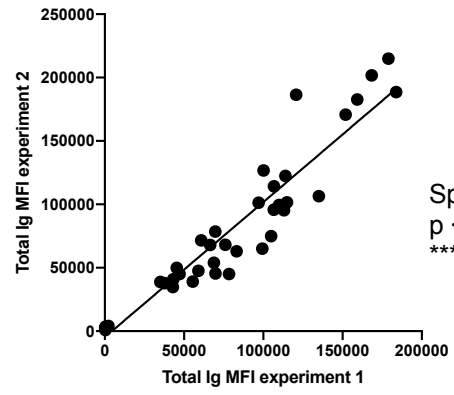
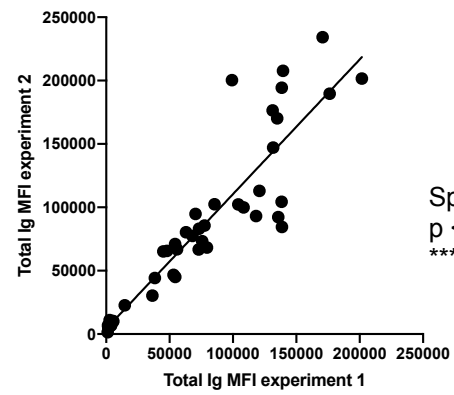


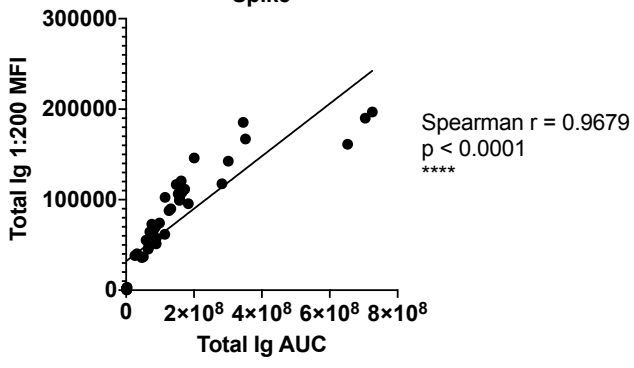
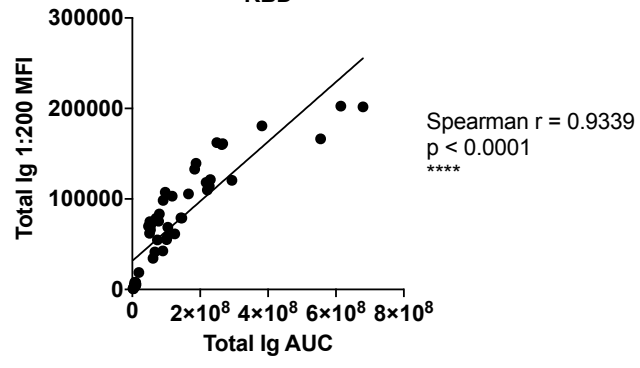
a**Spike**

