Figure 1

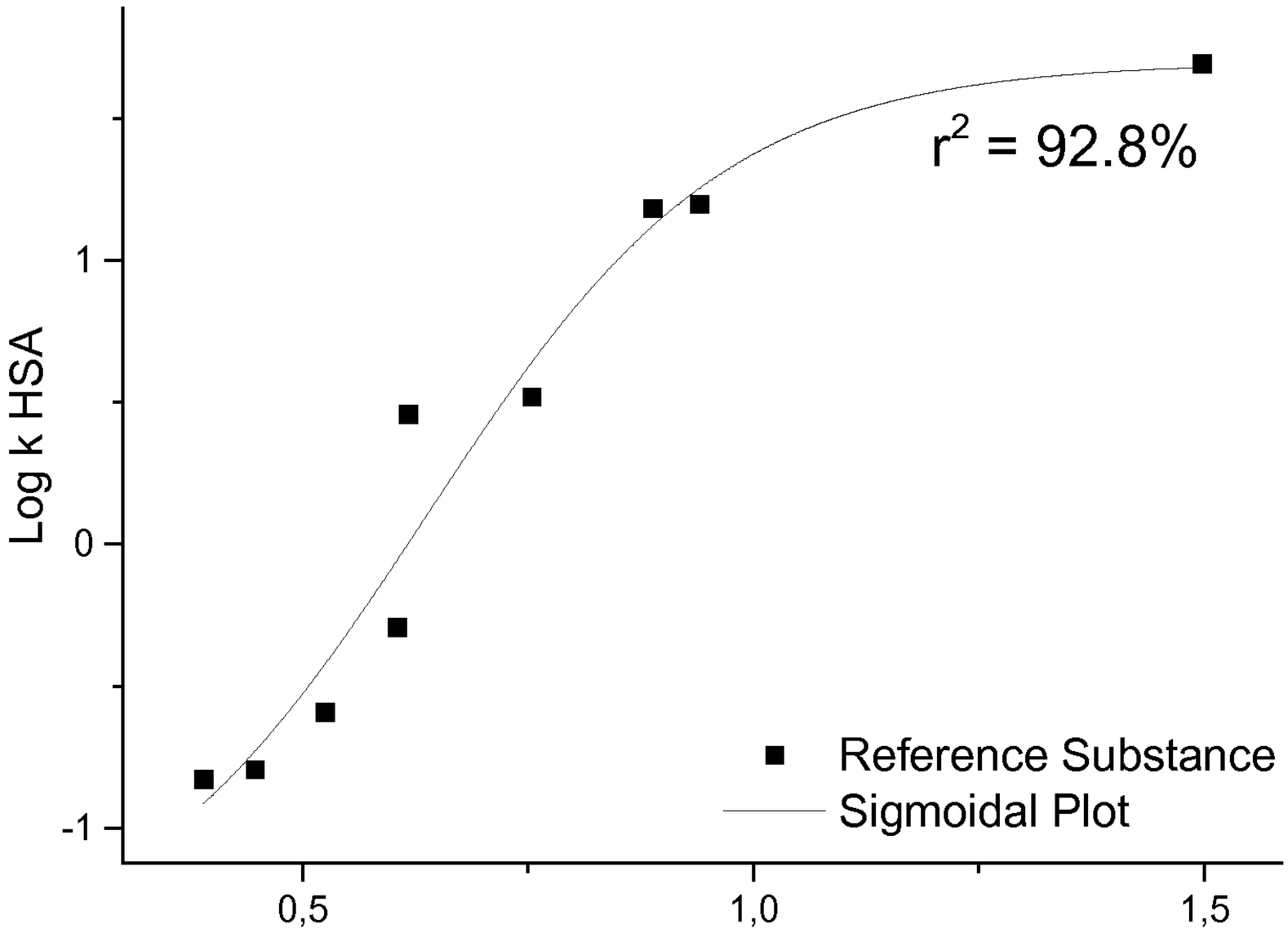
