Summary of status of development and availability of avian influenza A(H7N9) candidate vaccine viruses and potency testing reagents

Antigenic and genetic analyses are performed by the WHO Collaborating Centres of the Global Influenza Surveillance and Response System (GISRS). Unless otherwise indicated all candidate vaccine viruses posted on this table have passed two-way haemagglutination inhibition (HI) test. National or Regional control authorities approve the composition and formulation of vaccines used in each country

3 October 2023

Candidate vaccine viruses*

Antigenic prototype	Candidate vaccine virus	Type of virus or reassortant	Developing institute	Available from
A/Gansu/23277/2019-like	Wild type virus			WHO CCs
	IDCDC-RG64A*	Reverse	CDC, USA	CDC, USA
A/Guangdong/17SF003/2016	Wild type virus			WHO CCs
	CBER-RG7C*	Reverse genetics	CBER/FDA, USA	CBER/FDA, USA
	IDCDC-RG56N*	Reverse genetics	CDC, USA	CDC, USA
	CBER-RG7D*	Reverse genetics	CBER/FDA, USA	CBER/FDA, USA
	NIBRG-375*	Reverse genetics	MHRA, UK	MHRA, UK
A/Hong Kong/125/2017	Wild type virus			CDC, USA
	IDCDC-RG56B*	Reverse genetics	CDC, USA	CDC, USA
A/Shanghai/2/2013 Synthetic HA&NA	Wild type virus			CDC, USA
	IDCDC-RG32A*	Reverse genetics	CDC, USA	CDC, USA MHRA, UK
	IDCDC-RG32A.3*	Reverse genetics	CDC, USA	CDC, USA
	NIBRG-267*	Reverse genetics	MHRA, UK	MHRA, UK
	CBER-RG4A*	Reverse genetics	CBER/FDA, USA	CBER, USA
A/Anhui/1/2013	Wild type virus			WHO CCs
	NIBRG-268*	Reverse genetics	MHRA, UK	MHRA, UK
	NIIDRG-10.1*	Reverse genetics	NIID, Japan	NIID, Japan
	IDCDC-RG33A*	Reverse genetics	CDC, USA	CDC, USA

	SJ005*	Reverse genetics	SJCRH, USA	SJCRH, USA

**These viruses are candidate vaccine viruses which have passed relevant safety testing. They can be handled under BSL-2 enhanced containment[1].*

Candidate vaccine viruses in preparation

Antigenic prototype	Developing Institute	Available from
A/Hunan/02650/2016	CCDC, China	**Pending**

Institutes contact details for candidate vaccine virus orders/information:

CBER/FDA: CBERshippingrequests@fda.hhs.gov
CCDC: whocc-china@cnic.org.cn
CDC: nmb7@cdc.gov (Subject: CVV request)
MHRA: standards@nibsc.org or enquiries@nibsc.org
NIID: flu-vaccine@nih.go.jp
SJCRH: richard.webby@stjude.org
WHO CCs: https://www.who.int/initiatives/global-influenza-surveillance-and-response-system/who-collaboration-center-erl?CxitPEOtTWx0xUd5TJdODSXcnyJqzYd7FZeivpn7xcI=

Reference antigens

Starting materials		Ref. Ag. Lot number	Unitage (µgHA/ml)	Available from
Antigenic prototype	**Candidate vaccine virus**			
A/Anhui/1/2013	NIBRG-268	**16/238**	95	MHRA, UK
A/Shanghai/2/2013	IDCDC-RG32A	**2014/100B**	72	TGA, Australia
	PR8-IDCDC-RG32A	**78**	60	CBER/FDA, USA**
A/Guangdong/17SF003/2016	NIBRG-375	**18/196**	59	MHRA, UK
	NIBRG-375/SeqHS_SyS18_05.4	**H7-Ag-1814 (cell)**	88	CBER/FDA, USA**
	IDCDC-RG56N/SeqHS_SyS18_06.4	**H7-Ag-1815 (cell)**	97	CBER/FDA, USA**
	Recombinant HA	**H7-Ag-2208 (rHA)**	53	CBER/FDA, USA**
A/Hong Kong/125/2017	IDCDC-RG56B	**88**	67	CBER/FDA, USA**
	IDCDC-RG56N/ SeqHS_SyS17_010.4	**H7-Ag-1809 (cell)**	66	CBER/FDA, USA**

*** All requests for reagents to CBER will be evaluated upon justification provided. Distribution may be restricted.*
New reagents shown in blue

Sheep antisera

[1] *Guidelines for the safe development and production of vaccines to human pandemic influenza viruses and influenza viruses with pandemic potential, Annex 3, TRS No 1016 (who.int)*
http://www.who.int/biologicals/publications/trs/areas/vaccines/influenza/Annex 5 human pandemic influenza.pdf?ua=1

Parent virus	Order Lot number	Available from
A/Anhui/1/2013	**15/248**	MHRA, UK
	13/166[§]	
A/Shanghai/2/2013	**H7-Ab-1320**[#]	CBER/FDA, USA**
	H7-Ab-1402[##]	
	H7-Ab-1403[##]	
A/Guangdong/17SF003/2016	**18/112**	MHRA, UK
	H7-Ab-1708	CBER/FDA, USA**
	H7-Ab-1813	CBER/FDA, USA**
A/Hong Kong/125/2017	**H7-Ab-1706**	CBER/FDA, USA**

§ *Anti NA serum for tests of neuraminidase identification*

\# *Primed with bromelain-cleaved HA from A/Mallard/Netherlands/12/2000 (H7N3), boosted with bromelain-cleaved HA from egg grown A/Shanghai/02/2013 PR8-IDCDC-RG32A reassortant; an additional boost with influenza H7 (A/Shanghai/02/2013) virus-like particles prepared in Vero cells*

\## *Primed and boosted with bromelain-cleaved HA from egg grown A/Shanghai/02/2013 PR8- IDCDC-RG32A reassortant; an additional boost with influenza H7 (A/Shanghai/02/2013) virus-like particles prepared in Vero cells*

** *All requests for reagents to CBER will be evaluated upon justification provided. Distribution may be restricted*

New reagents shown in blue

ERLs contact details for reagent orders and other information:

CBER/FDA: CBERshippingrequests@fda.hhs.gov
MHRA: standards@nibsc.org or enquiries@nibsc.org
TGA: influenza.reagents@health.gov.au

For other candidate vaccine viruses and potency testing reagents, please go to https://www.who.int/teams/global-influenza-programme/vaccines/who-recommendations/zoonotic-influenza-viruses-and-candidate-vaccine-viruses

For general enquiries, please contact gisrs-whohq@who.int