

Electronic Supplementary Information

A multi-effective and long-acting immunotherapy through one single hydrogel based injection

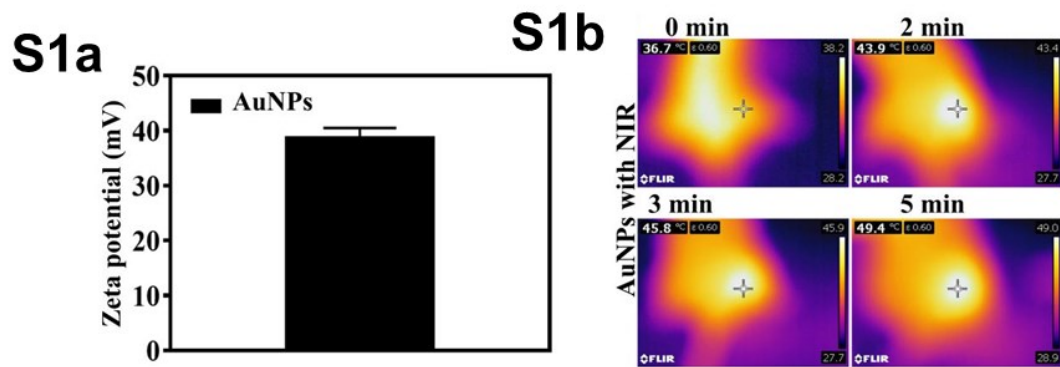
