

Supplementary Materials: In Vivo PET Imaging of Monocytes Labeled with [⁸⁹Zr]Zr-PLGA-NH₂ Nanoparticles in Tumor and *Staphylococcus aureus* Infection Models

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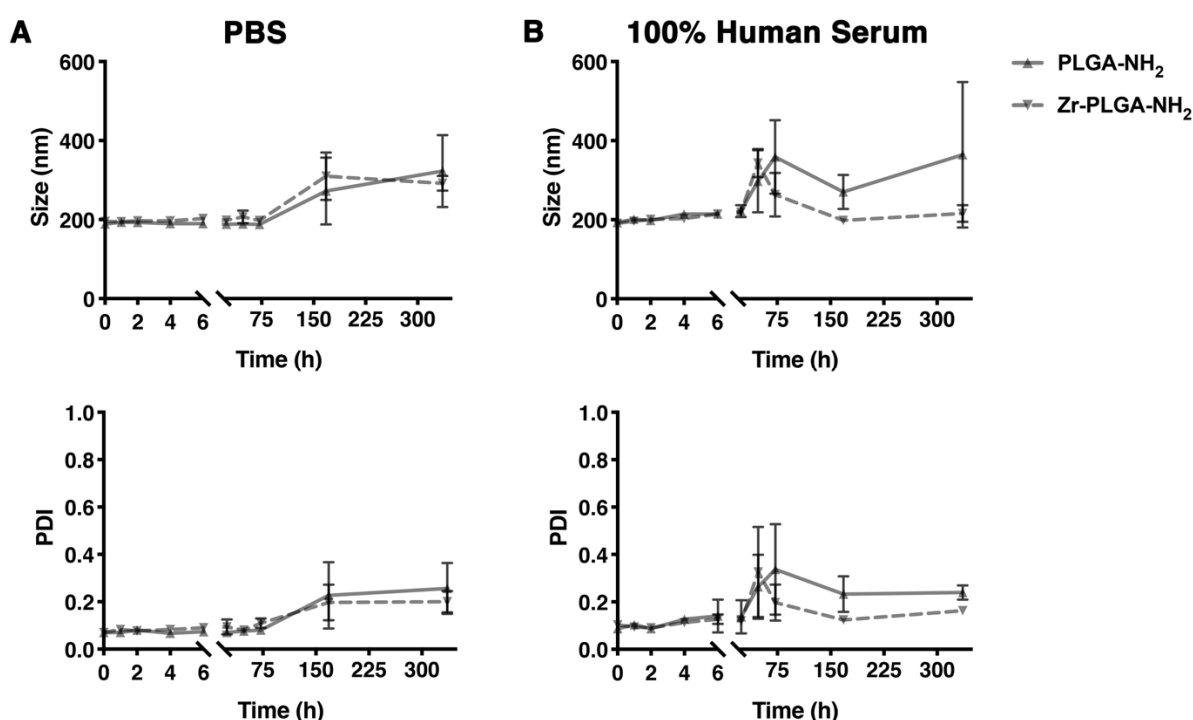


Figure S1. Over time particle stability in different buffers. Diameter and PDI measurements of PLGA-NH₂ and Zr-PLGA-NH₂ NPs incubated in (A) PBS and (B) 100% human serum at 37 °C for 0, 1, 2, 4, 6, 24, 48, 72, 168 and 336 hours. The mean and standard deviation of at least three independent experimental data sets is shown. Abbreviations: Poly(lactic-co-glycolic acid) with primary amine nanoparticles (PLGA-NH₂ NPs) and non-radioactive zirconium-labelled PLGA-NH₂ NPs (Zr-PLGA-NH₂).

Table S1. Biodistribution of [⁸⁹Zr]Zr-PLGA-NH₂ NPs at day 3 and 14 after intravenous tail injection in C57BL/6 mice. Data is expressed as %Injected Dose per gram (mean ± standard deviation, *n* = 3).

Organs	Day 3	Day 14
Blood	0.40 ± 0.46	0.16 ± 0.09
Spleen	0.23 ± 0.07 × 10 ³	0.18 ± 0.03 × 10 ³
Liver	27.47 ± 3.38	17.00 ± 1.85
Kidney	0.51 ± 0.09	0.48 ± 0.06
Heart	0.50 ± 0.04	0.54 ± 0.13
Lung	2.39 ± 0.60	3.02 ± 1.15
Pancreas	0.29 ± 0.04	0.23 ± 0.06
Bladder	0.35 ± 0.03	0.51 ± 0.08
Duodenum	0.70 ± 0.16	0.26 ± 0.08
Ileum	0.78 ± 0.38	0.36 ± 0.11
Colon	0.15 ± 0.02	0.29 ± 0.21
Brain	0.02 ± 0.00	0.04 ± 0.02

Muscle	0.32 ± 0.11	0.16 ± 0.05
LN (inguinal)*	1.34 ± 0.23	2.42 ± 0.84
Femur	6.07 ± 2.64	5.89 ± 0.06
Bone marrow	14.90 ± 5.81	14.08 ± 2.70
Thymus	0.33 ± 0.08	0.25 ± 0.04
Brown fat	0.94 ± 0.19	1.07 ± 0.25
Stomach	0.32 ± 0.02	0.24 ± 0.04
Salivary gland	0.43 ± 0.11	0.36 ± 0.07
Knee	8.67 ± 2.20	7.24 ± 1.77

* Abbreviations: LN, lymph node.

