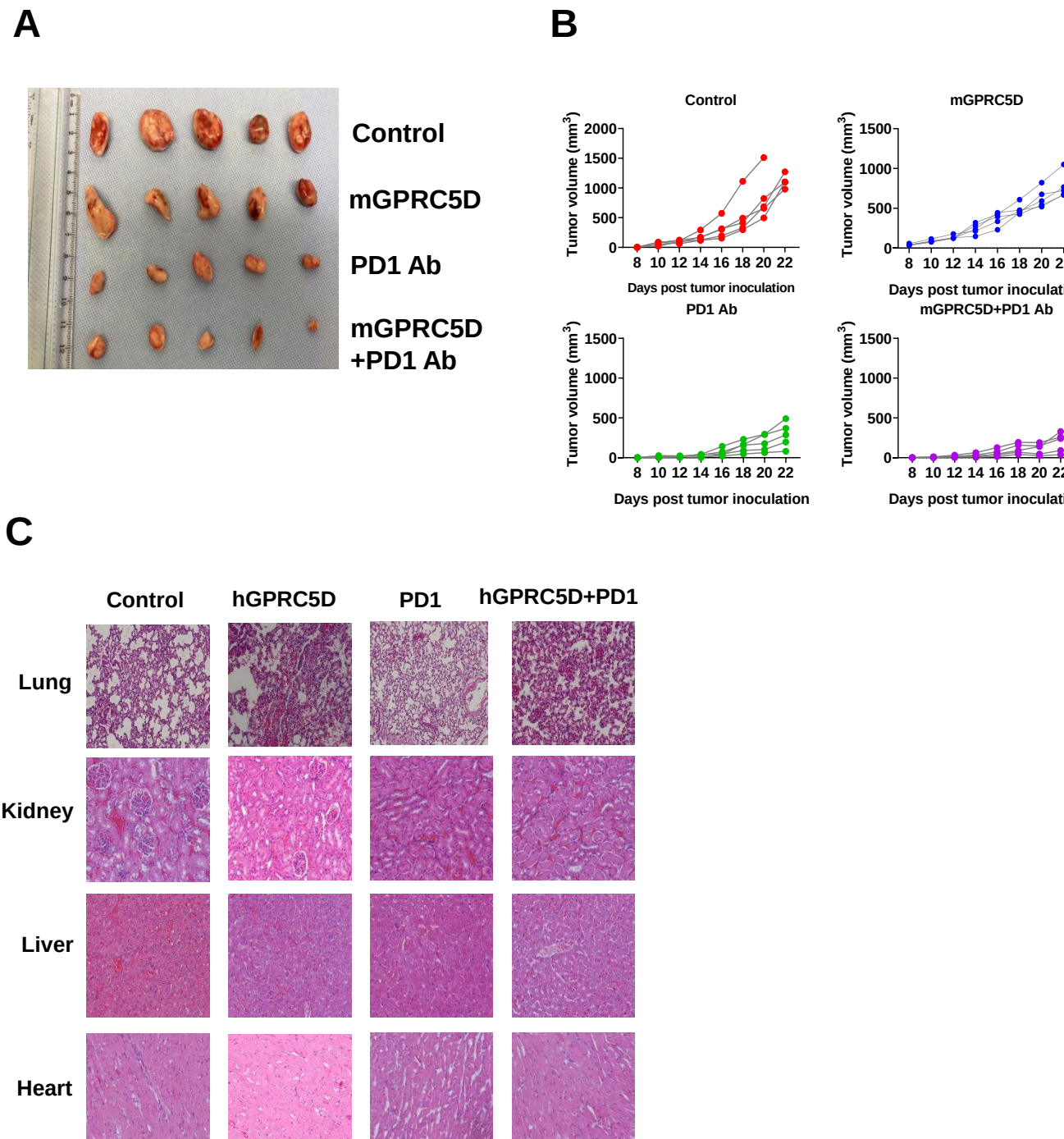