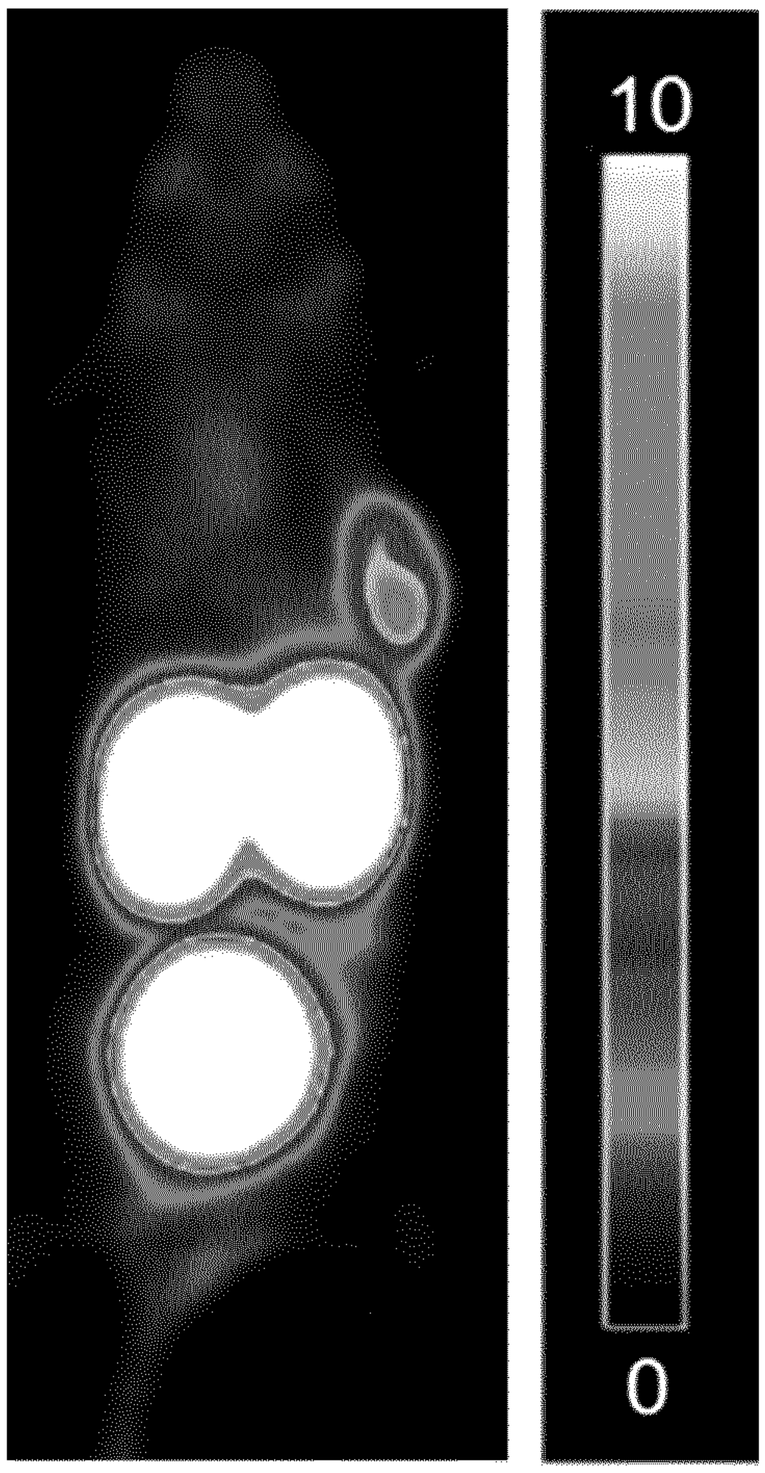
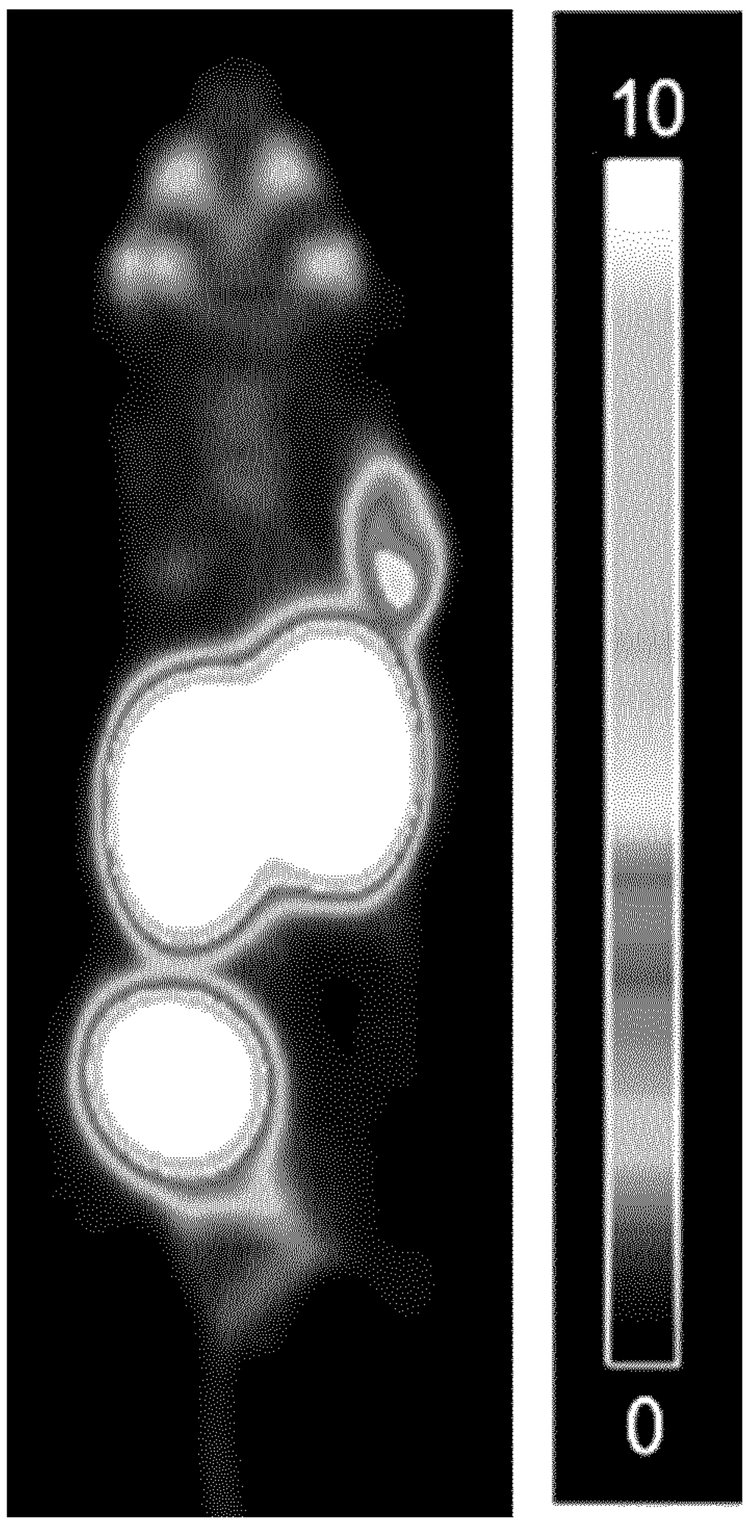

