

Supplemental Information for

***In situ* Vaccine Application of Inactivated CPMV Nanoparticles for Cancer Immunotherapy**

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RNA-1 (5.89 kbp)

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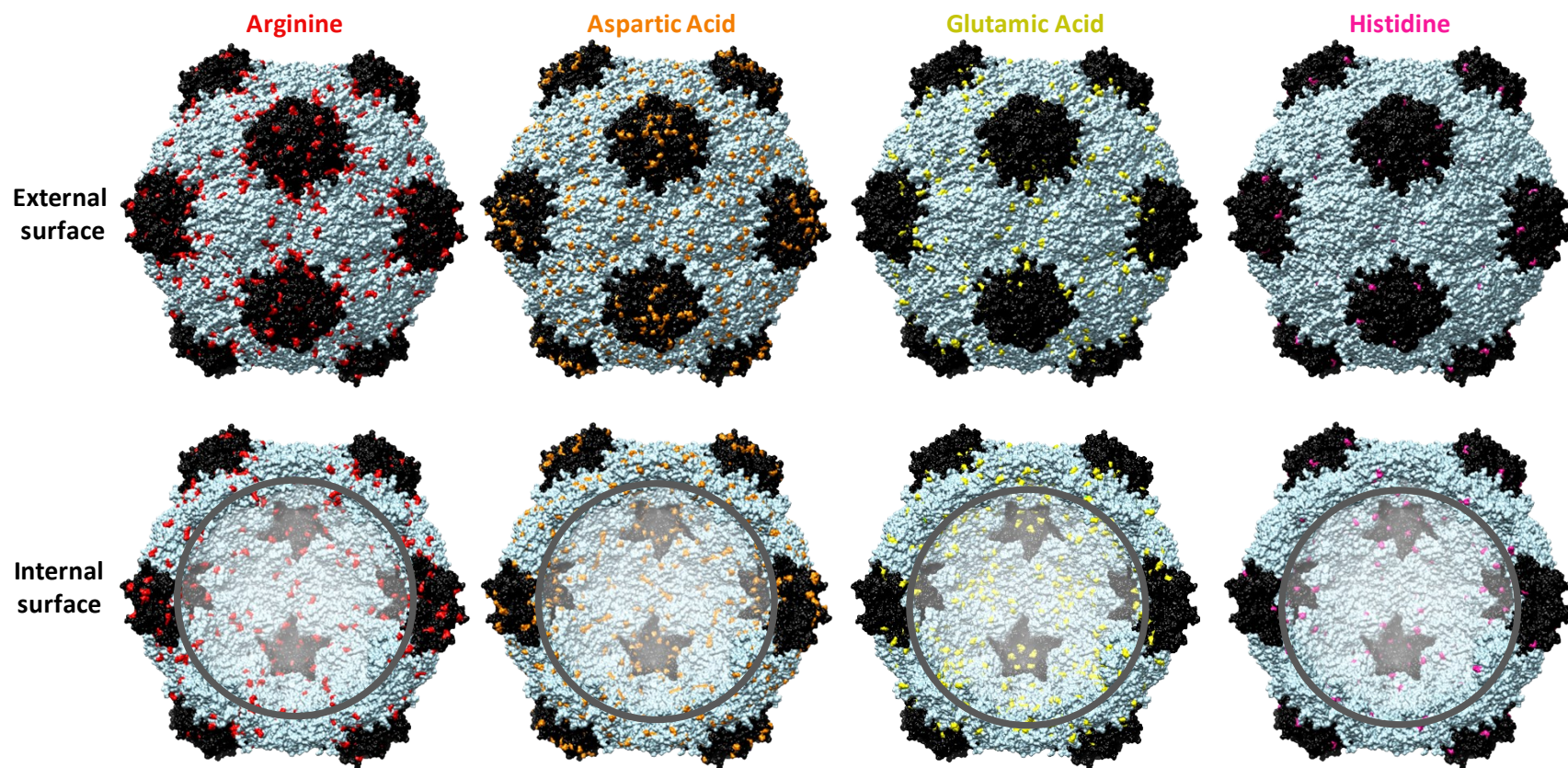
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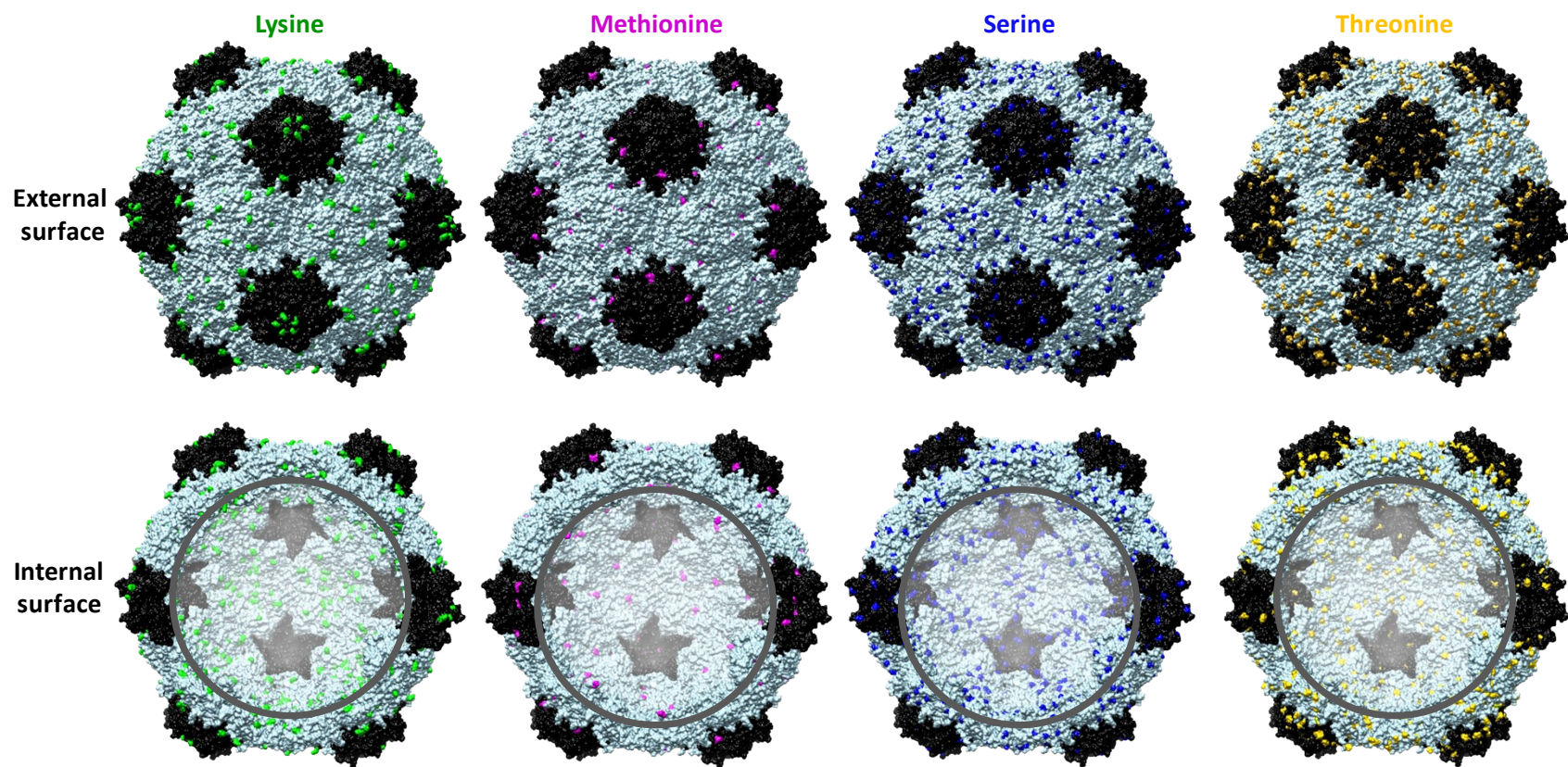