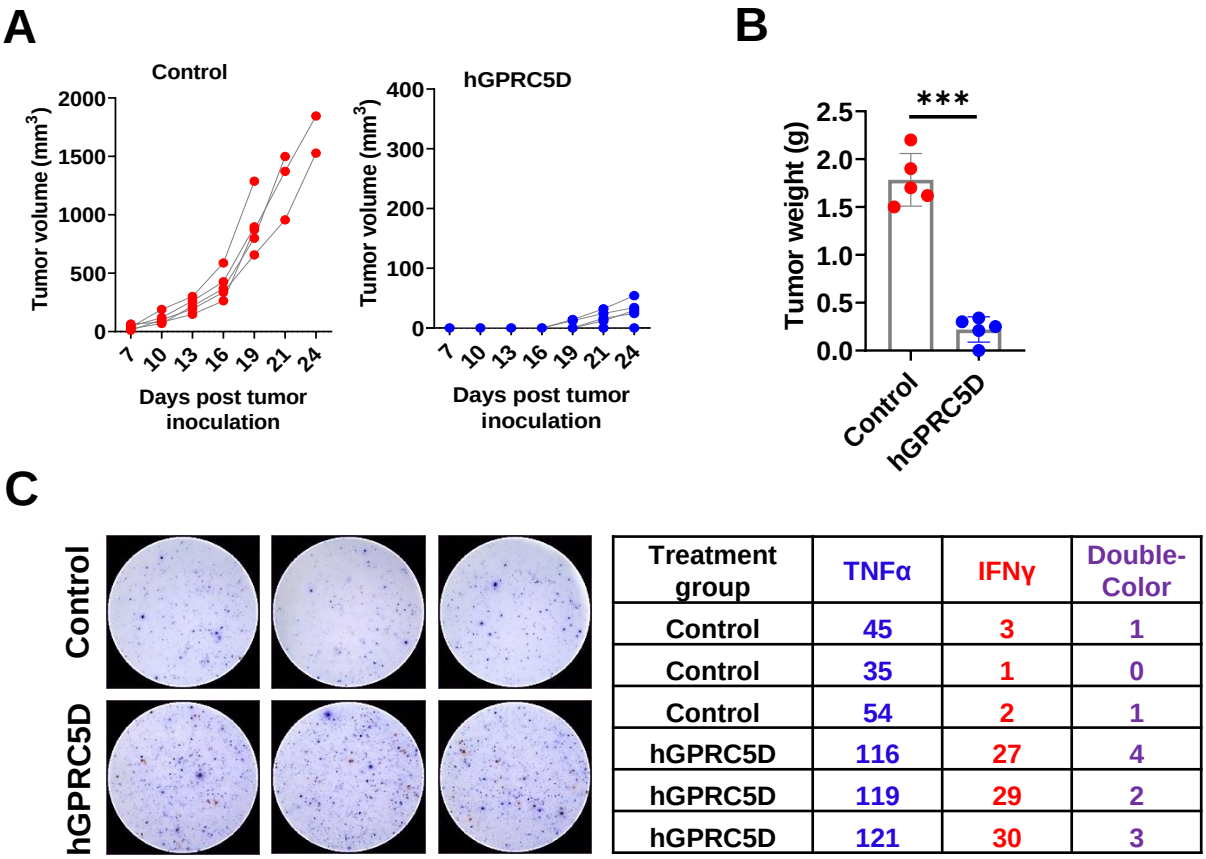


