

Supporting information

A Responsive Cocktail Nano-strategy Breaking the Immune Excluded State Enhances Immunotherapy of Triple Negative Breast Cancer

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This files includes:

Figure S1 to S15

This SI includes:

UV-vis absorption spectra, elemental mapping, ¹HNMR spectra, zeta potential, particle size determined by DLS, stability evaluation in different mediums, TEM images, cell viabilities in different treatment groups, uptake behavior, expression of **p-TBK1**, p-IRF3 and PD-L1 in 4T1 cells, hematological indicators *in vivo*, and the H&E staining images of main organs.

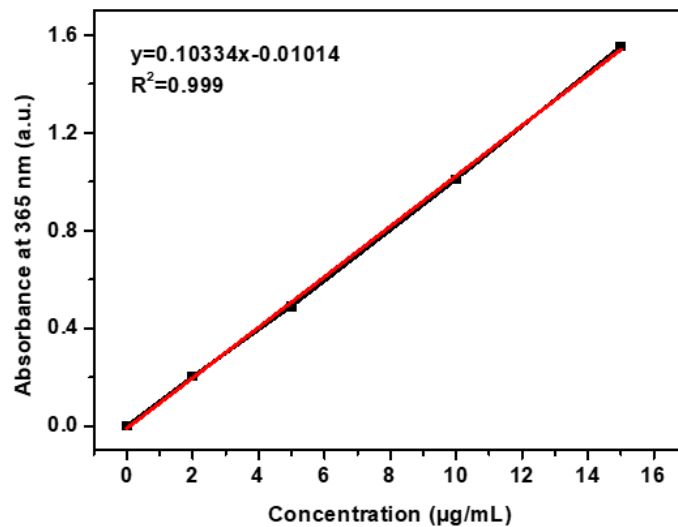


Figure S1. Standard curve of UV-vis absorption against LST.

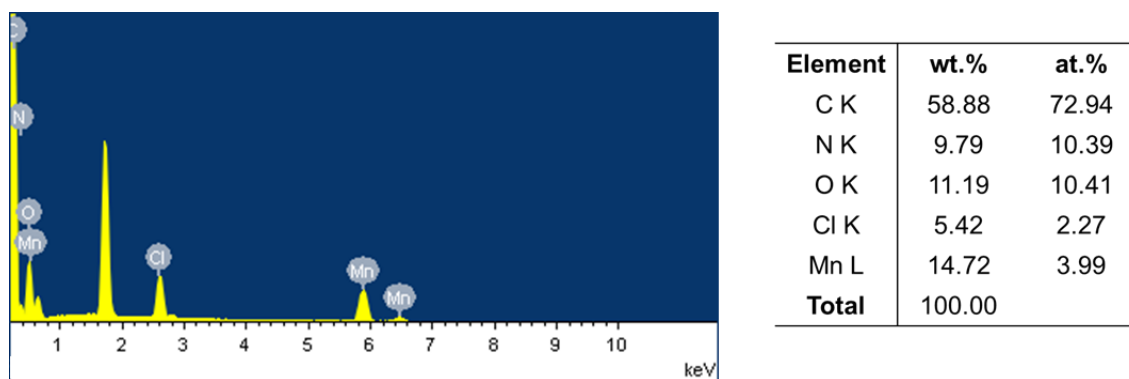


Figure S2. Elemental mapping of MCL.

