

Summary of status of development and availability of A(H5N1) 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](#)

28 February 2020

Candidate vaccine viruses*

Antigenic prototype	Clade	Candidate vaccine virus	Developing institute	Available from
A/Vietnam/1194/2004	1	Wild type virus		WHO CCs
		NIBRG-14*	NIBSC, UK	NIBSC, UK
A/Vietnam/1203/2004	1	Wild type virus		WHO CCs
		SJRG-161052*	CDC, USA SJCRH, USA HKU, China	SJCRH, USA CDC, USA
A/Cambodia/R0405050/2007	1.1	Wild type virus		WHO CCs
		NIBRG-88*	NIBSC, UK	NIBSC, UK
A/Cambodia/X0810301/2013	1.1.1	Wild type virus		WHO CCs
		IDCDC-RG34B*	CDC, USA	CDC, USA
A/duck/Hunan/795/2002	2.1	Wild type virus		WHO CCs
		SJRG-166614*	SJCRH, USA HKU, China	SJCRH, USA
A/Indonesia/5/2005	2.1.3.2	Wild type virus		WHO CCs
		IDCDC-RG2*	CDC, USA	CDC, USA
A/Indonesia/NIHRD11771/2011	2.1.3.2a	Wild type virus		WHO CCs
		NIIDRG-9*	NIID, Japan NIHRD, Indonesia	NIID, Japan
A/chicken/India/NIV33487/2006	2.2	Wild type virus		WHO CCs
		IBCDC-RG7*	NIV, India CDC, USA	NIV, India CDC, USA

Antigenic prototype	Clade	Candidate vaccine virus	Developing institute	Available from
A/bar headed goose/Qinghai/1A/2005	2.2	Wild type virus		WHO CCs
		SJRG-163222*	SJCRH, USA HKU, China	SJCRH, USA
A/whooper swan/Mongolia/244/2005	2.2	Wild type virus		WHO CCs
		SJRG-163243*	SJCRH, USA	SJCRH, USA
A/turkey/Turkey/1/2005	2.2.1	Wild type virus		WHO CCs
		NIBRG-23*	NIBSC, UK	NIBSC, UK
A/Egypt/2321-NAMRU3/2007	2.2.1	Wild type virus		WHO CCs
		IDCDC-RG11*	CDC, USA	CDC, USA
A/Egypt/N03072/2010	2.2.1	Wild type virus		WHO CCs
		IDCDC-RG29*	CDC, USA	CDC, USA
A/Egypt/3300-NAMRU3/2008	2.2.1.1	Wild type virus		WHO CCs
		IDCDC-RG13*	CDC, USA	CDC, USA
A/Egypt/N04915/2014	2.2.1.2	Wild type virus		WHO CCs
		NIBRG-306*	NIBSC, UK	NIBSC, UK
A/common magpie/Hong Kong /5052/2007	2.3.2.1	Wild type virus		WHO CCs
		SJRG-166615*	SJCRH, USA HKU, China	SJCRH, USA
A/Hubei/1/2010	2.3.2.1a	Wild type virus		WHO CCs
		IDCDC-RG30*	CCDC, China CDC, USA	CCDC, China CDC, USA
A/duck/Bangladesh/19097/2013	2.3.2.1a	Wild type virus		WHO CCs
		SJ001*	SJCRH, USA	SJCRH, USA
A/barn swallow/Hong Kong/D10-1161/2010	2.3.2.1b	Wild type virus		WHO CCs
		SJ-003*	SJCRH, USA HKU, China	SJCRH, USA

Antigenic prototype	Clade	Candidate vaccine virus	Developing institute	Available from
A/duck/Viet Nam/NCVD-1584/2012	2.3.2.1c	Wild type virus		WHO CCs
		NIBRG-301*	NIBSC, UK	NIBSC, UK
A/duck/Laos/3295/2006	2.3.4	Wild type virus		WHO CCs
		CBER-RG1*	CBER/FDA, USA	CBER/FDA, USA
A/Anhui/1/2005		Wild type virus		WHO CCs
	2.3.4	IDCDC-RG6*	CDC, USA	CDC, USA
A/Japanese white eye/HK/1038/2006	2.3.4	Wild type virus		WHO CCs
		SJRG-164281*	SJCRH, USA HKU, China	SJCRH, USA
A/chicken/Hong Kong/AP156/2008	2.3.4	Wild type virus		WHO CCs
		SJ-002*	SJCRH, USA HKU, China	SJCRH, USA
A/chicken/Bangladesh/11rs1984-30/2011	2.3.4.2	Wild type virus		WHO CCs
		IDCDC-RG36*	CDC, USA	CDC, USA
A/Guizhou/1/2013	2.3.4.2	Wild type virus		WHO CCs
		IDCDC-RG35*	CCDC, China CDC, USA	CCDC, China CDC, USA
A/goose/Guiyang/337/2006	4	Wild type virus		WHO CCs
		SJRG-165396*	SJCRH, USA HKU, China	SJCRH, USA
A/chicken/Vietnam/NCVD-016/2008	7.1	Wild type virus		WHO CCs
		IDCDC-RG12*	CDC, USA	CDC, USA
A/chicken/Vietnam/NCVD-03/2008	7.1	Wild type virus		WHO CCs
		IDCDC-RG25A*	CDC, USA	CDC, USA