Fig S1: mGPRC5D vaccine and PD1 Ab inhibit tumor growth in murine MM models (related to Fig. 2). (A) Image showing the individual tumors. (B) Graphs showing the individual tumor growth curves. (C) Representative H&E staining images (×20) of major organs from treated mice.



Treatment group	TNFα	IFNγ	Double-Color
Control	45	3	1
Control	35	1	0
Control	54	2	1
hGPRC5D	116	27	4
hGPRC5D	119	29	2
hGPRC5D	121	30	3

Fig. S2. Analysis of prophylactic efficacy of the Nano-hGPRC5D vaccine in the MC38 mouse colon cancer model. (A) Individual mouse tumor growth curves. (B) Tumor weights at the endpoint. (C) TNFα and IFNγ double color ELISpot analysis of splenocytes from treated mice. Splenocytes were stimulated with overlapping peptide pools spanning the full-length hGPRC5D protein for 24 hours. Blue spots represent TNFα, and red spots represent IFNγ.

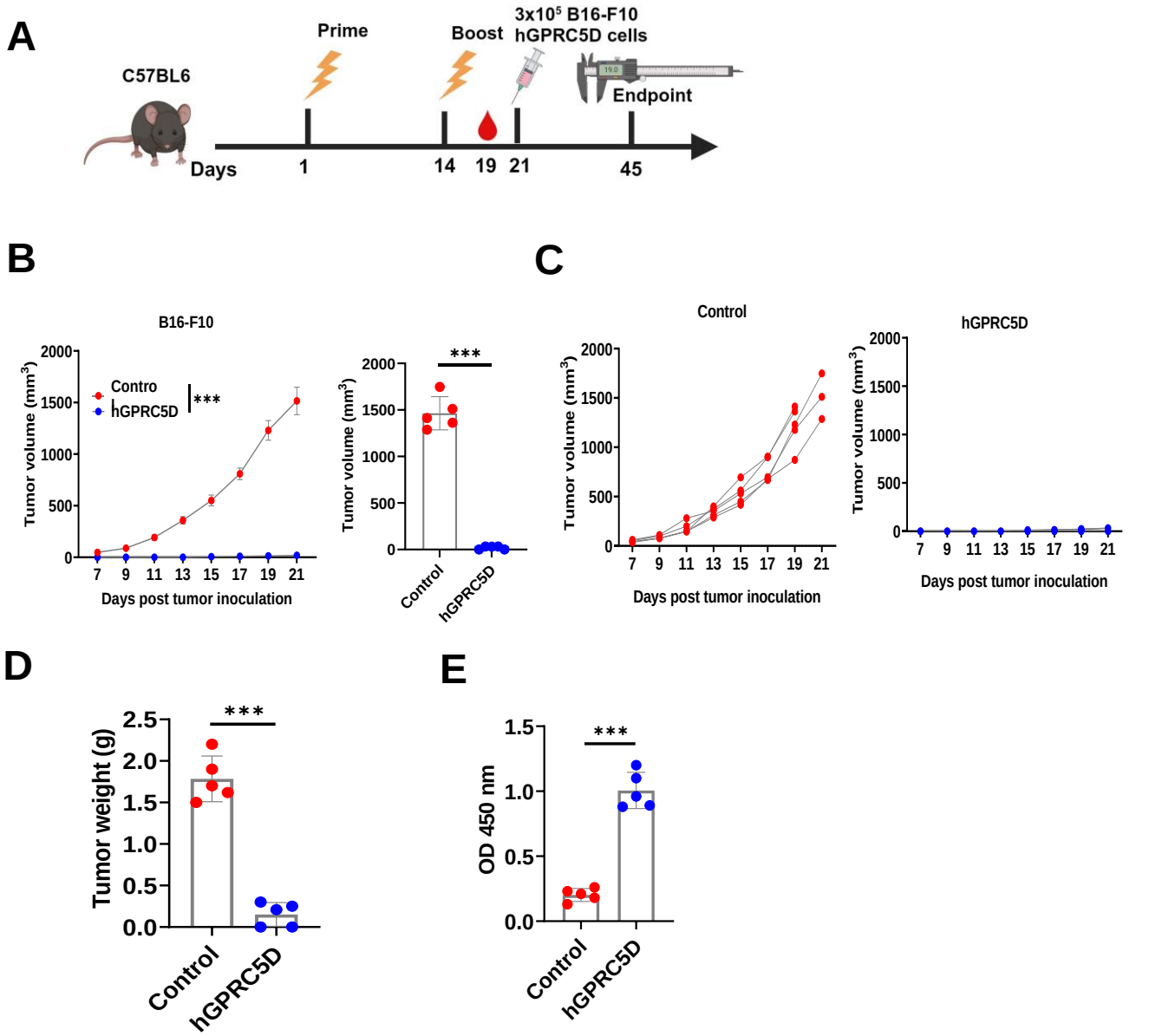


Fig. S3. Analysis of preventive efficacy of the Nano-hGPRC5D vaccine against B16-F10 cells expressing hGPRC5D. (A) Timeline of the vaccination and tumor inoculation (created using biorender.com). (B-C) Tumor growth curves as two groups or as individual tumors from mice prophylactically vaccinated with Nano-hGPRC5D. (D) Tumor weights at the endpoint. (E) hGPRC5D-specific antibody titers measured by ELISA using hGPRC5D recombinant protein as a coating antigen.

