



WHO International Standard
1st International Standard Beta-Thromboglobulin
NIBSC code: 83/501
Instructions for use
(Version 2.0, Dated 01/04/2008)

1. INTENDED USE

The 1st International Standard (IS) for purified human β -thromboglobulin (β -TG) was established by the Expert Committee on Biological Standardization of the World Health Organization in 1984.

2. CAUTION

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

The preparation contains material of human origin, and either the final product or the source materials, from which it is derived, have been tested and found negative for HBsAg, anti-HIV and HCV RNA.

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

Eight laboratories participated in an international collaborative study to calibrate the IS and to compare the IS with another purified preparation and two plasma samples. All eight laboratories used a radioimmunoassay (RIA) to estimate the β -TG content of the preparations. The estimate of IS relative to each laboratory's own house standard expressed as the overall geometric mean was 488 ng/ampoule (95% confidence limits for the mean: 347-687 ng/ampoule). A unitage based on the overall geometric mean has been adopted.

Each ampoule contains 500 International Units.

Uncertainty: the assigned unitage does not carry an uncertainty associated with its calibration. The uncertainty may therefore be considered to be the variance of the ampoule content and was determined to be +/- 0.16%.

4. CONTENTS

Country of origin of biological material: United Kingdom.
Purified β -TG was dissolved in 0.05 M phosphate buffer, pH 7.4, containing 2.0 mg/ml bovine albumin as carrier. Ampoules were filled with 1.0 ml of the solution and freeze-dried, according to criteria established for biological standards (1).

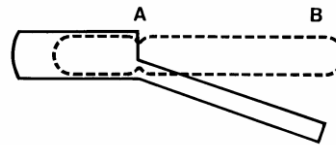
5. STORAGE

Unopened ampoules should be stored in the dark at or below -20°C . Please note: because of the inherent stability of lyophilized material, NIBSC may ship these materials at ambient temperature.

6. DIRECTIONS FOR OPENING

Tap the ampoule gently to collect the material at the bottom (labelled) end. Ensure ampoule is scored all round at the narrow part of the neck, with a diamond or tungsten carbide tipped glass knife file or other suitable implement before attempting to open. Place the ampoule in the ampoule opener, positioning the score at position 'A'; shown in the diagram below. Surround the ampoule with cloth or layers of tissue paper. Grip the ampoule and holder in the hand and squeeze at point 'B'. The ampoule will snap open. Take care to avoid cuts and projectile glass fragments that enter eyes. Take care that no

material is lost from the ampoule and that no glass falls into the ampoule.



Side view of ampoule opening device containing an ampoule positioned ready to open. 'A' is the score mark and 'B' the point of applied pressure.

7. USE OF MATERIAL

No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution

The total contents of the ampoule should be reconstituted with 1.0 ml distilled water and dissolved by gentle mixing. No attempt should be made to weigh out any portion of the freeze-dried material. The reconstituted standard should be used as soon as possible and unused material should be discarded. Store unopened ampoules at -20°C .

8. STABILITY

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

NIBSC follows the policy of WHO with respect to its reference materials.

It is the policy of WHO not to assign an expiry date to their international reference materials. They remain valid with the assigned potency and status until withdrawn or amended. Users who have data supporting any deterioration in the characteristics of any reference preparation are encouraged to contact NIBSC.

β -TG activity of samples of the 1st IS which had been stored for 35 weeks at 37°C , 45°C and 56°C was compared with samples of the same material which had been stored at -20°C . There was insufficient degradation of the samples to relate degradation rate to absolute temperature, using the Arrhenius equation (2). It is concluded that 83/501 has adequate stability to serve as the International Standard.

9. REFERENCES

1.Campbell, P.J. International biological standards and reference preparations: procedures used for the production of the biological standards and reference materials. Journal of Biological Standardization 1974; 2, 259.

2.Kirkwood, T.B.L. Predicting the stability of biological standards and products. Biometrics 1977, 33, 736.

10. ACKNOWLEDGEMENTS

Dr D. S. Pepper (Scottish National Blood Transfusion Service, Edinburgh), for supplying the material used for the IS; the participants in the collaborative study for calibrating the IS.

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

Classification in accordance with Directive 2000/54/EC, Regulation (EC) No 1272/2008: Not applicable or not classified

| Physical and Chemical properties | |
|---|---|
| Physical appearance: Freeze dried white solid | Corrosive: No |
| Stable: Yes | Oxidising: No |
| Hygroscopic: Yes | Irritant: Yes |
| Flammable: No | Handling: See caution, Section 2 |
| Other (specify): | Contains material of human origin |
| 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

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|---|
| 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: 0.02g |
| Toxicity Statement: Toxicity not assessed |
| 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_biol_efstandardsrev2004.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.