

Phylogenetic analysis of influenza A(H3N2) HA genes

22/23 vaccine strain in Japan

FRA reference strain

November 2022

December 2022

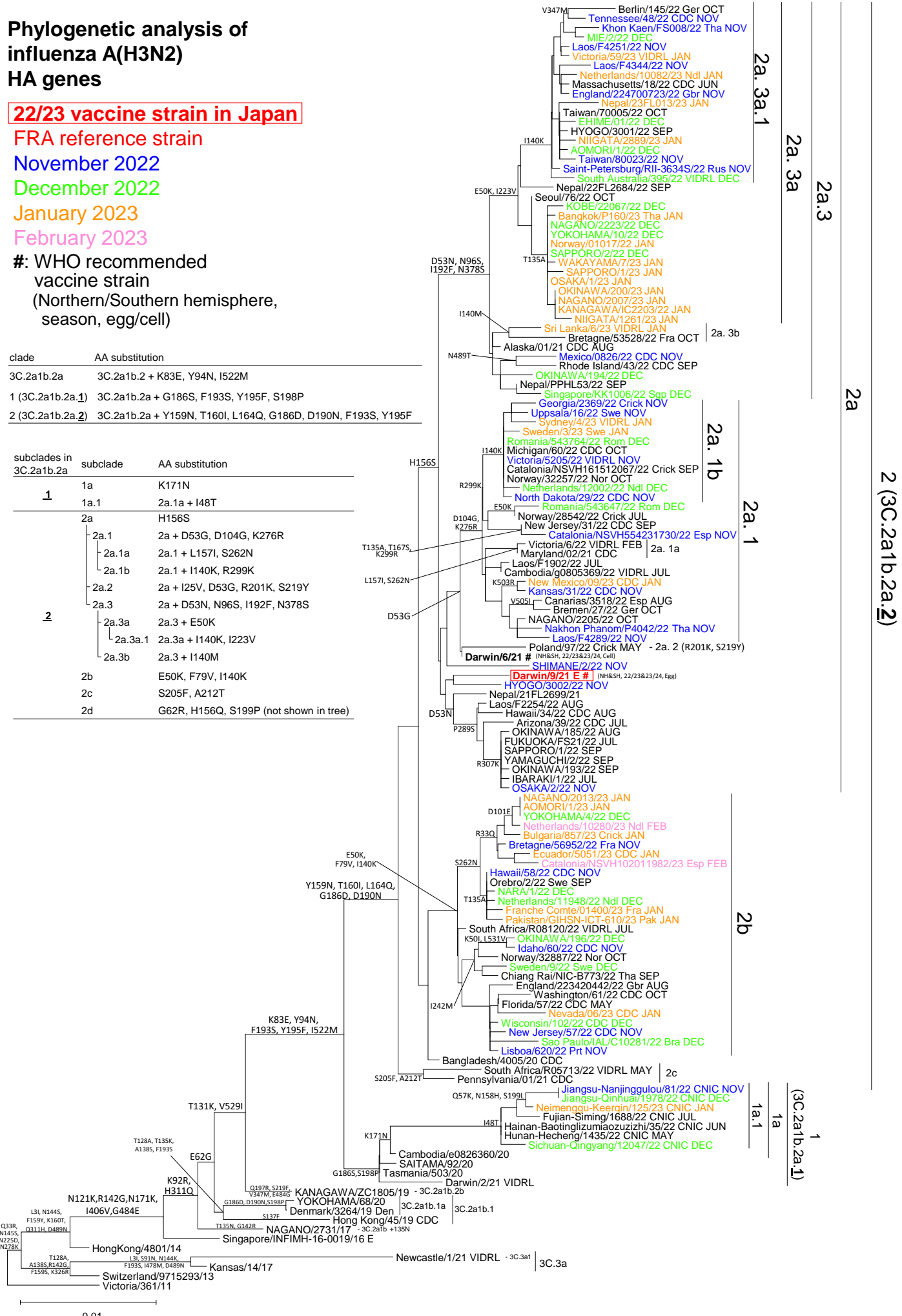
January 2023

February 2023

#: WHO recommended vaccine strain (Northern/Southern hemisphere, season, egg/cell)

clade	AA substitution
3C.2a1b.2a	3C.2a1b.2 + K83E, Y94N, I522M
1 (3C.2a1b.2a.1)	3C.2a1b.2a + G186S, F193S, Y195F, S198P
2 (3C.2a1b.2a.2)	3C.2a1b.2a + Y159N, T160I, L164Q, G186D, D190N, F193S, Y195F

subclades in 3C.2a1b.2a	subclade	AA substitution
1	1a	K171N
	1a.1	2a.1a + I48T
	2a	H156S
2	2a.1	2a + D53G, D104G, K276R
	2a.1a	2a.1 + L157I, S262N
	2a.1b	2a.1 + I140K, R299K
	2a.2	2a + I25V, D53G, R201K, S219Y
	2a.3	2a + D53N, N96S, I192F, N378S
	2a.3a	2a.3 + E50K
	2a.3a.1	2a.3a + I140K, I223V
	2a.3b	2a.3 + I140M
	2b	E50K, F79V, I140K
	2c	S205F, A212T
2d	G62R, H156Q, S199P (not shown in tree)	



2 (3C.2a1b.2a.2)

(3C.2a1b.2a.1)

0.01