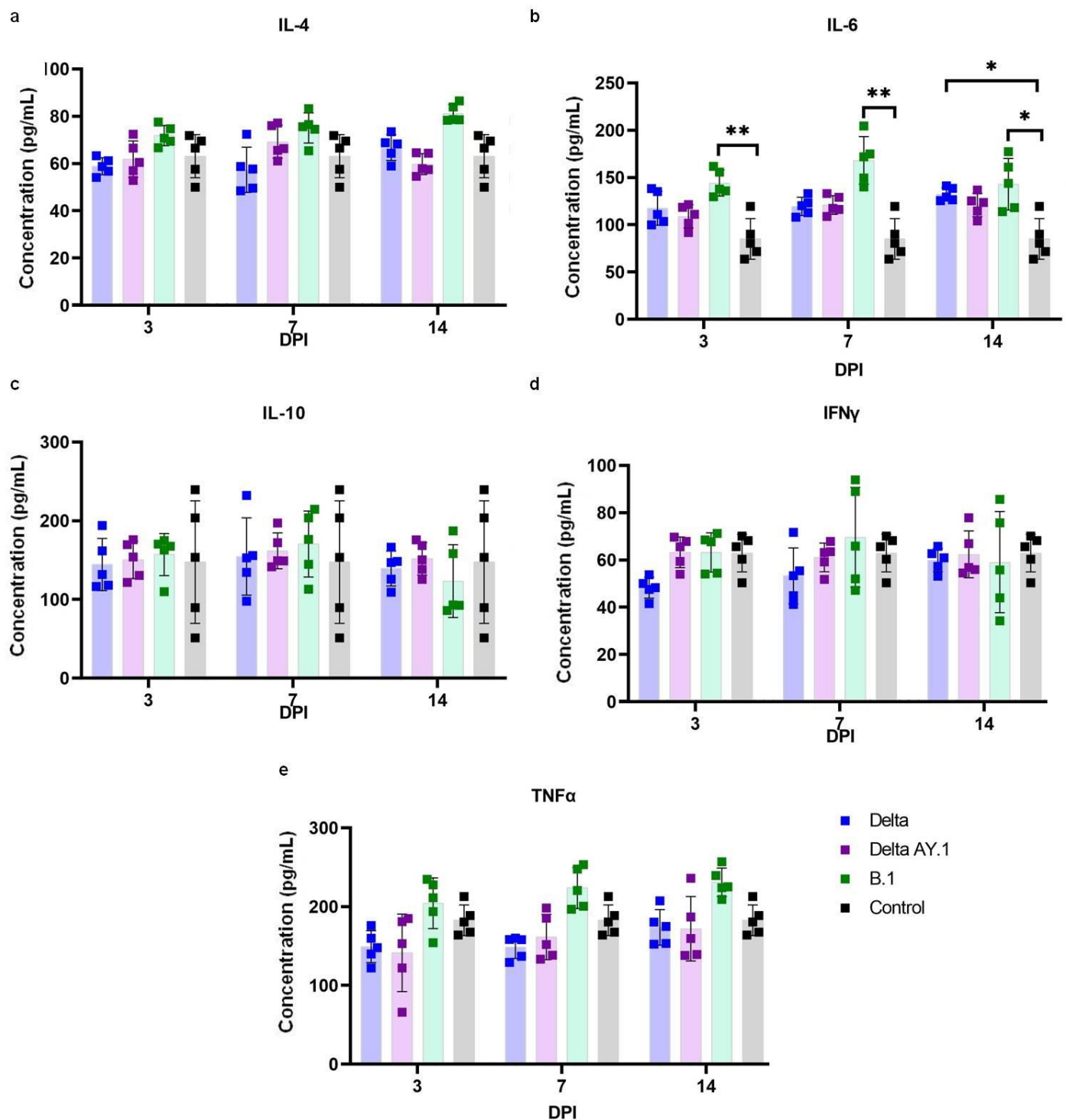