Spearman $r = 0.9638$
 $p < 0.0001$

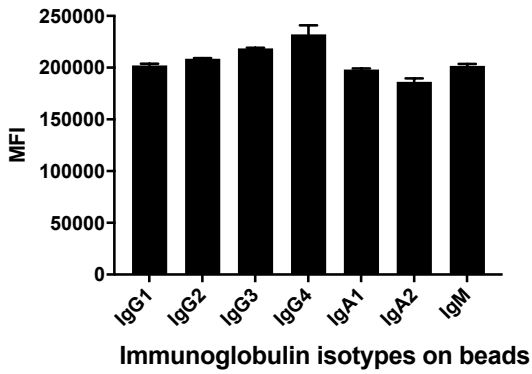
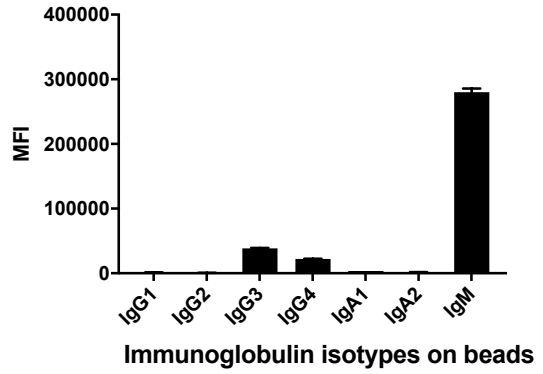
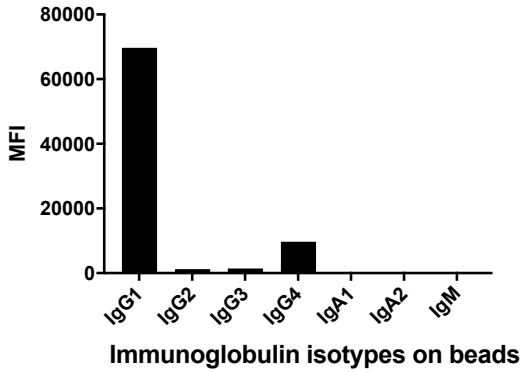
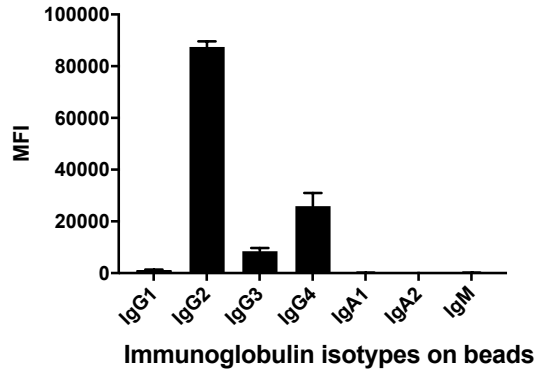
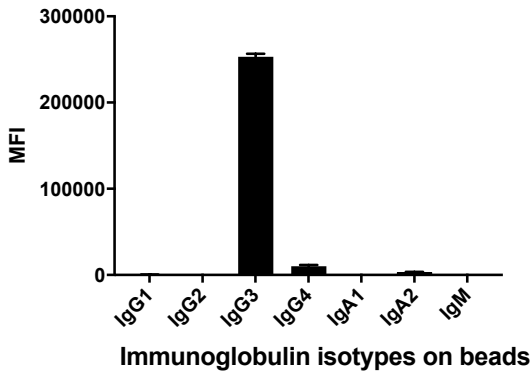
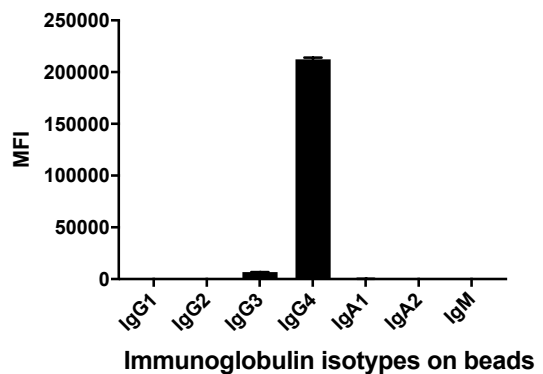
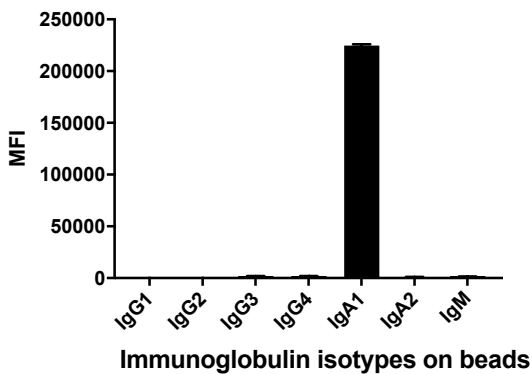
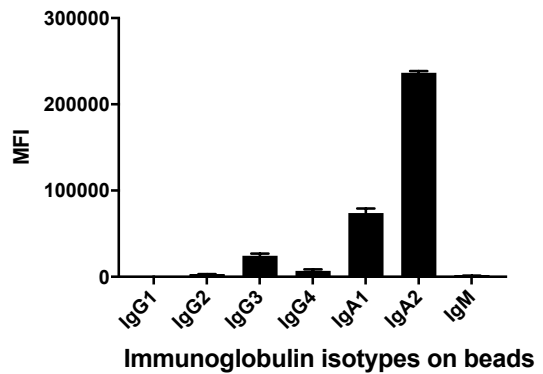
b**RBD**