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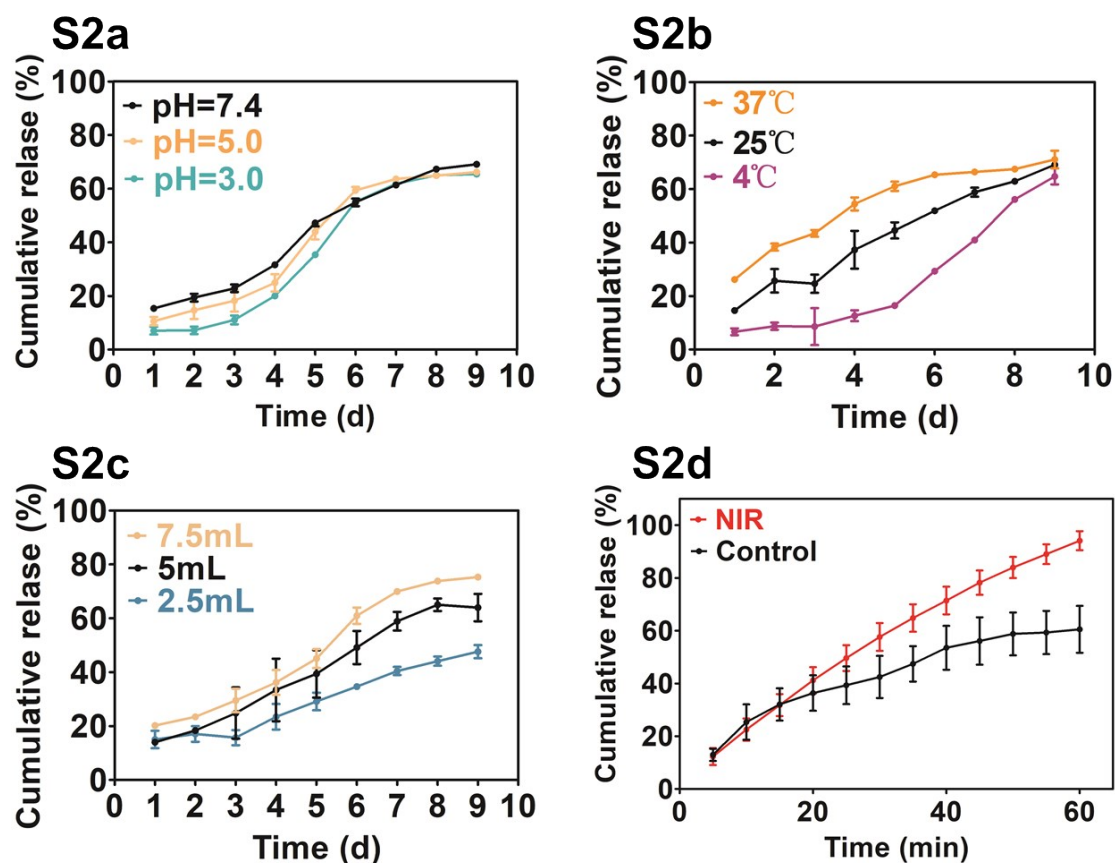
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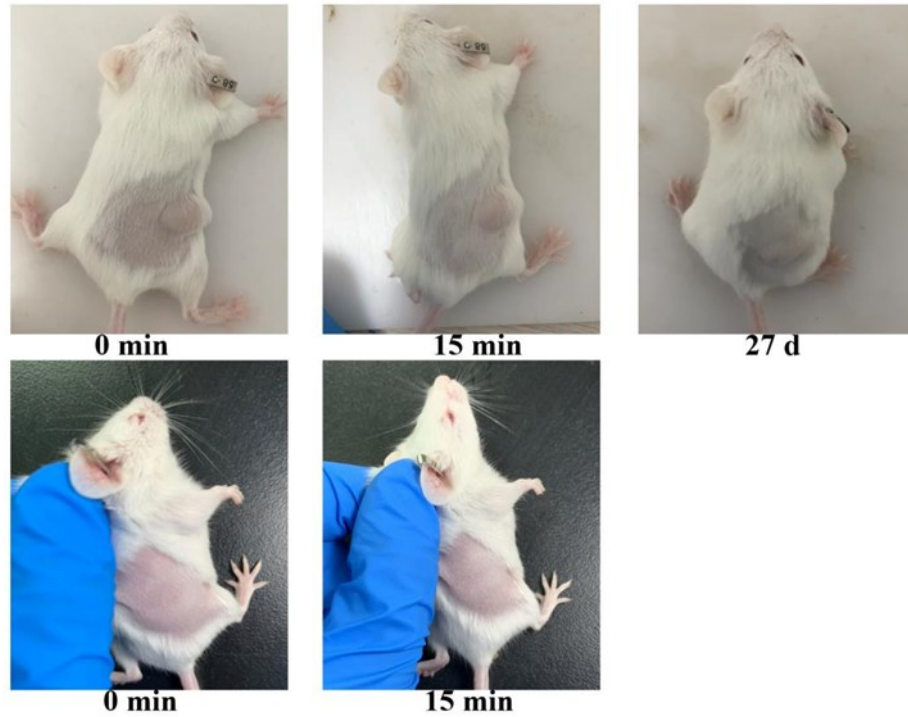


