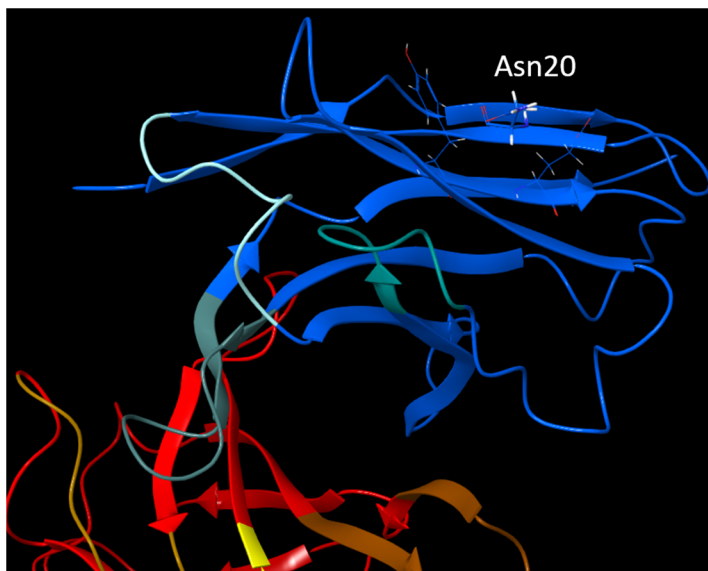


## Supplementary Materials

**Figure S1:** Example data for assays described in methods section 2.10-2.13.

### 1a. 2.10 *In Silico* Developability Analysis and Manufacturability Optimization

Example data for the identification of the glycosylation site in the framework of the VH of 22-D9



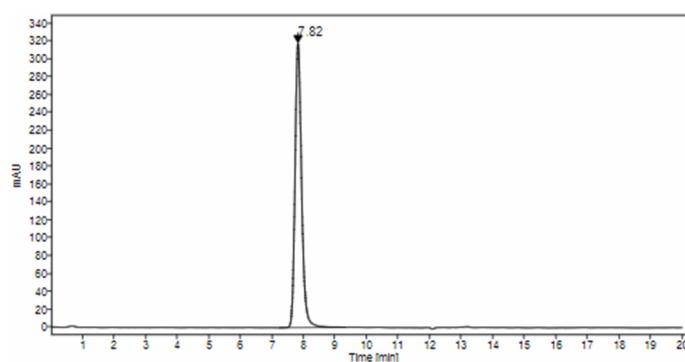
Homology model of 22-D9. The VH domain is presented in blue with the CDR highlighted in different shades of blue. The asparagine at position 20 in framework 1 is solvent exposed and identified as potential glycosylation site.

### 1b. 2.11 *HPLC* -Based Analysis

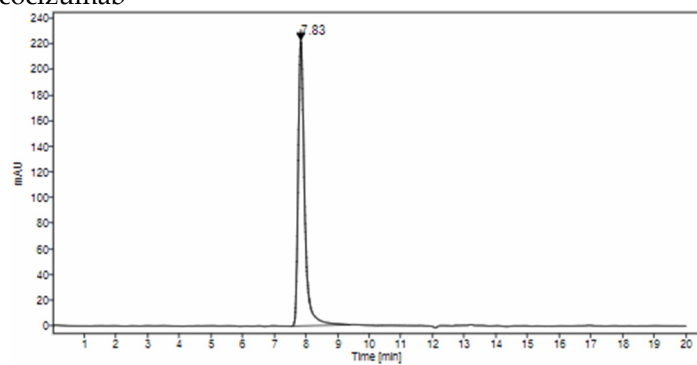
Example HPLC data for 2 benchmarks and 2 lead mAbs is provided.