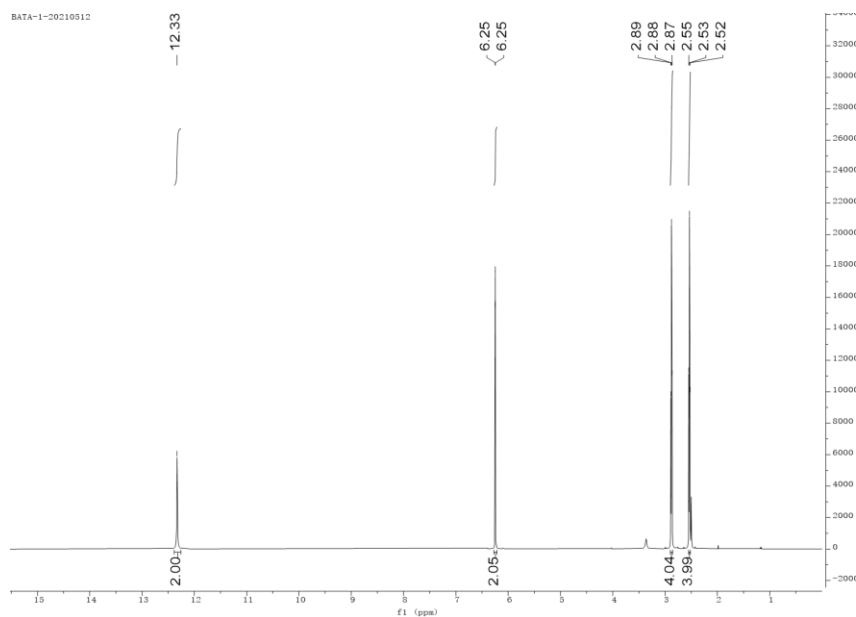


Figure S3. ¹H NMR spectra of BATA.

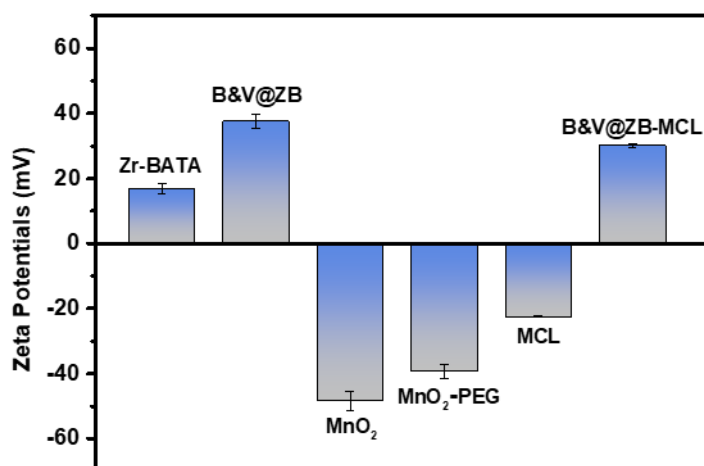


Figure S4. Zeta potential of Zr-BATA, B&V@ZB, MnO₂, MnO₂-PEG, MCL, and B&V@ZB-MCL.

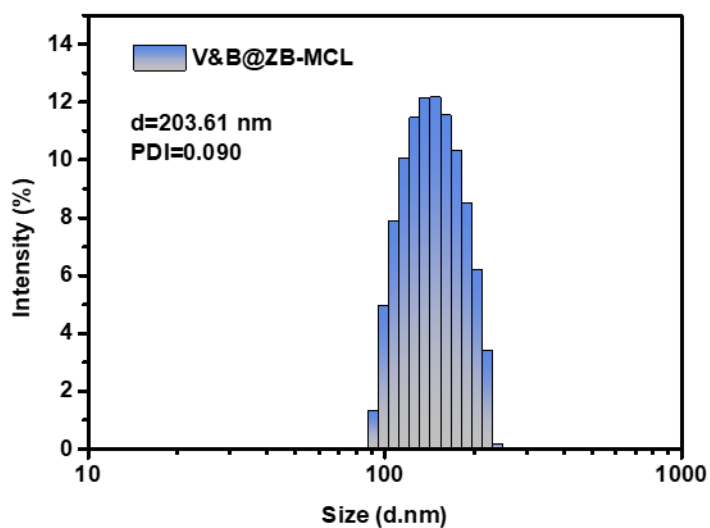
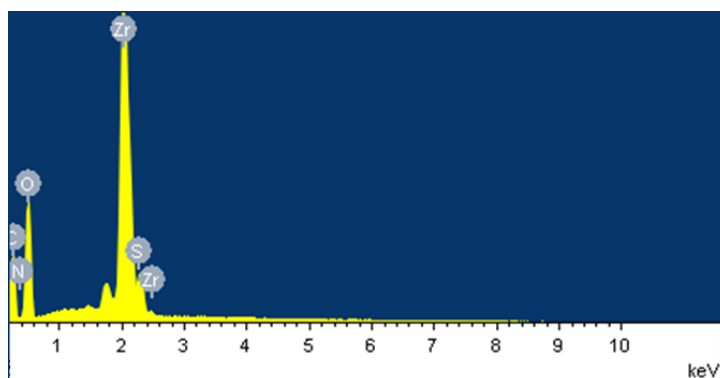


