

**Influenza Reagent
Influenza Virus Infectious NIB-112
NIBSC code: 18/166
Instructions for use
(Version 4.0, Dated 19/10/2018)**

1. INTENDED USE

Reagent 18/166 is prepared from NIB-112 (A/Switzerland/8060/2017 x IVR-145) H3N2 which was processed for freeze drying in 250µl volumes as described by Campbell, PJ, Journal of Biological Standardisation, 1974, 2,249-267. The derivation and known passage history of NIB-112 is attached

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.
Each ampoule contains 250µl (nominal) of infectious influenza virus as allantoic fluid from SPF embryonated hen's eggs.

5. STORAGE

Store in the dark at -20°C or below

Please note: because of the inherent stability of lyophilized material, NIBSC may ship these materials at ambient temperature.

6. DIRECTIONS FOR OPENING

Vials have a 'flip-up' circular cap. Either on the cap or the collar of the vial, there is an indication of the point at which to lever off the cap. This exposes an area of the stopper through which reconstitution and withdrawal of the preparation can be made using a hypodermic needle and syringe. If use of a pipette is preferred, then fully remove the metal collar using, for example, forceps, taking care to avoid cuts by wearing appropriate gloves. Remove the stopper for access. Care should be taken to prevent loss of the contents.

7. USE OF MATERIAL

Reconstitute the contents of one ampoule of reagent with 250µl of sterile distilled water. Leave for a minimum of 5 minutes before use to allow for complete solution of freeze-dried material. A range of dilutions (e.g. 10⁻³ to 10⁻⁶) should be made in a suitable medium for initial cultivation.

8. STABILITY

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

NA

10. ACKNOWLEDGEMENTS

NA

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: white powder	Corrosive: No
Stable: Yes	Oxidising: No
Hygroscopic: No	Irritant: No
Flammable: No	Handling: See caution, Section 2
Other (specify):	Live influenza virus
Toxicological properties	
Effects of inhalation:	Likelihood of influenza virus infection
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 contents should be taken up with absorbent material wetted with an appropriate virucidal agent. Rinse area with an appropriate virucidal agent followed by water. Absorbent materials used to treat spillage should be treated as biologically hazardous 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: 0.25g per ampoule
Toxicity Statement: Non-toxic
Veterinary certificate or other statement if applicable.
Attached: No

Passage history of NIB-112 (post mixed infection)

Passage	Lot	Laboratory
E1 – E5		NIBSC, Hertfordshire, UK
E6	43990	NIBSC, Hertfordshire, UK

Sterility: No visible contamination was detected in a variety of media (tryptose soya broth, thioglycolate broth, Sabouraud's broth and blood agar plates) after 14 days incubation.

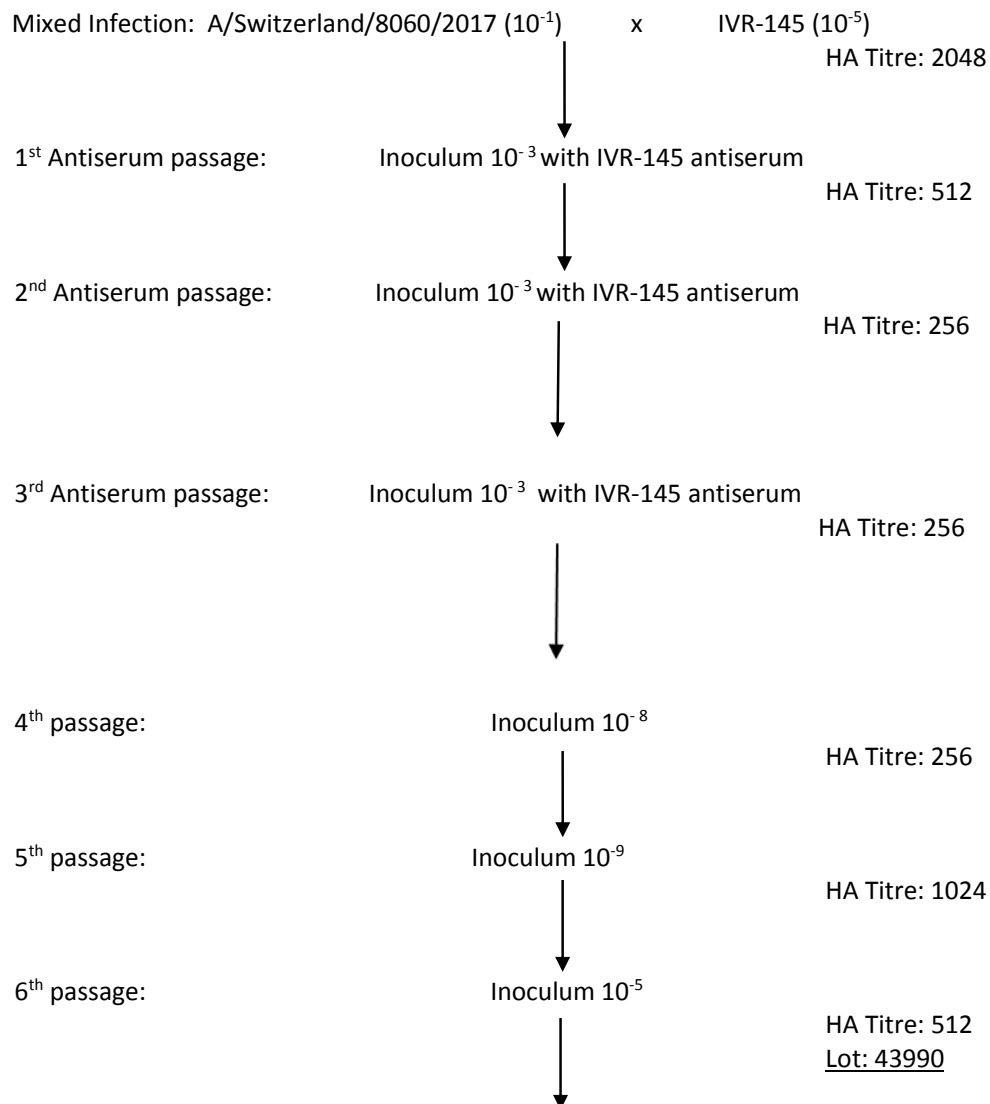
The HA and NA sequence of this virus is available on GISAID with the accession number EPI_ISL_330357.