Table S2. Biodistribution of [⁸⁹Zr]Zr-THP-1 cells at 24 hours after subcutaneous injection. Data is expressed as %Injected Dose per gram (mean ± standard deviation, *n* = 4).

Organs	[⁸⁹ Zr]Zr-PLGA-NH ₂ NPs	10,000 [⁸⁹ Zr]Zr-THP-1 cells	100,000 [⁸⁹ Zr]Zr-THP-1 cells
Blood	1.22 ± 0.43	0.81 ± 0.79	0.59 ± 0.11
Matrigel	2.21 ± 1.19 × 10 ³	0.62 ± 0.44 × 10 ³	1.00 ± 0.25 × 10 ³
Salivary gland	0.58 ± 0.14	0.44 ± 0.49	0.29 ± 0.12
LN (inguinal)*	2.54 ± 1.84	15.24 ± 12.74	2.93 ± 2.33
Heart	0.41 ± 0.08	0.58 ± 0.56	0.20 ± 0.05
Lung	1.27 ± 0.17	0.60 ± 0.41	0.44 ± 0.16
Thymus	1.04 ± 0.23	1.76 ± 2.48	0.57 ± 0.50
Bladder	0.89 ± 0.35	4.77 ± 4.10	1.10 ± 0.87
Liver	0.74 ± 0.23	0.83 ± 0.47	0.25 ± 0.02
Stomach	0.33 ± 0.06	1.01 ± 0.51	0.15 ± 0.04
Duodenum	0.45 ± 0.20	1.09 ± 0.68	0.24 ± 0.06
Ileum	0.69 ± 0.23	1.74 ± 0.60	0.31 ± 0.07
Colon	0.50 ± 0.34	0.75 ± 0.42	0.18 ± 0.07
Pancreas	0.40 ± 0.06	0.47 ± 0.19	0.17 ± 0.06
Spleen	0.41 ± 0.10	0.61 ± 0.42	0.19 ± 0.04
Kidney	0.77 ± 0.14	0.71 ± 0.26	0.33 ± 0.06
Muscle	0.24 ± 0.07	0.49 ± 0.41	0.10 ± 0.08
Knee	5.30 ± 1.52	2.24 ± 1.60	2.16 ± 0.45
Bone marrow	1.81 ± 0.70	5.54 ± 4.88	1.35 ± 1.55
Femur	4.15 ± 0.98	2.00 ± 1.73	1.56 ± 0.71
Brown fat	0.64 ± 0.20	0.68 ± 0.62	0.36 ± 0.05
Brain	0.07 ± 0.03	0.13 ± 0.06	0.04 ± 0.01

* Abbreviations: LN, lymph node.

Table S3. Biodistribution of [⁸⁹Zr]Zr-THP-1 cells at 24 hours after intravenous injection in *Staphylococcus aureus* and MDA-MB-231 tumor models. Data is expressed as %Injected Dose per gram (mean ± standard deviation, *n* = 4–5).

Organs	<i>Staphylococcus aureus</i>	MDA-MB-231 Tumor
Blood	2.14 ± 0.65	3.80 ± 4.04
Infected Muscle (R)*	2.66 ± 0.95	-
Control Muscle (L)*	0.32 ± 0.08	-
Tumor	-	1.17 ± 0.24
Muscle foreleg (R)*	0.49 ± 0.08	0.46 ± 0.19
Salivary gland	0.63 ± 0.09	0.62 ± 0.11
LN *	2.62 ± 0.41	3.49 ± 1.00
Heart	0.69 ± 0.11	0.59 ± 0.07
Lung	43.19 ± 16.84	31.44 ± 9.86
Thymus	2.04 ± 0.27	2.03 ± 0.51
Bladder	1.41 ± 0.51	1.12 ± 0.30
Liver	48.28 ± 5.88	51.37 ± 5.89
Stomach	0.50 ± 0.20	0.47 ± 0.08
Duodenum	0.87 ± 0.25	0.64 ± 0.17
Ileum	0.68 ± 0.20	0.74 ± 0.12

Colon	0.43 ± 0.11	0.40 ± 0.08
Pancreas	0.46 ± 0.13	0.46 ± 0.06
Spleen	46.67 ± 8.99	53.84 ± 20.78
Kidney	1.59 ± 0.22	2.82 ± 0.65
Knee	6.41 ± 2.40	8.82 ± 3.01
Bone Marrow	10.98 ± 3.35	21.64 ± 12.25
Femur	5.19 ± 1.65	5.99 ± 3.64
Brown Fat	1.43 ± 0.06	0.92 ± 0.15
Brain	0.09 ± 0.02	0.08 ± 0.01

* Abbreviations: LN, lymph node; Infection Muscle (R), Staphylococcus aureus in right hind leg; Control Muscle (L), PBS + Blood in left hind leg; Muscle foreleg (R), without injection.