Supplementary Information

Shielding against Breast Tumor Relapse with an Autologous Chemo-Photo-Immune active Nano-Micro-Sera based Fibrin Implant

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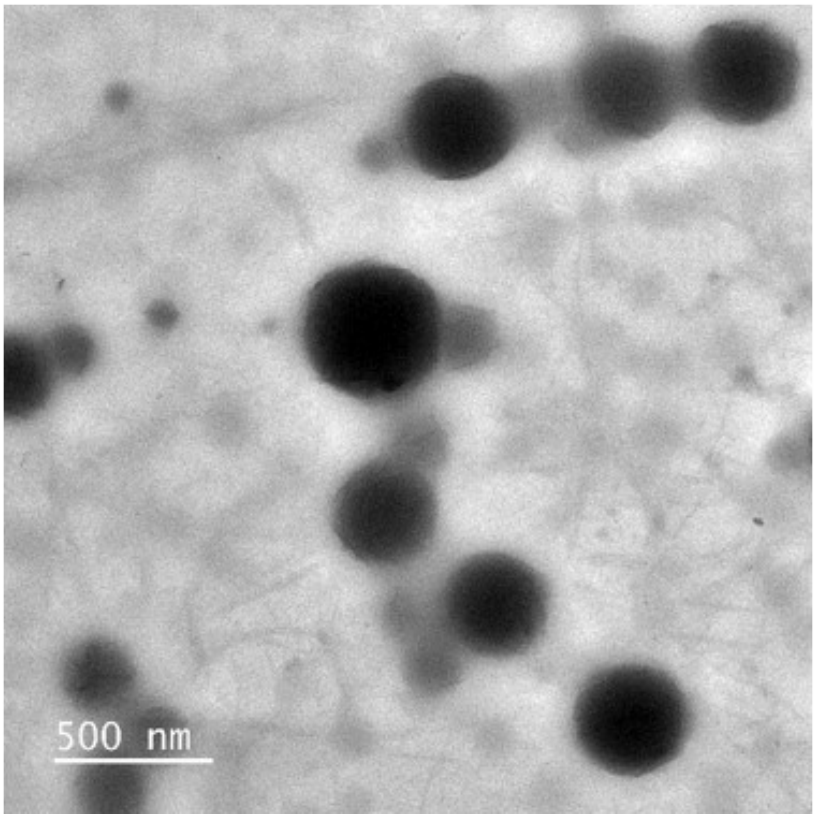
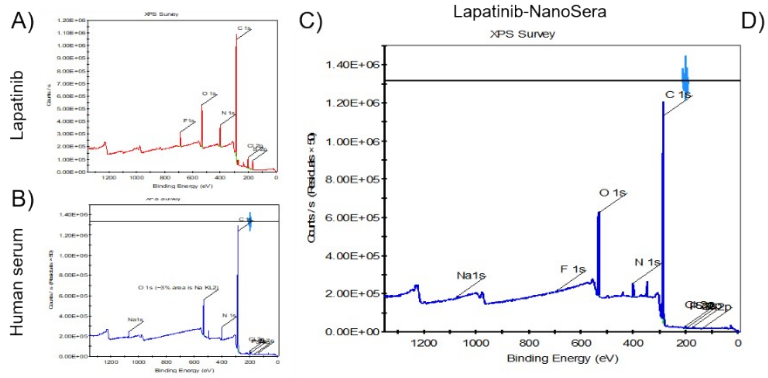


Figure S1. Low magnification TEM image of Lap-NS



D)

	Lapatinib	Human serum	Lapatinib-NanoSera
Name	Atomic %	Atomic %	Atomic %
S 2p	2.42	0.29	0.42
Cl 2p	2.44	0.92	0.47
C 1s	72.93	79.63	78.7
N 1s	9.05	5.55	3.38
O 1s	10.91	11.99	16.17
F1s	2.24	-	0.29
P 2p	-	0.89	0.4
Na1s	-	0.73	0.18

Figure S2: XPS survey of A) Lapatinib, B) human serum, C)Lapatinib-NanoSera and D) Table for atomic % of different elements.