Derivation of NIB-112

A/Switzerland/8060/2017-like High Growth Reassortant

Strain: A/Switzerland/8060/2017
Received from FCI: E5, 19/06/2018
Passage undertaken at NIBSC: #43720, E6



Total number of passages since mixed infection= E6

SPF eggs were used for all passages.

Sterility: no visible contamination was detected in a variety of media (tryptose soya broth, thioglycolate broth, Sabouraud's broth and blood agar plates) after 14 days incubation.



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Wednesday, 10 October 2018

Dr Othmar Engelhardt, Dr Becky Penn and Dr Ruth Harvey
National Institute for Biological standards and Control
South Mimms
Herts.

Dear Othmar, Becky and Ruth,

NIB-112 (A/Switzerland/8060/2017)

Your high yield/growth reassortant virus NIB-112 derived from A/Switzerland/8060/2017 has been analysed in a 2-way HI test.

The post infection antiserum raised against egg-propagated cultivar of A/Switzerland/8060/2017 (F27/18) recognised NIB-112 at a titre equal to the titre of the antiserum for the homologous virus, and the antiserum you raised against NIB-112 (NIB F04/18) recognised the egg-propagated cultivar of A/Switzerland/8060/2017 at a titre equal to the titre of the antiserum for the homologous reassortant virus.

However, although the post infection antiserum raised against our egg-propagated cultivar of A/Singapore/INFIMH-16-0019/2016 (F41/17) recognised NIB-112 with a titre equal to the titre of the antiserum for the homologous virus, the antiserum raised against NIB-112 recognised the egg-propagated cultivar of A/Singapore/INFIMH-16-0019/2016 at a titre 8-fold lower than the titre for the homologous reassortant virus.

The results of the test are shown in the annex below.

Therefore, NIB-112 is antigenically similar to its parent, A/Switzerland/8060/2017, but it cannot be described as antigenically similar to our egg-propagated cultivar of A/Singapore/INFIMH-16-0019/2016.

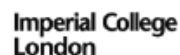
Sequencing of the HA and NA genes of NIB-112 show both the HA and the NA to be identical to egg-propagated cultivar of A/Switzerland/8060/2017. Polypeptide alignments are in annexes at the end of the report.

I hope that you find the results useful.

If you need any corrections or changes to the document or any more information, please let me know.

With best wishes,
Yours sincerely,

John McCauley
Director, WHO Collaborating Centre for Reference and Research on Influenza
The Francis Crick Institute.



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Annex 1. HI analysis of NIB-112.

Antigenic analyses of influenza A(H3N2) viruses (Guinea Pig RBC with 20nM Oseltamivir) 2018-09-24							
Viruses	Other Information	Collection date	Passage history	Haemagglutination inhibition titre			
				Post-infection ferret antisera			
				A/Singapore	A/Switz	NIBSC	
				0018/18	8080/17	NIB-112	
	Passage history			Egg 10-4	Egg	Egg	
	Ferret number			F41/17*1	F27/18	NIB F4/18	
	Genetic group			3C.2a1	3C.2a2		
REFERENCE VIRUSES							
A/Singapore/INFIMH-18-0018/2018		3C.2a1	2018-08-14	E6/E1	640	180	80
A/Switzerland/8090/2017	Clone 67	3C.2a2	2017-12-20	E8	640	2680	640
TEST VIRUSES							
NIB-112 (A/Switzerland/8090/2017)				E7	640	2680	640

Assay HI (Guinea Pig RBC with 20nM Oseltamivir)
RBC Guinea Pig
Virus Influenza A(H3N2)
Date 2018-08-24
ND Not Done

Vaccine
SH 2018
NH 2018