Spearman $r = 0.9439$
 $p < 0.0001$

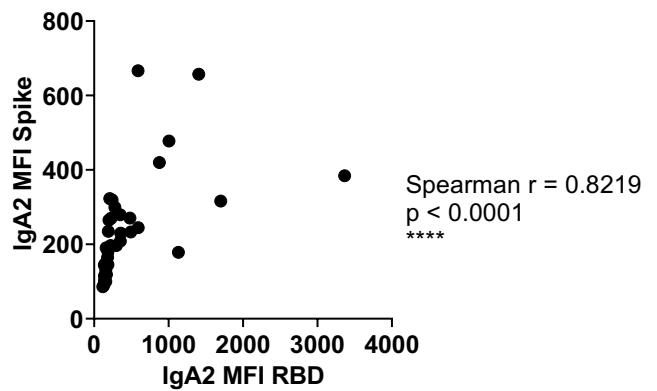
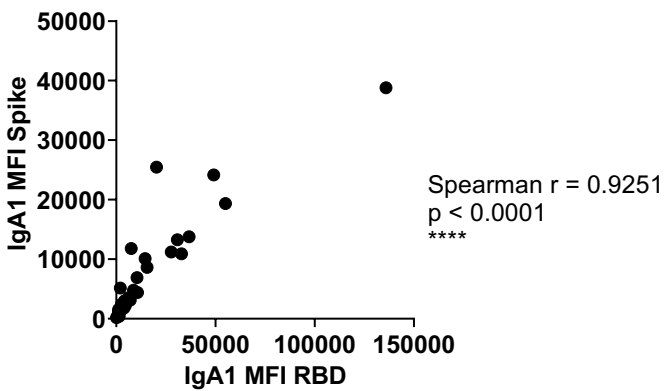
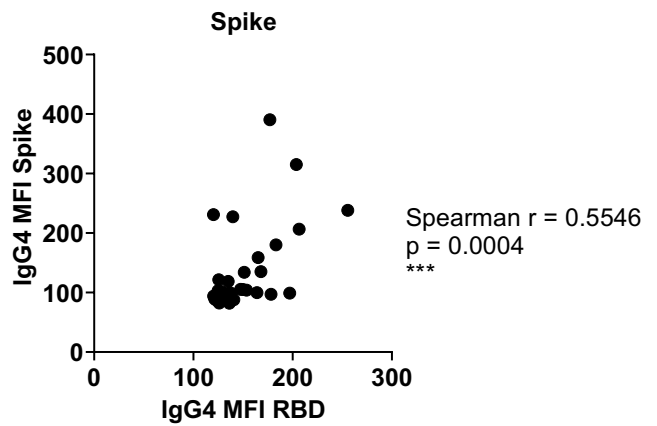
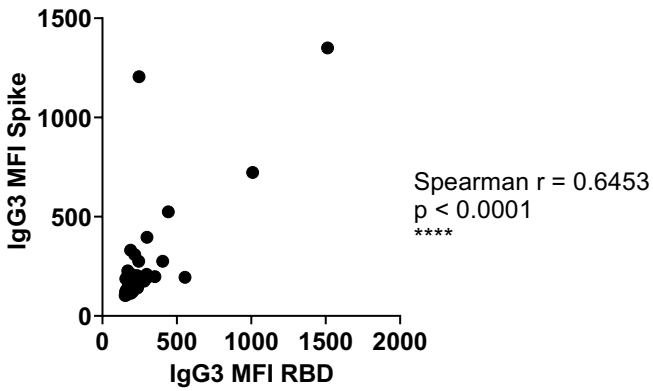
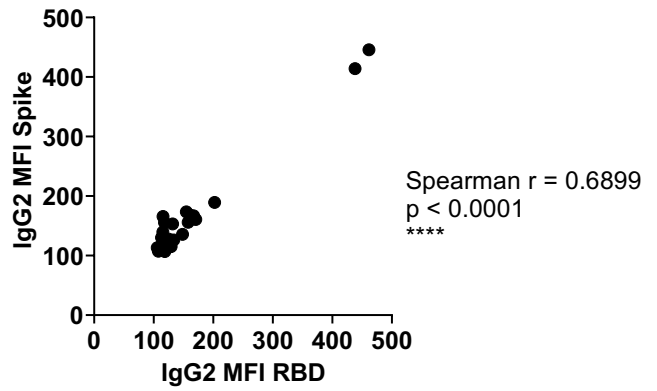
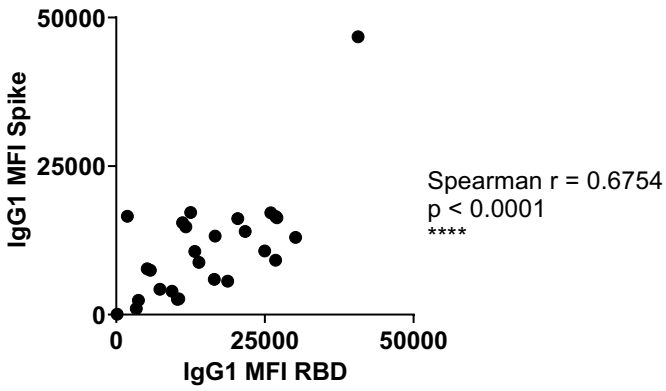
