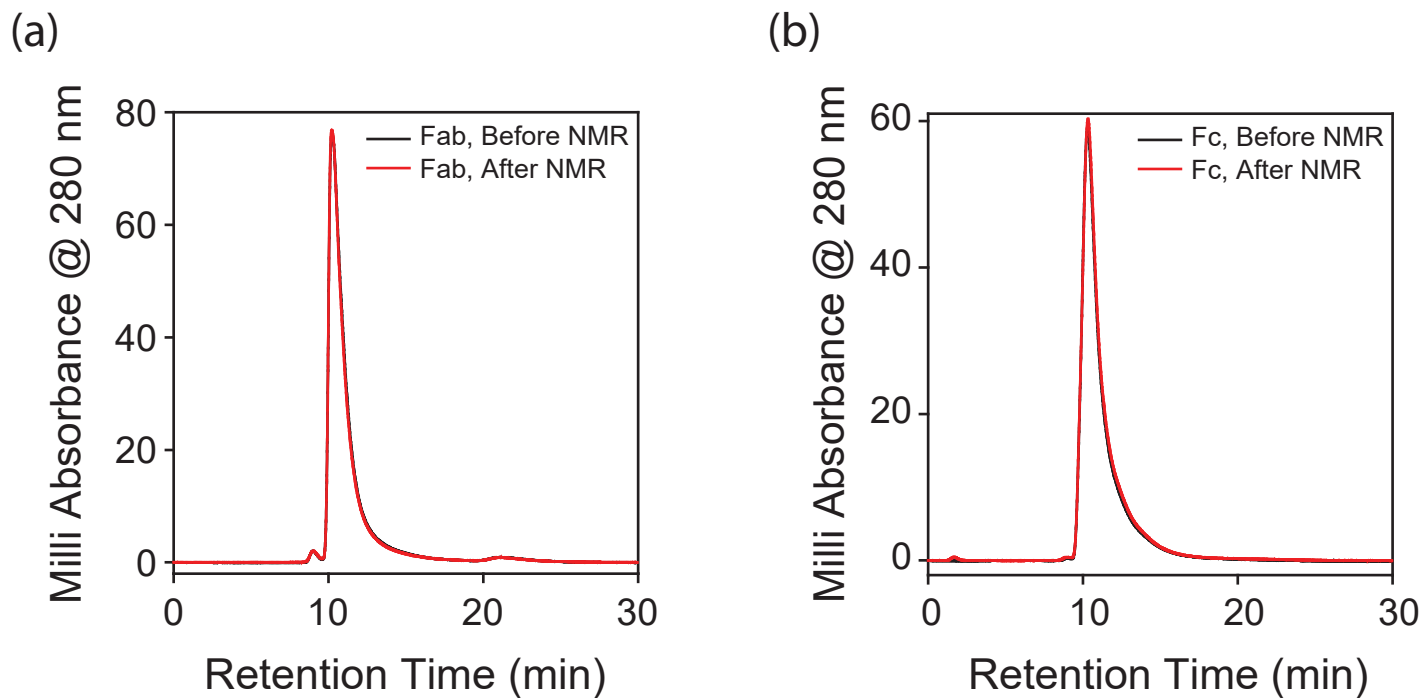
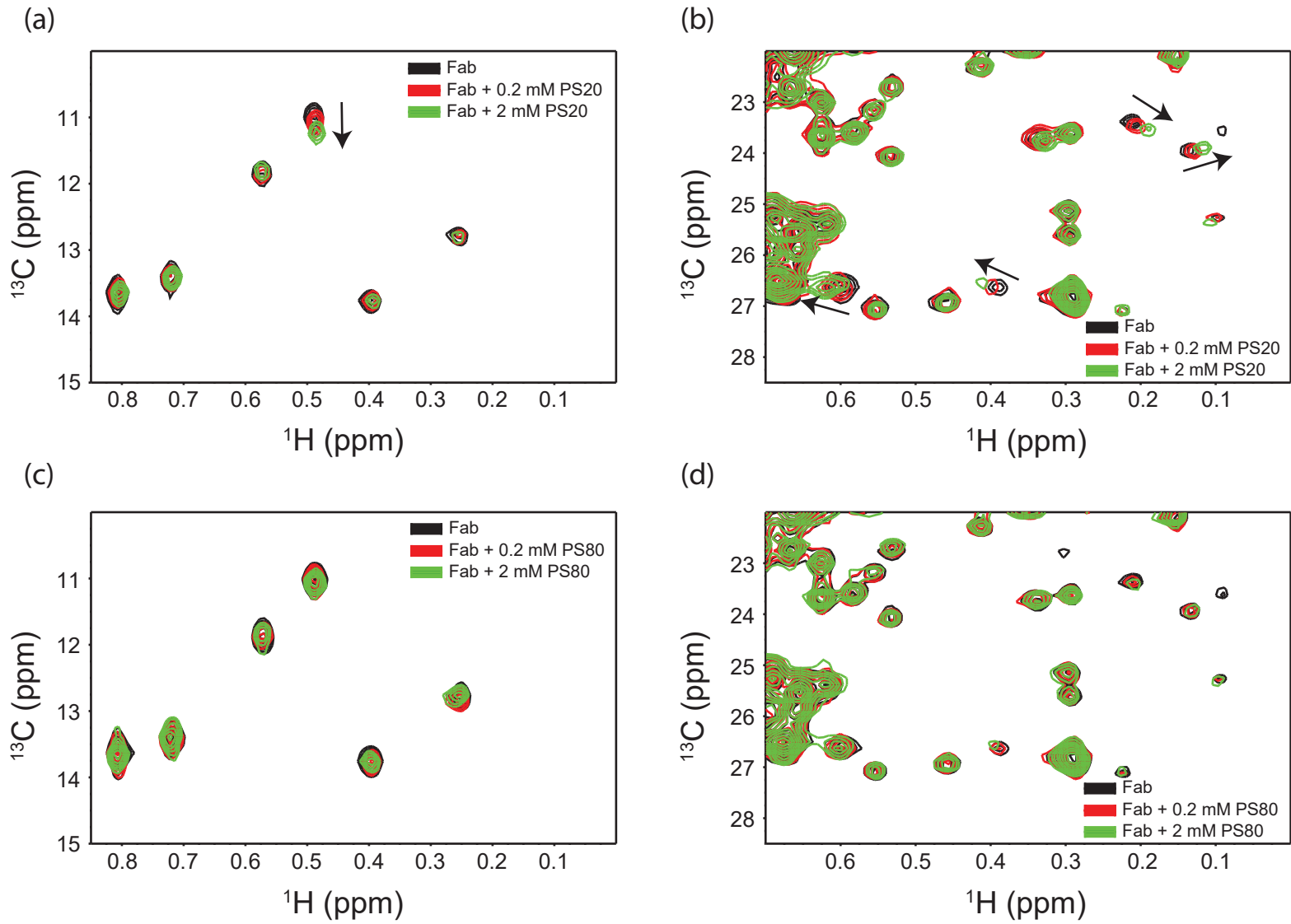


**Figure S1.** 2D  $^{13}\text{C}$ - $^1\text{H}$  HMQC NMR spectra of mAb (black) and its Fab (red) and Fc (green) fragments. Isolated Fab and Fc have similar structure as that in the intact mAb.



**Figure S2.** SEC indicates that both Fab and Fc fragments exist as monomers after NMR experiments in the presence of polysorbates.



**Figure S3.** Addition of PS20 caused chemical shift changes in the Fab region compared to PS80.