r^2 = 92.8%
Log k HSA
1
0
-1
Reference Substance
Sigmoidal Plot
0,5
1,0
1,5
Log RT

Figure 2



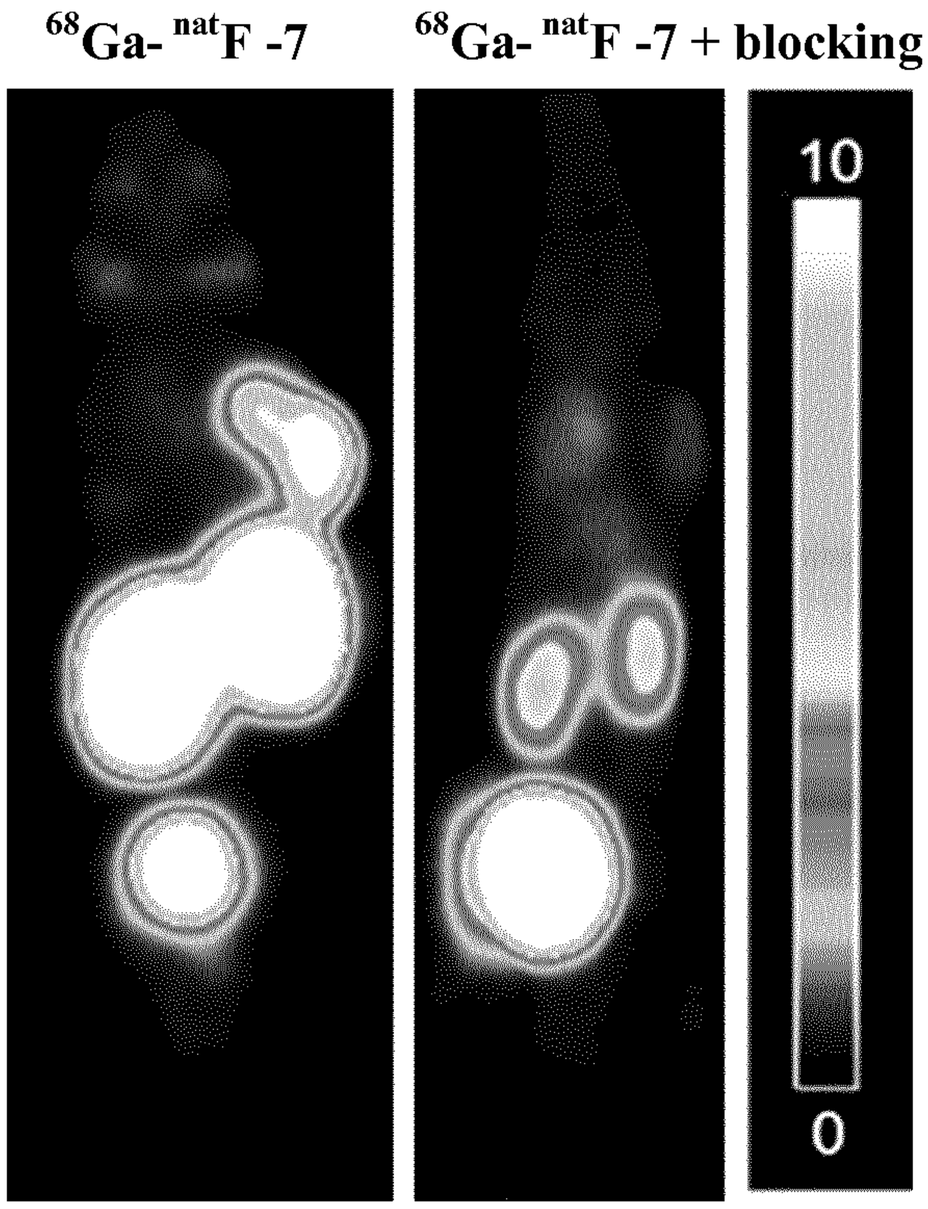
organ	%ID/mL
tumor	4. 8 ± 1.3
salivary glands	1.4 ± 0.17
muscle	0.58 ± 0.01
kidney	35.4 ± 7.9
heart	1.5 ± 0.11
liver	1.4 ± 0.12

