

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 September 2022

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 (MHRA), UK	NIBSC (MHRA), 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 (MHRA), UK	NIBSC (MHRA), 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 (MHRA), UK	NIBSC (MHRA), 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 (MHRA), UK	NIBSC (MHRA), 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/Vietnam/NCVD-1584/2012	2.3.2.1c	Wild type virus		WHO CCs
		NIBRG-301*	NIBSC (MHRA), UK	NIBSC (MHRA), UK
A/chicken/Guiyang/1153/2016	2.3.2.1d	Wild type virus		WHO CCs
		SJ0009	SJCRH, USA HKU, China	SJCRH, USA HKU, China
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	2.3.4	Wild type virus		WHO CCs
		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.*

Candidate vaccine viruses in preparation

Antigenic prototype	Clade	Developing Institute	Available from
A/chicken/Ghana/20/2015	2.3.2.1f	CDC, USA	Pending
A/duck/Bangladesh/17D1012/2018	2.3.2.1a	CDC, USA	Pending
A/chicken/Ghana/AVL-76321VIR7050-39/2021-like	2.3.4.4b	To Be updated	Pending

New CVV shown in blue

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 (MHRA): 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: <https://www.who.int/initiatives/global-influenza-surveillance-and-response-system/who-collaboration-center-erl?CxitPEOtTWx0xUd5TJdODSXcnyJqzYd7FZeivpn7xcl=>

¹ <https://www.who.int/publications/m/item/biosafety-risk-assessment-and-guidelines-for-human-influenza-pandemic-vaccines>

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 (MHRA), UK
A/turkey/Turkey/1/2005	NIBRG-23	07/112	80	NIBSC (MHRA), UK
		H5-Ag-1510 (cell)	93	CBER/FDA, USA
A/Anhui/1/2005	IDCDC-RG6	07/290	99	NIBSC (MHRA), UK
		H5-AG-0911	58	CBER/FDA, USA
A/Cambodia/R0405050/2007	NIBRG-88	08/216	93	NIBSC (MHRA), UK
A/Vietnam/1203/2004	161052 (SJCRH)	89	53	CBER/FDA, USA
A/Indonesia/5/2005	IDCDC-RG2	83	32	CBER/FDA, USA
		2013/99B	85	TGA, Australia
A/Bar-headed goose/Qinghai/1A/2005	163222 (SJCRH)	63	69	CBER/FDA, USA
A/duck/Vietnam/NCVD-1584/2012	NIBRG-301	17/142	47	NIBSC (MHRA), UK
A/duck/Bangladesh/19097/2013	n/a	H5-AG-1409 (cell)	88	CBER/FDA, USA
A/Egypt/N03072/2010	IDCDC-RG-29	H5-Ag-1201	67	CBER/FDA, USA

New reagents shown in blue

Sheep antisera

Parent virus	Order Lot number	Available from
A/Anhui/1/2005-like	07/338	NIBSC (MHRA), UK
	08/142	NIBSC (MHRA), UK
	H5-AB-1209	CBER/FDA, USA
A/Cambodia/R0405050/2007-like	08/210	NIBSC (MHRA), UK
A/Hong Kong/489/97-like	98/666	NIBSC (MHRA), UK
A/Vietnam/1203/2004-like	H5-Ab-1811; H5-Ab-1812	CBER/FDA, USA
A/Indonesia/5/2005-like	H5-Ab-1217	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 (MHRA), UK
	09/192	NIBSC (MHRA), UK
A/turkey/Turkey/1/2005-like	06/192	NIBSC (MHRA), UK
	08/126 ^s	NIBSC (MHRA), UK
A/duck/Vietnam/NCVD-1584/2012-like	14/318	NIBSC (MHRA), UK
A/duck/Bangladesh/19097/2013	H5-Ab-1513	CBER/FDA, USA
A/Egypt/N03072/2010	H5-Ab-1203	CBER/FDA, USA

^s Anti NA serum for tests of neuraminidase identification

New reagents shown in blue

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

CBER/FDA: CBERShippingRequests@fda.hhs.gov

NIBSC (MHRA): standards@nibsc.org or enquiries@nibsc.org

TGA: influenza.reagents@tga.gov.au

For information of other type and subtype 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