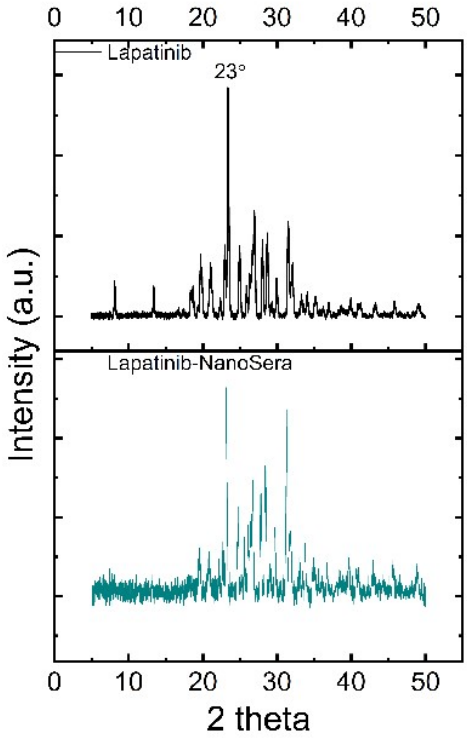


Figure S3: X-Ray diffraction pattern of Lapatinib and Lapatinib-NanoSera.

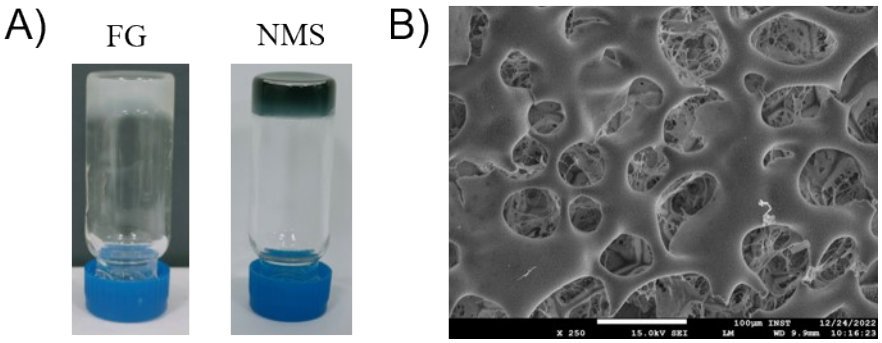


Figure S4: a) Fibrin glue (FG) without and with NMS embedded b) FESEM of FG.

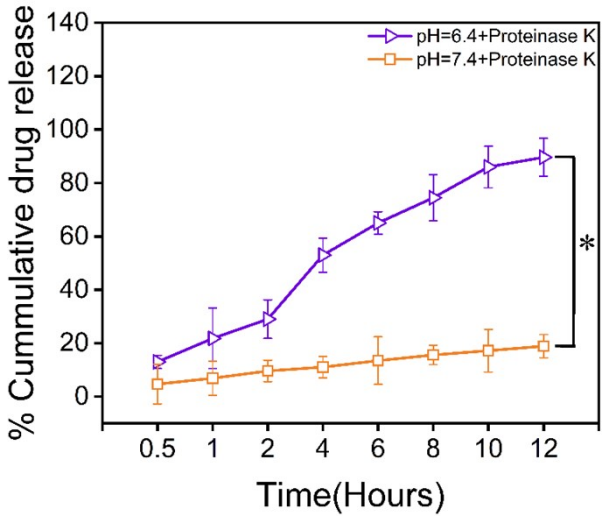


Figure S5: Percentage cumulative drug release of Imiquimod-Microsera(IMQ-MS) at pH=6.4 and pH=7.4 in the presence of proteinase K.

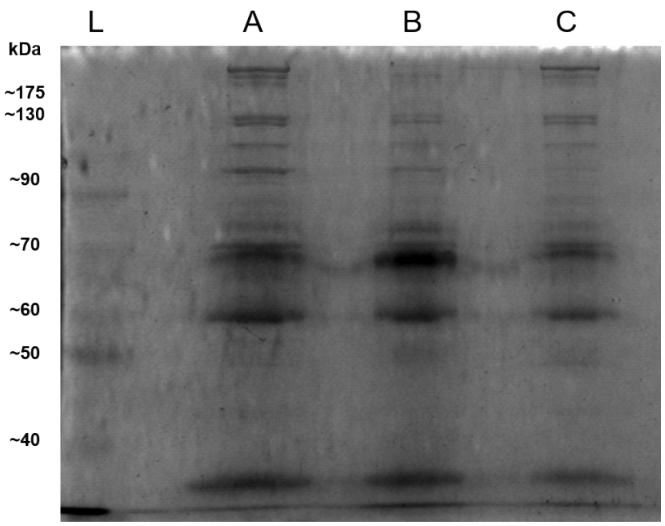


Figure S6: SDS-PAGE analysis of serum retrieved from Lap-NS synthesized from donor A, B and C (L-ladder)