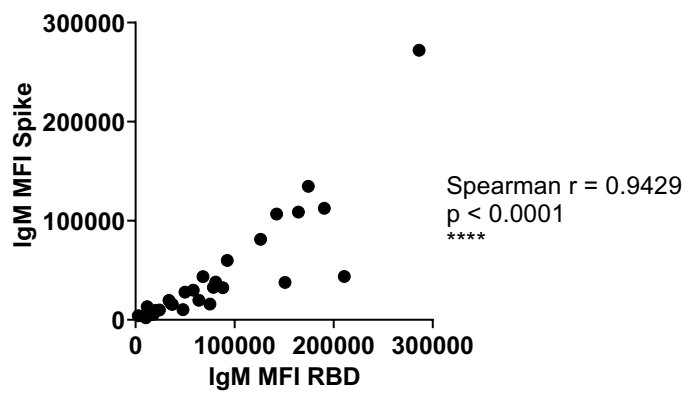
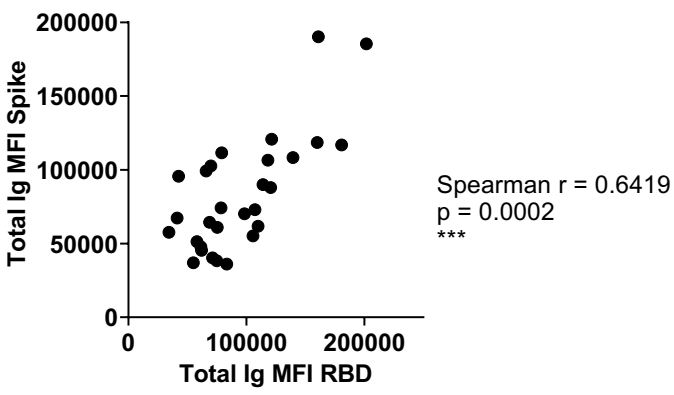
Supplementary Fig. 1. Spearman correlations of (a) spike-specific or (b) RBD-specific total Ig MFI values from two independent experiments to show the degree of assay reproducibility.