Supplementary Figure 1. (a) Zeta potential of AuNPs. (b) Infrared thermography of AuNPs with NIR.



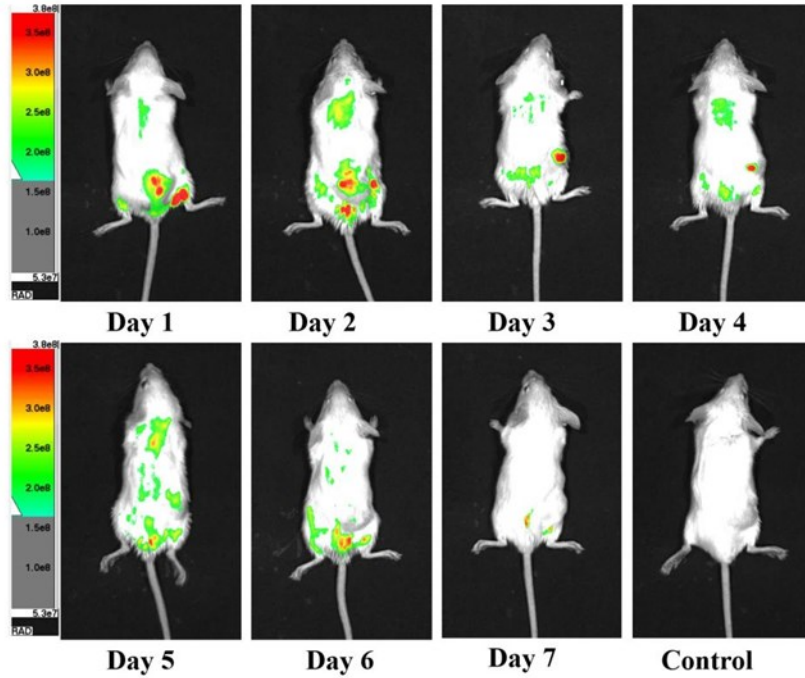
Supplementary Figure 2. *In vitro* cumulative release of ethinyloestradiol from the sodium alginate hydrogel under different conditions. (a) The cumulative release of ethinyloestradiol from the sodium alginate hydrogel at different pH. (b) The cumulative release of ethinyloestradiol from the sodium alginate hydrogel at different temperature. (c) The cumulative release of ethinyloestradiol from the different volume of sodium alginate. (d) The cumulative release of ethinyloestradiol from the sodium alginate hydrogel under NIR irradiation or not.

S3



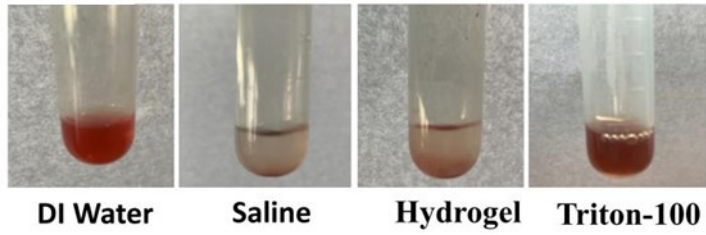
Supplementary Figure 3. Photos of mice after injection of saline and hydrogel.

S4

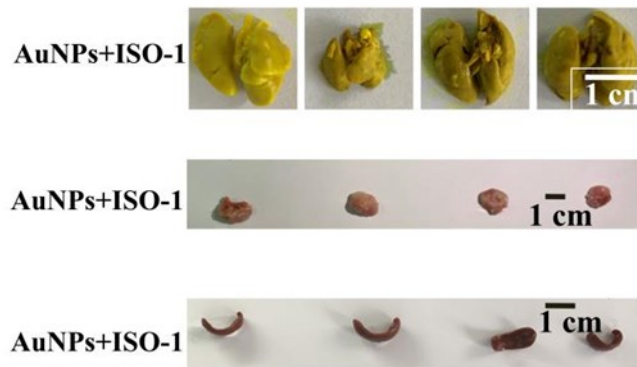


Supplementary Figure 4. Schematic of *in vivo* imaging of mice.