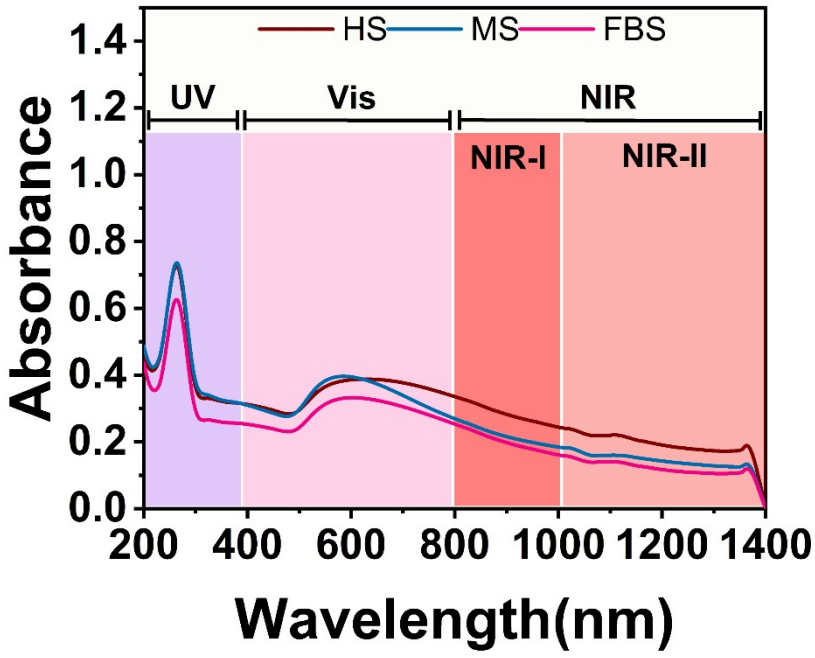


Figure S7: UV-Vis-NIR extinction spectra of PNS synthesized with different serum sources (HS-Human serum, MS-Mouse serum and FBS-Fetal bovine serum).

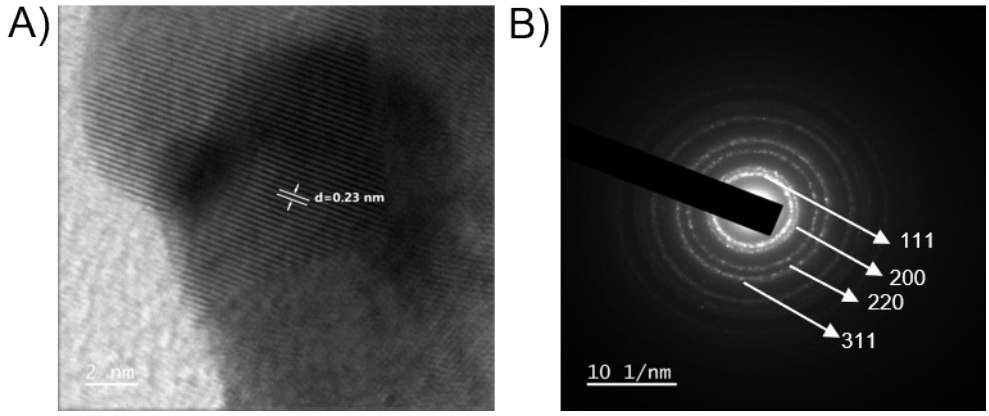


Figure S8: A) HRTEM image of PNS showing 0.23 nm fringe spacing B) SAED pattern of PNS.

