

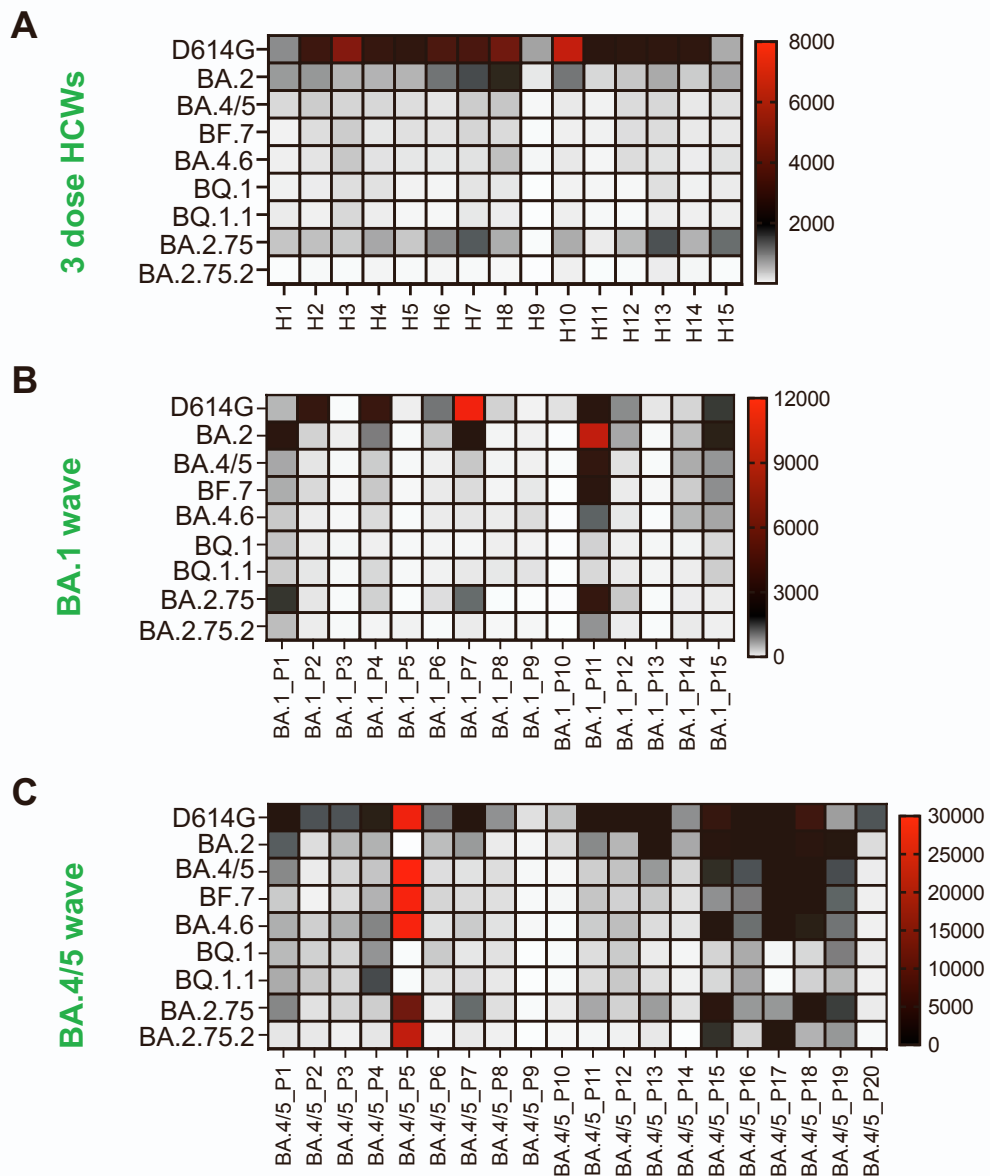
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**Supplemental information**