a**Spike****b****RBD**

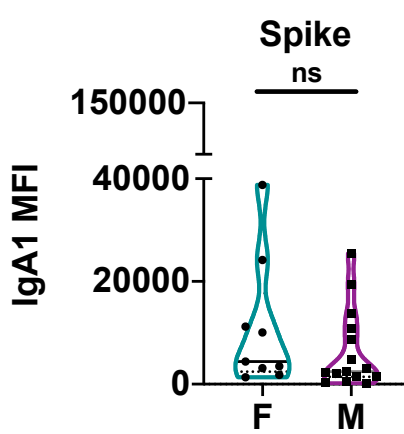
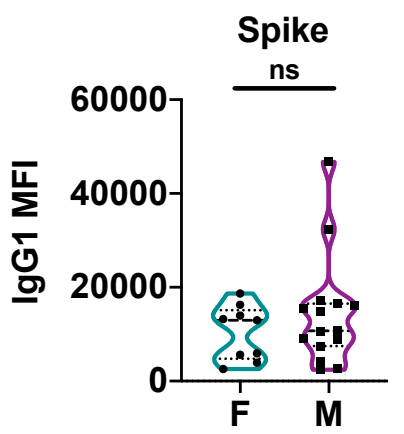
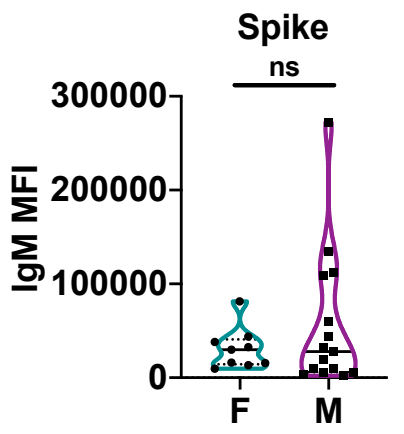
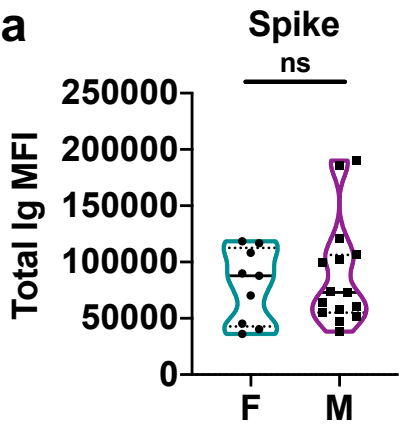
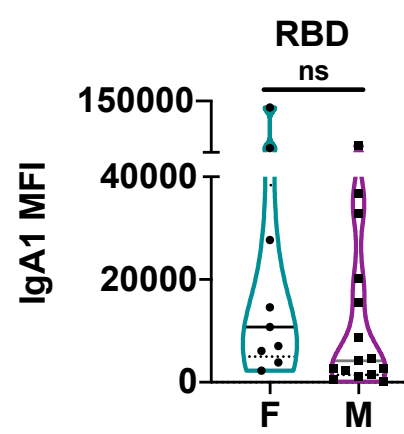
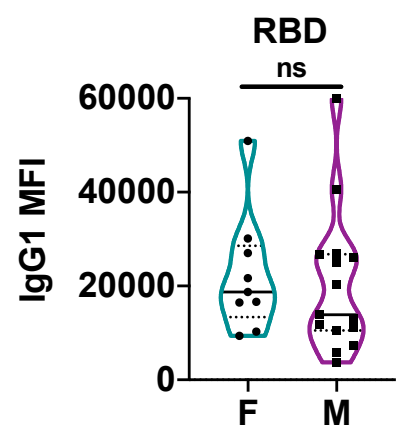
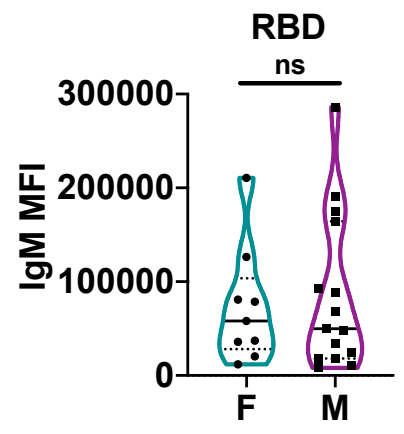
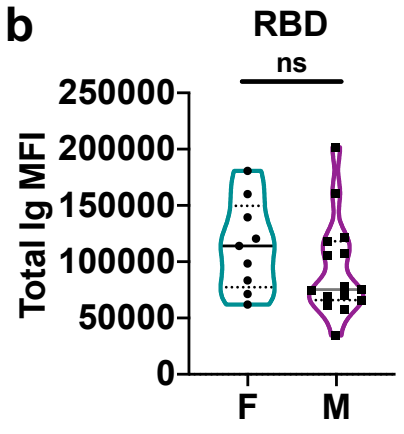
Supplementary Fig. 2. Spearman correlations of the area under the curves (AUCs) of (a) spike- or (b) RBD-specific total Ig versus total Ig MFI values at a 1:200 dilution.