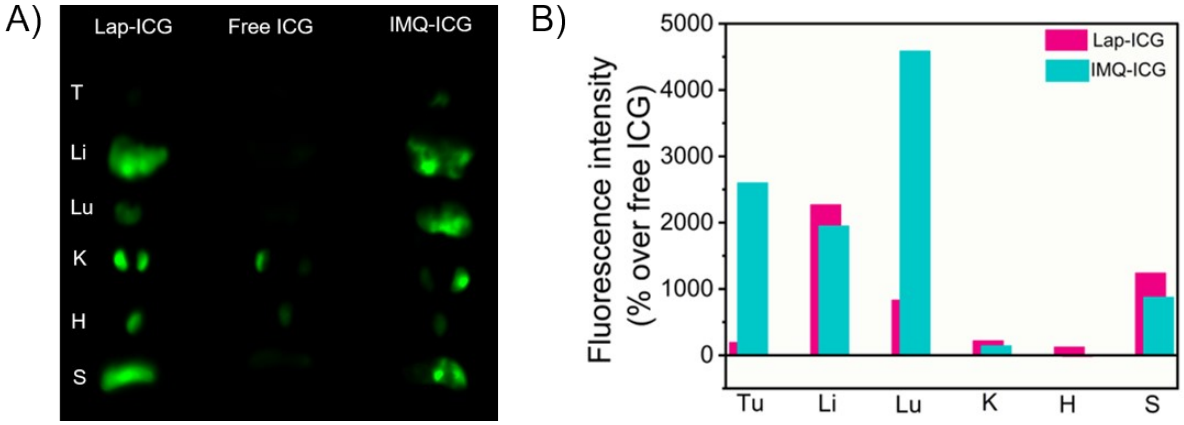


Figure S9: A) Ex vivo fluorescence imaging of major organs from Lapatinib-NanoSera tagged with ICG (Lap-ICG), Free ICG and Imiquimod-MicroSera tagged with ICG (IMQ-ICG). T, Li, Lu, K, H and S stands for Tumor, Liver, Lung, Kidney, Heart and Spleen respectively B) Fluorescence intensity of Free-ICG, Lap-ICG and IMQ-ICG calculated from imagej.

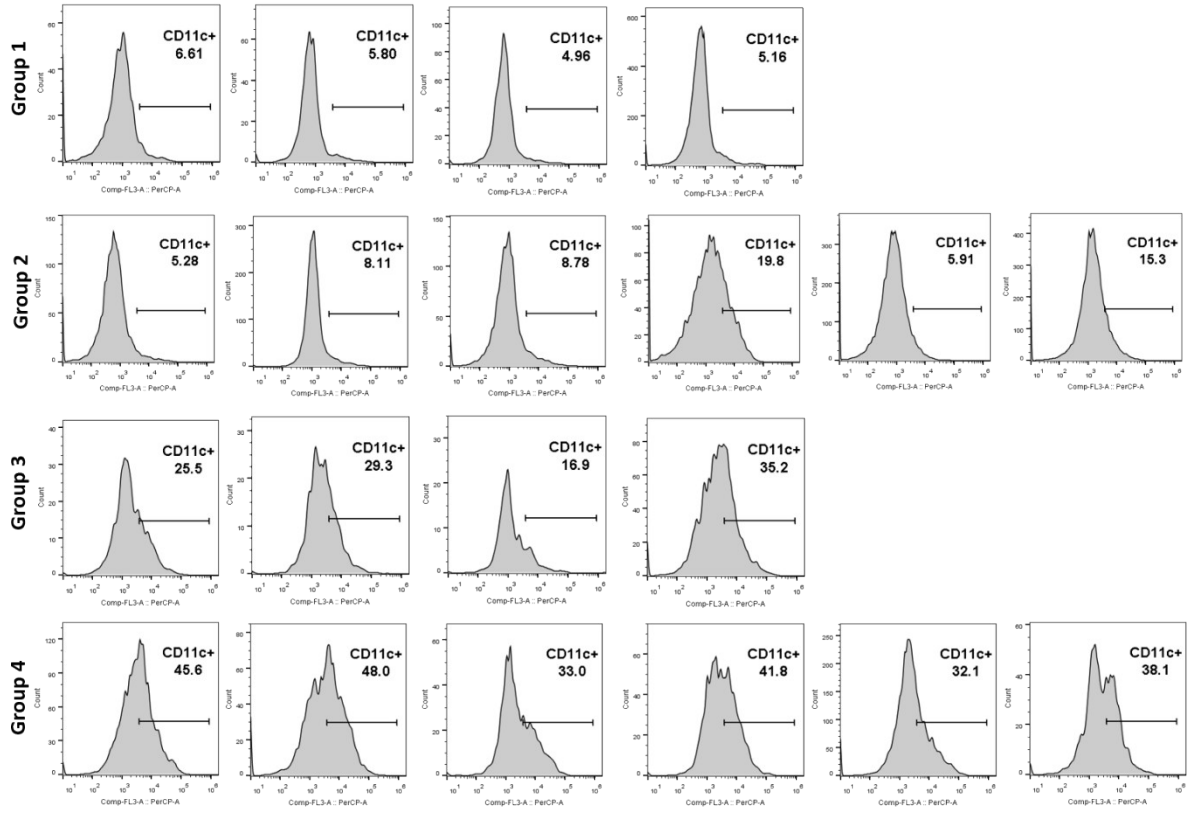


Figure S10: Representative flow cytometry plots of $CD11c^{+}$ in Group1-FG, Group 2-Lap+PNSL-FG, Group 3-IMQ-MS-FG and Group 4-NMS

