## Supporting information for

## PET Imaging Facilitates Antibody Screening for Synergistic Radioimmunotherapy with a <sup>177</sup>Lu-labeled αPD-L1 Antibody

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**Figure S1:** Synthesis and radiolabeling of  $^{89}$ Zr-DFO- $\alpha$ PD-L1.



**Figure S2:** Biodistribution of  ${}^{89}$ Zr-DFO-Y001 (A) and  ${}^{89}$ Zr-DFO-Y002 (B) in MC38 tumor bearing mice at 24 and 96 h post injection (n= 4).



**Figure S3:** Stability experiment of <sup>177</sup>Lu-DOTA-Y003 after incubation in PBS for 168 h.



Figure S4: Immunofluorescence for PD-L1 expression in 4T1and MC38 cell lines.



**Figure S5.** Representative H&E staining of major organ tissues from mice with the indicated treatments (n = 3/group).