Anti-total Ig**Anti-IgM****Anti-IgG1****Anti-IgG2****Anti-IgG3****Anti-IgG4****Anti-IgA1****Anti-IgA2**

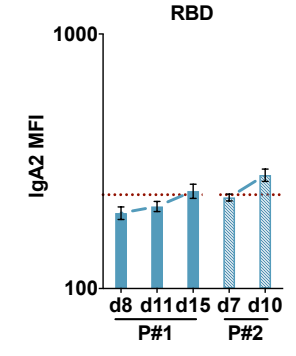
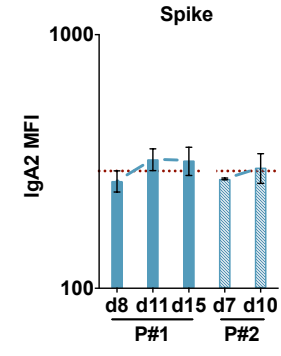
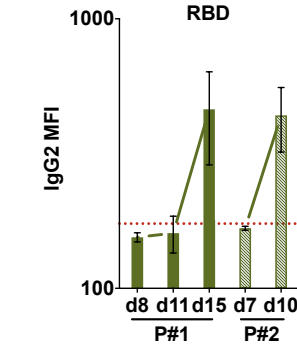
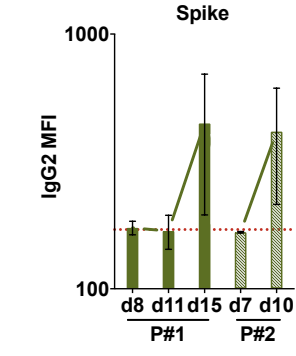
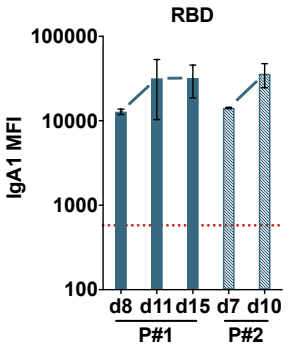
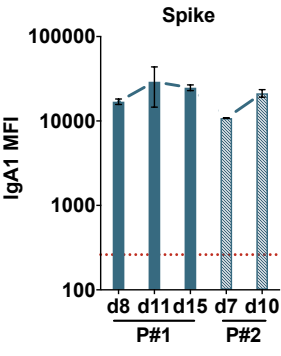
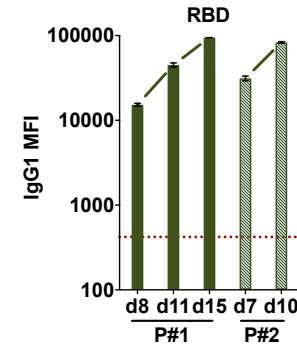
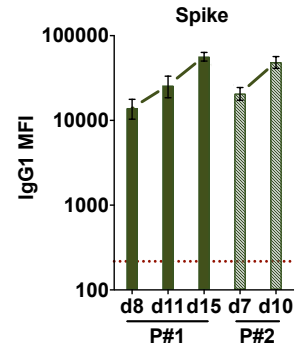
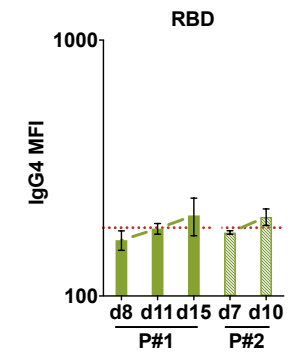
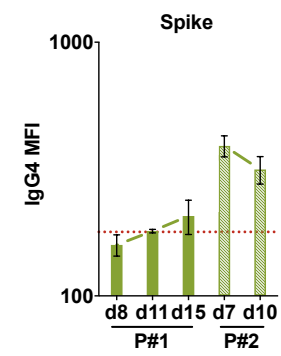
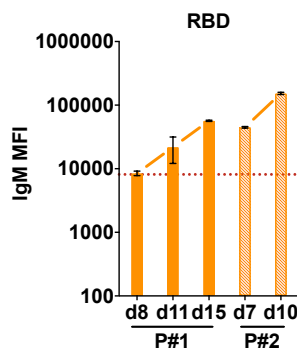
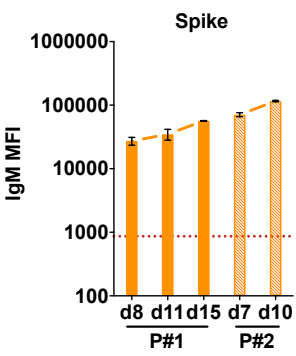
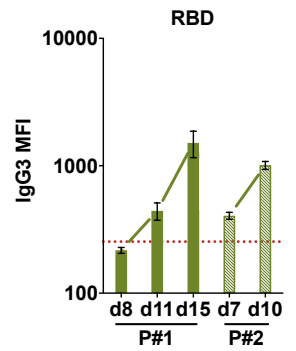
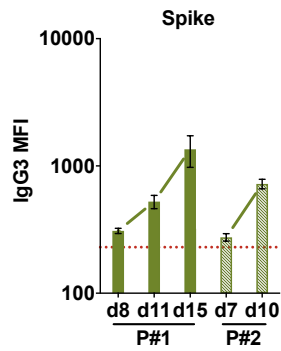
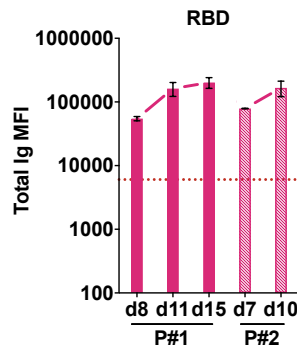
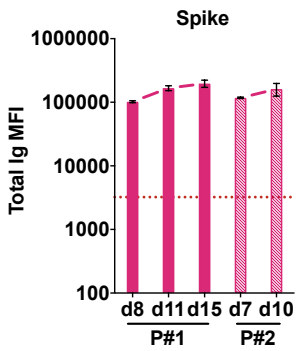
Supplementary Fig. 3. Isotyping validation was performed by coating Luminex beads with IgG1, IgG2, IgG3, IgG4, IgA1, IgA2, and IgM myeloma proteins and detecting each with eight different secondary Abs against total Ig, IgM, IgG1, IgG2, IgG3, IgG4, IgA1 and IgA2. The data are shown as mean MFI + SD of duplicate.



