Electronic Supporting Information

Production of a promising modular proteinaceous self-assembled delivery system for vaccination

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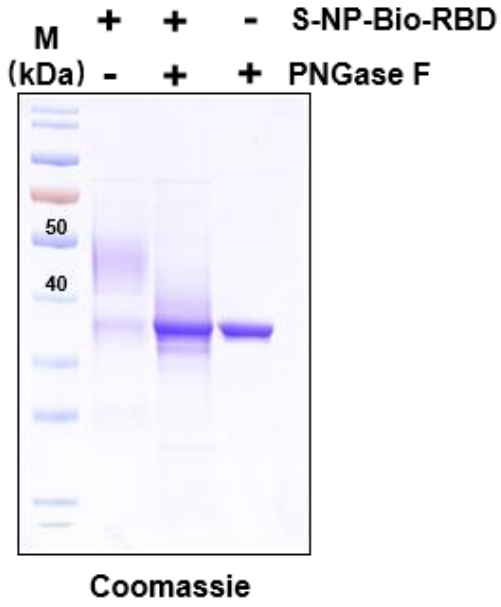

Fig. S1 SDS-PAGE analysis of S-NP that was incubated with or without PNGase F.

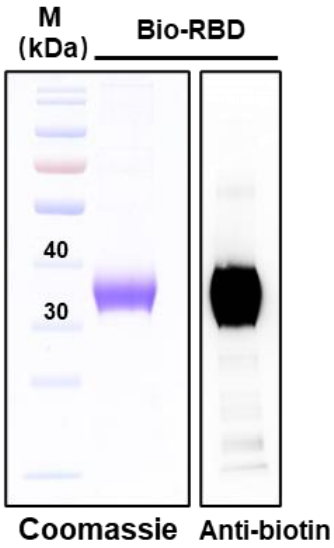

Fig. S2 Bio-RBD was analyzed by Coomassie blue staining and western blotting using HRP-labeled streptavidin (SA) after SDS-PAGE separation.

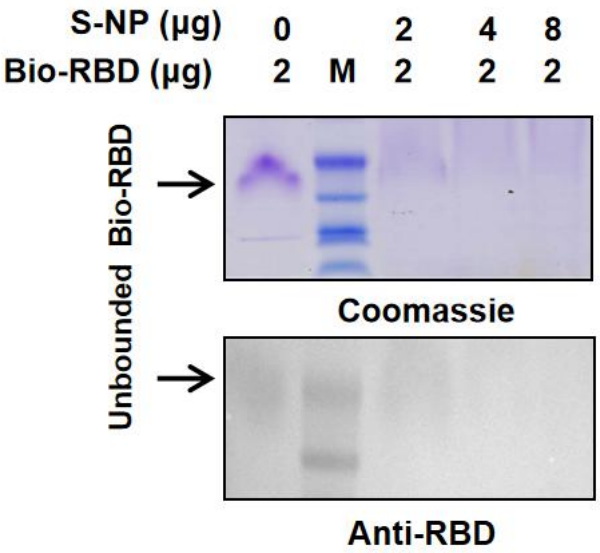

Fig. S3 Analysis of the binding between S-NP and Bio-RBD under different proportions after incubation at 37°C for 1 h by Coomassie blue staining and western blotting (M: marker).

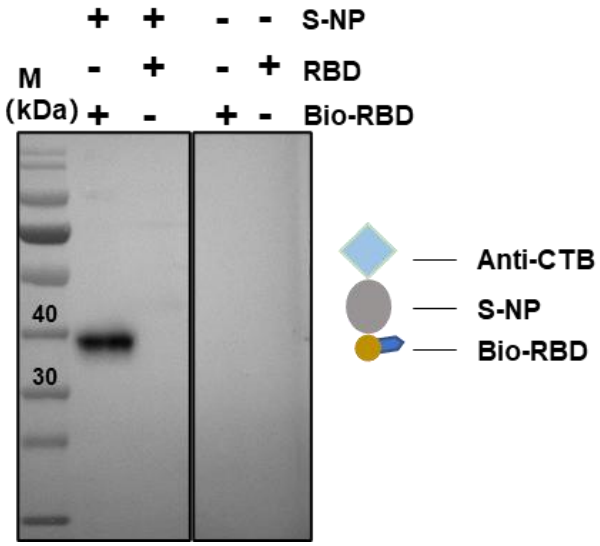

Fig. S4 RBD and Bio-RBD were separated by SDS-PAGE individually, and then transferred to PVDF membranes. After incubation with S-NP and buffer at 37 °C for one hour, the two membranes were incubated with anti-CTB antibody and HRP-labeled secondary antibody successively to analyze the connection of Biotin and mSA.