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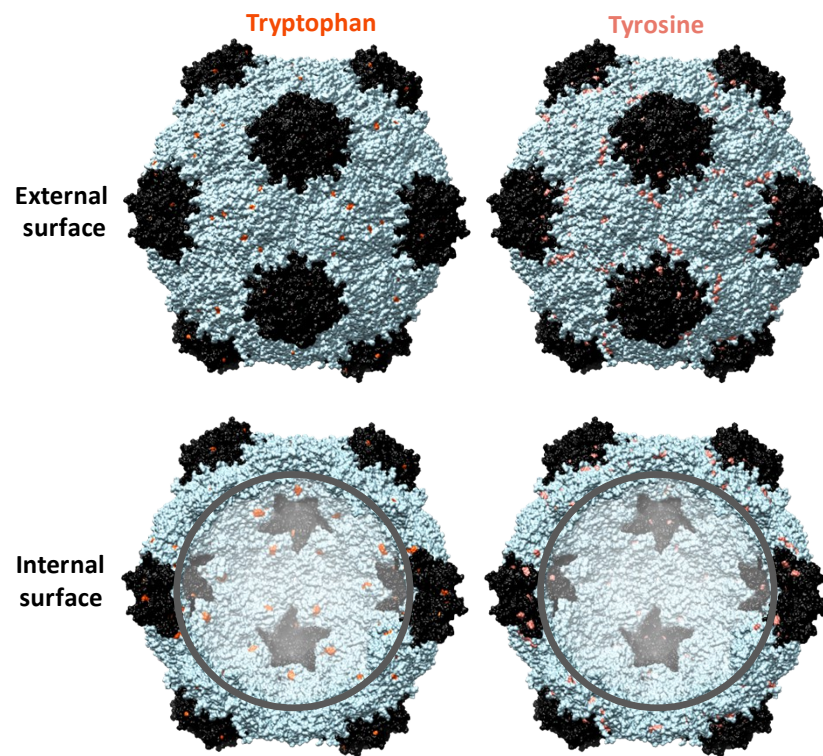
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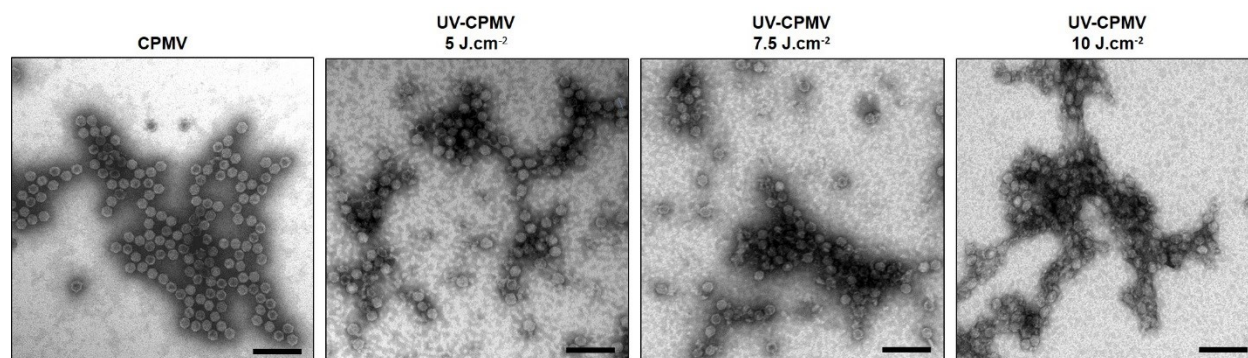
Supporting Figure S1. Nucleotide sequences of the RNA-1 and RNA-2, highlighting in green the potential sites of uracil dimerization.



