Medicines & Healthcare products Regulatory Agency

NIBSC Confidence in Biological Medicines

**WHO International Standard**
**6th WHO International Standard for Follicle-Stimulating Hormone and Luteinizing Hormone for bioassay (human, urinary)**
**NIBSC code: 21/344**
**Instructions for use**
**(Version 1.0, Dated 24/10/2023)**

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## 1. INTENDED USE

The WHO International Standard (IS) for human urinary Follicle-Stimulating hormone (FSH) and Luteinizing Hormone (LH) is intended for the calibration, by *in vivo* bioassay, of preparations with FSH and LH bioactivies of human, urinary origin. The preparation coded 21/344 was established as the 6th WHO International Standard for human, urinary FSH/LH, for bioassay, by the WHO Expert Committee on Biological Standardisation (ECBS) at its 78th meeting in 2023. This material replaces the 5th IS which is discontinued.

The 6th IS, in ampoules coded 21/344, contains purified proteins of human, urinary origin for the value assignment of FSH and LH bioactivities in preparations of human, urinary origin by *in vivo* bioassay only.

## 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

Each ampoule contains:
177 International Units of FSH bioactivity
170 International Units of LH bioactivity

## 4. CONTENTS

Country of origin of biological material: Argentina.
Each ampoule contains the residue after freeze-drying of 0.5 ml of a solution that contained:

| | |
|---|---|
| Purified proteins from human menopausal urine | approx 60 µg |
| Human serum albumin | 0.2% (w/v) |
| Lactose | 0.5% (w/v) |

## 5. STORAGE

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

## 6. DIRECTIONS FOR OPENING

DIN ampoules have an 'easy-open' coloured stress point, where the narrow ampoule stem joins the wider ampoule body. Various types of ampoule breaker are available commercially. To open the ampoule, tap the ampoule gently to collect material at the bottom (labelled) end and follow manufactures instructions provided with the ampoule breaker.

## 7. USE OF MATERIAL

No attempt should be made to weigh out any portion of the freeze-dried material prior to reconstitution
For practical purposes, each ampoule contains the same quantity of material. The entire content of each ampoule should be completely dissolved in an accurately measured amount of buffer solution. The use of water to reconstitute ampoule contents is not recommended. The material has not been sterilized and the ampoules contain no bacteriostat.

## 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.

## 9. REFERENCES

M Moore, K Partridge, J Hockley, P Rigsby and B Cowper. 6th WHO International Standard for human urinary Follicle-Stimulating Hormone and urinary Luteinising Hormone (FSH/LH) for bioassay. WHO/BS/2023.2462.

## 10. ACKNOWLEDGEMENTS

We gratefully acknowledge the important contributions of all participants in the collaborative study, Dr Claudio Wolfenson of Instituto Massone, who kindly donated the FSH/LH bulk material, and the Standardisation Science Group and Standards Processing Divison at NIBSC for the preparation and dispatch of ampouled materials.

## 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

National Institute for Biological Standards and Control,
Potters Bar, Hertfordshire, EN6 3QG. T +44 (0)1707 641000, nibsc.org
WHO International Laboratory for Biological Standards,
UK Official Medicines Control Laboratory

World Health Organization

| Physical and Chemical properties | |
|---|---|
| Physical appearance: Freeze-dried powder | Corrosive: No |
| Stable: Yes | Oxidising: No |
| Hygroscopic: Yes | Irritant: No |
| 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<br>* 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:** 3.6 mg |
| **Toxicity Statement:** Non-toxic |
| **Veterinary certificate or other statement** if applicable.<br>**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.