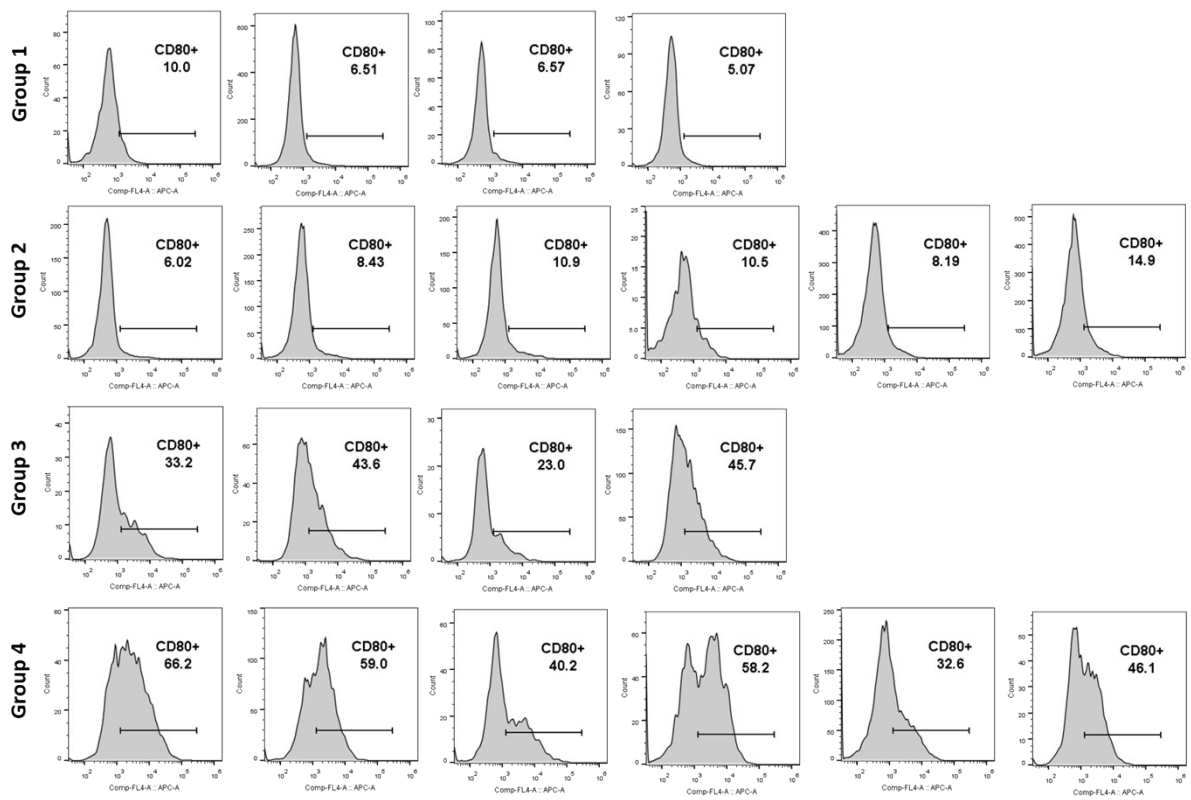


Figure S11: Representative flow cytometry plots of $CD80^{+}$ in Group1-FG, Group 2-Lap+PNSL-FG, Group 3-IMQ-MS-FG and Group 4-NMS