Supplementary Fig. 4. Spearman correlations between spike-specific versus RBD-specific total Ig, IgM, IgG1, IgG2, IgG3, IgG4, IgA1, or IgA2 MFI values.

a**b**

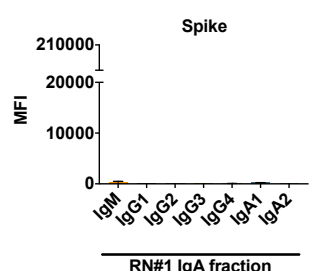
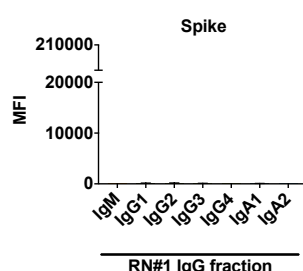
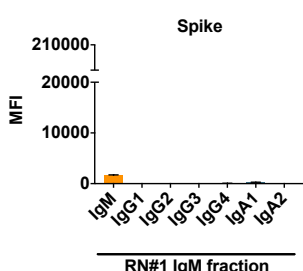
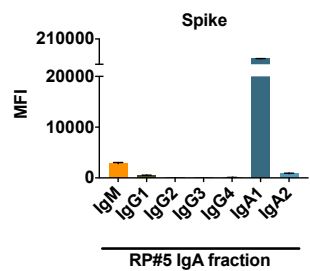
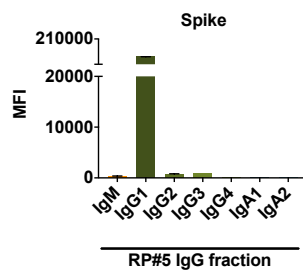
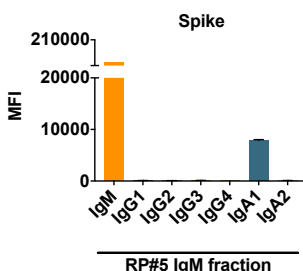
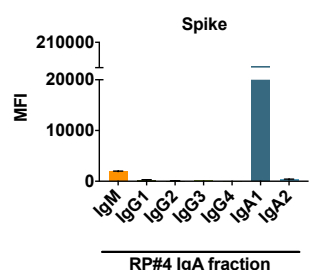
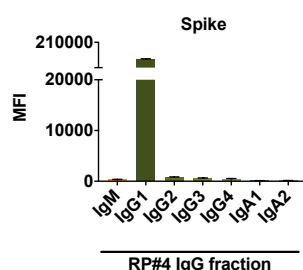
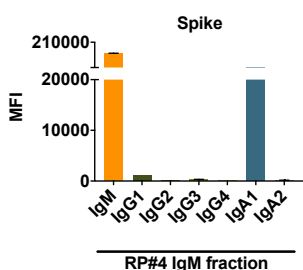
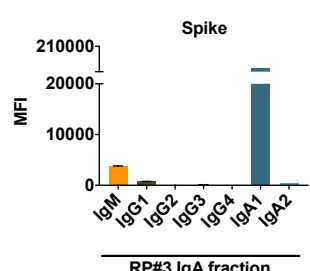
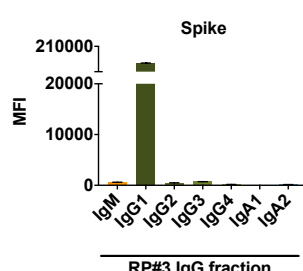
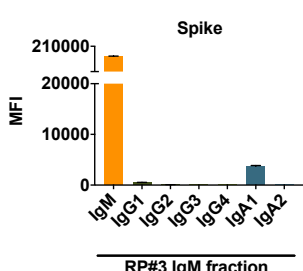
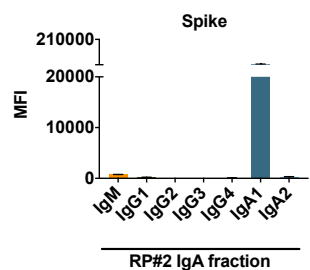
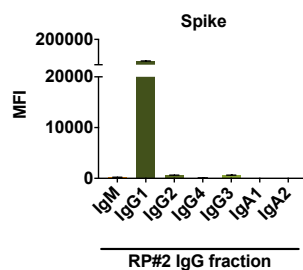
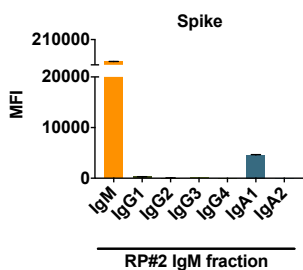
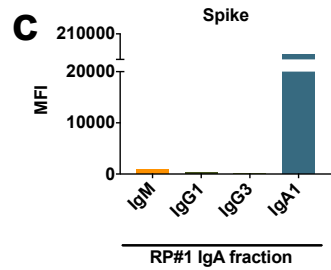
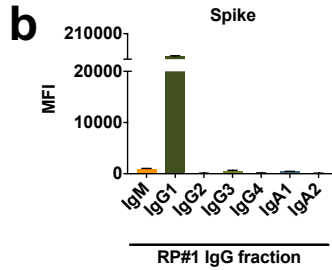
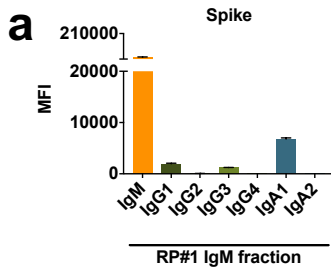