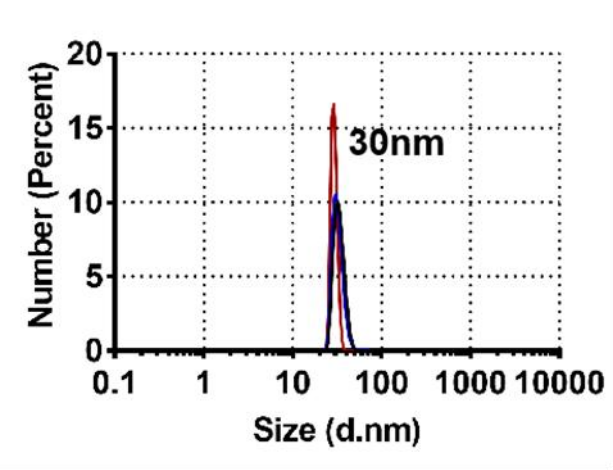

Fig. S5 S-NP-Bio-RBD was analyzed by DLS.

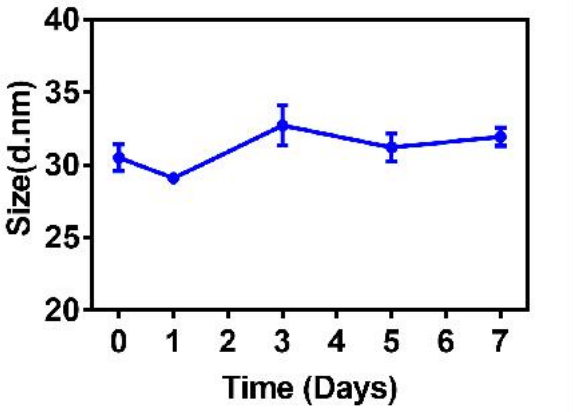

Fig. S6 Stability analysis of S-NP-Bio-RBD. S-NP-Bio-RBD solution was detected by DLS when incubated at 37 °C for different time periods.

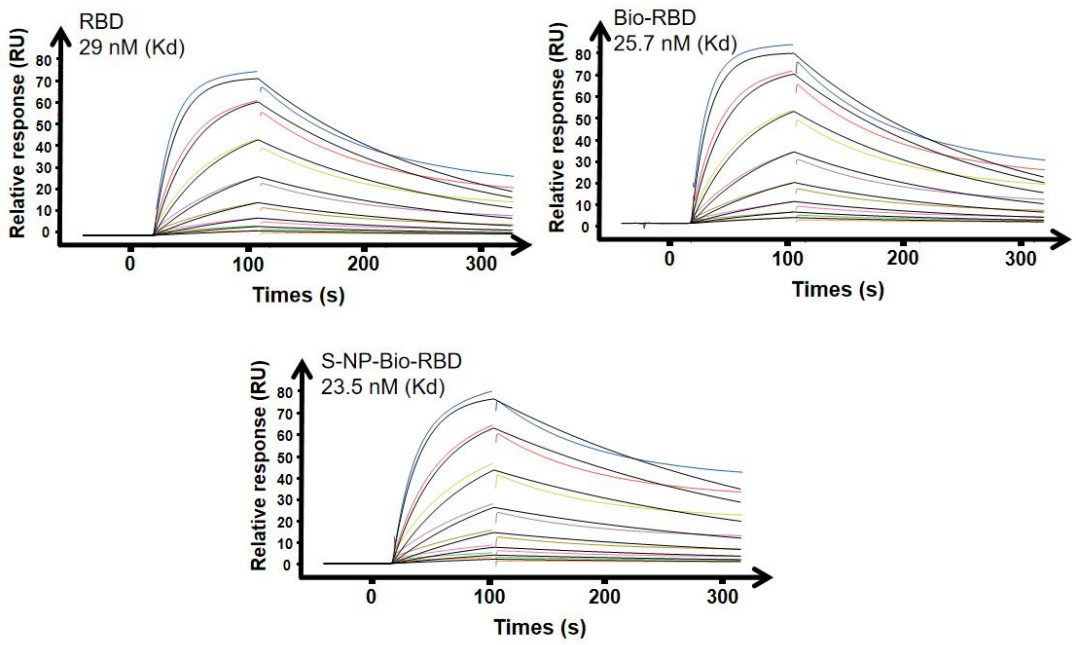

Fig. S7. Measurement of affinity between ACE2 and RBD, Bio-RBD and S-NP-Bio-RBD by surface plasmon resonance. Different color lines indicate the different concentrations of RBD.