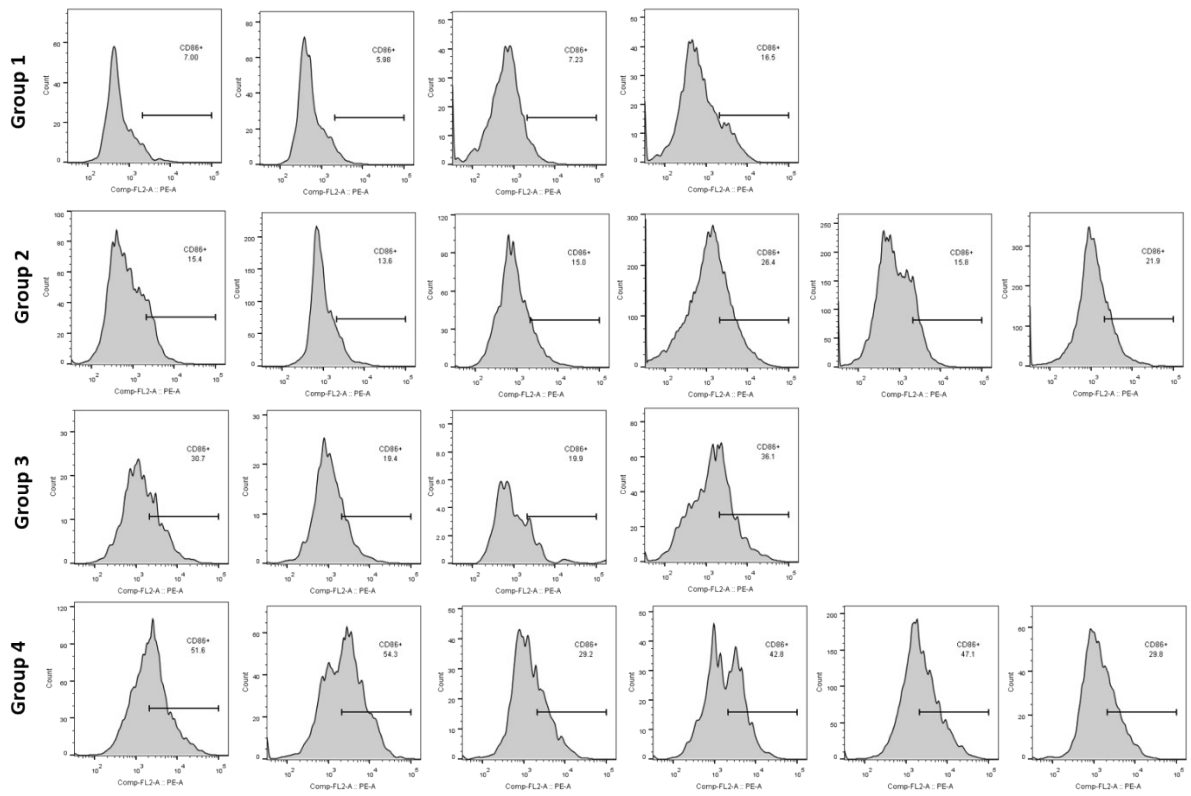


Figure S12: Representative flow cytometry plots of $CD86^{+}$ in Group1-FG, Group 2-Lap+PNSL-FG, Group 3-IMQ-MS-FG and Group 4-NMS.

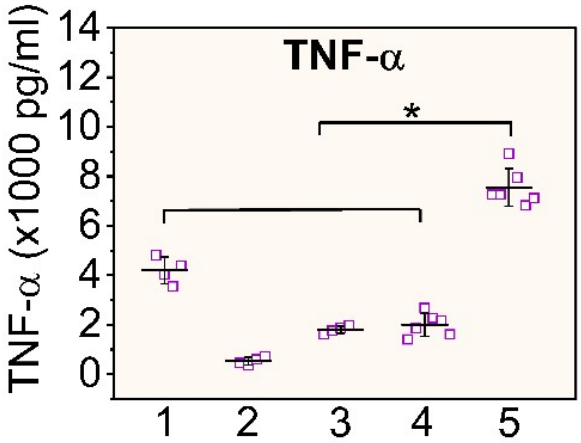


Figure S13: Serum TNF-α levels at day-3 post treatment (1-FG, 2-Lap+PNSL-FG, 3-IMQ-MS-FG, 4-NMS-FG, 5-Control) (n = 4 to 6), *$p \leq 0.05$.

