1. INTENDED USE
Influenza antisera reagent 21/120 is prepared for single radial diffusion assay of H1N1 A/Victoria/2570/2019-like antigens using an appropriate NIBSC antigen reagent.

The antisera reagent was prepared in sheep 764, 765, 766, 767, 768 and 769 using the purified HA of a A/Victoria/2570/2019-like virus. The HA antigens were extracted from purified virus by treatment with bromelain and purified by sedimentation on sucrose gradients (Brand, CN and Skehel, JJ, Nature, New Biology, 1972, 228, 145-147).

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

The material is not of human or bovine 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
No unitage is assigned to this material.

4. CONTENTS
Country of origin of biological material: United Kingdom.
The immunization schedule for sheep 764, 765, 766, 767, 768 and 769 was as follows: one dose of approximately 100 µg of A/Victoria/2570/2019 (IVR-215) virus HA with Freund's Complete Adjuvant (FCA) was given intramuscularly, followed two weeks later with a 20 microgram dose of A/Victoria/2570/2019 (IVR-215) including Freund's Incomplete Adjuvant (FIA). Seven further 20 microgram doses of A/Victoria/2570/2019 (IVR-215) HA including FIA were given after a week. Ten weeks after the initial immunization, serum was collected and sodium azide (0.05% w/v) added.

The antisera was then treated by an APHIS approved method for the inactivation of FMDV.

The antisera obtained from sheep 764, 765, 766, 767, 768 and 769 were pooled, diluted 1 : 3.5 with PBS buffer containing sodium azide (0.05% w/v), and filled into vials in 2ml volumes.

5. STORAGE
+2-8°C

However, if it is intended to store the reagent for long periods i.e. >2 years, they may be stored at -20°C. The antisera can be frozen and thawed without any adverse impact on its use in the SRD assay.

6. DIRECTIONS FOR OPENING
Vials have a screw cap; an internal stopper may also be present. The cap should be removed by turning anti-clockwise. Care should be taken to prevent loss of the contents. Please note: If a stopper is present on removal of the cap, the stopper should remain in the vial or be removed with the cap.

7. USE OF MATERIAL
For the assay of antigens containing 20-50 micrograms of HA activity in 1ml, approximately 35-45 µl of the undiluted reagent should be added to 1ml agarose. It may be necessary to change the antisera concentrations depending on the A/Victoria/2570/2019-like antigen standard used or according to local laboratory conditions.

Antiserum Reagent 21/120 should be used according to the method described by Wood, JM, Schild, GC, Newman, RW and Seagroatt, VA, Journal of Biological Standardisation, 1977, 5, 2.

8. STABILITY
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.

Reference materials are held at NIBSC within assured, temperature-controlled storage facilities. Reference Materials should be stored on receipt as indicated on the label. Once reconstituted, diluted or aliquoted, users should determine the stability of the material according to their own method of preparation, storage and use.

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

Users who have data supporting any deterioration in the characteristics of any reference preparation are encouraged to contact NIBSC. Reference materials are held at NIBSC within assured, temperature-controlled storage facilities. Reference Materials should be stored on receipt as indicated on the label.

9. REFERENCES
None

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

### Physical and Chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical appearance:</td>
<td>Liquid</td>
</tr>
<tr>
<td>Corrosive:</td>
<td>No</td>
</tr>
<tr>
<td>Oxidising:</td>
<td>No</td>
</tr>
<tr>
<td>Irritant:</td>
<td>No</td>
</tr>
<tr>
<td>Flammable:</td>
<td>No</td>
</tr>
<tr>
<td>Hygroscopic:</td>
<td>No</td>
</tr>
<tr>
<td>Handling:</td>
<td>See caution, Section 2</td>
</tr>
<tr>
<td>Other (specify):</td>
<td>Contains Sheep Serum and Sodium Azide (0.05% w/v)</td>
</tr>
</tbody>
</table>

### 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**

<table>
<thead>
<tr>
<th>Country of origin for customs purposes*</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>* 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.</td>
<td></td>
</tr>
<tr>
<td>Net weight:</td>
<td>2g</td>
</tr>
<tr>
<td>Toxicity Statement:</td>
<td>Non toxic</td>
</tr>
<tr>
<td>Veterinary certificate or other statement if applicable:</td>
<td></td>
</tr>
<tr>
<td>Attached:</td>
<td>Yes SH764 SH765 SH766 SH767 SH768 SH769</td>
</tr>
</tbody>
</table>

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
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 010596506634 [Virology no. SH764], which has been used in the production of blood antiserum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals’ record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/05/2021

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon (NVS) Group
The Royal Veterinary College, Royal College Street, London NW1 0TU
Mobile: 07733 103881, E-mail: arfernandez@rvc.ac.uk
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 024126905664 [Virology no. SH765], which has been used in the production of blood antiserum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals’ record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/05/2021

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeons (NVS) Group
The Royal Veterinary College, Royal College Street, London NW1 0TU
Mobile: 07733 103881, E-mail: arfernandez@rvc.ac.uk
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 024126907251 [Virology no. SH766], which has been used in the production of blood antiserum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals’ record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/05/2021

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon (NVS) Group
The Royal Veterinary College, Royal College Street, London NW1 0TU
Mobile: 07733 103881, E-mail: ar Fernandez@rvc.ac.uk
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 010095006577 [Virology no. SH767], which has been used in the production of blood antiserum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals’ record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/6/21
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 024126906729 [Virology no. SH768], which has been used in the production of blood antiscum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals’ record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/05/2021

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeons (NVS) Group
The Royal Veterinary College, Royal College Street, London NW1 0TU
Mobile: 07733 103881, E-mail: ar Fernandez@rvv.ac.uk
VETERINARY CERTIFICATE OF ANIMAL HEALTH

This is to certify that I have examined a Sheep with ear tag number: UK 024126906717 [Virology no. SF769], which has been used in the production of blood antiserum between 10th March 2021 and 19th May 2021. Both the ear tag number and the animals' record show that it is of UK origin.

This animal was a breeding Ewe which became surplus to requirements. In my opinion at the time of clinical examination, the ewe was in good health and showed no clinical signs of infectious disease.

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeon

Date signed: 18/05/2021

Arturo Fernandez DVM MRCVS
Named Veterinary Surgeons (NVS) Group
The Royal Veterinary College, Royal College Street, London NW1 0TU
Mobile: 07733 103881, E-mail: ar Fernandez@rvv.ac.uk