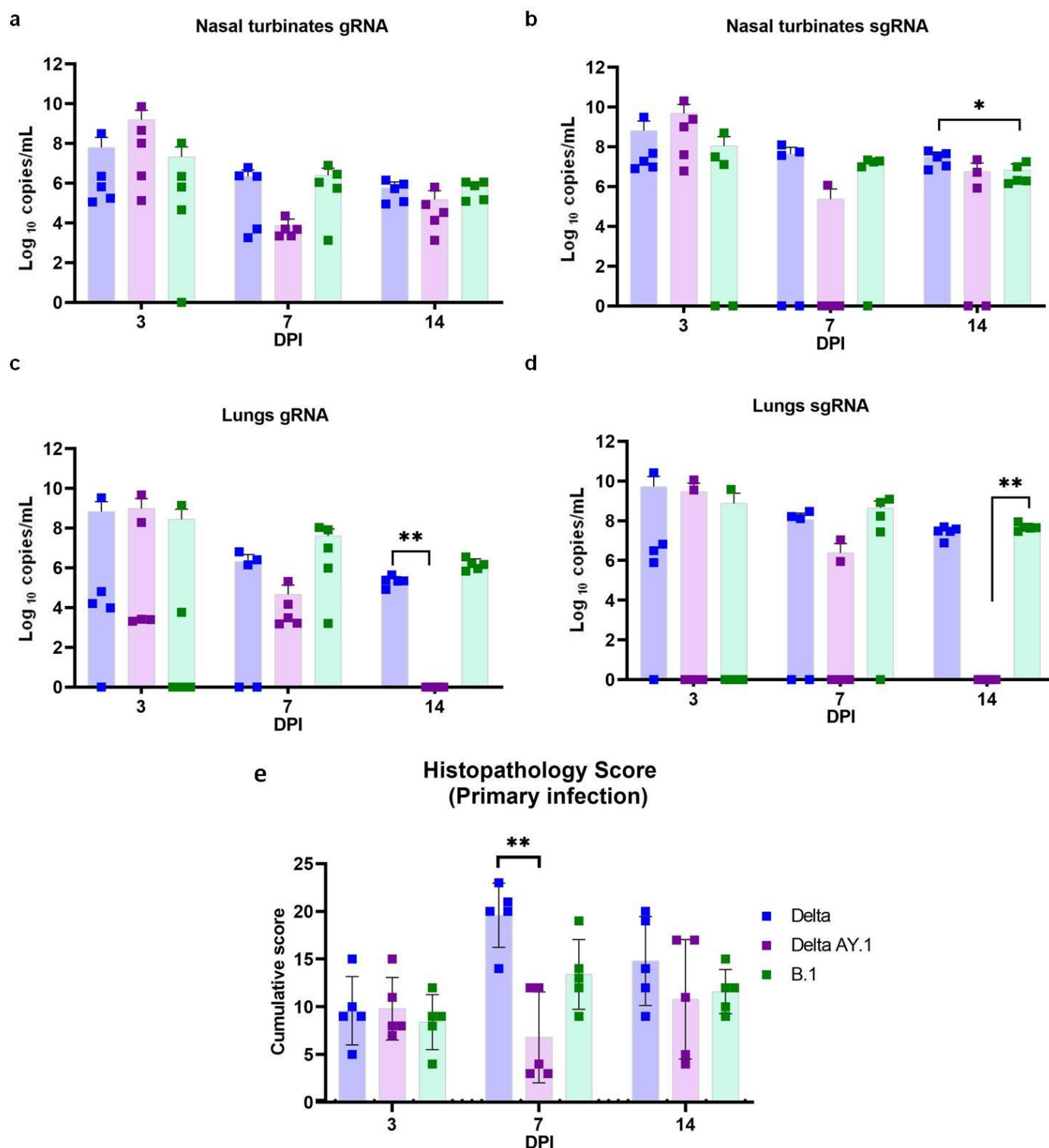