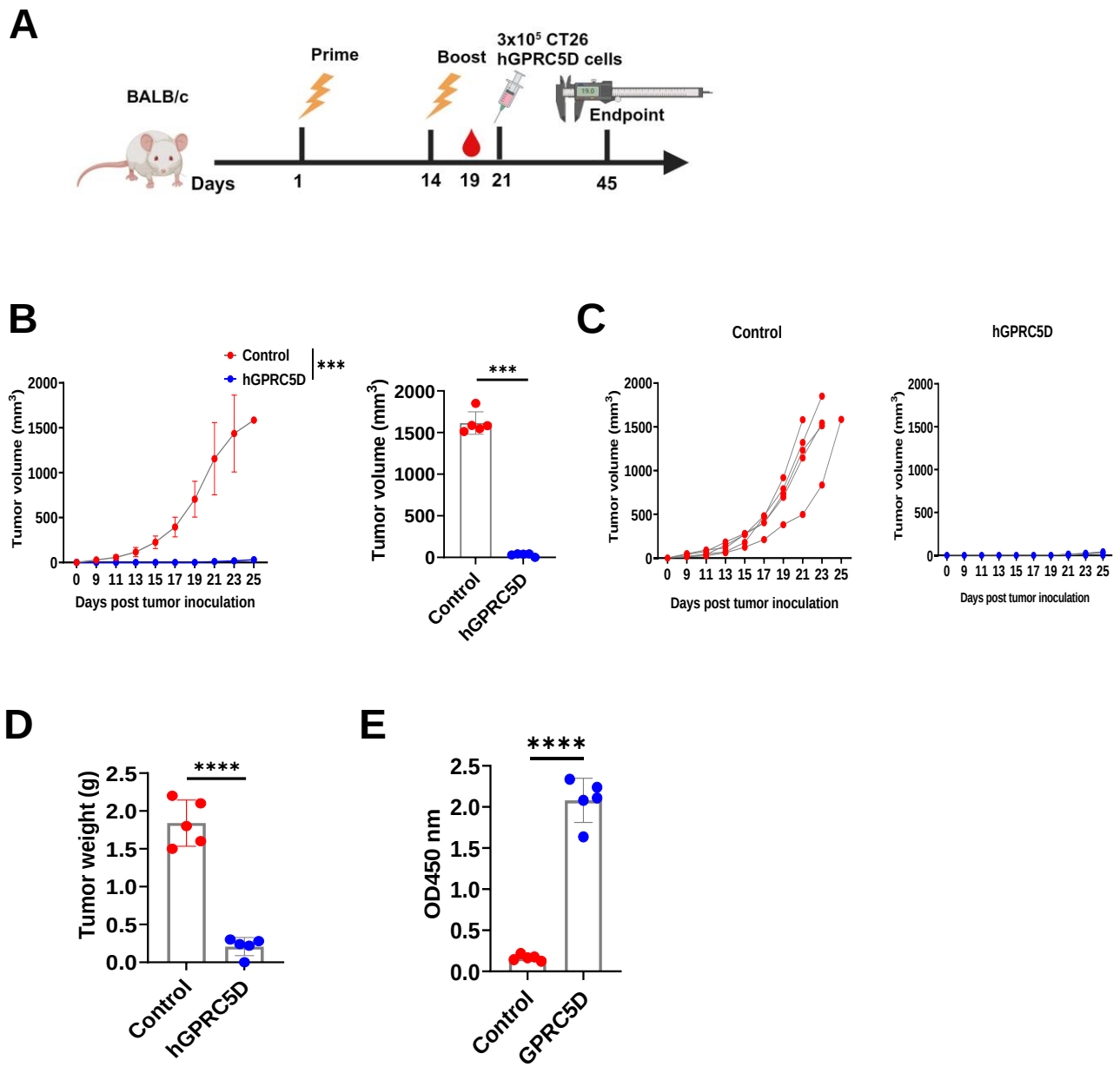


Fig. S4. Analysis of preventive efficacy of the Nano-hGPRC5D vaccine against CT26 cells expressing hGPRC5D. (A) Timeline of the vaccination and tumor inoculation (created using biorender.com). (B-C) Tumor growth curves as two groups or as individual tumors from mice prophylactically vaccinated with Nano-hGPRC5D. (D) Tumor weights at the endpoint. (E) hGPRC5D-specific antibody titers measured by ELISA using hGPRC5D recombinant protein as a coating antigen.