Figure S5. Particle size of B&V@ZB-MCL determination by DLS.



Element	wt.%	at.%
C K	21.06	47.21
N K	0.87	1.68
O K	18.70	31.48
S K	3.86	3.24
Zr L	55.51	16.39
Total	100.00	

Figure S6. Elemental mapping of B&V@ZB.

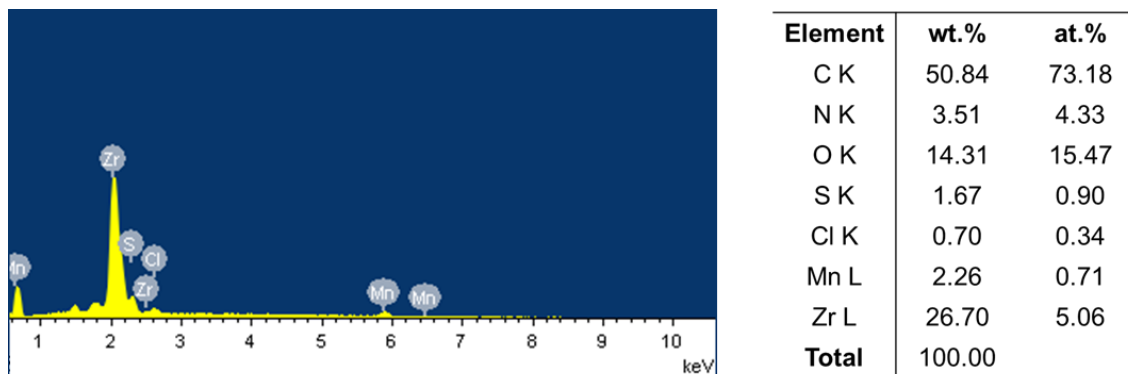


Figure S7. Elemental mapping of B&V@ZB-MCL.

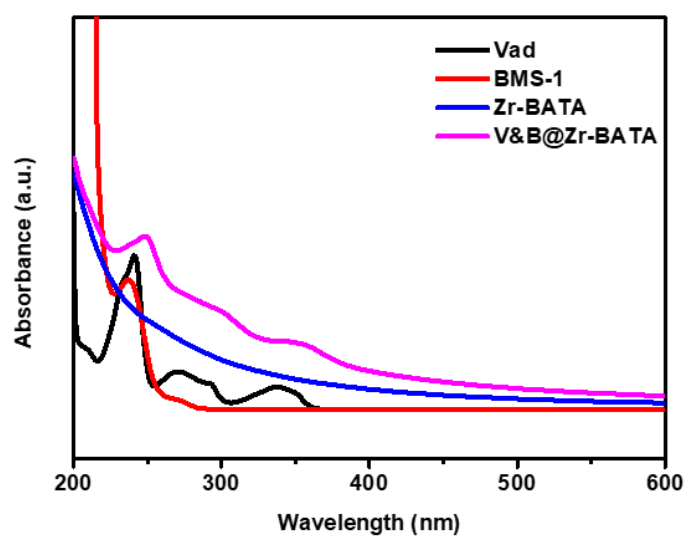


Figure S8. UV-vis absorption spectra of Vad, BMS-1, Zr-BATA, B&V@ZB.