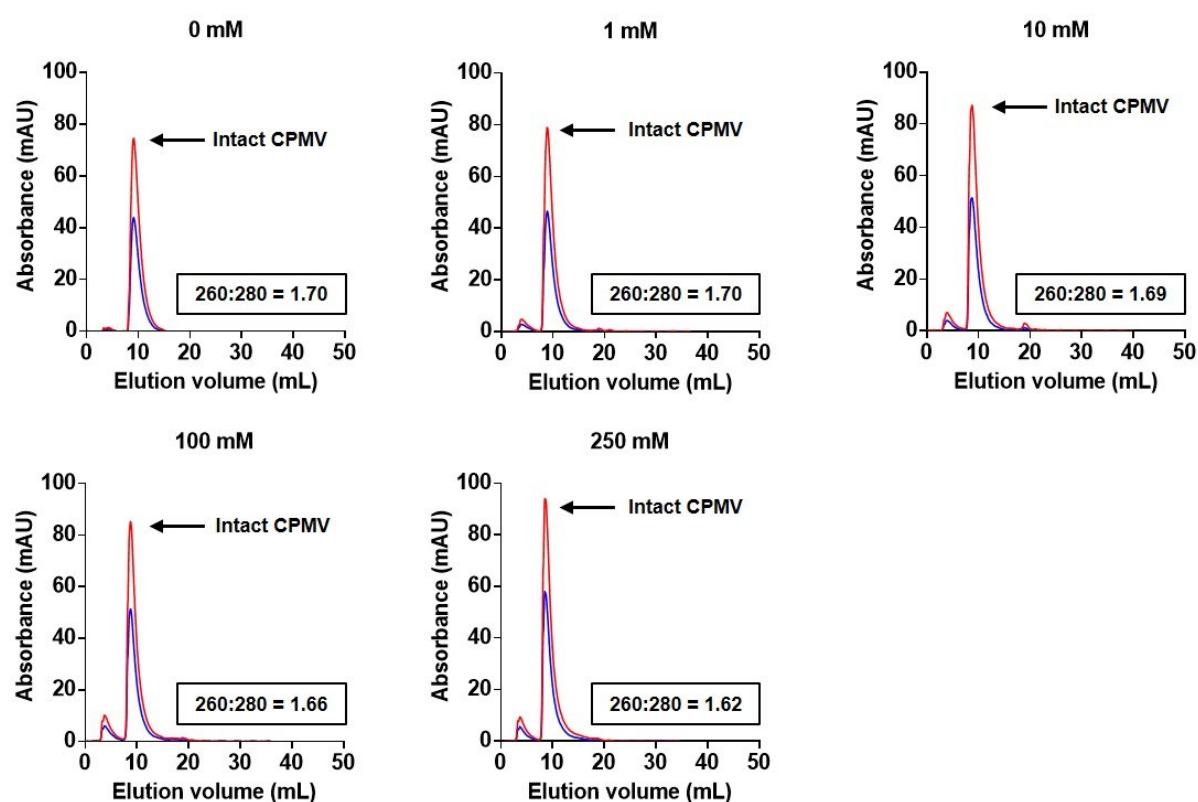




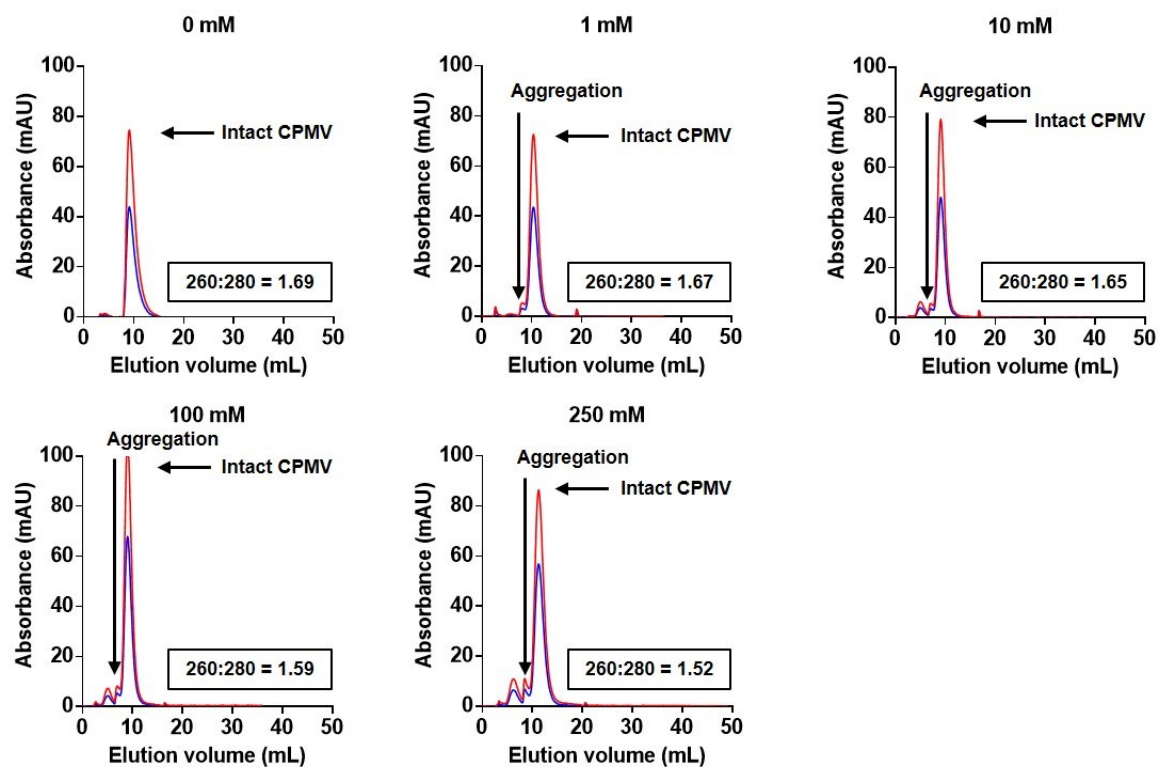
Supporting Figure S2: CPMV surface chemistry highlighting amino acids that may be involved in RNA-protein or protein-protein crosslinks.