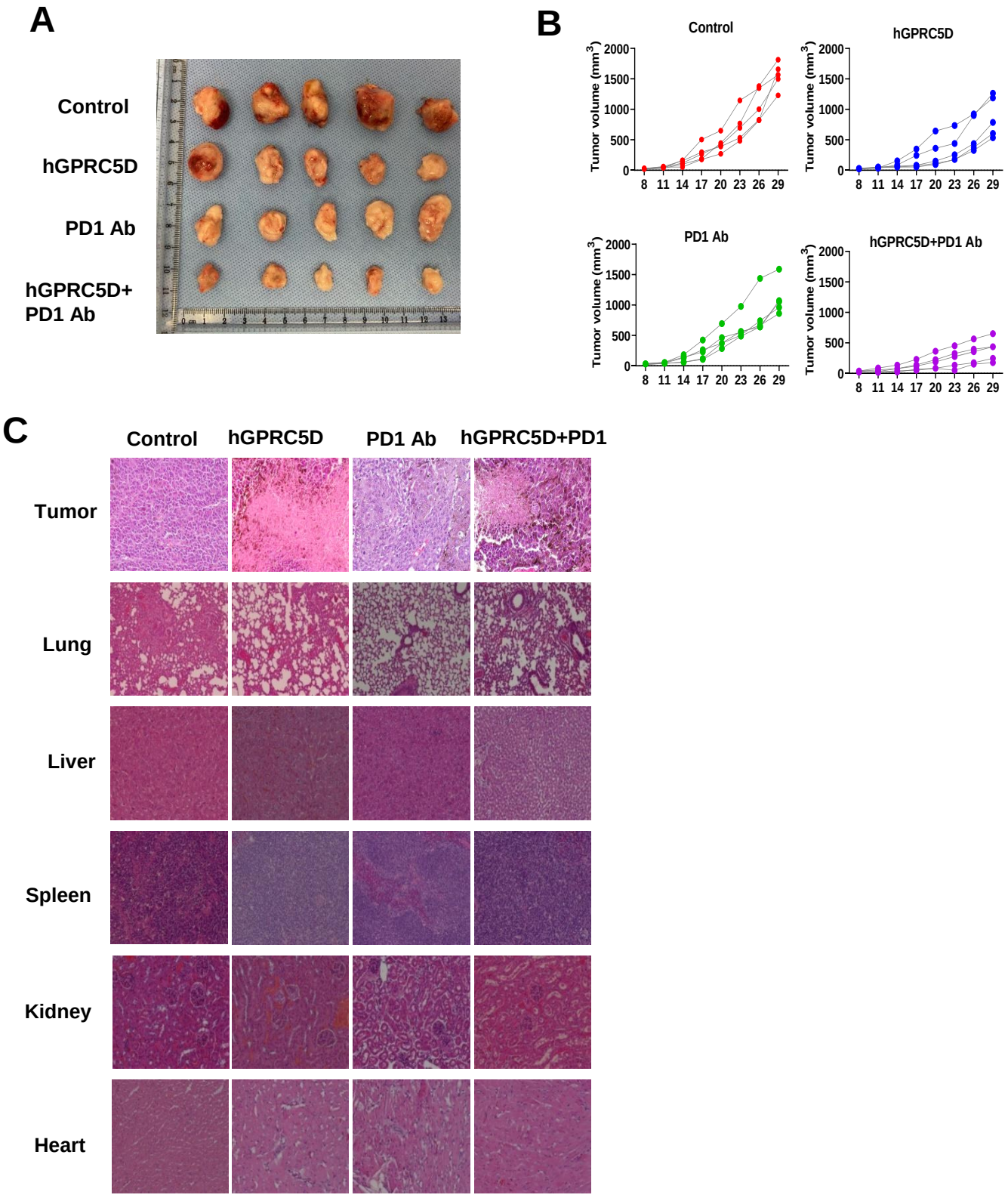


Fig S5: Nano-hGPRC5D, in combination with anti-PD-1 Ab, suppresses tumor growth in the MC38 mouse model. (A) Image showing the tumors. (B) graphs showing the individual tumor growth curves. (C) Representative H&E staining images (×20) of tumors and major organs from treated mice.

