Supplemental Figures

Nanobody-Functionalized Cellulose for Capturing SARS-CoV-2

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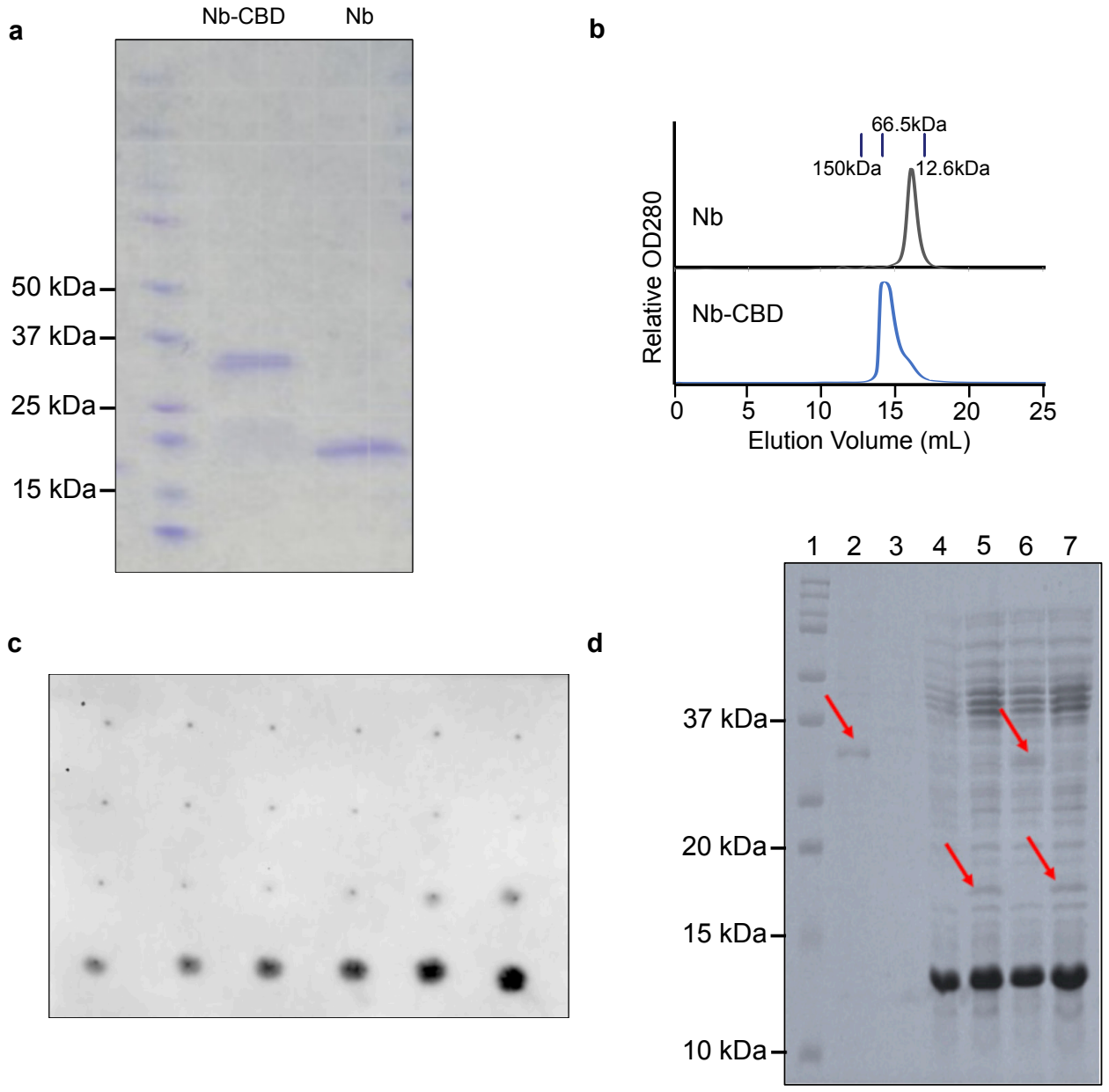