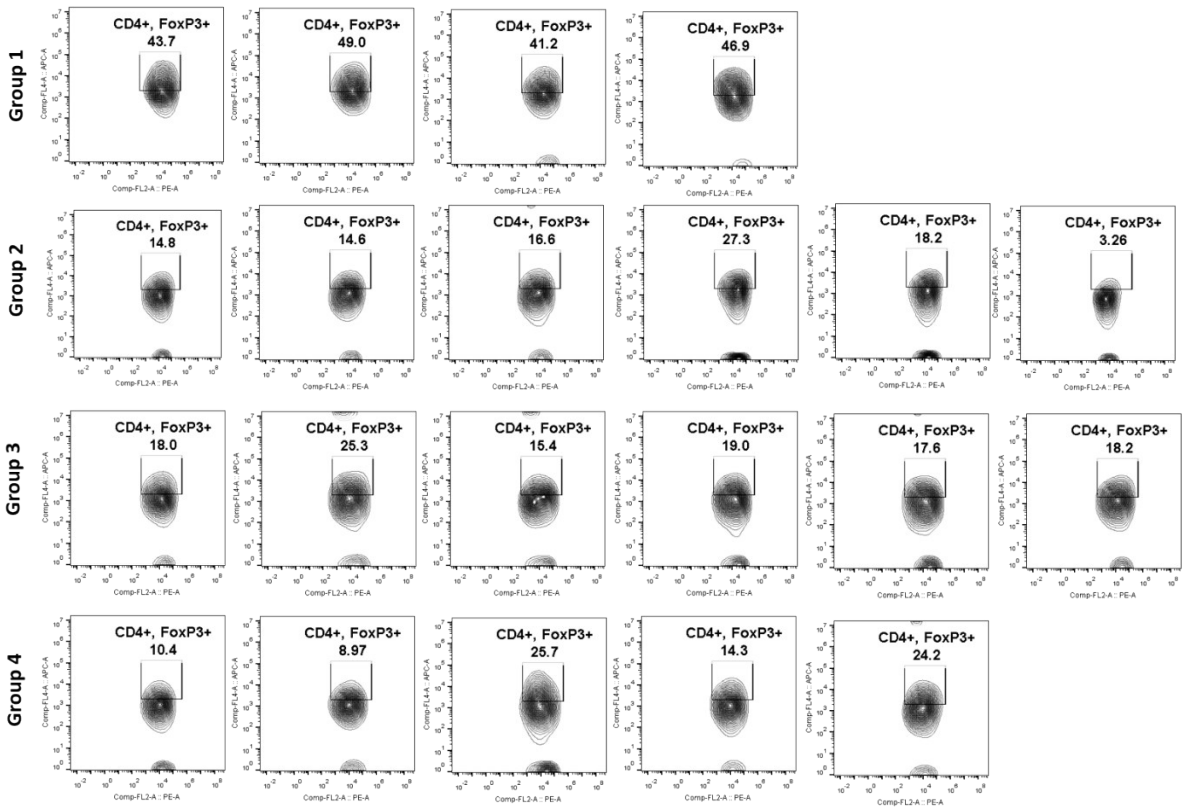


Figure S14: Representative flow cytometry plots of FoxP3+ in Group1-FG, Group 2-Lap+PNSL-FG, Group 3-IMQ-MS-FG and Group 4-NMS.