Figure 3



organ	%ID/mL
tumor	4.0 ± 0.18
salivary glands	2.1 ± 0.25
muscle	0.57 ± 0.17
kidney	46.2 ± 6.1
heart	1.4 ± 0.29
liver	1.3 ± 0.27

Figure 4



organ	%ID/mL
tumor	8.3 ± 2.3
salivary glands	0.89 ± 0.12
muscle	0.29 ± 0.03
kidney	40.7 ± 2.3
heart	0.77 ± 0.05
liver	0.64 ± 0.02

Figure 5

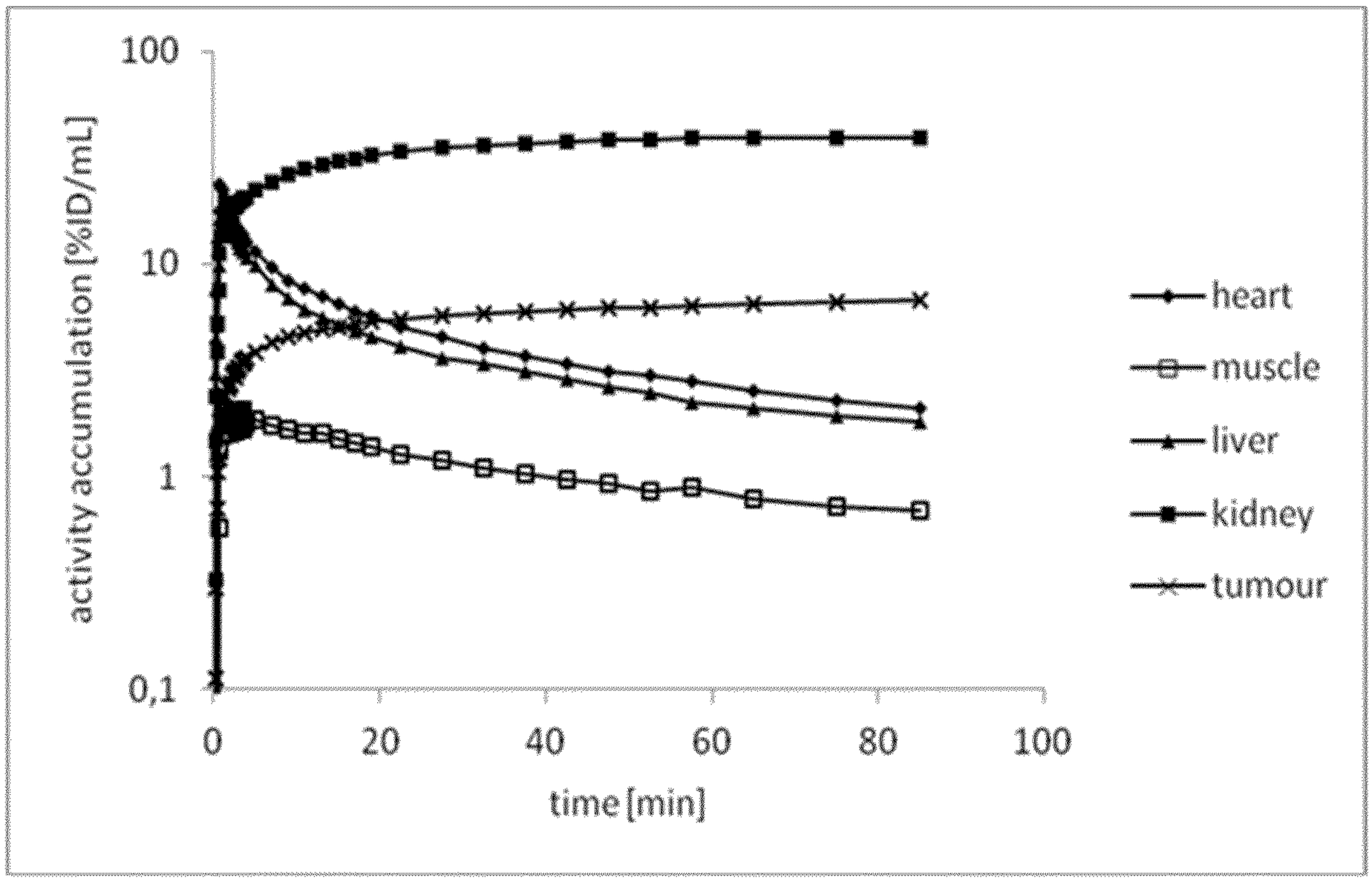
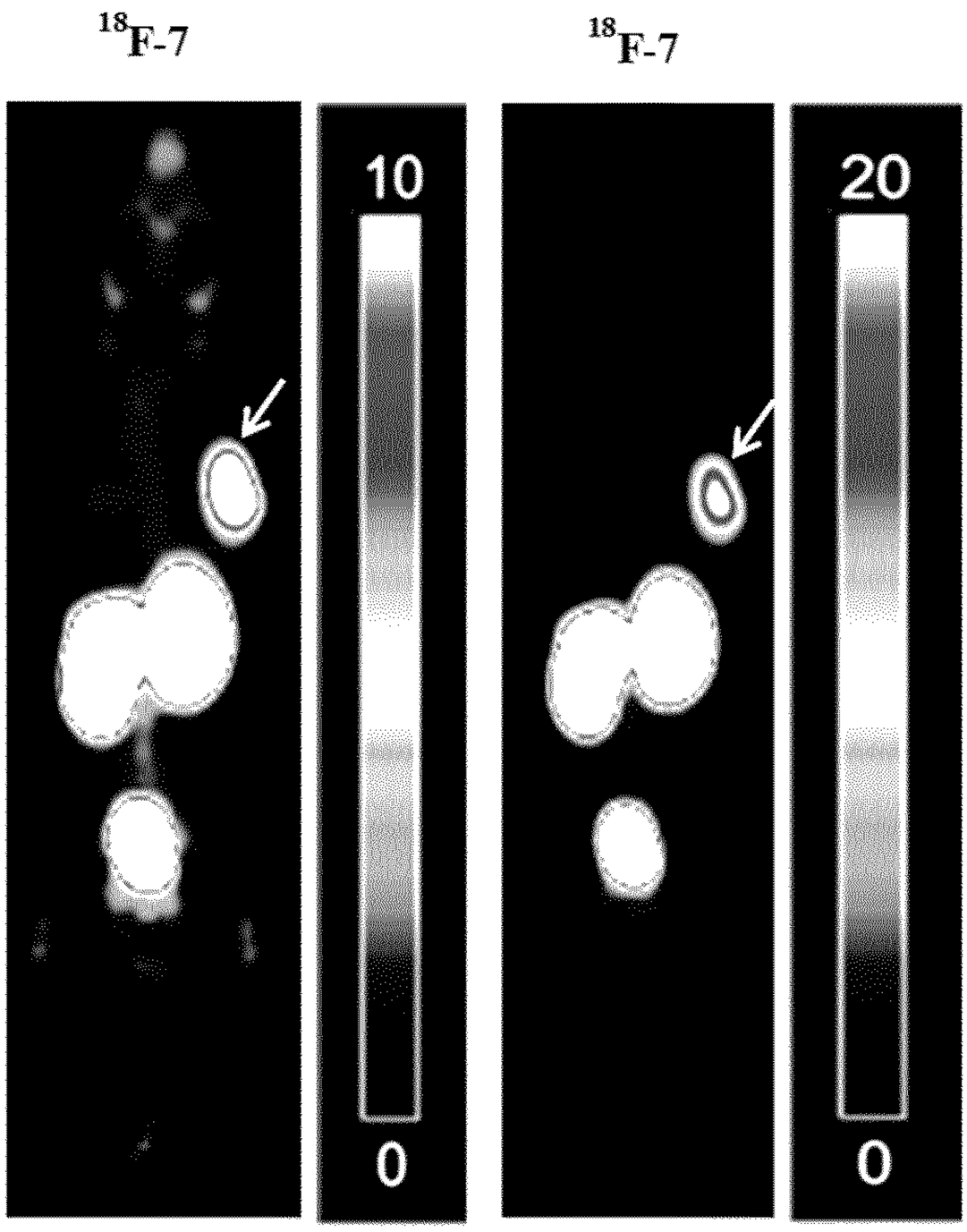