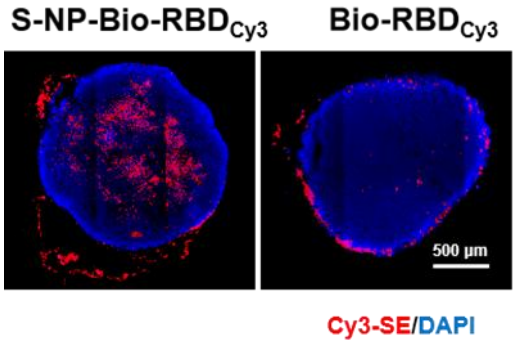

Fig. S8 Cy3-labeled Bio-RBD (Bio-RBD_{Cy3}) was coupled with S-NP (S-NP-Bio-RBD_{Cy3}). Balb/c mice were subcutaneously injected with S-NP-Bio-RBD_{Cy3} or Bio-RBD_{Cy3}, and immunofluorescence was performed to analyze the accumulation of antigen in dLNs 24 h after immunization.

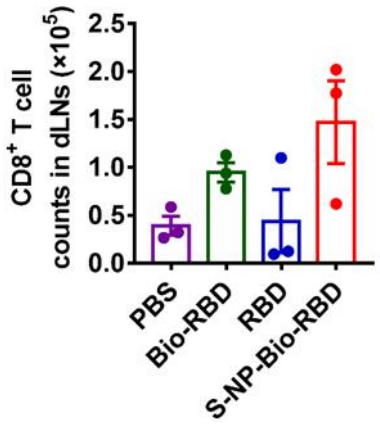

Fig. S9 CD8+ T cell counts in dLNs three days after vaccination (n = 3).

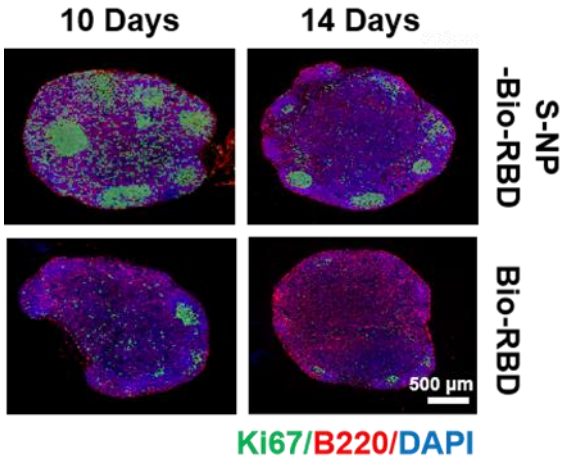

Fig. S10 Immunofluorescence was performed to analyze the formation of germinal center in dLNs at different time points. Bar = 500 μm.

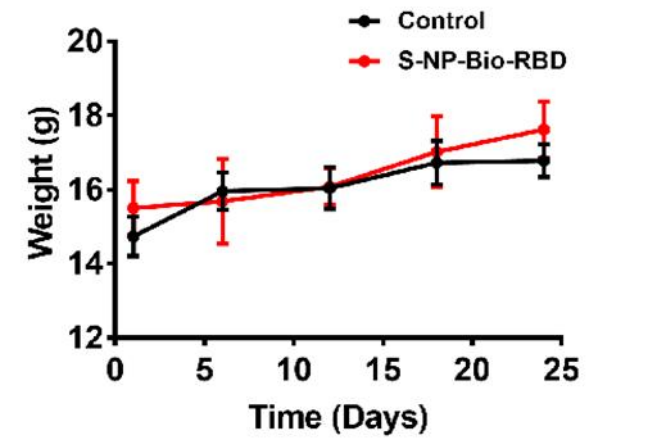

Fig. S11 Body weight of the mice was measured after immunization with S-NP-Bio-RBD (25 μg RBD per mouse) for one month.

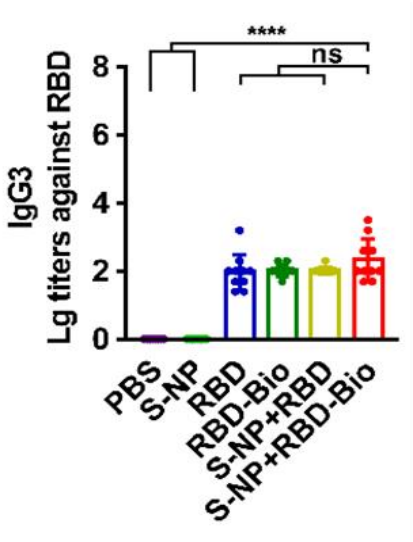

Fig. S12 IgG3 titers against RBD were measured in the serum of Balb/c mice immunized with S-NP, RBD, Bio-RBD, S-NP+RBD, and S-NP-Bio-RBD after the third immunization. **** $p < 0.0001$, ns: no significant.