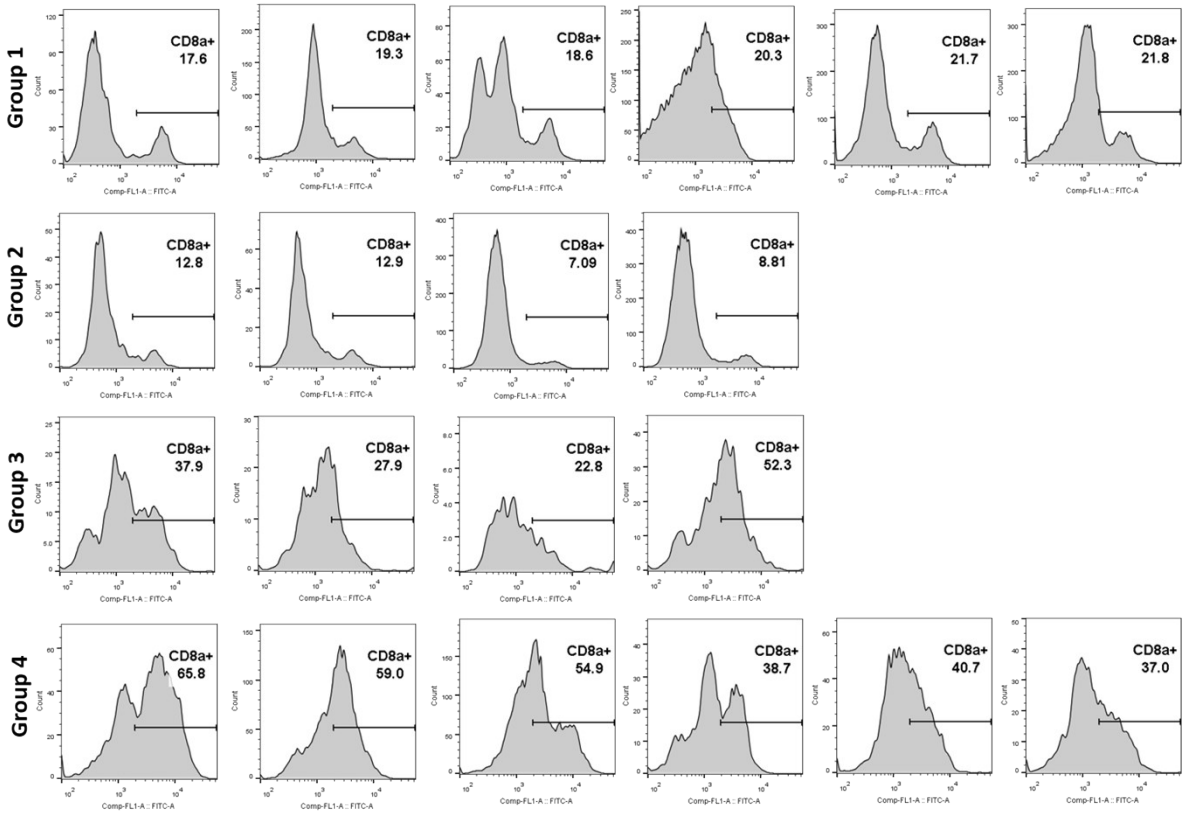


Figure S15: Representative flow cytometry plots of CD8a^{+} in Group1-FG, Group 2-Lap+PNSL-FG, Group 3-IMQ-MS-FG and Group 4-NMS.

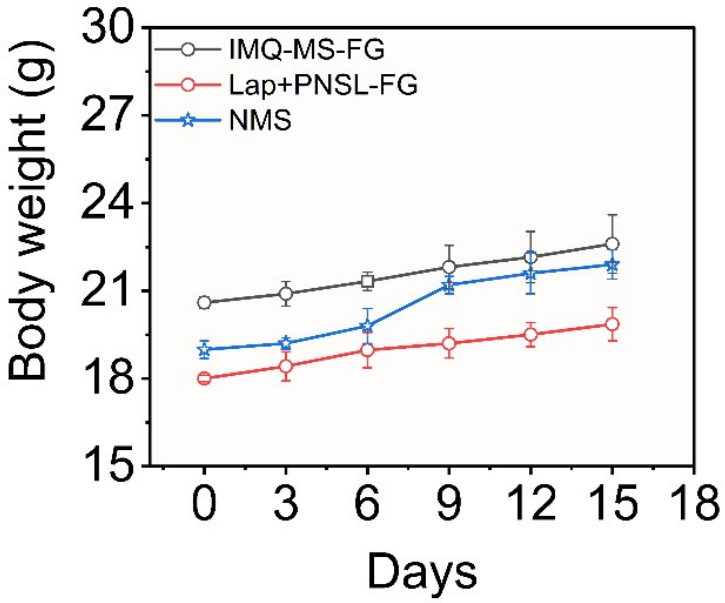


Figure S16: Body weight during the course of 15 days in IMQ-MS-FG, Lap+PSNL-FG and NMS.

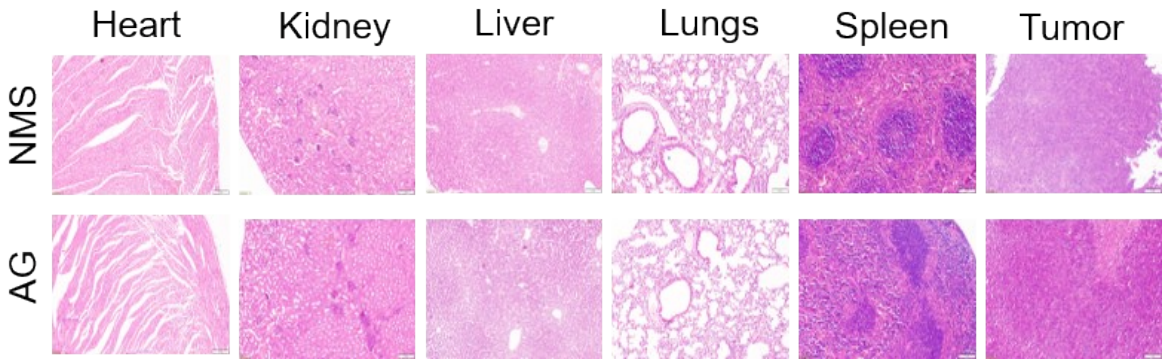


Figure S17: Histological analysis of NMS and AG at 50th day.(10x, scale bar 100 µm)

Supplementary Video - 1 shows Surgical Resection of 4T1 Tumor in BALB/c mice followed by Application of Autologous Hybrid Fibrin Implant and Closure of Surgical Site. (Vial-1: Tranexamic acid + PRP and Vial-2: PNS + 0.25M Ca^{2+})