

**Supplementary Materials:**

**Table S1.** Radioactivity biodistribution of A375 amelanotic melanoma-bearing BALB/c nude mice after intravenous injection of 20  $\mu$ Ci of  $^{131}\text{I}$ -IFNABZA.

Organ	5 min	15 min	1h	4h	24h	48h	96h
Blood	1.42 $\pm$ 0.35	1.27 $\pm$ 0.34	0.85 $\pm$ 0.15	0.20 $\pm$ 0.04	0.04 $\pm$ 0.00	0.02 $\pm$ 0.00	0.01 $\pm$ 0.01
Heart	7.34 $\pm$ 1.68	4.29 $\pm$ 0.44	1.26 $\pm$ 0.30	0.36 $\pm$ 0.10	0.12 $\pm$ 0.01	0.08 $\pm$ 0.01	0.06 $\pm$ 0.01
Lung	24.31 $\pm$ 4.86	10.94 $\pm$ 1.34	4.54 $\pm$ 0.94	2.31 $\pm$ 0.48	0.26 $\pm$ 0.06	0.09 $\pm$ 0.03	0.06 $\pm$ 0.01
Liver	14.07 $\pm$ 0.54	16.19 $\pm$ 0.42	9.75 $\pm$ 2.59	3.82 $\pm$ 0.64	2.15 $\pm$ 0.08	1.51 $\pm$ 0.15	0.93 $\pm$ 0.18
Stomach	3.33 $\pm$ 0.23	3.62 $\pm$ 0.33	3.49 $\pm$ 2.35	0.70 $\pm$ 0.23	0.15 $\pm$ 0.02	0.06 $\pm$ 0.01	0.03 $\pm$ 0.01
Small int.	5.70 $\pm$ 1.01	8.09 $\pm$ 0.91	4.47 $\pm$ 1.48	0.56 $\pm$ 0.05	0.09 $\pm$ 0.02	0.04 $\pm$ 0.01	0.02 $\pm$ 0.01
Large int.	3.93 $\pm$ 0.89	3.39 $\pm$ 0.45	2.10 $\pm$ 0.57	1.37 $\pm$ 0.42	0.07 $\pm$ 0.02	0.02 $\pm$ 0.01	0.01 $\pm$ 0.01
Spleen	6.77 $\pm$ 1.57	8.59 $\pm$ 0.82	7.06 $\pm$ 1.31	3.13 $\pm$ 0.59	1.86 $\pm$ 0.41	1.16 $\pm$ 0.19	0.75 $\pm$ 0.14
Pancreas	8.62 $\pm$ 1.38	7.08 $\pm$ 0.19	3.72 $\pm$ 0.99	1.56 $\pm$ 0.52	0.31 $\pm$ 0.08	0.11 $\pm$ 0.01	0.07 $\pm$ 0.01
Bone	1.74 $\pm$ 0.17	1.84 $\pm$ 0.02	0.98 $\pm$ 0.19	0.36 $\pm$ 0.08	0.09 $\pm$ 0.01	0.04 $\pm$ 0.01	0.02 $\pm$ 0.01
Muscle	2.20 $\pm$ 0.21	1.48 $\pm$ 0.37	0.69 $\pm$ 0.23	0.12 $\pm$ 0.03	0.03 $\pm$ 0.00	0.01 $\pm$ 0.01	0.01 $\pm$ 0.00
Tumor	1.66 $\pm$ 0.39	1.68 $\pm$ 0.23	1.73 $\pm$ 0.51	0.34 $\pm$ 0.07	0.10 $\pm$ 0.05	0.05 $\pm$ 0.02	0.02 $\pm$ 0.01
Brain	0.71 $\pm$ 0.16	0.48 $\pm$ 0.01	0.17 $\pm$ 0.04	0.02 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00
Kidneys	27.07 $\pm$ 3.54	25.15 $\pm$ 1.97	12.06 $\pm$ 3.05	5.13 $\pm$ 1.52	0.99 $\pm$ 0.15	0.37 $\pm$ 0.02	0.19 $\pm$ 0.01
Eye ball	1.20 $\pm$ 0.26	1.11 $\pm$ 0.16	0.80 $\pm$ 0.19	0.28 $\pm$ 0.09	0.04 $\pm$ 0.01	0.01 $\pm$ 0.01	0.00 $\pm$ 0.00
Urine	2.44 $\pm$ 0.18	42.30 $\pm$ 34.83	175.9 $\pm$ 94.4	20.39 $\pm$ 9.71	0.57 $\pm$ 0.09	0.14 $\pm$ 0.08	0.05 $\pm$ 0.02
Feces	1.12 $\pm$ 0.28	2.64 $\pm$ 0.89	15.96 $\pm$ 5.57	73.25 $\pm$ 26.98	6.23 $\pm$ 4.04	0.82 $\pm$ 0.20	0.20 $\pm$ 0.05
Bladder	1.69 $\pm$ 0.37	2.11 $\pm$ 0.67	1.56 $\pm$ 0.79	0.42 $\pm$ 0.25	0.04 $\pm$ 0.02	0.02 $\pm$ 0.01	0.00 $\pm$ 0.00
Uptake ratio							
Tumor/muscle	0.75 $\pm$ 0.19	1.14 $\pm$ 0.32	2.04 $\pm$ 0.70	1.70 $\pm$ 0.49	2.50 $\pm$ 1.25	2.50 $\pm$ 1.00	2.00 $\pm$ 1.00
Tumor/blood	1.17 $\pm$ 0.40	1.32 $\pm$ 0.40	2.51 $\pm$ 1.12	2.83 $\pm$ 0.92	3.33 $\pm$ 2.00	5.00 $\pm$ 5.39	N/A
Tumor/liver	0.12 $\pm$ 0.03	0.10 $\pm$ 0.01	0.85 $\pm$ 0.15	0.20 $\pm$ 0.04	0.04 $\pm$ 0.00	0.02 $\pm$ 0.00	0.01 $\pm$ 0.01

Results were expressed as the percentage of injected dose per gram of organ/tissue (%ID/g). Each value represented mean  $\pm$  SD ( $n = 4$ ). Small int., small intestine; large int., large intestine.