#### 2.11.1 Example data SEC-HPLC

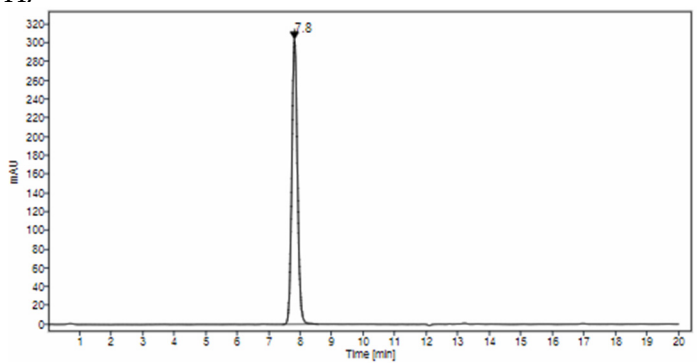
NISTmAb



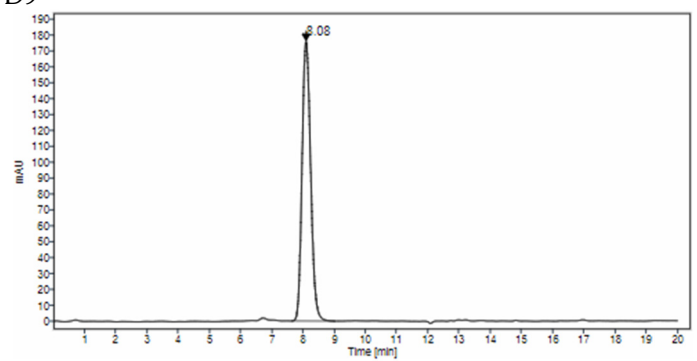
### Bococizumab



### 23-H7

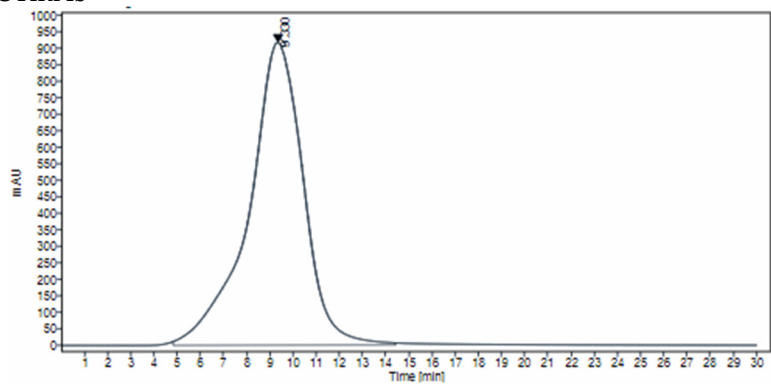


### 22-D9

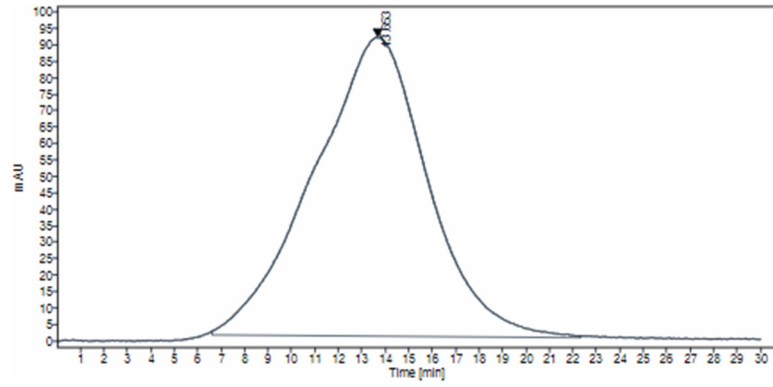


## 2.11.2 Example data CIC-HPLC

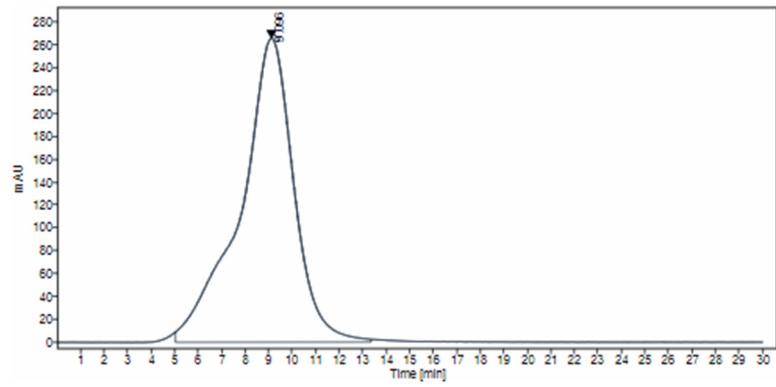
### NISTmAb



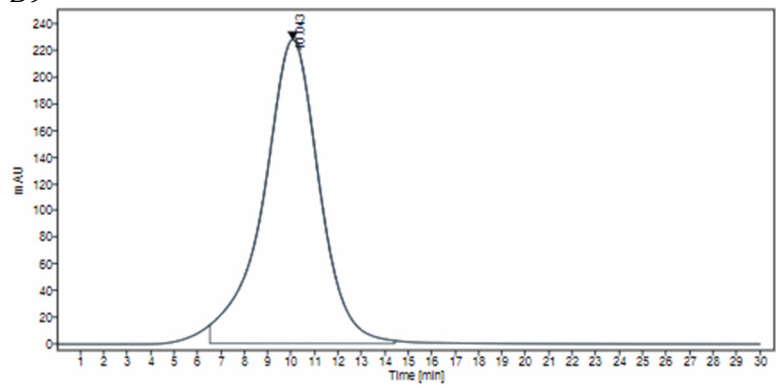
CNTO607