**These viruses are candidate vaccine viruses which have passed relevant safety testing and two-way haemagglutination inhibition (HI) tests. They can be handled under BSL-2 enhanced containment¹.*

¹ <http://www.who.int/biologicals/publications/trs/areas/vaccines/influenza/Annex%205%20human%20pandemic%20influenza.pdf?ua=1>

Candidate vaccine viruses in preparation#

Antigenic prototype	Clade	Developing Institute	Available from
A/chicken/Guiyang/1153/2016	2.3.2.1d	SJCRH, USA HKU, China	Pending
A/chicken/Ghana/20/2015	2.3.2.1f	CDC, USA	Pending
A/duck/Bangladesh/17D1012/2018	2.3.2.1a	CDC, USA	Pending

Development of an A/environment/Hubei/950/2013 CVV has been discontinued.

Institutes contact details for candidate vaccine virus orders and other information:

CBER/FDA: CBERshippingrequests@fda.hhs.gov

CDC: dwentworth@cdc.gov (subject: CVV request)

CCDC: whocc-china@cnic.org.cn

NIBSC: standards@nibsc.org or enquiries@nibsc.org

NIID: nobusawa@nih.go.jp

NIV: niv.influenza@gmail.com

HKU: malik@hkucc.hku.hk

SJCRH: richard.webby@stjude.org

WHO CCs: http://www.who.int/influenza/gisrs_laboratory/collaborating_centres/list/en/

Reference antigens (freeze dried)

Starting materials		Ref Ag Lot number	Unitage (µgHA/ml)	Available from
Parent virus	CVV			
A/Vietnam/1194/2004	NIBRG-14	09/184	67	NIBSC, UK
A/turkey/Turkey/1/2005	NIBRG-23	07/112	80	NIBSC, UK
A/Anhui/1/2005	IDCDC-RG6	07/290	99	NIBSC, UK
A/Cambodia/R0405050/2007	NIBRG-88	08/216	93	NIBSC, UK
A/Vietnam/1203/2004	161052 (SJCRH)	50	152	CBER/FDA, USA
A/Indonesia/5/2005	IDCDC-RG2	0904	77	CBER/FDA, USA
		2013/99B	85	TGA, Australia
A/Bar-headed goose/Qinghai/1A/2005	163222 (SJCRH)	63	69	CBER/FDA, USA

Sheep antisera

Antisera directed against	Order Lot number	Available from
A/Anhui/1/2005-like	07/338	NIBSC, UK
	08/142	NIBSC, UK
A/Cambodia/R0405050/2007-like	08/210	NIBSC, UK
A/Hong Kong/489/97-like	98/666	NIBSC, UK
A/Vietnam/1203/2004-like	S-124, S-125	CBER/FDA, USA
A/Indonesia/5/2005-like	S-7854	CBER/FDA, USA
	AS406	TGA, Australia
A/Bar-headed goose/Qinghai/1A/2005-like	S-112SP	CBER/FDA, USA
A/Vietnam/1194/2004-like	07/148	NIBSC, UK
	09/192	NIBSC, UK
A/turkey/Turkey/1/2005-like	06/192	NIBSC, UK
	08/126 ^s	NIBSC, UK
A/duck/Viet Nam/NCVD-1584/2012-like	14/318	NIBSC, UK

^s Anti NA serum for tests of neuraminidase identification

WHO Essential Regulatory Laboratories (ERLs) contact details for reagent orders and other information:

CBER/FDA: CBERShippingRequests@fda.hhs.gov
 NIBSC: standards@nibsc.org or enquiries@nibsc.org
 TGA: influenza.reagents@tga.gov.au

Candidate vaccine viruses and potency testing reagents for influenza A(H5) non-A(H5N1) can be found on the WHO web site at
http://www.who.int/influenza/vaccines/virus/candidates_reagents/a_h5/en/

For information of other type and subtype candidate vaccine viruses and potency testing reagents, please go to: <http://www.who.int/influenza/vaccines/virus/en/>

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