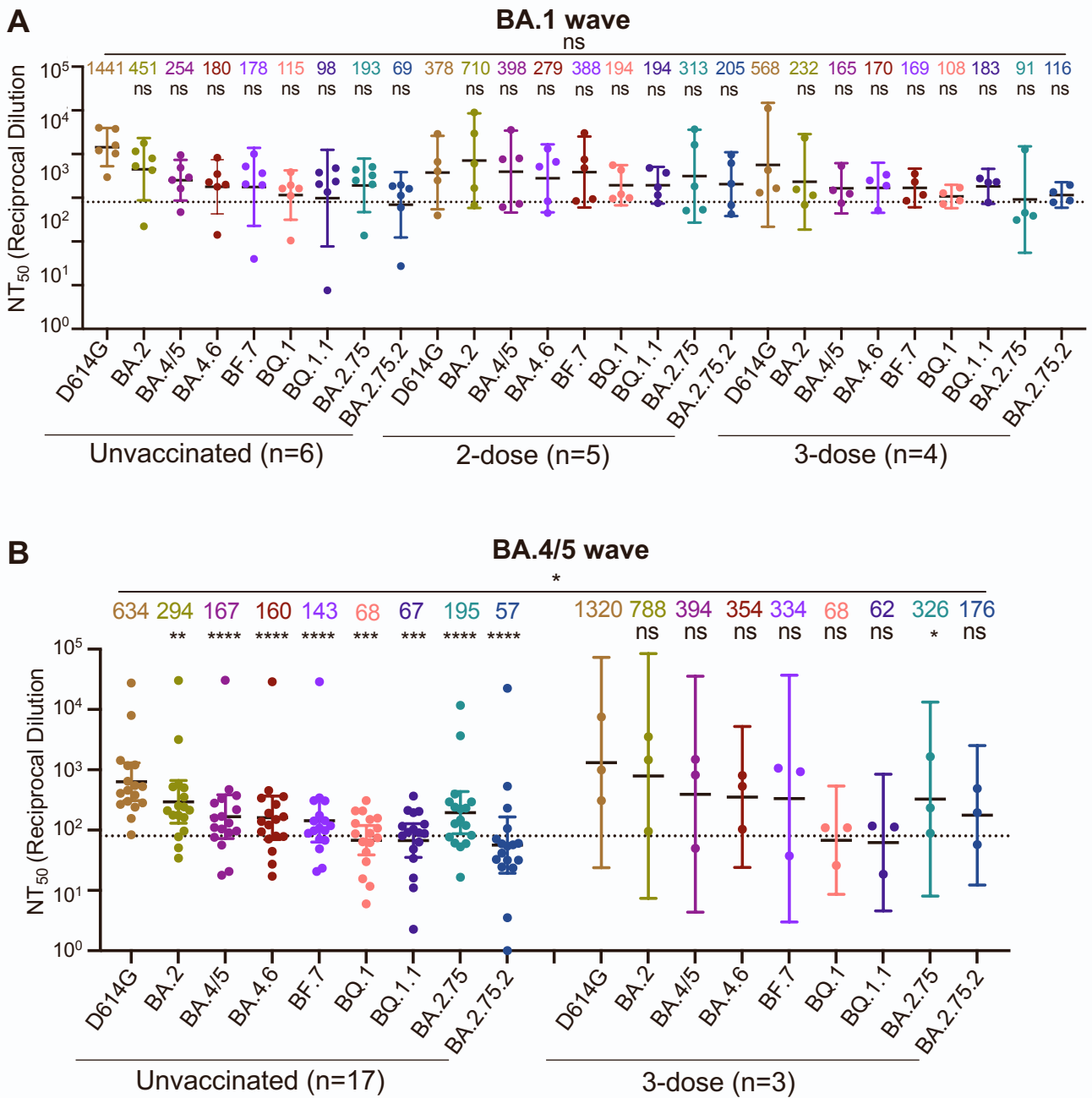
**Enhanced neutralization resistance  
of SARS-CoV-2 Omicron subvariants**

**BQ.1, BQ.1.1, BA.4.6, BF.7, and BA.2.75.2**

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**Figure S1: Omicron subvariants display enhanced immune escape, related to Figure 2.** (A-C) Neutralizing antibody tiers against Omicron subvariants and ancestral D614G are displayed as heat maps for sera from health care workers (HCWs, “H#”) (n = 15) who received a single homologous monovalent Moderna mRNA-1273 (n = 3) or Pfizer/BioNTech BNT162b2 (n = 12) mRNA booster vaccination (A); for sera from BA.1-wave hospitalized COVID-19 patients (“BA.1\_P#”) (n = 15) (B), and for sera from BA.4/5-wave SARS-CoV-2 infected Columbus, Ohio first responders and household contacts (“BA.4/5\_P#”) (n = 20) (C).



**Figure S2: Omicron subvariants escape sera from vaccinated and unvaccinated COVID-19 patients, related to Figure 2.**

(A) NT<sub>50</sub> data from Fig. 2B is plotted by vaccination status with unvaccinated (n = 6), 2-dose (n = 5), and 3-dose (n = 4) individuals. (B) NT<sub>50</sub> data from Fig. 1C is plotted by vaccination status with unvaccinated (n = 17) and 3-dose (n = 3) individuals. Geometric mean NT<sub>50</sub> values are displayed at the top of plots; bars represent geometric mean ± 95% confidence interval and significance was determined by one-way repeated measures ANOVA or two-way repeated measures ANOVA with Bonferroni's multiple testing correction. p-values are represented as \*p<0.05, \*\*p < 0.01, \*\*\*p < 0.001, \*\*\*\*p < 0.0001, ns, not significant.