23-H7

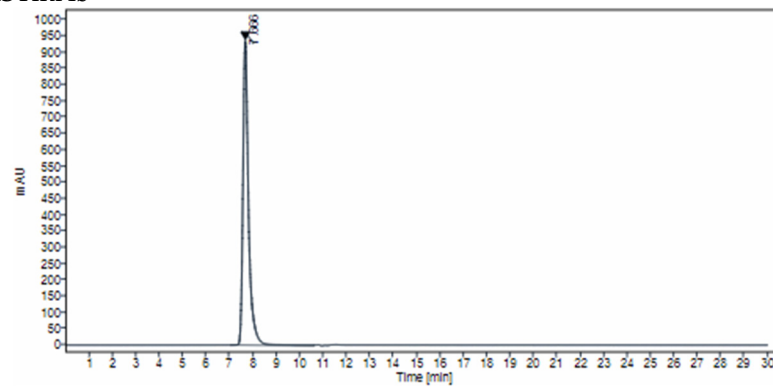


22-D9

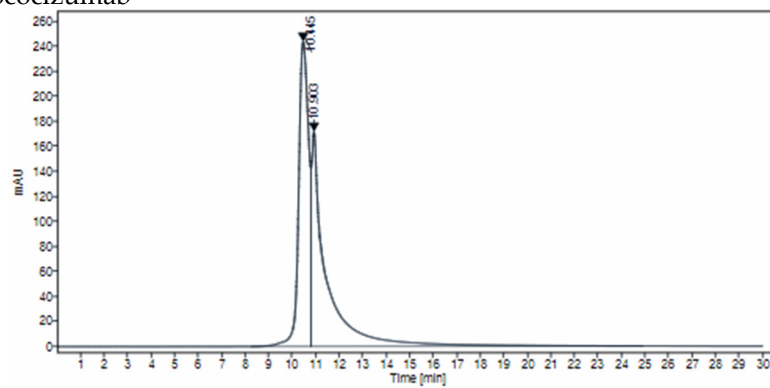


### 2.11.3 Example data SMAC-HPLC

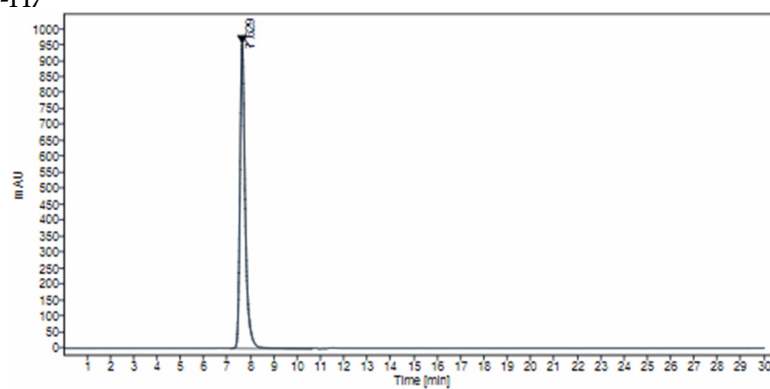
NISTmAb



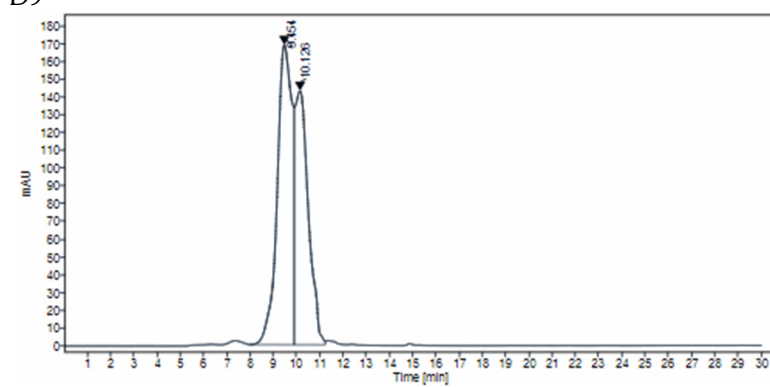
### Bococizumab



### 23-H7

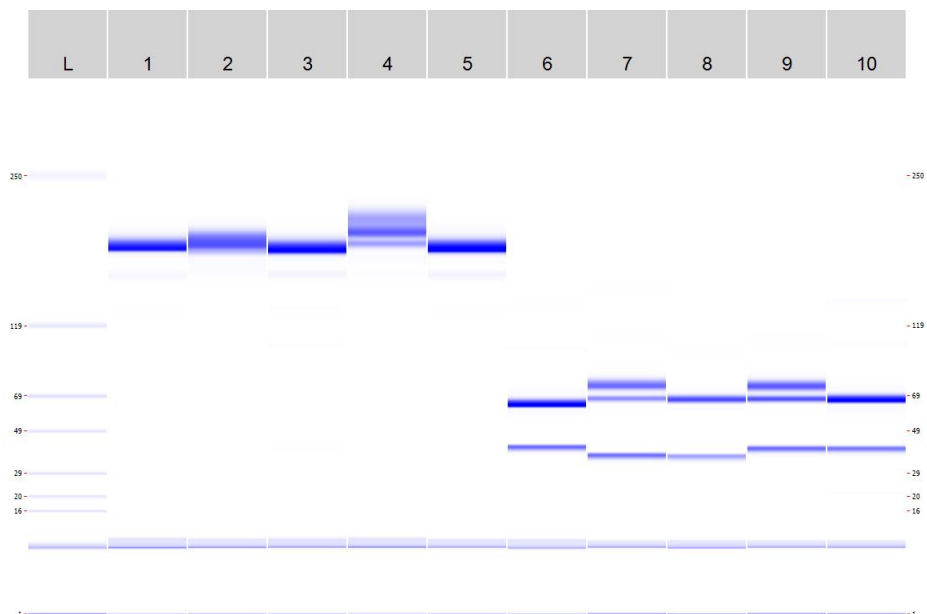


### 22-D9



## 1c. 2.12 Capillary Electrophoresis (CE)

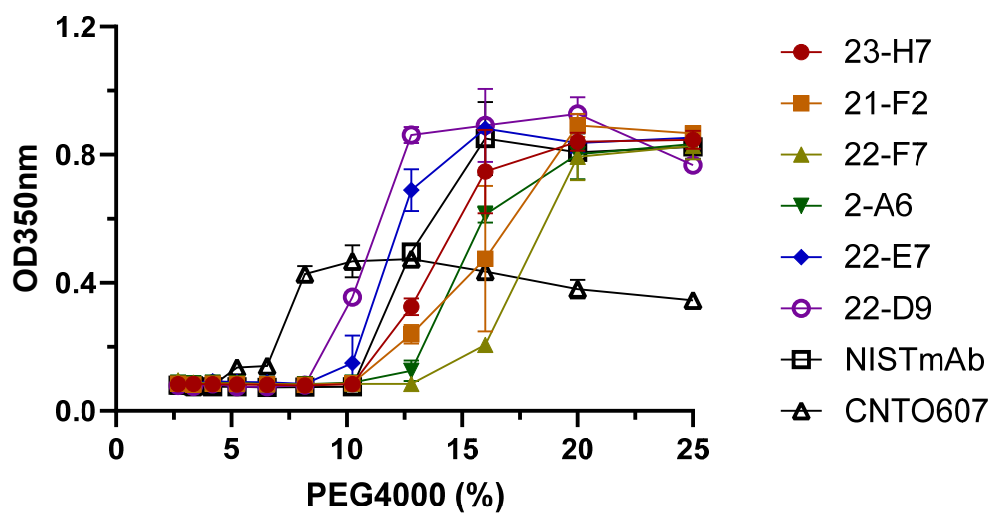