**Table S2.** Radioactivity biodistribution of healthy BALB/c mice at 5 min post administration of 20 mCi of  $^{131}\text{I}$ -IFNABZA dissolved in different excipients.

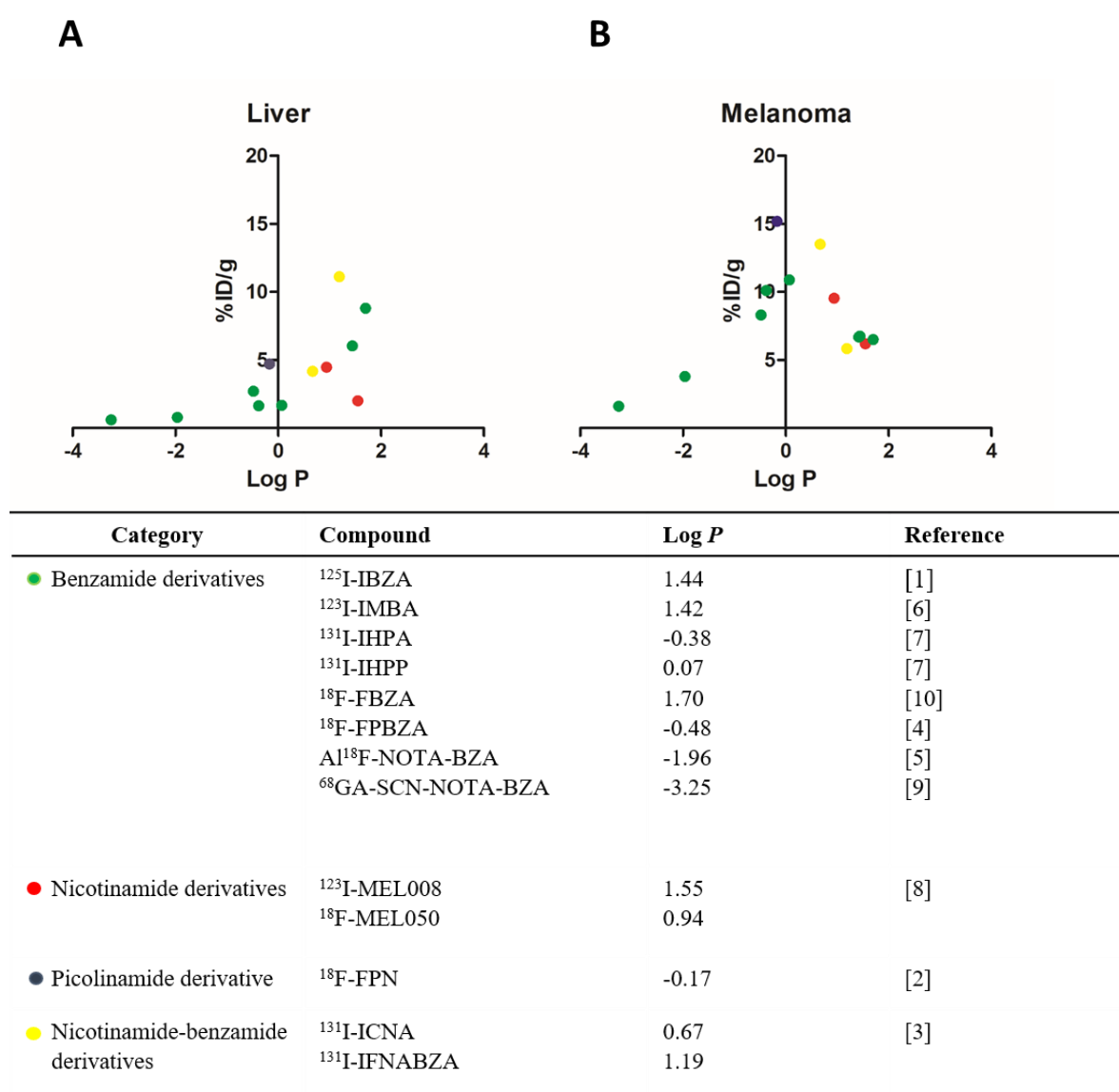
Organ	Excipient A		Excipient B		Excipient C				
Blood	1.34	±	0.40	1.08	±	0.12	1.10	±	0.07
Lung	14.28	±	1.86	16.00	±	1.64	15.11	±	2.11
Liver	16.32	±	2.19	16.26	±	1.50	20.18	±	1.45
Kidneys	25.47	±	1.16	26.21	±	2.08	28.59	±	1.90
Muscle	1.84	±	0.21	1.99	±	0.19	1.87	±	0.31

Excipient A: 10% ethanol in normal saline

Excipient B: 5% Tween 80 and 5% ethanol in normal saline

Excipient C: 1% bovine serum albumin and 5% ethanol in normal saline

Results were expressed as the percentage of injected dose per gram of organ/tissue (%ID/g). Each value represented mean  $\pm$  SD ( $n = 5$ ).



**Figure S1.** The relationship between lipophilicity and radioactivity accumulation of radiolabeled ligands in (A) liver and (B) melanoma. The data were collected based on previous literature. Green dots: Benzamide derivatives [1,4–7,9,10]; red dots: Nicotinamide derivatives [8]; black dots: Picolinamide derivative [2]; yellow dots: Nicotinamide-benzamide derivatives [3]

## Reference

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