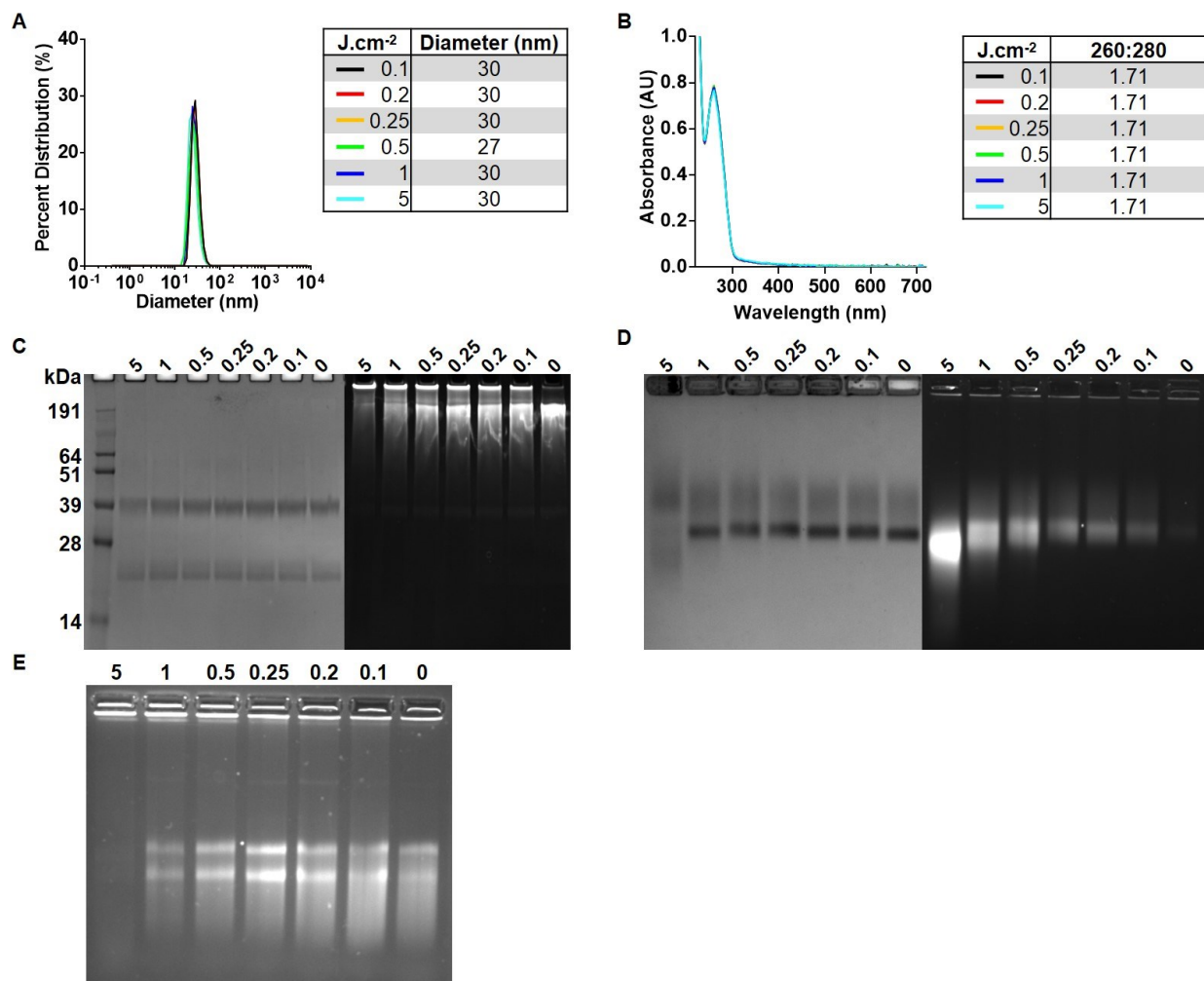
Supporting Figure S3. Transmission electron microscopy (TEM) images of native and UV-treated CPMV. Scale bars represent 100 nm.