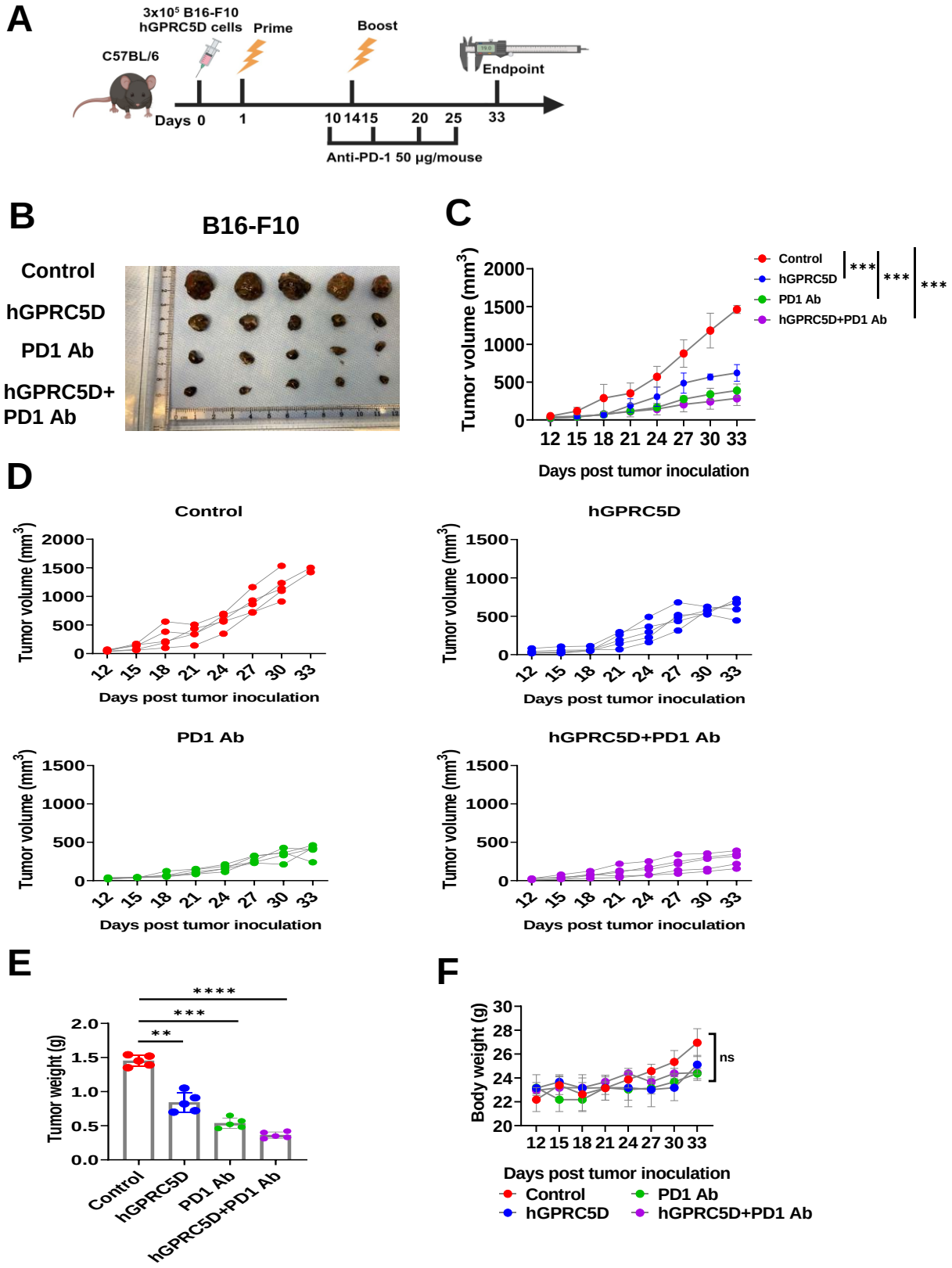


Fig S6: Nano-hGPRC5D, in combination with anti-PD-1 Ab, suppresses tumor growth in the B16F10 melanoma model. (A) Timeline of the vaccination and tumor inoculation (created using biorender.com). (B) Image showing the individual tumors. (C-D) Graphs showing the tumor growth curves as groups or individually. (E) Bar graph showing the tumor weights. (F) Graph showing animal body weights of mice by group.