Figure S1. **a**) Denaturing SDS-PAGE of Nb and Nb-CBD. **b**) Size exclusion chromatography of Nb and Nb-CBD. **c**) Quantification of maximum binding capacity per unit area through spotting serially diluted Nb-CBD proteins on cellulose paper. Nb-CBD proteins were detected by direct immunoblotting on cellulose paper via anti-FLAG. **d**) Detection of Nb-CBD fusion proteins in the RAC column by SDS-PAGE. Total *E. coli* lysate containing either Nb-CBD or Nb lacking the CBD were loaded onto a column

with 0.1 ml RAC, flow-throughs were obtained by gravity flow, and RAC (i.e. cellulose) were extracted to identify immobilized proteins by denaturing SDS-PAGE. A single band corresponding to Nb-CBD (Lane 2) was detected by the Coomassie blue staining, while Nb alone (Lane 3) was undetectable, indicating the binding specificity for cellulose in Nb-CBD is due to the CBD. In addition, Nb-CBD was not visualized in the flow-through fractions when preparing the RAC column (Lane 4) compared to the presence of Nb-CBD in the preload sample (Lane 6), suggesting efficient capture of Nb-CBD via the gravity flow mode. In contrast, Nb alone was present in both flow-through (Lane 5) and preload protein samples (Lane 7), which again validated the requirement of CBD for cellulose binding. Lane 1 refers to protein marker.

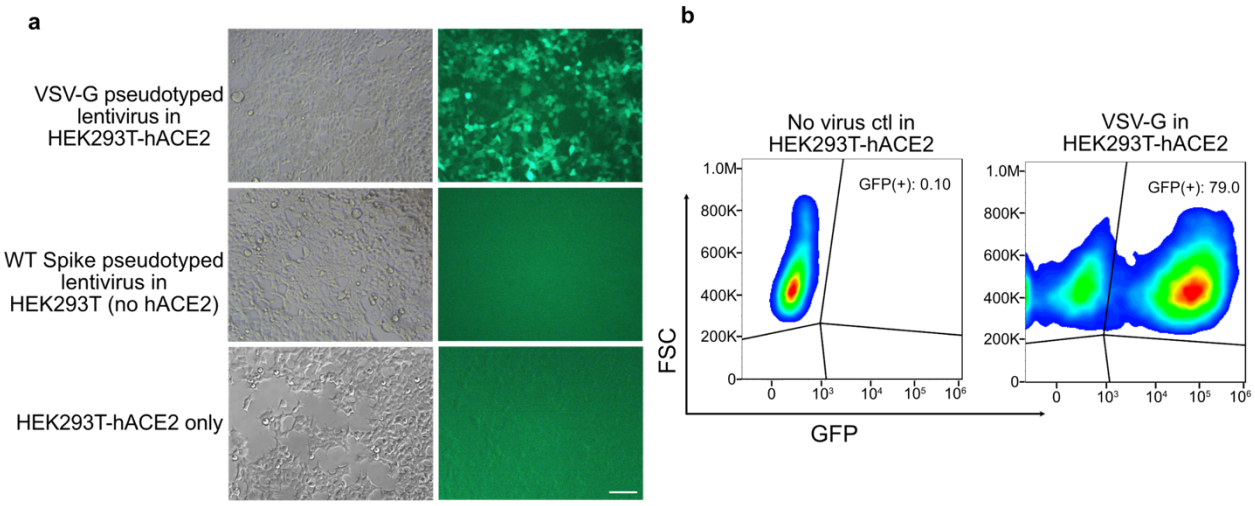

Figure S2. **a**) Microscopy images of HEK293T-hACE2 cells transduced with lentivirus pseudotyped with vesicular stomatitis virus G (VSV G) protein (first panel); HEK293T transduced with lentivirus pseudotyped with the SARS-CoV-2 WT Spike (second panel); and HEK293T-hACE2 without any transduction (third panel). Scale bar= 100 µm. **b**) Flow cytometry of GFP expression from VSV-G pseudotyped lentivirus in HEK293T-hACE2 cells. Results are representative of three independent experiments.