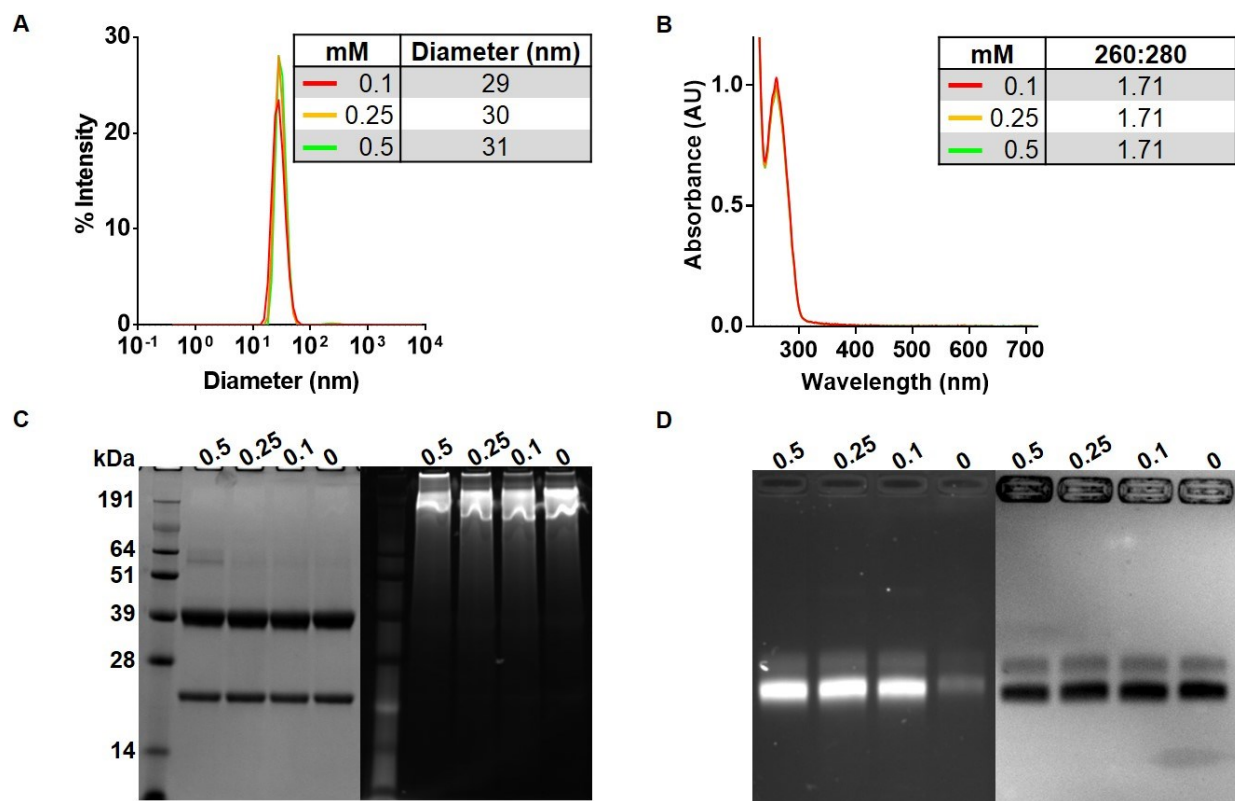
Supporting Figure S4. Size exclusion chromatography of CPMV treated with β PL. blue = 260 nm, red = 280 nm. The ratio of RNA:coat protein (260:280) is included in each panel.



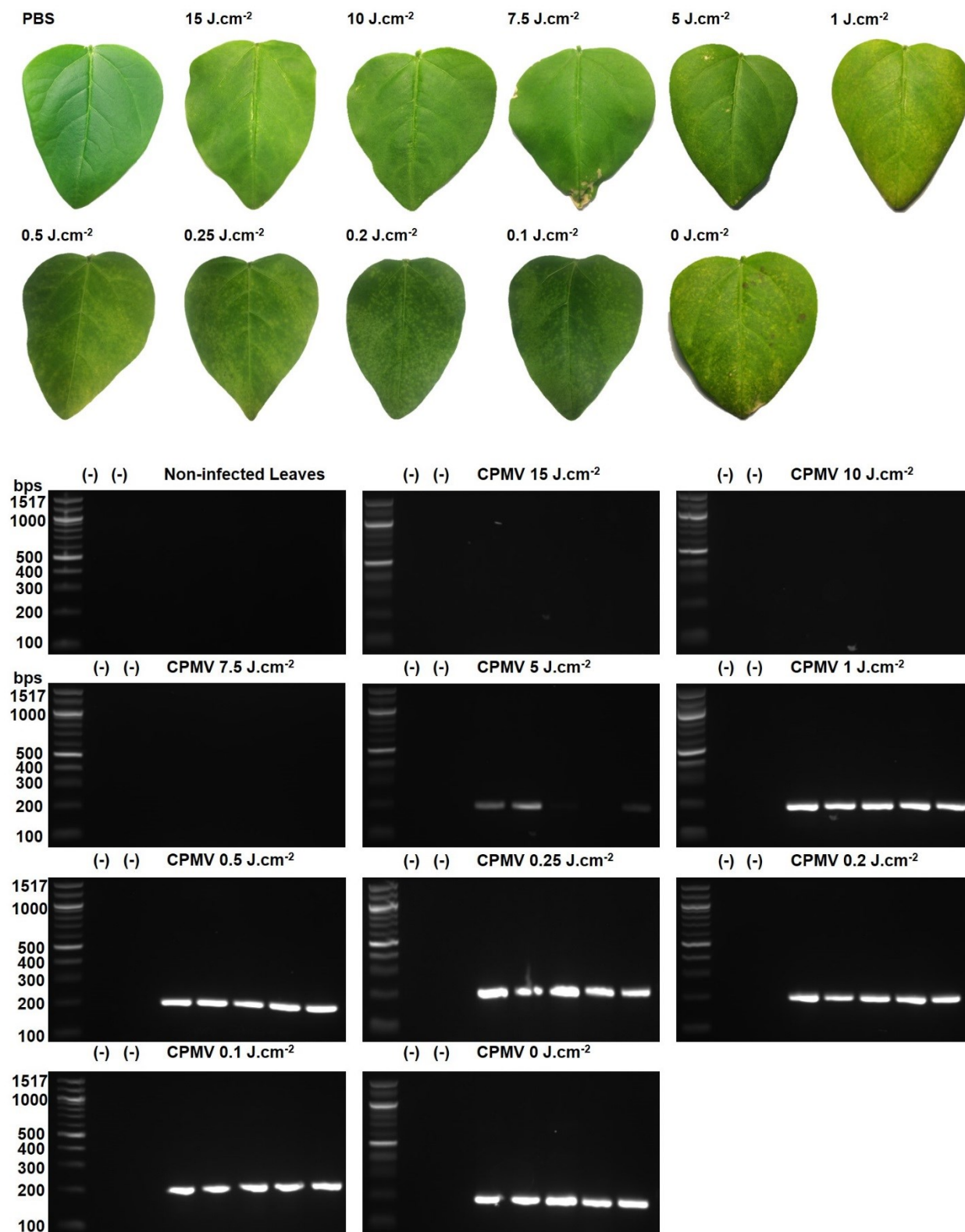
Supporting Figure S5. Size exclusion chromatography of CPMV treated with formalin. blue = 260 nm, red = 280 nm. The ratio of RNA:coat protein (260:280) is included in each panel.