100
10
1
0,1
activity accumulation [%ID/mL]
0
20
40
60
80
100
time [min]
heart
muscle
liver
kidney
tumour

Figure 6



organ	%ID/mL
tumor	11.0 ± 4.1
salivary glands	2.0 ± 1.4
muscle	0.68 ± 0.05
kidney	46.3 ± 13.1
heart	1.6 ± 0.17
liver	1.3 ± 0.17

Figure 7

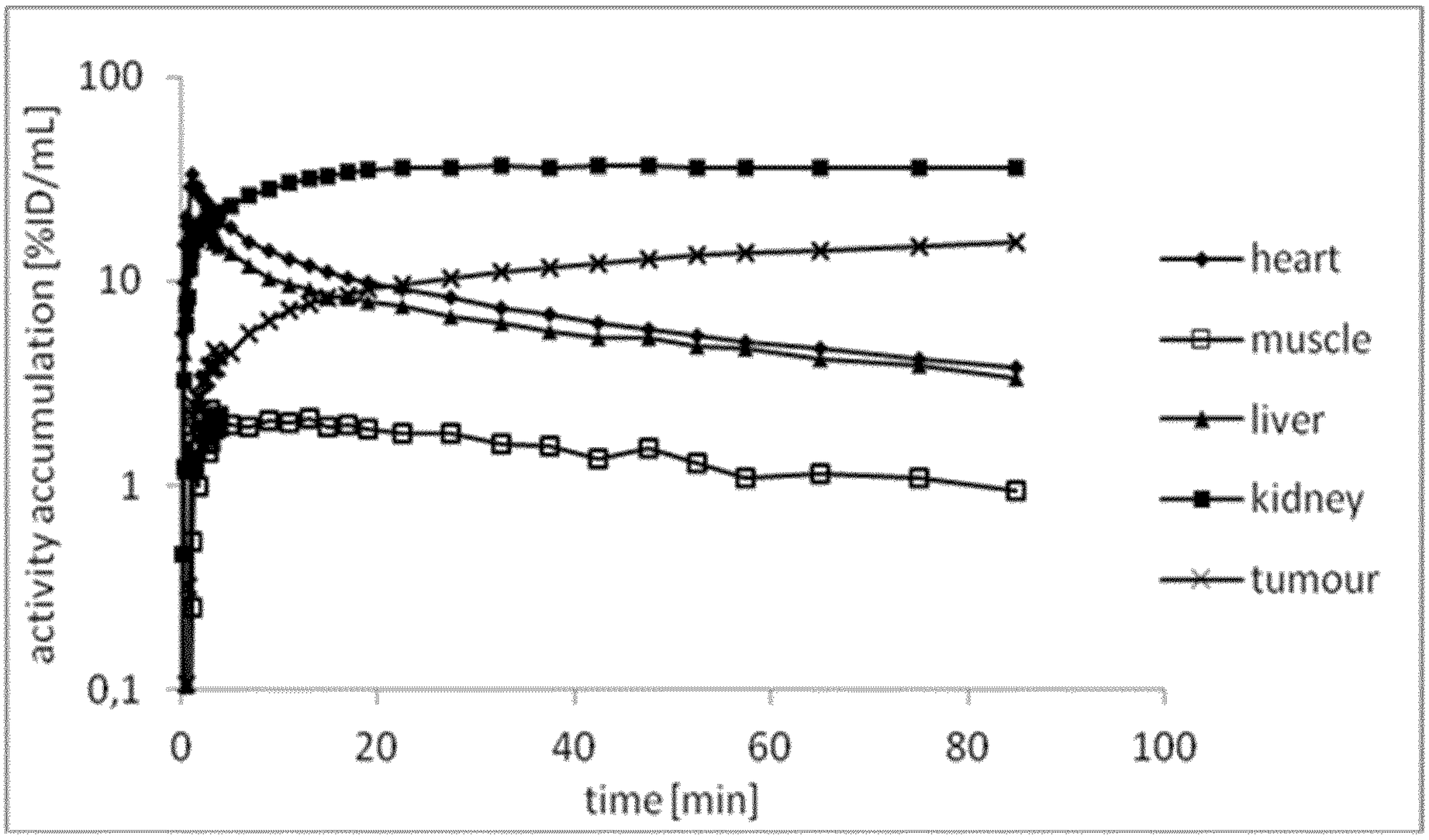
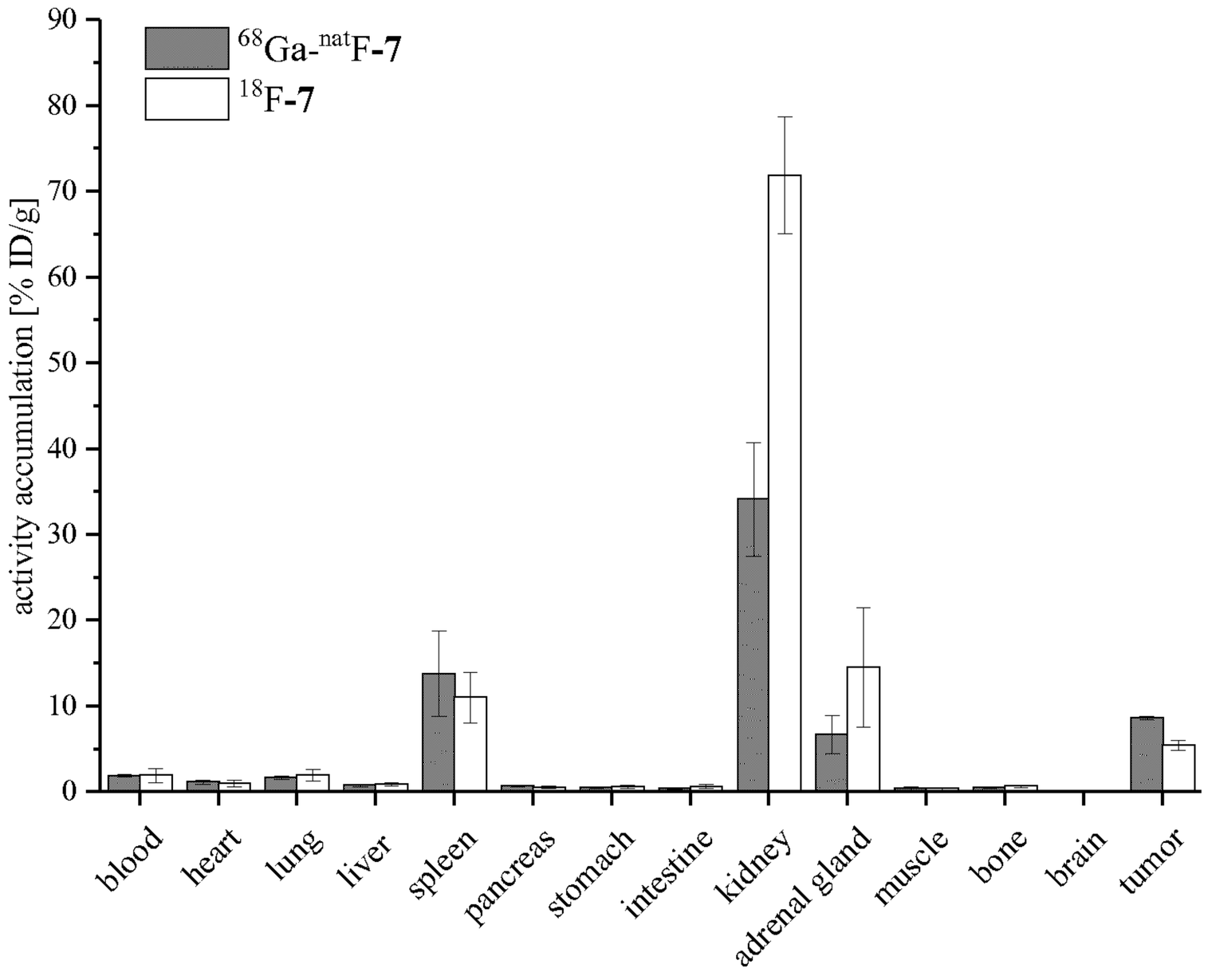
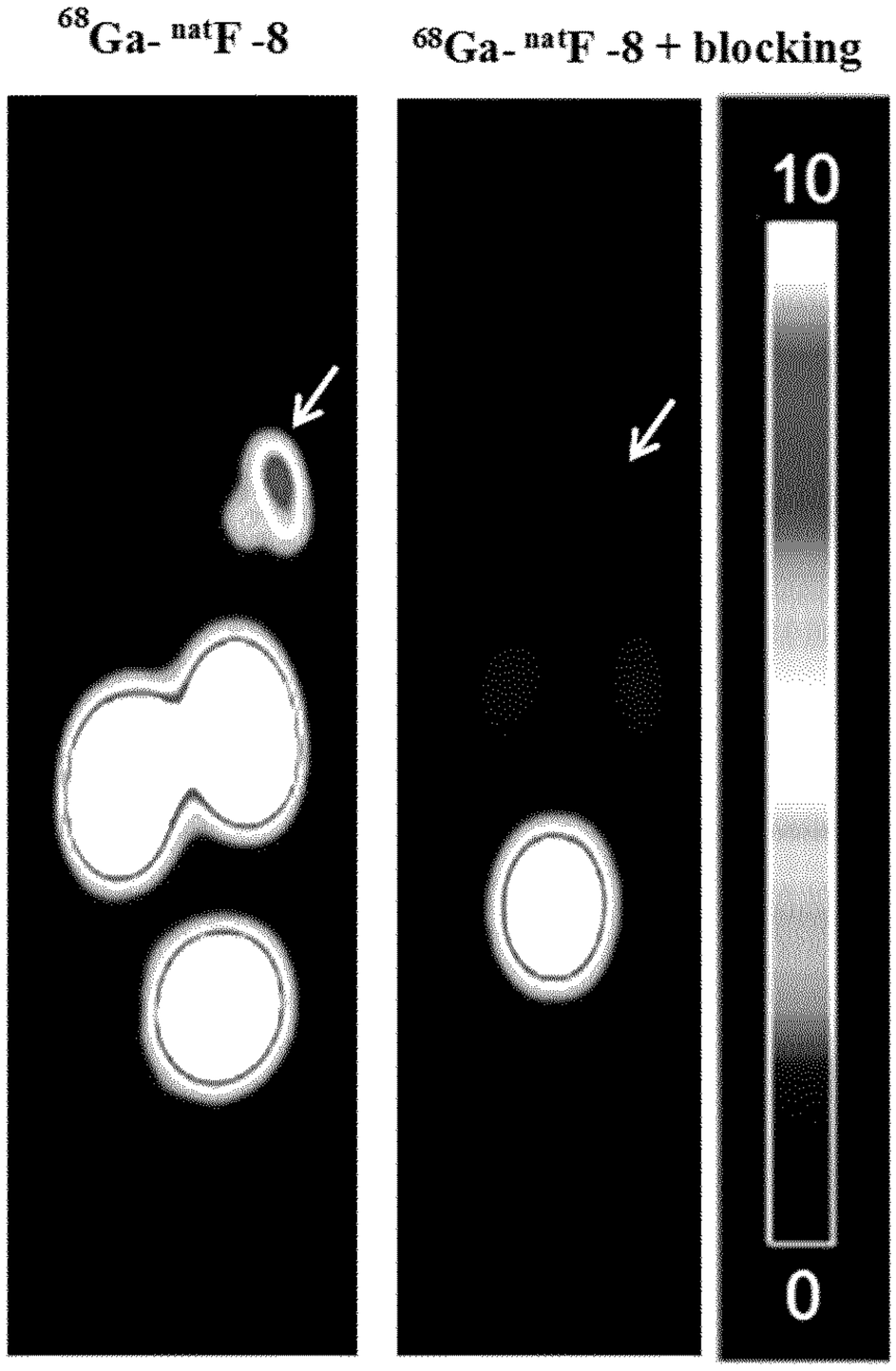

