

**Fig. S4. Infection-recalled NAb for correlate of protection.** Blood samples were collected at 28 and 39 days (also 4 dpi) after the 2<sup>nd</sup> vaccination for analysis. (**a**, **b**) The mean  $\pm$  SEM changes of anti-RBD IgG AUC titer (**a**) and neutralizing IC<sub>50</sub> values (**b**) were determined by anti-RBD IgG ELISA and pseudovirus assay, respectively. Each color represents a vaccination regimen. Each symbol represents an individual mouse. Statistics were generated using the 2-tailed Student's t-test. \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. (**c**) Viral load in lung correlated with serum IgG titer. (**d**) Viral load in lung correlated with serum NAb titer. (**e**) NP<sup>+</sup> cell in lung correlated with serum IgG titer. (**f**) NP<sup>+</sup> cell in NT correlated with serum IgG titer. (**h**) NP+ cell in NT correlated with NAb titer. Correlation analysis was performed by linear regression using GraphPad Prism 8.0. (**l**) The ratios of IgG1:IgG2a AUC titers were determined by anti-RBD IgG ELISA. Each symbol represents an individual mouse. Error bars indicate standard errors of the mean values.