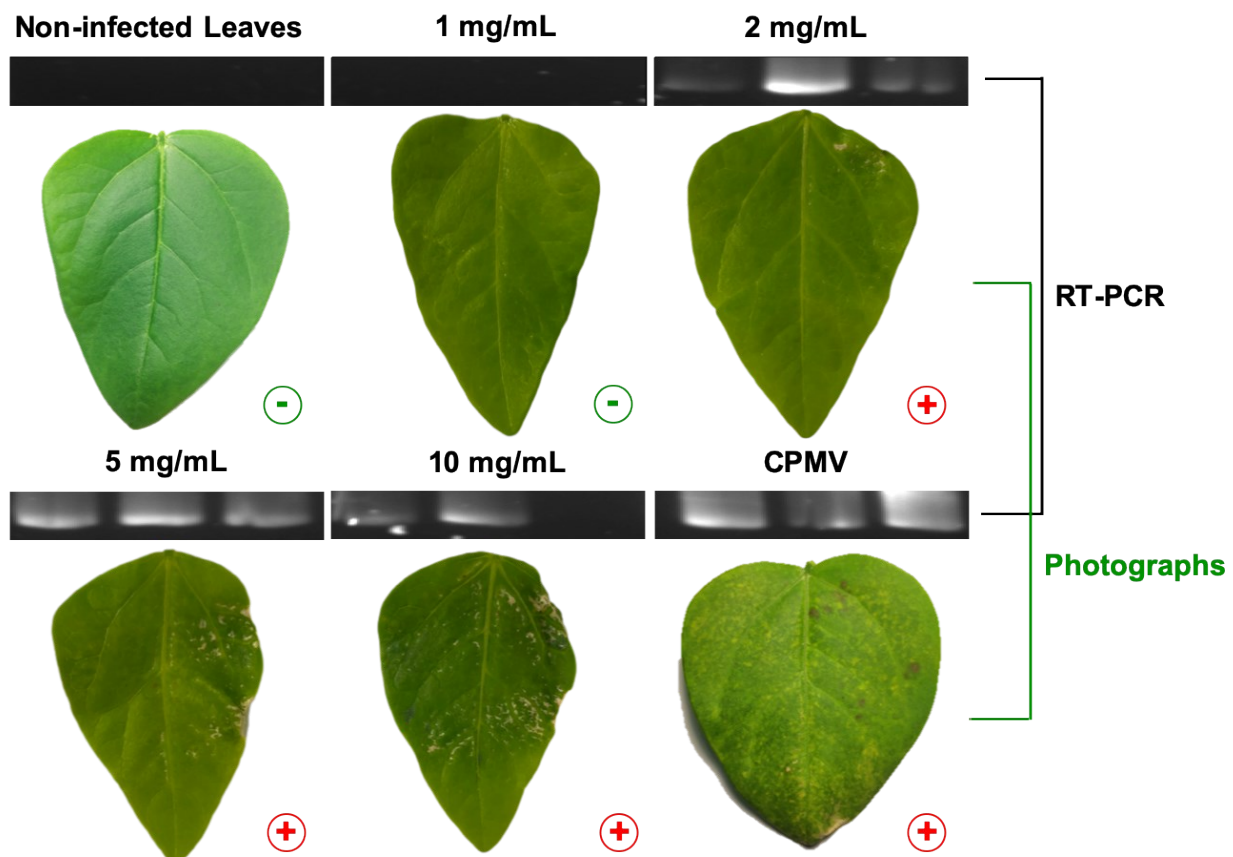
Supporting Figure S6. Characterization of CPMV treated with low concentrations of UV light. (A) Dynamic light radii of CPMV treated with 0, 0.1, 0.2, 0.25, 0.5, 1 and 5 J.cm⁻² of UV light (B), Corresponding UV-visible light spectra. (C) Denaturing SDS-NuPAGE electrophoresis gels under white light after Coomassie staining, and under UV light after GelRed staining. (D) Corresponding non-denaturing agarose gel electrophoresis images under white light after Coomassie staining, and UV light after GelRed staining. (E) Agarose electrophoretic gel of the RNA extracted from UV-CPMV.