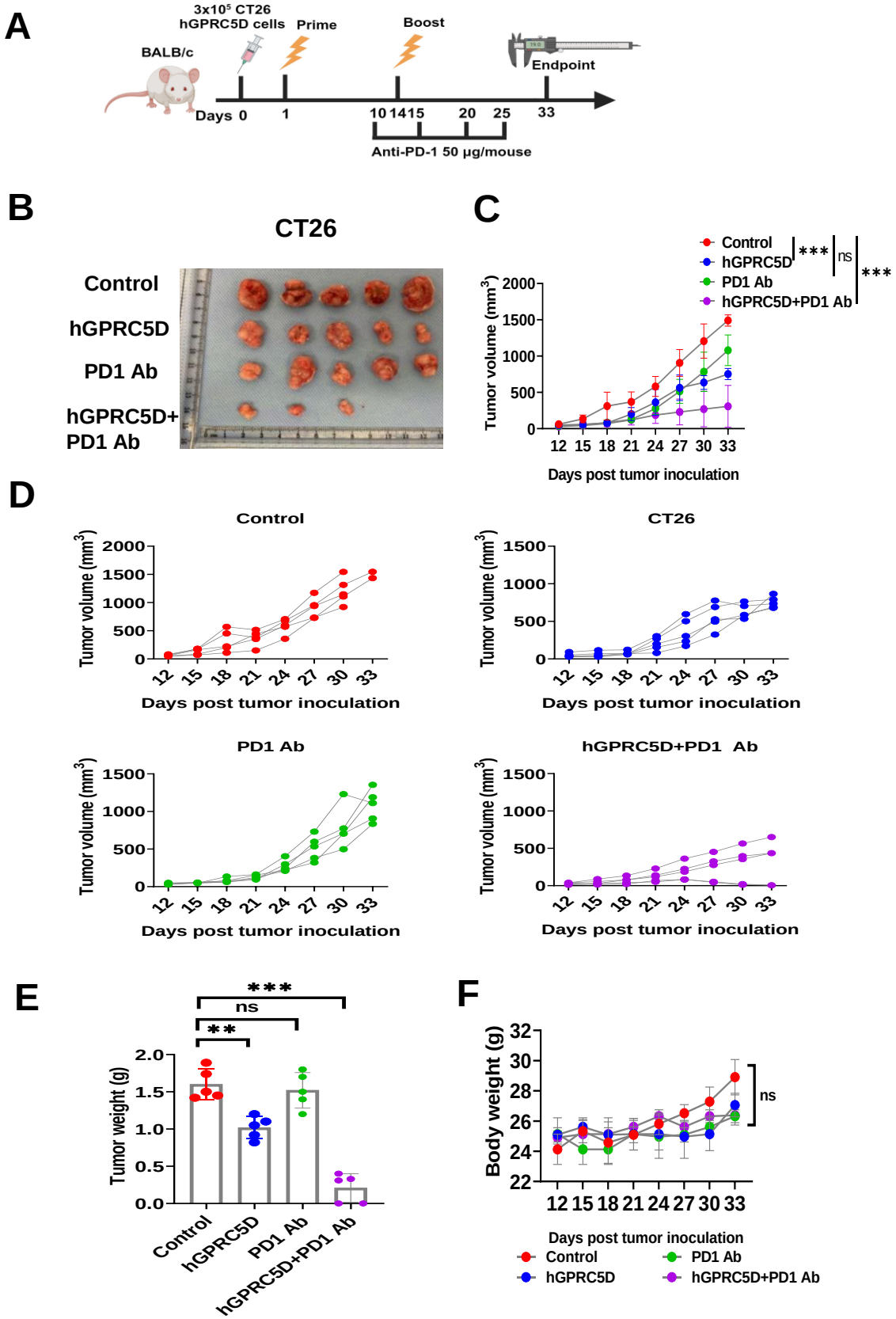


Fig S7: Nano-hGPRC5D, in combination with anti-PD-1 Ab, suppresses tumor growth in CT26 syngeneic mice. (A) Timeline of the vaccination and tumor inoculation (created using biorender.com). (B) Image showing the individual tumors. (C-D) Graphs showing the tumor growth curves as groups or individually. (E) Bar graph showing the tumor weights. (F) Graph showing the body weights of mice.