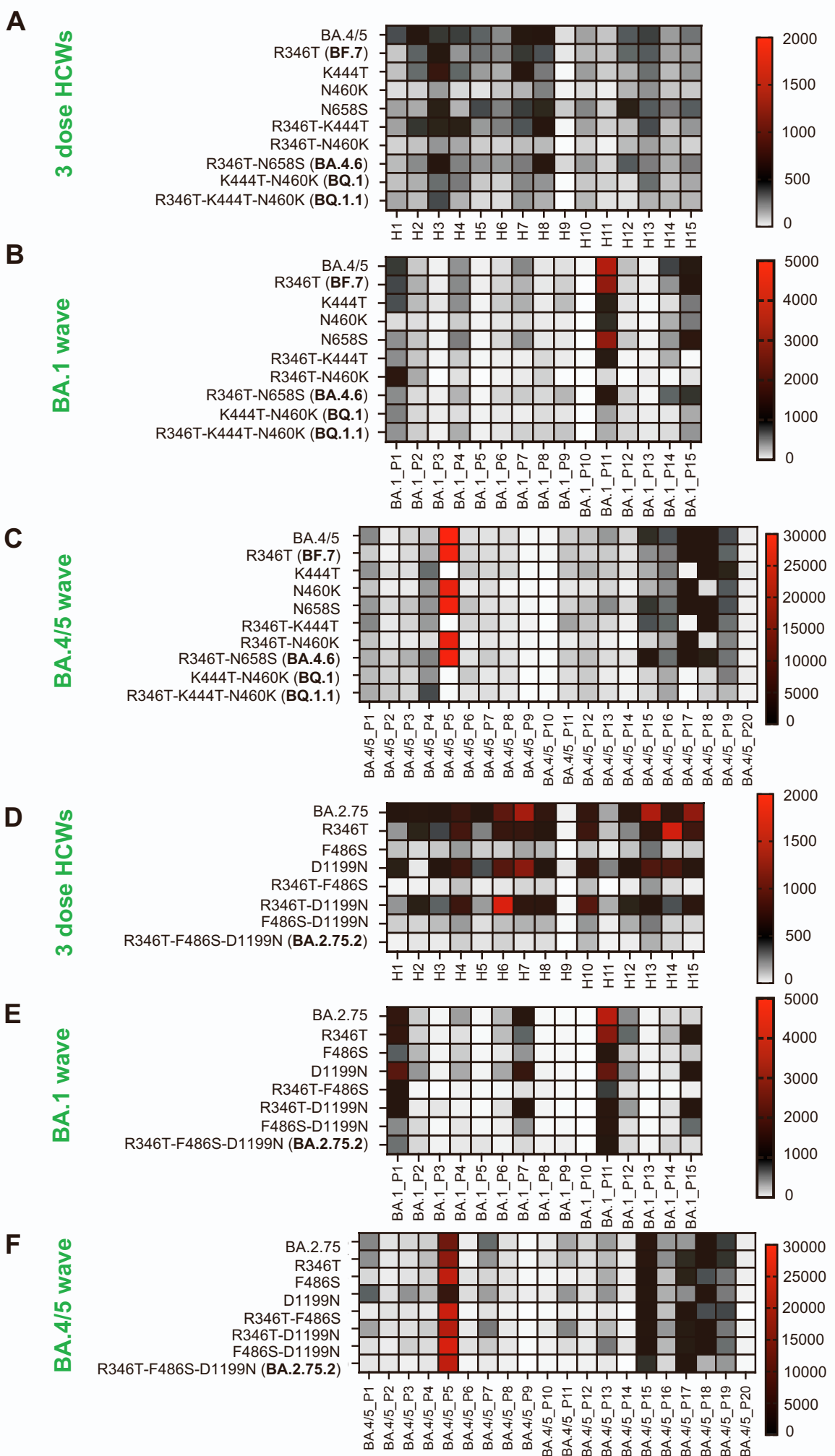


Figure S3

**Figure S3: BA.4/5- and BA.2.75-derived mutants display distinct immune escapes, related to Figure 3.**

(A-F) Neutralizing antibody tiers against BA.4/5-derived (A, B and C) or BA.2.75-derived (D, E and F) mutants are displayed as heat maps for sera from health care workers (HCWs, "H#") (n = 15) who received a single homologous monovalent Moderna mRNA-1273 (n = 3) or Pfizer/BioNTech BNT162b2 (n = 12) mRNA booster vaccination (A, D); for sera from BA.1-wave hospitalized COVID-19 patients ("BA.1\_P#") (n = 15) (B, E), and for sera from BA.4/5-wave SARS-CoV-2 infected Columbus, Ohio first responders and household contacts ("BA.4/5\_P#") (n = 20) (C and F).