Supplementary Materials

# Protective Immunity of the Primary SARS-CoV-2 Infection Reduces Disease Severity Post Re-infection with Delta Variants in Syrian Hamsters

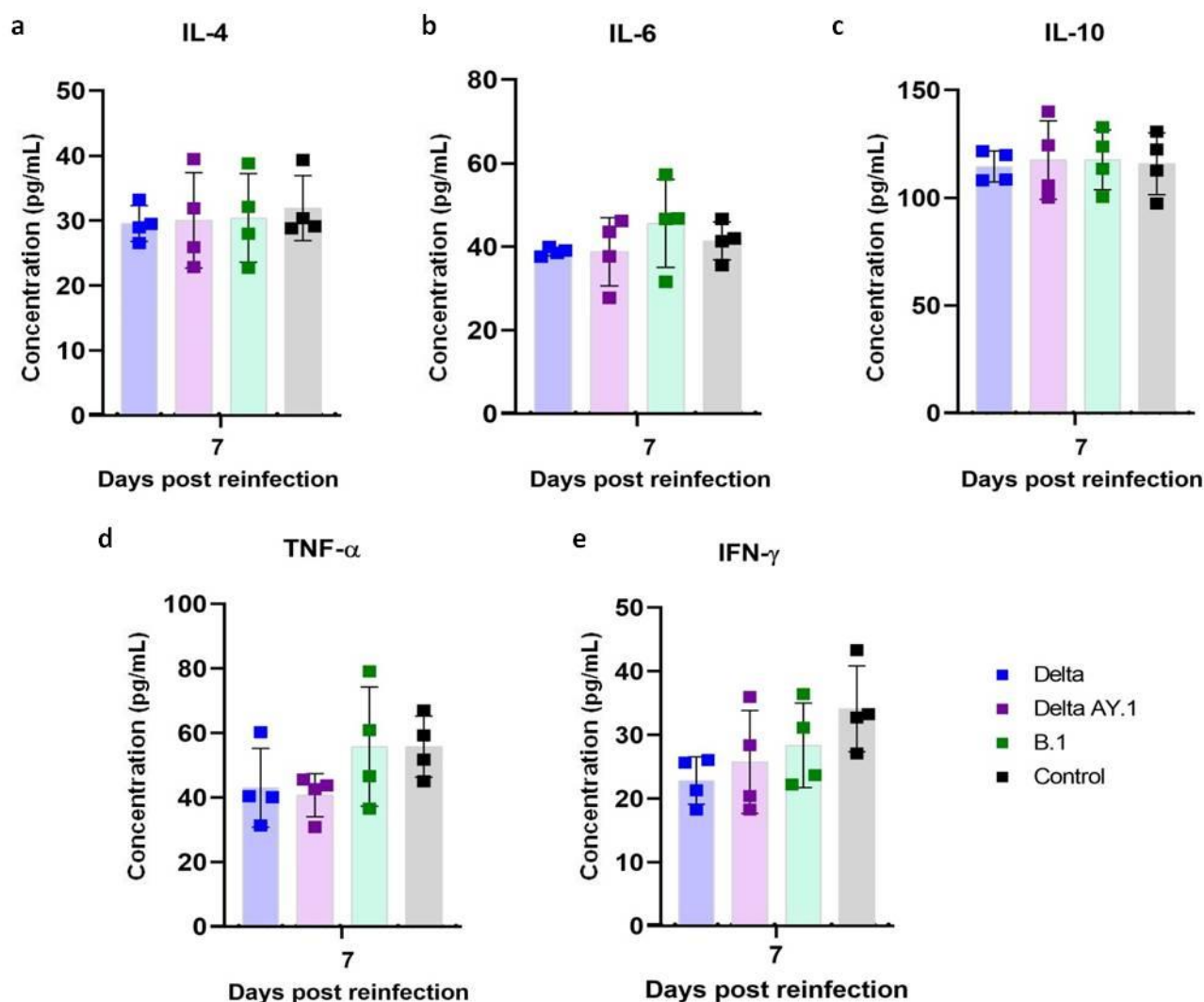


**Figure S1.** Serum cytokine levels in hamsters post SARS CoV-2 infection. Scatter plot depicting a) IL-4, b) IL-6 ( $p = 0.0037$  on 3 DPI,  $p = 0.0011$  on 7 DPI and  $p = 0.0327$  on 14 DPI, B.1 vs Control,  $p = 0.0277$  on 14 DPI, Delta vs Control, Mann Whitney test,  $n = 5$ ), c) IL-10, d) IFN-gamma e) TNF-alpha levels in serum of hamsters on 3, 7 and 14 DPI post infection. The bars represent the mean and the error bars depict the standard deviation. The p values  $< 0.05$ ,  $< 0.001$  and  $< 0.0001$  are represented as \*, \*\* and \*\*\* respectively.