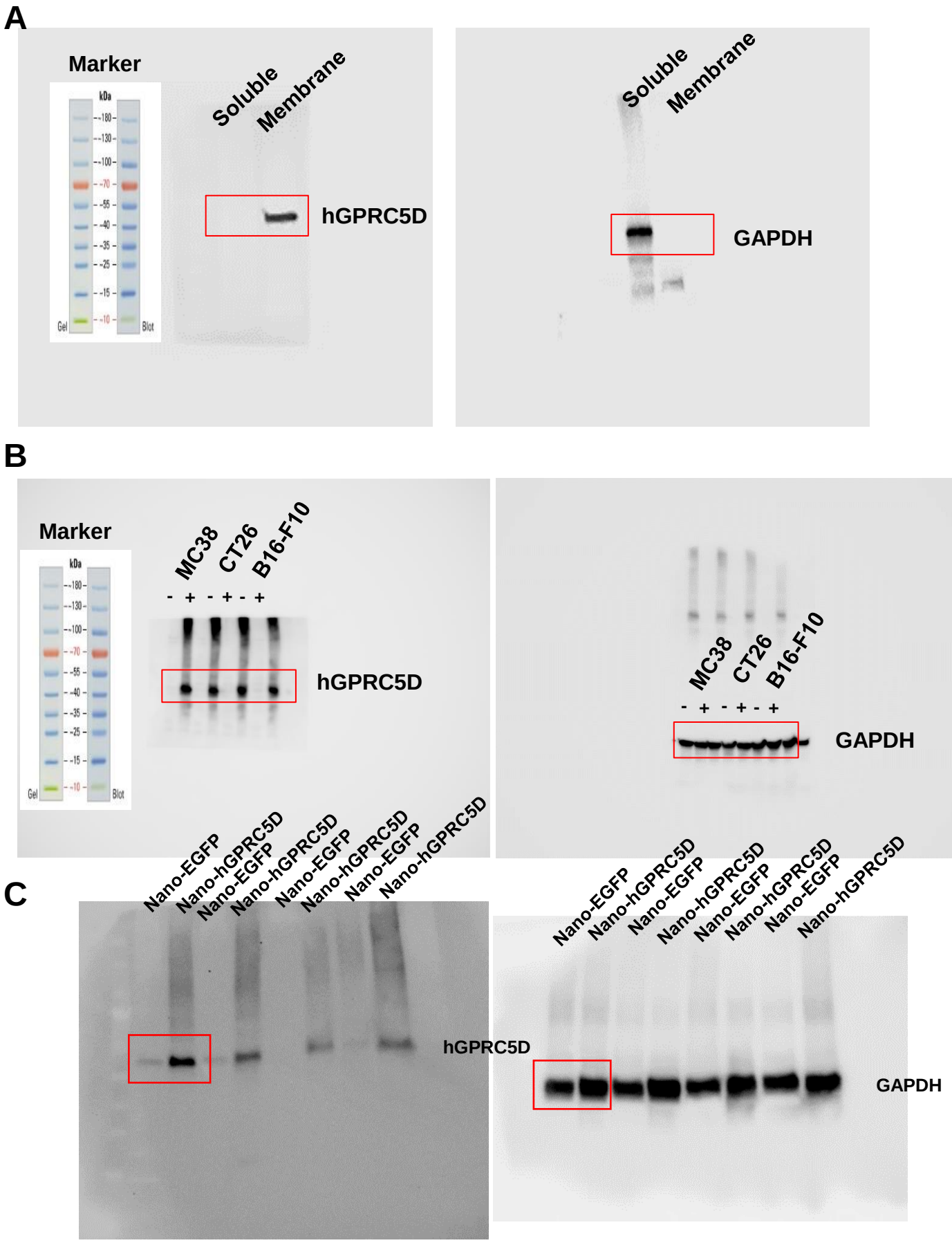


Fig S8: uncropped and unprocessed scans of all blots . (A) Blots for Figure 1A. (B) Blots for Figure 4C. (C) Blot for Figure 4D.