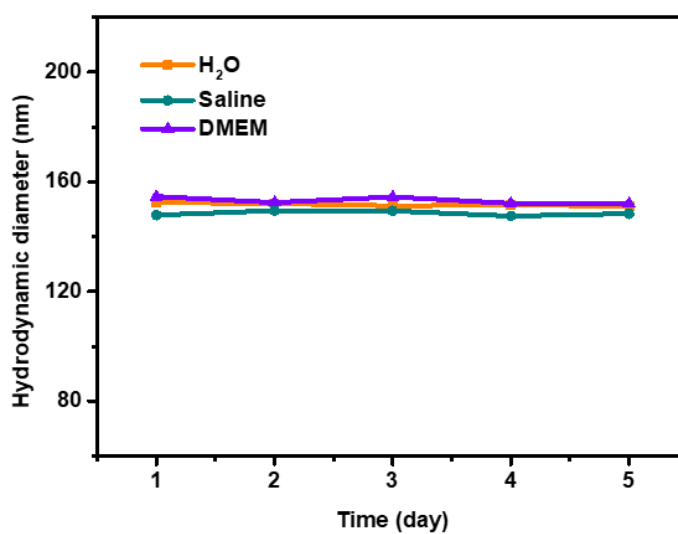


Figure S9. Stability evaluation of B&V@ZB-MCL in different mediums for 5 days.

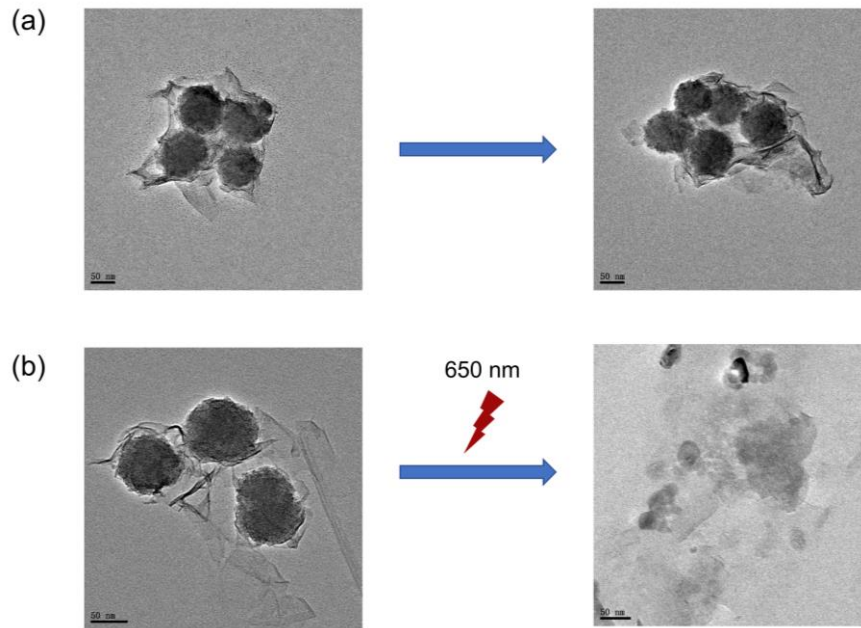


Figure S10. (a) TEM images of B&V@ZB-MCL without laser irradiation. (b) TEM images of B&V@ZB-MCL before and after 650 nm laser irradiation.

