

Table S1. Mutations detected in the H9N2 viruses that contribute to the increased binding to human-type receptors, transmission, replication, and virulence in mammals, as well as to resistance to amantadine and rimantadine^a.

| Virus (Genotype) | HA (H3 Numbering) | | | | PB1 | | | | PA | M1 | | | M2 | NS1 |
|----------------------|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|--------|------|
| | I155T | H183N | A190V | Q226L | R207K | I368V | H436Y | M677T | A515T | N30D | T139A | T215A | S31N/G | P42S |
| DK/ZJ/C1036/09 (1) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/GX/C4080/10 (1) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/ZJ/C3188/10 (1) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/ZJ/C1083/11 (1) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/YN/C4090/11 (1) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/GX/C1435/12 (1) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/JS/C3226/12 (1) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/SH/SC197/13 (1) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| DK/ZJ/C2046/12 (2) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/JS/SC502/13 (2) | T | N | T | L | K | V | Y | T | T | D | T | A | N | S |
| CK/HuB/SC122/13 (2) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/HuN/C3229/12 (3) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/SH/SC387/13 (3) | T | N | T | L | K | V | Y | T | T | D | T | A | N | S |
| CK/ZJ/SC324/13 (3) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/ZJ/C1219/10 (4) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/JS/C4258/12 (4) | T | N | V | L | K | V | Y | T | T | D | T | A | N | S |
| CK/JS/C3089/11 (5) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/CQ/C1258/11 (6) | T | N | A | L | K | I | Y | T | T | D | T | A | N | S |
| CK/CQ/C2093/13 (7) | T | N | A | L | K | I | Y | T | T | D | A | A | N | S |
| CK/YN/C1212/10 (8) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/GX/C2163/12 (9) | T | N | A | L | K | I | Y | T | T | D | T | A | N | S |
| CK/SC/C2151/12 (10) | T | N | A | L | K | I | Y | T | T | D | T | A | N | S |
| DK/FJ/C2246/09 (11) | T | N | A | L | K | I | Y | T | T | D | T | A | N | S |
| CK/FJ/C1239/09 (11) | T | N | A | L | K | I | Y | T | T | D | T | A | S | S |
| DK/HuB/C1146/11 (12) | T | N | A | L | K | I | Y | T | T | D | T | A | S | S |

| | | | | | | | | | | | | | | |
|----------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CK/HuB/C4196/09 (13) | T | N | V | L | K | I | Y | T | T | D | T | A | S | S |
| CK/HuN/C3247/09 (13) | T | N | A | L | K | I | Y | T | T | D | A | A | S | S |
| CK/HuB/C4071/10 (13) | T | N | A | L | K | I | Y | T | T | D | T | A | S | S |
| CK/GZ/C1011/09 (14) | T | N | A | L | K | I | Y | T | T | D | T | A | S | S |
| CK/GD/C1095/09 (15) | T | N | A | L | K | I | Y | T | T | D | T | A | S | S |
| CK/HuN/C4136/10 (16) | T | N | A | L | K | V | Y | T | T | D | T | A | G | S |
| DK/GD/C3204/10 (16) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/GD/C1122/11 (16) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/GZ/C4058/11 (16) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/FJ/S1161/13 (17) | T | N | A | L | K | V | Y | T | T | D | T | A | N | S |
| CK/SD/7/96 | T | N | A | Q | K | V | Y | T | T | D | T | A | S | S |
| DK/NJ/1/97 | T | N | T | Q | K | V | Y | T | T | D | T | A | S | S |
| CK/GD/5/97 | T | N | V | Q | K | I | Y | T | T | D | T | A | S | S |
| CK/GD/6/97 | T | N | V | Q | K | V | Y | T | T | D | T | A | S | S |
| CK/GX/9/99 | T | N | T | Q | K | V | Y | T | T | D | A | A | S | S |
| CK/SH/10/01 | T | N | A | Q | K | V | Y | T | T | D | T | A | S | S |

^a, Mutations that are conserved in the H9N2 viruses are shown in black, mutations that are not conserved in the H9N2 viruses are shown in red.