administration to humans or animals in the human food chain

«HUMAN_ORIGIN»
As with all materials of biological origin, this preparation should be regarded as potentially hazardous to health. It should be used and discarded according to your own laboratory's safety procedures. Such safety procedures should include the wearing of protective gloves and avoiding the generation of aerosols. Care should be exercised in opening ampoules or vials, to avoid cuts.

3. UNITAGE

This material has been assigned an International Unit value of 125,900 IU/ml (5.10 Log10 IU/ml)

4. CONTENTS

Country of origin of biological material: This material consists of human plasma and HIV-1 virus sourced from the UK

5. STORAGE

This product should be stored at -20^{0}C upon receipt.

6. DIRECTIONS FOR OPENING

«SCREW_CAP_VIALS»

7. USE OF MATERIAL

No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution
This material should be used in the calibration of secondary reference materials only. Each vial should be reconstituted in 1ml of molecular grade water and gently agitated. The vial should be left for 20mins prior to use. We do not recommend freeze thawing this material once reconstituted.

8. STABILITY (Add or amend as necessary)

Reference materials are held at NIBSC within assured, temperature-controlled storage facilities. Reference Materials should be stored on receipt as indicated on the label.

Prior to establishment of this standard the material underwent accelerated degradation studies. Real time stability studies are carried out at least annually.

9. REFERENCES

1. Prescott G, Hockley J, Atkinson E, Rigsby P, & Morris C. International Collaborative Study to Establish the 4th WHO International Standard for HIV-1 NAT Assays WHO ECBS report 2017, WHO/BS/2017.2314

2.Gall A, Morris C, Kellam P, Berry N. Complete Genome Sequence of the WHO International Standard for HIV-1 RNA Determined by Deep Sequencing. Genome Announc. 2014 Feb 6;2(1)

10. ACKNOWLEDGEMENTS

None

11. FURTHER INFORMATION

Further information can be obtained as follows;
This material: enquiries@nibsc.org
WHO Biological Standards:
http://www.who.int/biologicals/en/
JCTLM Higher order reference materials:
http://www.bipm.org/en/committees/jc/jctlm/
Derivation of International Units:
http://www.nibsc.org/standardisation/international_standards.aspx
Ordering standards from NIBSC:
http://www.nibsc.org/products/ordering.aspx
NIBSC Terms & Conditions:
http://www.nibsc.org/terms_and_conditions.aspx

12. CUSTOMER FEEDBACK

Customers are encouraged to provide feedback on the suitability or use of the material provided or other aspects of our service. Please send any comments to enquiries@nibsc.org

13. CITATION

In all publications, including data sheets, in which this material is referenced, it is important that the preparation's title, its status, the NIBSC code number, and the name and address of NIBSC are cited and cited correctly.

14. MATERIAL SAFETY SHEET (Add or amend as necessary)

Classification in accordance with Directive 2000/54/EC, Regulation (EC) No 1272/2008: 1

Physical and Chemical properties			
Physical appearance: Lyophilised		Corrosive:	No
Stable:	Yes	Oxidising:	No
Hygroscopic:	No	Irritant:	No
Flammable:	No	Handling:See caution, Section 2	
Other (specify):			
Toxicological properties			
Effects of inhalation:	Not established, avoid inhalation		

Effects of ingestion:	Not established, avoid ingestion
Effects of skin absorption:	Not established, avoid contact with skin
Suggested First Aid	
Inhalation:	Seek medical advice
Ingestion:	Seek medical advice
Contact with eyes:	Wash with copious amounts of water. Seek medical advice
Contact with skin:	Wash thoroughly with water.
Action on Spillage and Method of Disposal	
Spillage of ampoule contents should be taken up with absorbent material wetted with an appropriate disinfectant. Rinse area with an appropriate disinfectant followed by water. Absorbent materials used to treat spillage should be treated as biological waste.	

15. LIABILITY AND LOSS

In the event that this document is translated into another language, the English language version shall prevail in the event of any inconsistencies between the documents.

Unless expressly stated otherwise by NIBSC, NIBSC's Standard Terms and Conditions for the Supply of Materials (available at http://www.nibsc.org/About_Us/Terms_and_Conditions.aspx or upon request by the Recipient) ("Conditions") apply to the exclusion of all other terms and are hereby incorporated into this document by reference. The Recipient's attention is drawn in particular to the provisions of clause 11 of the Conditions.

16. INFORMATION FOR CUSTOMS USE ONLY

Country of origin for customs purposes*: United Kingdom * Defined as the country where the goods have been produced and/or sufficiently processed to be classed as originating from the country of supply, for example a change of state such as freeze-drying.
Net weight: 1g
Toxicity Statement: 2
Veterinary certificate or other statement if applicable. **Attached:** No

17. CERTIFICATE OF ANALYSIS

NIBSC does not provide a Certificate of Analysis for WHO Biological Reference Materials because they are internationally recognised primary reference materials fully described in the instructions for use. The reference materials are established according to the WHO Recommendations for the preparation, characterization and establishment of international and other biological reference standards http://www.who.int/bloodproducts/publications/TRS932Annex2_Inter_biolefstandardsrev2004.pdf (revised 2004). They are officially endorsed by the WHO Expert Committee on Biological Standardization (ECBS) based on the report of the international collaborative study which established their suitability for the intended use.