Supporting Information

Das et al. 10.1073/pnas.1108754108

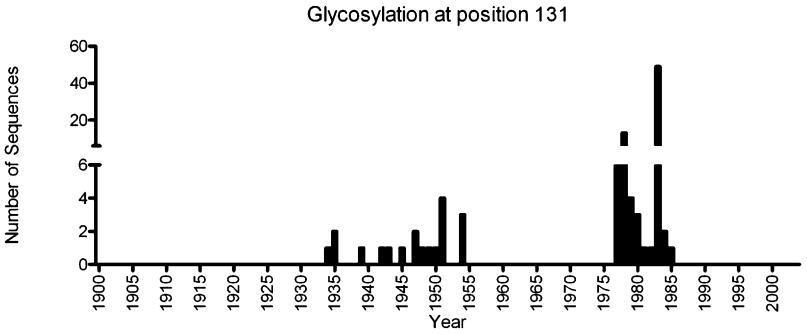

Fig. S1. Yearwise distribution of glycosylation at position 131 in circulating strains of H1N1 viruses in humans.

Table S1. Presence of substitutions that increase receptor binding affinity of HA in circulating strains with glycosylation at position 131 of HA

Name	Gly131	Gly91(+/-5AA)	Gly162(+/-5AA)	Host	Year	156	186	193	194	225
V01088	YES	NO	NO	Human	1934	E	S	N	I	D
CY009324	YES	NO	NO	Human	1935	K	S	T	L	D
CY020469	YES	NO	NO	Human	1935	K	S	T	L	D
U02085	YES	NO	NO	Human	1947	E	S	T	L	G
CY021701	YES	YES	NO	Human	1950	E	S	T	L	G
CY009340	YES	NO	NO	Human	1954	E	S	T	L	G
CY021053	YES	NO	NO	Human	1954	E	S	T	L	G
CY021037	YES	YES	NO	Human	1982	E	S	T	I	D
CY009276	YES	YES	YES	Human	1942	E	S	T	L	G
CY020285	YES	YES	YES	Human	1943	E	S	T	L	G
CY021709	YES	YES	YES	Human	1945	E	S	T	L	G
CY009612	YES	YES	YES	Human	1947	E	S	T	L	G
CY019947	YES	YES	YES	Human	1948	E	S	T	L	G
CY019971	YES	YES	YES	Human	1949	E	S	T	L	G
CY021821	YES	YES	YES	Human	1951	E	S	T	L	G
CY021901	YES	YES	YES	Human	1951	E	S	T	L	G
CY022021	YES	YES	YES	Human	1951	E	S	T	L	G
CY022093	YES	YES	YES	Human	1951	E	S	T	L	G
M38312	YES	YES	YES	Human	1954	E	S	T	I	G
CY009284	YES	YES	YES	Human	1977	E	S	T	I	G
CY009292	YES	YES	YES	Human	1977	E	S	T	I	G
CY010372	YES	YES	YES	Human	1977	E	S	T	I	G
CY020573	YES	YES	YES	Human	1977	E	S	T	I	G
DQ508897	YES	YES	YES	Human	1977	E	S	T	I	G
K01330	YES	YES	YES	Human	1977	E	S	T	I	G
CY010868	YES	YES	YES	Human	1978	E	S	T	I	G
CY010876	YES	YES	YES	Human	1978	E	S	T	I	G
CY010884	YES	YES	YES	Human	1978	E	S	T	I	G
CY010892	YES	YES	YES	Human	1978	E	S	T	I	G
CY010900	YES	YES	YES	Human	1978	E	S	T	I	G
CY011296	YES	YES	YES	Human	1978	E	S	T	I	G
CY017363	YES	YES	YES	Human	1978	E	S	T	I	G
CY019963	YES	YES	YES	Human	1978	E	S	T	I	D
CY020165	YES	YES	YES	Human	1978	E	S	T	I	D
CY020293	YES	YES	YES	Human	1978	E	S	T	I	G
CY021717	YES	YES	YES	Human	1978	E	S	T	I	G
CY021797	YES	YES	YES	Human	1978	E	S	T	I	G
CY028724	YES	YES	YES	Human	1978	E	S	T	I	D
CY019739	YES	YES	YES	Human	1979	E	S	T	I	Q
CY021909	YES	YES	YES	Human	1979	E	S	T	I	G
CY026411	YES	YES	YES	Human	1979	E	S	T	I	D
M38353	YES	YES	YES	Human	1979	E	S	T	I	G
CY010908	YES	YES	YES	Human	1980	E	S	T	I	D
CY020181	YES	YES	YES	Human	1980	E	S	T	I	D
CY020453	YES	YES	YES	Human	1980	E	S	T	I	D
CY021029	YES	YES	YES	Human	1981	E	S	T	I	D
AJ289702	YES	YES	YES	Human	1983	E	S	T	I	G
CY010916	YES	YES	YES	Human	1983	E	S	T	I	N
CY010924	YES	YES	YES	Human	1983	E	S	T	I	N
CY010932	YES	YES	YES	Human	1983	E	S	T	I	N
CY010940	YES	YES	YES	Human	1983	E	S	T	I	N
CY010948	YES	YES	YES	Human	1983	E	S	T	I	N
CY010956	YES	YES	YES	Human	1983	E	S	T	I	N
CY010964	YES	YES	YES	Human	1983	E	S	T	I	N
CY010972	YES	YES	YES	Human	1983	E	S	T	I	N
CY010980	YES	YES	YES	Human	1983	E	S	T	I	N
CY011304	YES	YES	YES	Human	1983	E	S	T	I	N
CY011312	YES	YES	YES	Human	1983	E	S	T	I	N
CY012440	YES	YES	YES	Human	1983	E	S	T	I	N
CY012880	YES	YES	YES	Human	1983	E	S	T	I	G
CY012888	YES	YES	YES	Human	1983	E	S	T	I	N
CY013295	YES	YES	YES	Human	1983	E	S	T	I	N