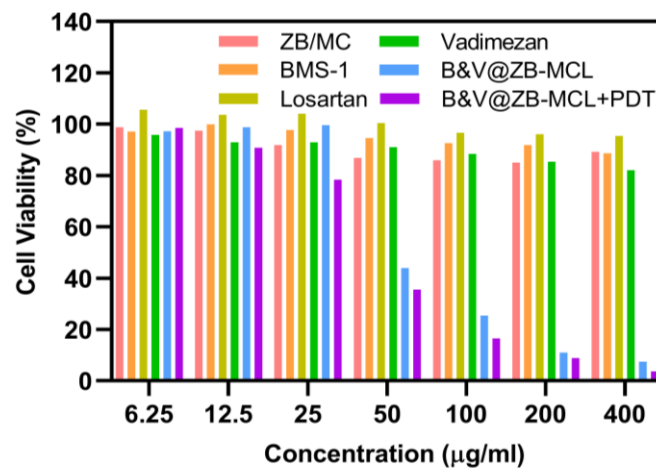


Figure S11. Cell viabilities tested by standard CCK-8 assay.

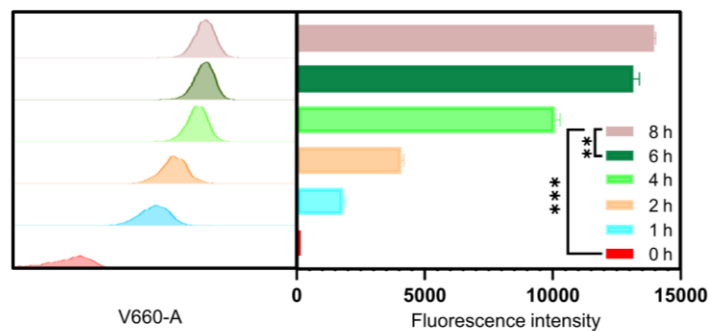


Figure S12. Uptake behavior at different time point.

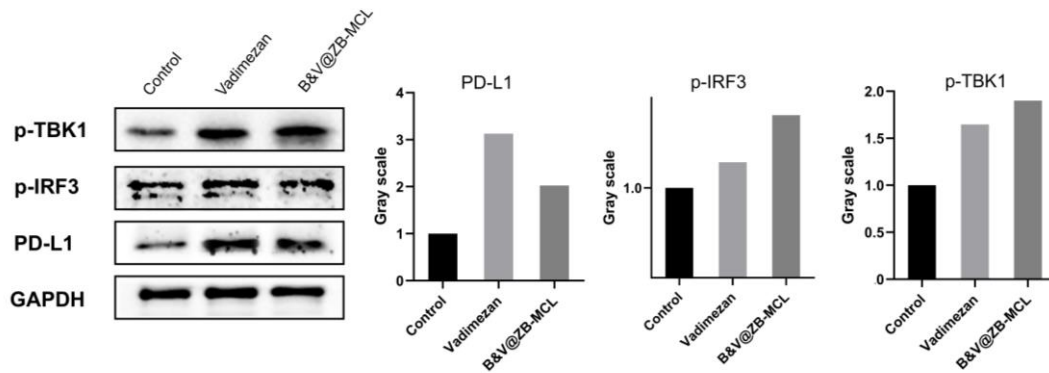


Figure S13. Western blot detecting expression of p-TBK1, p-IRF3 and PD-L1 in 4T1 cells with different treatments and quantitative analysis results of grayscale values.