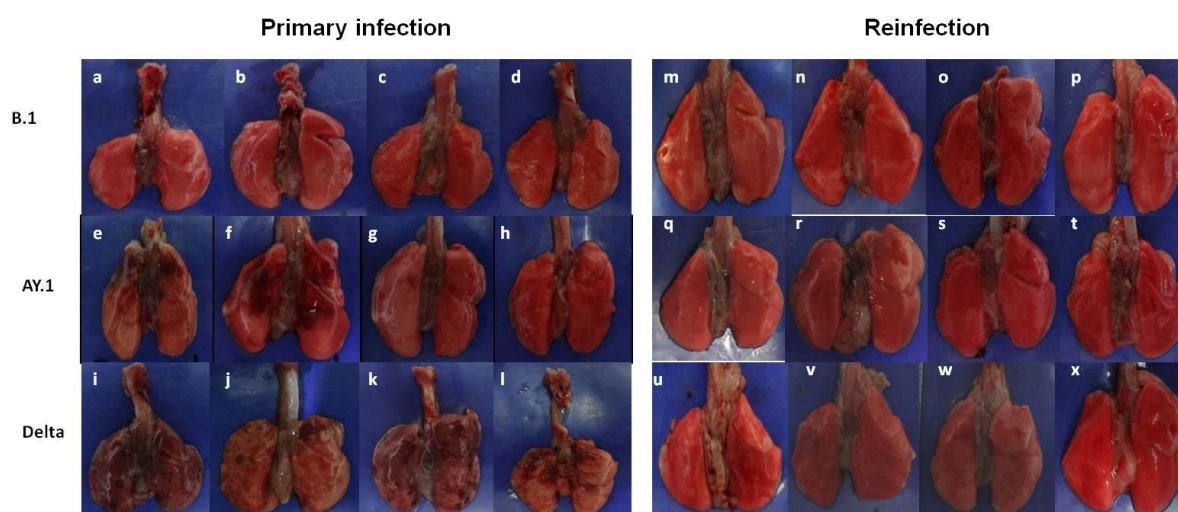


**Figure S2.** SARS-CoV-2 viral RNA load in organs of hamster's post infection. Scatter plot depicting viral gRNA load in hamsters a) nasal turbinates and c) lungs. Scatter plot depicting viral sgRNA

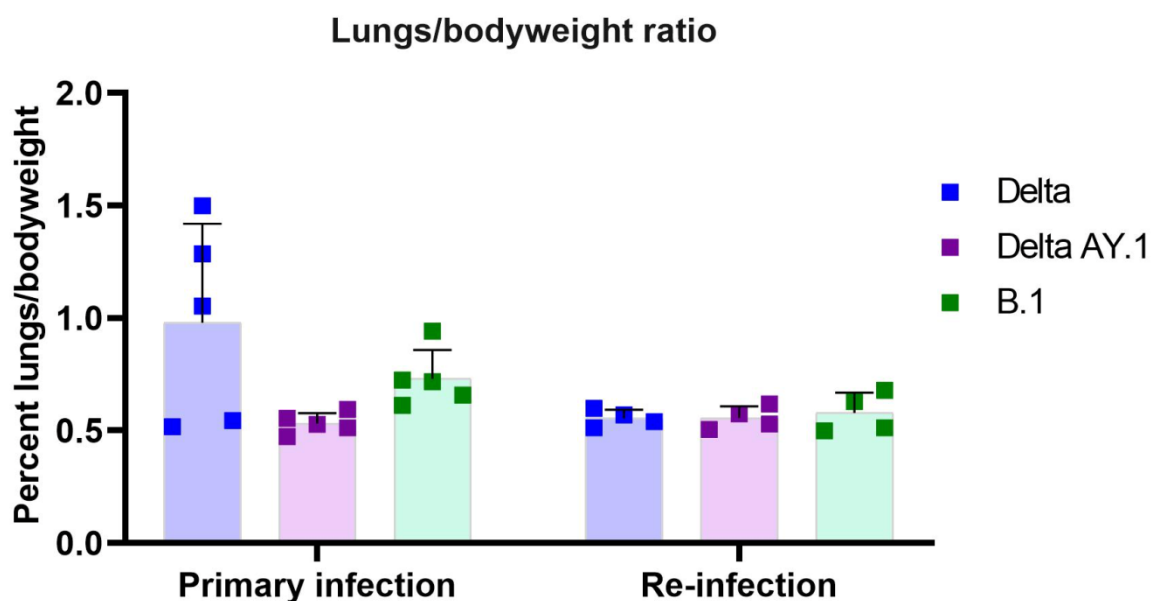
load in **b**) nasal turbinates ( $p = 0.0397$ , Delta vs B.1, Mann Whitney test,  $n = 5$ ) and **d**) lungs ( $p = 0.0057$ , AY.1 vs B.1, Mann Whitney test,  $n = 5$ ). **e**) Scatter plot depicting cumulative lung histopathology score in hamsters post primary infection on 3, 7 and 14 DPI ( $p = 0.0036$ , Delta vs Delta AY.1, Mann Whitney test,  $n = 5$ ). The bars represent the mean and the error bars depict the standard deviation. The  $p$  values  $< 0.05$  and  $< 0.001$  are represented as \* and \*\*.



**Figure S3.** Serum cytokine levels in hamsters post SARS CoV-2 re-infection. Scatter plot depicting a) IL-4, b) IL-6 c) IL-10, d) TNF-  $\alpha$  e) IFN-  $\gamma$  levels in serum of hamsters on 7-day post re-infection. The bars represent the mean and the error bars depict the standard deviation.



**Figure S4.** Pathological changes observed in lungs after primary infection and re-infection. Lungs showing (a-d) normal gross appearance following infection with B.1 variant, (e,f) haemorrhages in left and right lower lobes and (g,h) normal gross appearance in Delta AY.1 infected animals and (i-l) diffuse haemorrhages in all lung lobes in Delta infected animals. Lungs showing (m-p) showing normal gross appearance after B.1 re-infection, (q-t) showing normal gross appearance after Delta AY.1 re-infection and (u,x) showing normal gross appearance and (v,w) focal congestion after Delta infection.



**Figure S5.** Lungs body weight ratio in hamsters after primary infection and re-infection.