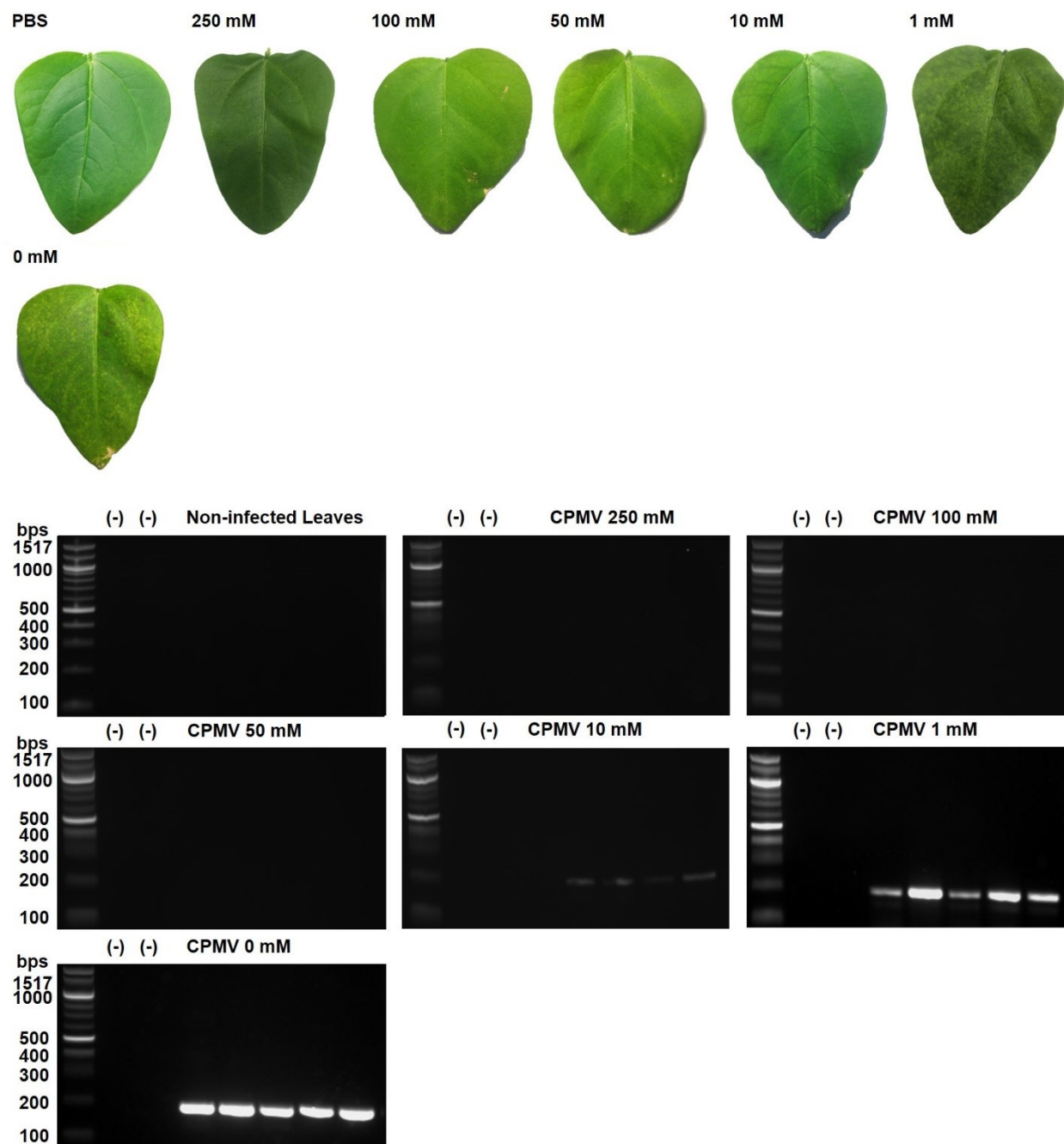
Supporting Figure S7. Characterization of CPMV treated with low concentrations of formalin. (A) Dynamic light radii of CPMV treated with 0, 0.1, 0.25, 0.5 mM of formalin (B), Corresponding UV-visible light spectrum. (C) Denaturing SDS-NuPAGE electrophoresis gels under white light after Coomassie staining, and under UV light after GelRed staining. (D) Corresponding non-denaturing agarose gel electrophoresis images under white light after Coomassie staining, and UV light after GelRed staining.



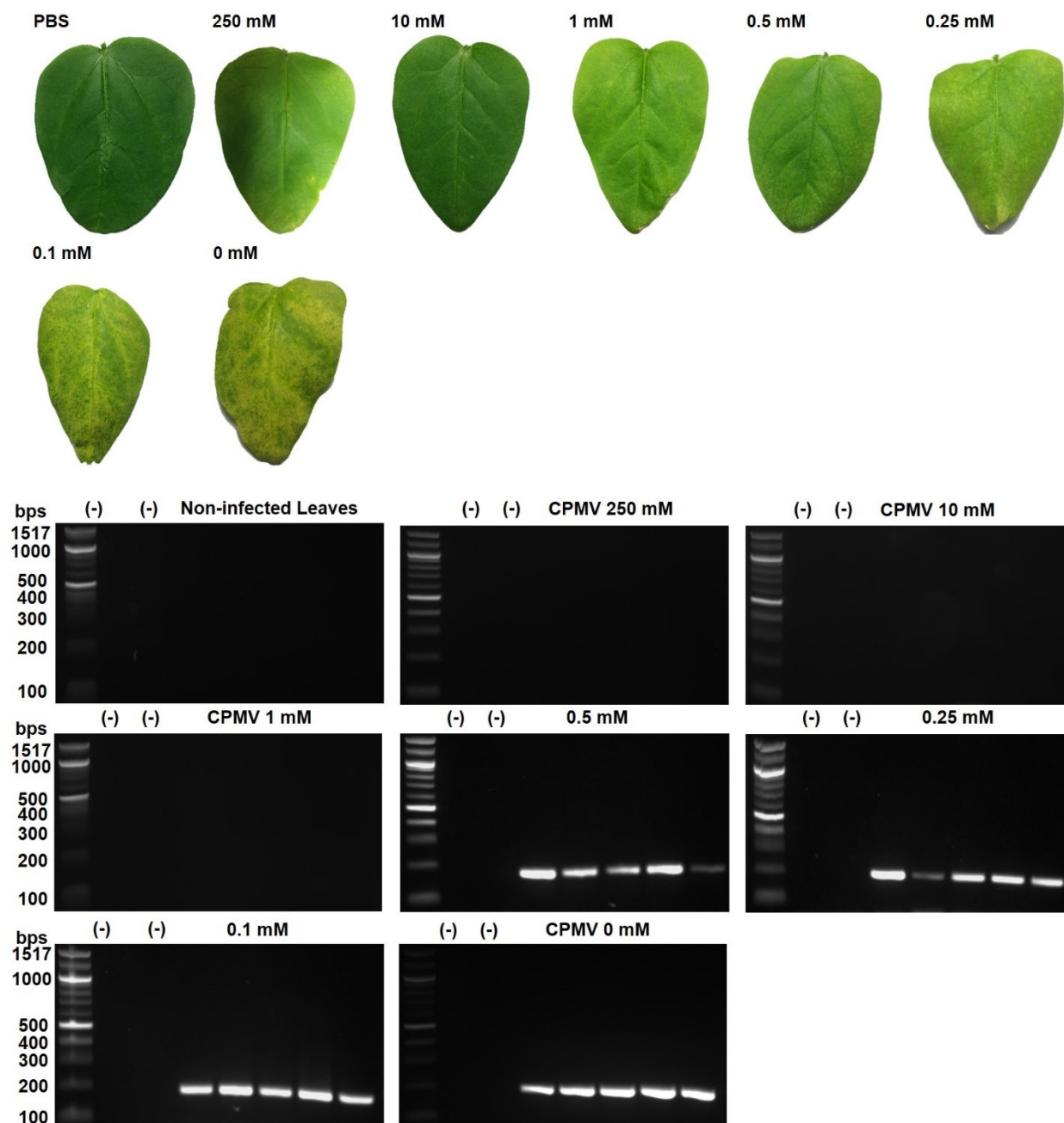
Supporting Figure S8. Visual symptoms of UV-CPMV infection on black-eyed peas leaves, and corresponding RT-PCR amplicons.