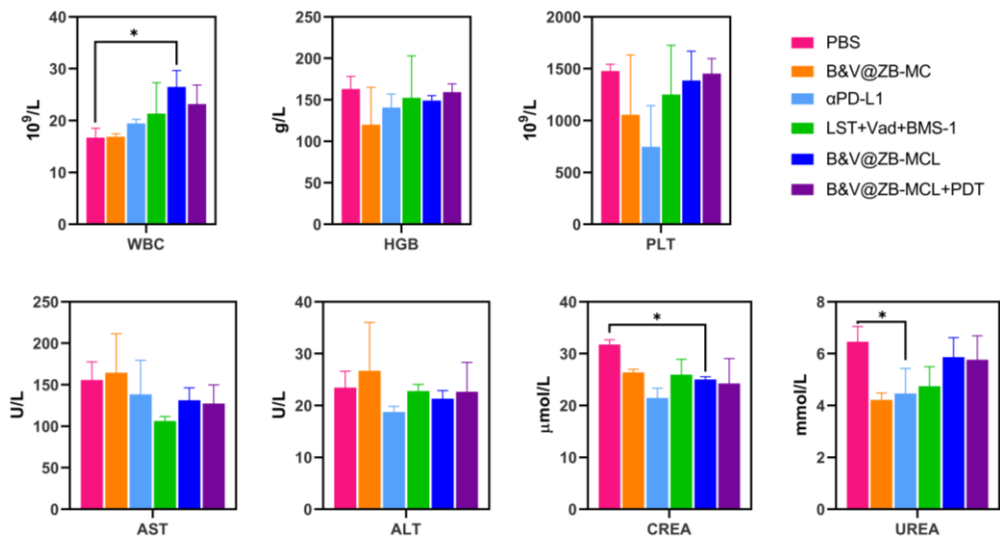


Figure S14. Hematological indicators. WBC: white blood cells. HGB: hemoglobin. PLT: platelet. AST: aspartate aminotransferase. ALT: alanine aminotransferase. CREA: creatinine. UREA: blood urea nitrogen.

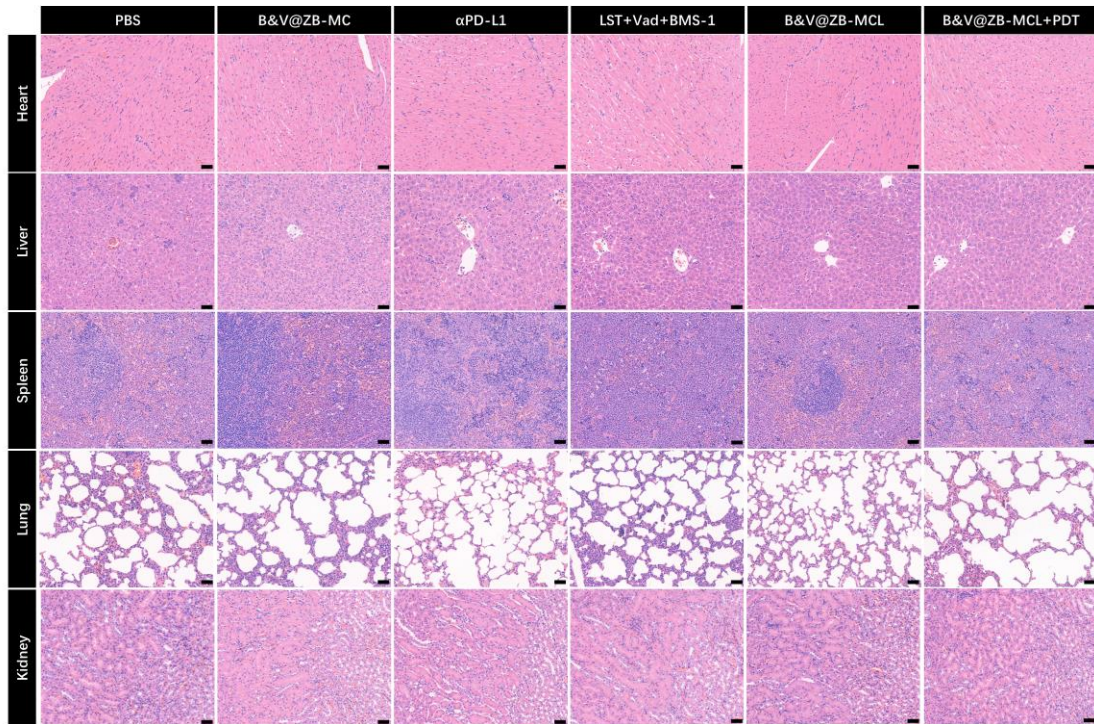


Figure S15. H&E staining images of main organs excised from mice in different treatment groups. (Scale bar: 50 μ m)