

**Supplementary Table S3.** Antigenic analyses of H9 influenza viruses using cross-HI test

| Lineage        | Sub lineage   | Viruses                                       | HI titers of the antisera |                |               |               |                |
|----------------|---------------|-----------------------------------------------|---------------------------|----------------|---------------|---------------|----------------|
|                |               |                                               | Eurasian                  |                |               |               | North American |
|                |               |                                               | Y280/BJ94                 |                | G1            | Y439          | Wis/1/66       |
|                |               |                                               | HK/Y280<br>/97            | VN/186<br>0/17 | HK/G1<br>/97  | Hok/4<br>9/98 |                |
| Eurasian       | Y280/B<br>J94 | A/Duck/Hong Kong/Y280/1997 (H9N2)             | <u>20,480</u>             | 10,240         | 1,280         | 5,120         | 640            |
|                |               | A/chicken/Vietnam/OIE-1611/2012 (H9N2)        | 10,240                    | 10,240         | 1,280         | 2,560         | 320            |
|                |               | <b>A/chicken/Vietnam/HU1-786/2014 (H9N2)</b>  | 10,240                    | 10,240         | 1,280         | 5,120         | 320            |
|                |               | <b>A/chicken/Vietnam/HU3-742/2015 (H9N2)</b>  | 10,240                    | 10,240         | 1,280         | 5,120         | 640            |
|                |               | <b>A/chicken/Vietnam/HU7-236/2017 (H9N2)</b>  | 20,480                    | 10,240         | 1,280         | 5,120         | 320            |
|                |               | <b>A/chicken/Vietnam/HU8-1860/2017 (H9N2)</b> | 20,480                    | <u>10,240</u>  | 2,560         | 10,240        | 1,280          |
|                | G1            | A/quail/Hong Kong/G1/1997 (H9N2)              | 2,560                     | 640            | <u>10,240</u> | 1,280         | 640            |
|                |               | A/duck/Vietnam/OIE-2592/2009 (H9N2)           | 10,240                    | 1,280          | 5,120         | 5,120         | 640            |
|                | Y439          | A/duck/Hokkaido/49/1998 (H9N2)                | 320                       | 80             | 80            | <u>2,560</u>  | 320            |
|                |               | A/duck/Vietnam/OIE-2334/2010 (H9N6)           | 160                       | 40             | 160           | 1,280         | 320            |
| North American | -             | A/turkey/Wisconsin/1/1966 (H9N2)              | 80                        | 40             | 40            | 1,280         | <u>2,560</u>   |

Viruses isolated in this study are highlighted in bold.

Homologous titers are underlined.

Dk duck, Ck chicken, Ty Turkey, Hok Hokkaido, HK Hong Kong, Wis Wisconsin.