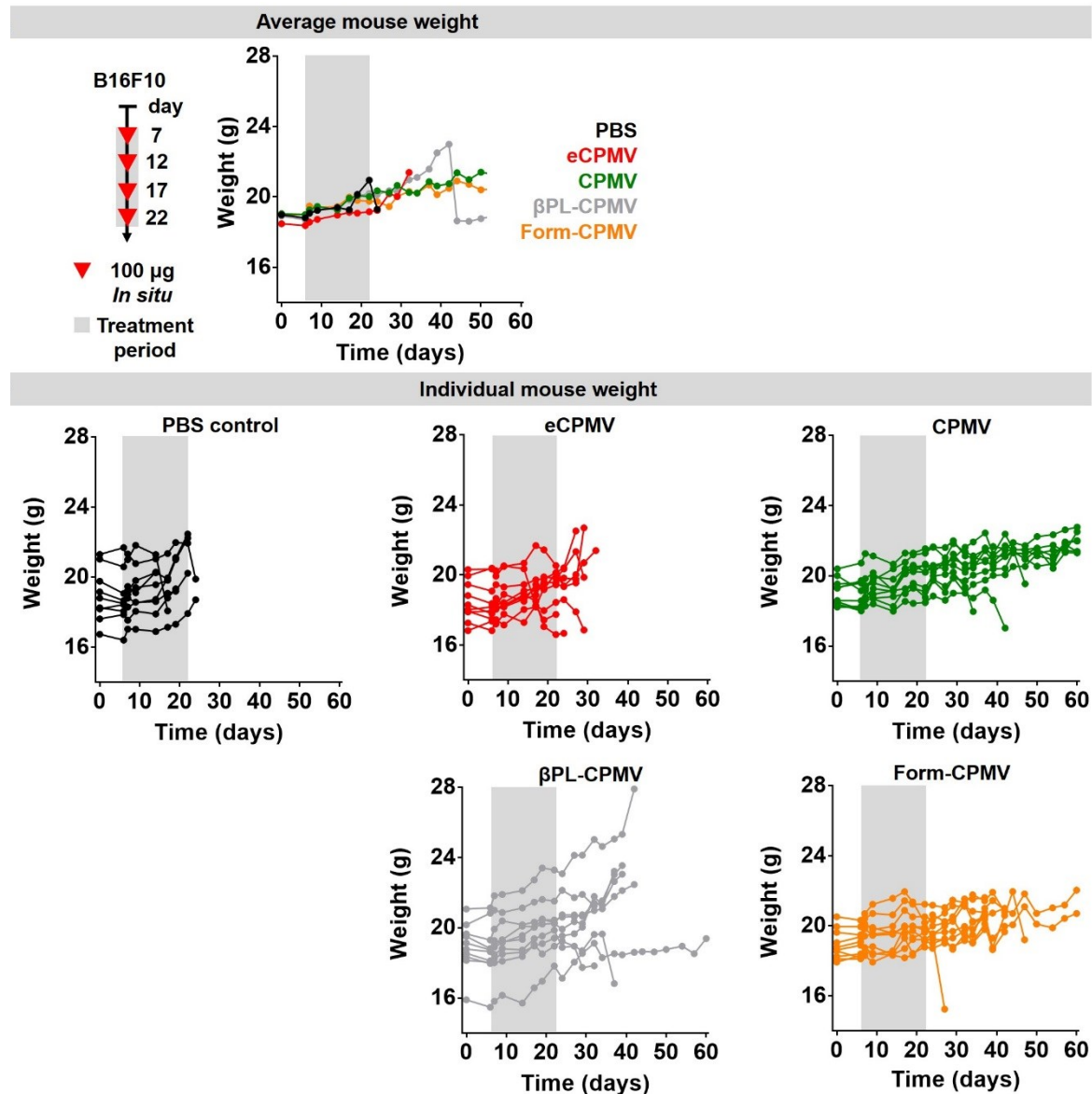
Supporting Figure S9. Visual symptoms of UV-CPMV infection on black-eyed peas leaves (bottom), and corresponding RT-PCR amplicons (top). Here the UV light dose was kept consistent (7.5 J.cm^{-2}) and the CPMV concentration was varied: 1, 2, 5 and 10 mg.mL^{-1} CPMV in a total volume of 1 mL. UV is a reagent; when concentrations are increased dose must be increased to maintain inactivation.



Supporting Figure S10. Visual symptoms of β PL-CPMV infection on black-eyed peas leaves, and corresponding RT-PCR amplicons.



Supporting Figure S11. Visual symptoms of β PL-CPMV infection on black-eyed peas leaves, and corresponding RT-PCR amplicons.



Supporting Figure S12. Mouse weight. Average mouse weight of each treatment group (top panel), (B) Corresponding individual mouse weight in each treatment group (bottom panel).