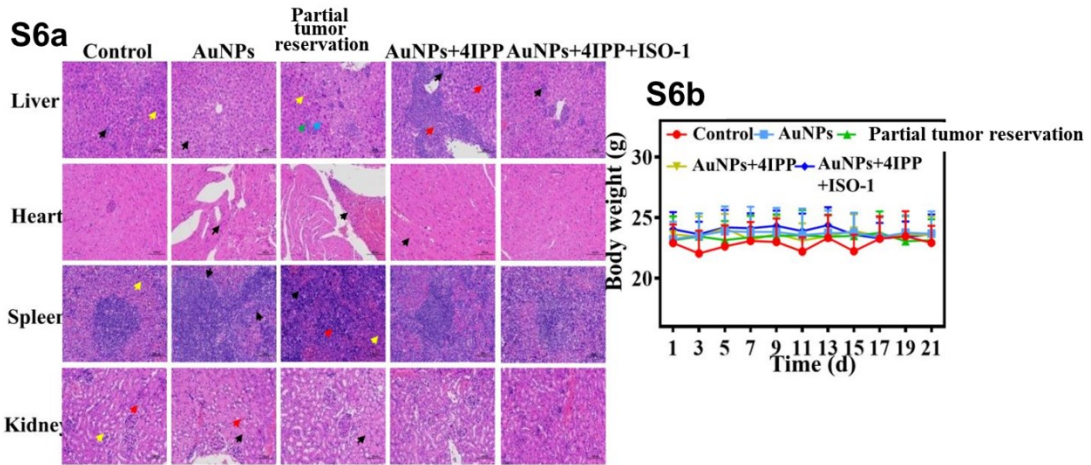
S5a



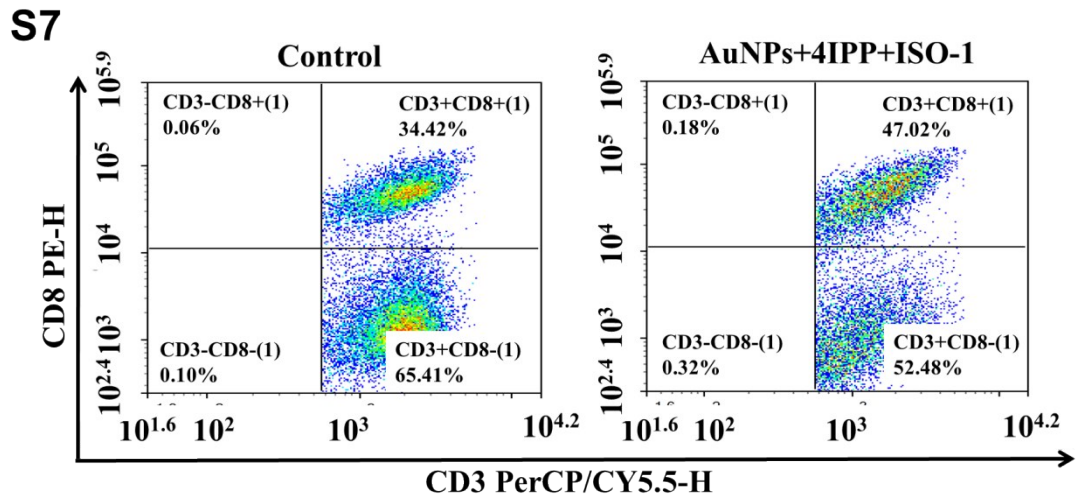
S5b



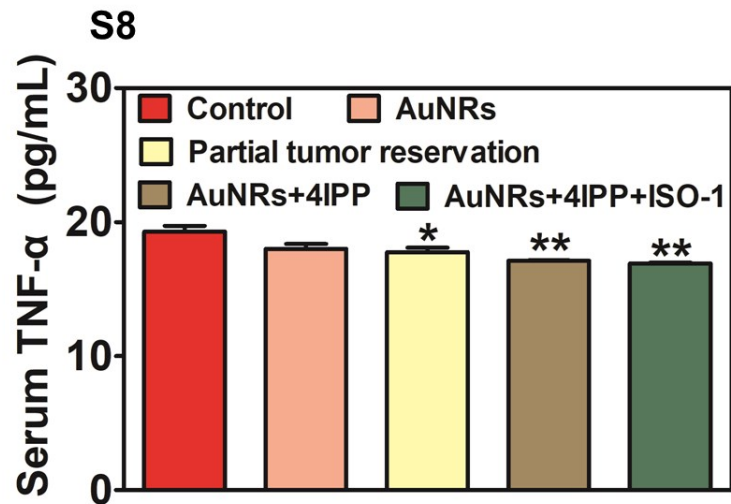
Supplementary Figure 5. (a) Schematic diagram of hydrogel hemolysis rate experiment. (b) Lung, spleen, tumor image of gold nanorods combined with ISO-1 group.



Supplementary Figure 6. (a) HE staining of liver, heart, spleen and kidney tissues. (b) Schematic of mice weight.



Supplementary Figure 7. Representative flow cytometry plots of CD8⁺ T cells infiltrating into the tumor.



Supplementary Figure 8. The secretion of TNF- α in the serum of mice.