Supplementary Fig. 5. Violin plots of (a) spike-specific or (b) RBD-specific total Ig, IgM, IgG1, and IgA1 levels from nine COVID-19 convalescent female (F) and 15 male (M) subjects. The statistical significance was determined by a two-tailed Mann-Whitney test (ns: non-significant: $p > 0.05$).



Supplementary Fig. 6. Induction of IgA1 and IgG1 along with IgM early after disease

onset. Kinetics of induction of spike-specific (left panel) or RBD-specific (right panel) total Ig, IgM, IgG1, IgG2, IgG3, IgG4, IgA1, and IgA2 from two COVID-19 patients.

Longitudinal samples from each patient were tested at a dilution of 1:200 in parallel with all negative samples and data are shown as mean MFI + SD of duplicate measurements from at least two experiments. The dotted red line represents the cut-off value calculated as the mean of 12 pre-pandemic samples + 3 SD from Fig. 1.



Supplementary Fig. 7. Enrichment of spike-specific (a) IgM, (b) IgG, and (c) IgA in purified fractions from RP#1-5 and RN#1. Each purified isotype fraction from plasma was measured for the presence of IgM, IgG1, IgG2, IgG3, IgG4, IgA1, and IgA2 Abs using the isotyping method validated in Supplementary Fig. 3.