TableS1 Mutation on key sites of HPAI H7N9 virus from human cases

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Protein | Site | Function | Amino Acid | Human Cases |
|
| HA | 177a(186b) | Increased virus binding to human-type receptors. | I | 4 |
| 　 | **V** | 28 |
| 217a(226b) | Increased virus binding to human-type receptors | Q | 29 |
|  | Q\**L** | 1 |
|  | **L** | 1 |
| 　 | H | 1 |
| NA | 115c(119d) | Reducing the susceptibility of neuraminidase inhibitors | E | 31 |
| 　 | **V** | 1 |
| 243c(246d) | A | 31 |
| 　 | T | 1 |
| 271c(274d) | H | 31 |
| 　 | **Y** | 1 |
| 289c(292d) | R | 26 |
| PB2 |  | Increase the polymerase activity. | R\**K** | 1 |
| 　 | **K** | 5 |
| 526 | Enhance the 627K and 701N function. | K | 10 |
| 　 | **R** | 22 |
| 535 | Restored the polymerase activity. | M | 10 |
| 　 | **L** | 22 |
| 588 | Efficient replication in mammalian and avian cells, and higher virulence in mice | A | 20 |
|  | T | 2 |
| 　 | **V** | 10 |
| 598 | Increase the virulence in mammals. | T | 1 |
|  | **I** | 1 |
| 　 | V | 30 |
| 591 | Enhanced virulence in mice | Q | 31 |
| 　 | Q\**K** | 1 |
| 627 | Increased virulence in mammalian models. | E | 17 |
|  | E\V | 1 |
|  | E\**K** | 3 |
| 　 | **K** | 11 |
| 701 | Increased virulence in mammalian models. | D | 26 |
| 　 | **N** | 6 |
| 271 | Host signature amino acids | T | 31 |
| 　 | **A** | 1 |
| 702 | K | 29 |
| 　 | **R** | 3 |
| PA | 100 | Host signature amino acids | V | 16 |
| 　 | **A** | 16 |
| 356 | K | 1 |
| 　 | **R** | 31 |
| 404 | A | 31 |
| 　 | **S** | 1 |
| 409 | S | 3 |
| 　 | **N** | 29 |
| NP | 33 | Host signature amino acids | V | 31 |
| 　 | **I** | 1 |
| 109 | I | 31 |
| 　 | **V** | 1 |
| M1 | 41 | Impacts growth and transmission in the guinea pig model | S | 1 |
| 　 | **A** | 31 |
| 115 | Host signature amino acids | V | 31 |
| 　 | **I** | 1 |
| M2 | 31 | Reduced susceptibility to licensed anti-influenza medications. | **N** | 32 |
| NS1 | 42 | Altered virulence in mice. | A | 1 |
| 　 | **S** | 31 |
| 106 | I | 31 |
| 　 | **M** | 1 |
| PDZ ligand | Deletion | 30 |
|  | KPEV+7 | 1 |
| 　 | **ESEV** | 1 |
| NS2 | 48 | Altered antiviral response in host. | S | 1 |
| 　 | **A** | 31 |

a H7(H7N9)

b H3 numbering

c N9(H7N9)

d N2 numbering