Supporting Information

Peptide-antibody Fusions Engineered by Phage Display Exhibit Ultrapotent and Broad Neutralization of SARS-CoV-2 Variants

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Supplementary Figure 1. Raw BLI for synthetic peptide binding to CoV-2 S-protein. Peptides from Table 1 were synthesized with a GKGK linker followed by biotin on its C-terminal end. Peptide was captured on a streptavidin coated sensor, indicated at the top of each graph, followed by blocking with free biotin. Peptide coated sensors were dipped into concentrations of CoV-2 S-protein indicated to the right of each trace. Response at the sensor was recorded for 600s followed by transfer into buffer lacking S-protein and recording for another 600s. Traces were fit globally to a kinetic binding model, shown as solid line, from which $k_{on}$, $k_{off}$, and $K_D$ values were derived.
Supplementary Figure 2. Amino acid sequence of peptide IgG fusions to either heavy chain (top) or light chain (bottom). Region highlighted in black shows the peptide sequence. R1 is shown however all peptides investigated (refer to Fig. 1) were fused at this position. The linker used is highlighted in grey. The remaining sequence indicates the 15033-7 IgG heavy or light chain.
Supplementary Figure 3. Raw BLI traces of N1, N2, R1, or R2 peptides fused to either the heavy chain (HC) or light chain (LC) of the antibody 15033 binding to CoV-2 S-protein. Biotinylated S-protein was loaded onto a streptavidin coated sensor, which was subsequently dipped into a solution of either 4 nM or 20 nM peptide fused antibody, as indicated. Response at the sensor was recorded for 600s followed by transfer into buffer lacking S-protein and recording for another 600s. Traces were fit globally to a kinetic binding model, shown as solid line, from which $k_{on}$, $k_{off}$, and $K_D$ values were derived.