Example data CE



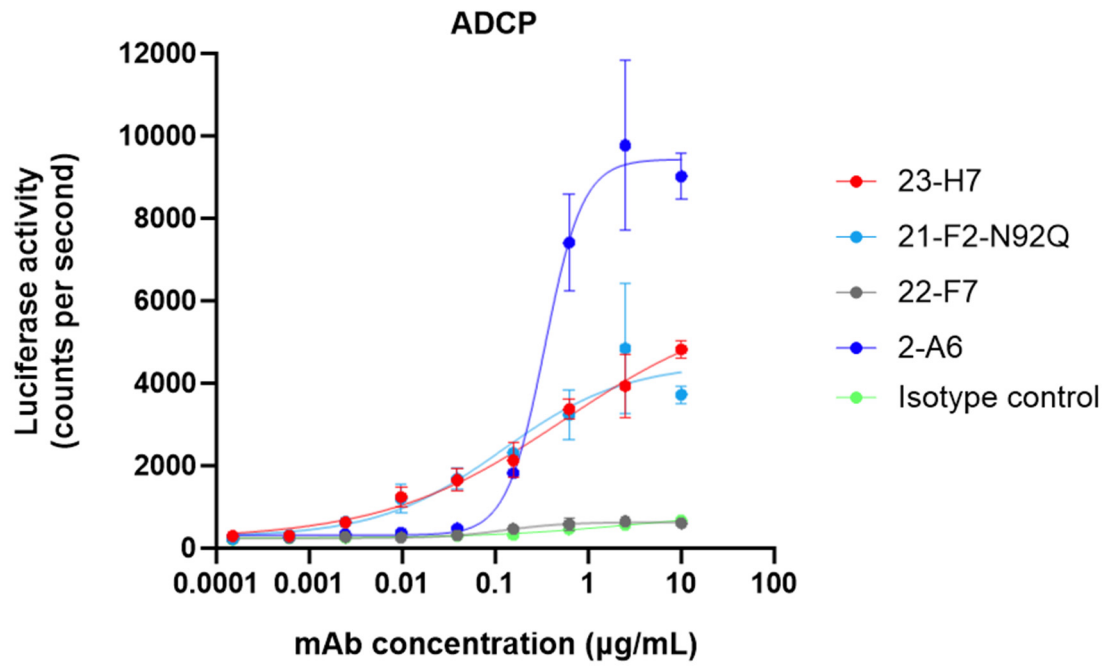
L	Molecular weight marker	Non-reduced
1	23-H7	Non-reduced
2	22-D9-wt	Non-reduced
3	22-D9-N20K	Non-reduced
4	21-F2-wt	Non-reduced
5	21-F2-N92Q	Non-reduced
6	23-H7	Reduced
7	22-D9-wt	Reduced
8	22-D9-N20K	Reduced
9	21-F2-wt	Reduced
10	21-F2-N92Q	Reduced

#### 1d. 2.13 Assessment of Solubility

Representative example data of the PEG4000 solubility assay



**Figure S2.** ADCP induction as measured by cellular Fc $\gamma$ R activation in a reporter cell line.



presence of SARS-CoV-2 target cells and THP-1 phagocytosis reporter cells (ADCP). Cellular Fc $\gamma$ R activation was measured through luciferase reporter activity. In each independent analysis run, the highest averaged luciferase activity was set to 1.