

Supplementary Information

Table S1: Accession numbers of A/H1N1 strains included in the sequence and phylogenetic analysis in the current study.

No.	Strain	Origin	GenBank accession No.			Note
			H1	N1	Clade	
1.	A/California/7/2009	USA	NC_026433	NC_026434	Prototype 4	Vaccine strain
2.	A/Hawaii/70/2019	USA	MT738421	MT738415	5a.1	Vaccine strain
3.	A/Guangdong/Maonan/SWL1536/2019	China	EPI1542570	EPI1542569	5a.1	Vaccine strain
4.	A/Sydney/5/2021	Australia	EPI1988082	EPI1988081	5a.2a	Vaccine strain
5.	A/Wisconsin/67/2022	USA	EPI2224788	EPI2224787	5a.2a.1	Vaccine strain
6.	A/Victoria/2570/2019	Australia	EPI1647563	EPI1647562	5a.2	Vaccine strain
7.	A/Wisconsin/588/2019	USA	MW626062	MW626056	5a.2	Vaccine strain
8.	A/Michigan/45/2015	USA	MK622940.	MK622934	6B.1	Vaccine strain
9.	A/Brisbane/02/2018	Australia	EPI1504919	EPI1504919	6B.1A.1	Vaccine strain
10.	A/India/3405/2017	India	EPI1161973	EPI1161972	6	
11.	A/Taiwan/80693/2018	Taiwan	EPI1281129	EPI1281128	6	
12.	A/Navarra/1985/2017	Spain	EPI1032468	EPI1281128	6B.1A.1	
13.	A/Aichi/190/2018	Japan	EPI1267660	EPI1267659	6B.1A.2	
14.	A/Darwin/102/2019	Australia	EPI1435917	EPI1435916	6B.1A.2	
15.	A/AbuDhabi/186/2017	UAE	EPI1180204	EPI1180203	6B.1A.3	
16.	A/Idaho/7/2018	USA	EPI1206974	EPI1206973	6B.1A.3	
17.	A/Iowa/59/2018	USA	EPI1314362	EPI1314361	6B.1A.5a	
18.	A/Congo/16/2022	Congo	EPI2015871	EPI2015870	6B.1A.5a	
19.	A/Sydney/1167/2022	Australia	EPI2152082	EPI2152081	6B.1A.5a.2	
20.	A/Kyiv/359/2017	Ukraine	EPI1164245	EPI1164243	6B.1A.5b	
21.	A/CostaRica/4734/2020	Costa Rica	EPI1805661	EPI1805660	6B.1A.5b	
22.	A/Ireland/84630/2018	Ireland	EPI1354717	EPI1354718	6B.1A.6	
23.	A/Iceland/68/2019	Iceland	EPI1506821	EPI1506822	6B.1A.6	
24.	A/Paris/2186/2018	France	EPI1313521	EPI1313520	6B.1A.7	
25.	A/Norway/2967/2021	Norway	EPI1882571	EPI1882570	6B.1A.7	

26. A/Israel/Q/504/2015	Israel	EPI697729	EPI697730	6B.2
27. A/Ningbo/75/2021	China	EPI1858137	EPI1858139	6B.2
28. A/Singapore/DMS1192/2011	Singapore	EPI634252	EPI634680	7
29. A/Ethiopia/198/2012	Ethiopia	EPI386042	EPI386041	8
30. A/Riyadh/4783/2009	Saudi Arabia	LC092960	LC093024	
31. A/Riyadh/1058/2009	Saudi Arabia	LC092961	LC093013	
32. A/Riyadh/1120/2009	Saudi Arabia	LC092962	LC093036	
33. A/Riyadh/5212/2010	Saudi Arabia	LC092966	LC093033	
34. A/Riyadh/5281/2010	Saudi Arabia	LC092976	LC093020	
35. A/Jeddah/KFAFH3561/2015	Saudi Arabia	MF768811	MF768813	
36. A/Jeddah/KFAFH3274/2015	Saudi Arabia	MF768755	MF768757	
37. A/Jeddah/KFAFH1507/2015	Saudi Arabia	MF768779	MF768781	
38. A/Jeddah/KFAFH1335/2015	Saudi Arabia	MF768731	MF768733	
39. A/Jeddah/0267/2015	Saudi Arabia	MF768787	MF768789	
40. A/Jeddah/0114/2015	Saudi Arabia	MF768595	MF768597	
41. A/SaudiArabia/129/2014	Saudi Arabia	MK246085	MK228959	6B.1
42. A/SaudiArabia/130/2014	Saudi Arabia	MK246086	MK228960	6B.1
43. A/SaudiArabia/131/2014	Saudi Arabia	MK246087	MK228961	6B.2
44. A/Saudi Arabia/03/2015	Saudi Arabia	MK246015	MK228889	6B.2
45. A/Saudi Arabia/67/2015	Saudi Arabia	MK246043	MK228917	6B.2
46. A/Saudi Arabia/69/2015	Saudi Arabia	MK246045	MK228919	6B.2