Table S1. Cont.

Name	Gly131	Gly91(+/-5AA)	Gly162(+/-5AA)	Host	Year	156	186	193	194	225
CY013879	YES	YES	YES	Human	1983	E	S	T	I	N
CY015524	YES	YES	YES	Human	1983	E	S	T	I	D
CY017195	YES	YES	YES	Human	1983	E	S	T	I	N
CY017203	YES	YES	YES	Human	1983	E	S	T	I	N
CY017211	YES	YES	YES	Human	1983	E	S	T	I	N
CY017219	YES	YES	YES	Human	1983	E	S	T	I	N
CY017227	YES	YES	YES	Human	1983	E	S	T	I	N
CY017235	YES	YES	YES	Human	1983	E	S	T	I	N
CY017243	YES	YES	YES	Human	1983	E	S	T	I	N
CY017251	YES	YES	YES	Human	1983	E	S	T	I	N
CY017419	YES	YES	YES	Human	1983	E	S	T	I	N
CY017427	YES	YES	YES	Human	1983	E	S	T	I	N
CY017435	YES	YES	YES	Human	1983	E	S	T	I	N
CY017869	YES	YES	YES	Human	1983	E	S	T	I	N
CY017877	YES	YES	YES	Human	1983	E	S	T	I	N
CY019037	YES	YES	YES	Human	1983	E	S	T	I	N
CY019045	YES	YES	YES	Human	1983	E	S	T	I	N
CY019053	YES	YES	YES	Human	1983	E	S	T	I	N
CY019061	YES	YES	YES	Human	1983	E	S	T	I	N
CY019069	YES	YES	YES	Human	1983	E	S	T	I	N
CY019077	YES	YES	YES	Human	1983	E	S	T	I	N
CY019085	YES	YES	YES	Human	1983	E	S	T	I	N
CY019093	YES	YES	YES	Human	1983	E	S	T	I	N
CY019221	YES	YES	YES	Human	1983	E	S	T	I	N
CY019229	YES	YES	YES	Human	1983	E	S	T	I	N
CY019237	YES	YES	YES	Human	1983	E	S	T	I	N
CY019755	YES	YES	YES	Human	1983	E	S	T	I	G
CY019763	YES	YES	YES	Human	1983	E	S	T	I	N
CY020189	YES	YES	YES	Human	1983	E	S	T	I	D
CY020237	YES	YES	YES	Human	1983	E	S	T	I	N
CY020437	YES	YES	YES	Human	1983	E	S	T	I	N
CY027531	YES	YES	YES	Human	1983	E	S	T	I	N
X17221	YES	YES	YES	Human	1983	E	S	T	I	D
CY020485	YES	YES	YES	Human	1984	E	S	T	I	D
CY021725	YES	YES	YES	Human	1984	E	S	T	I	D
Z54286	YES	YES	YES	Human	1985	E	S	T	I	G

Presence of substitutions that increase receptor binding affinity of HA in circulating strains with a glycosylation site at position 131 of HA. Full-length H1 HA sequences of human viruses (1640) downloaded from the NCBI influenza virus resource and analyzed for glycosylation in the globular domain using NetNGlyc prediction of glycosylation sites (Asn-Xaa-Ser/Thr, where Xaa is any amino acid except Pro). Out of the 98 sequences that have glycosylation at position 131, only 6 have lone glycosylation at position 131. Sequences were analyzed for substitutions at five key positions (156, 186, 193, 194, 225) that experimentally increase receptor-binding avidity in PR8; amino acids are indicated using single letter code.