100
10
1
0,1
activity accumulation [%ID/mL]
0
20
40
60
80
100
time [min]
heart
muscle
liver
kidney
tumour

Figure 8



	^{68}Ga-^{nat}F -7	^{18}F-7
blood	1.9 ± 0.14	1.9 ± 0.81
heart	1.2 ± 0.27	1.0 ± 0.40
lung	1.7 ± 0.16	2.0 ± 0.68
liver	0.77 ± 0.10	0.91 ± 0.21
spleen	13.8 ± 5.0	11.0 ± 2.9
pancreas	0.71 ± 0.11	0.55 ± 0.18
stomach	0.51 ± 0.07	0.66 ± 0.18
intestine	0.43 ± 0.07	0.67 ± 0.23
kidneys	34.1 ± 6.6	71.9 ± 6.8
adrenals	6.7 ± 2.2	14.6 ± 7.0
muscle	0.42 ± 0.22	0.37 ± 0.14
bone	0.52 ± 0.11	0.70 ± 0.14
brain	0.06 ± 0.01	0.07 ± 0.02
tumor	8.6 ± 0.20	5.5 ± 0.56

Figure 9



organ	%ID/mL
tumor	5.3 ± 0.45
salivary glands	0.96 ± 0.15
muscle	0.26 ± 0.02
kidney	23.5 ± 5.4
heart	0.82 ± 0.12
liver	0.54 ± 0.05

Figure 10

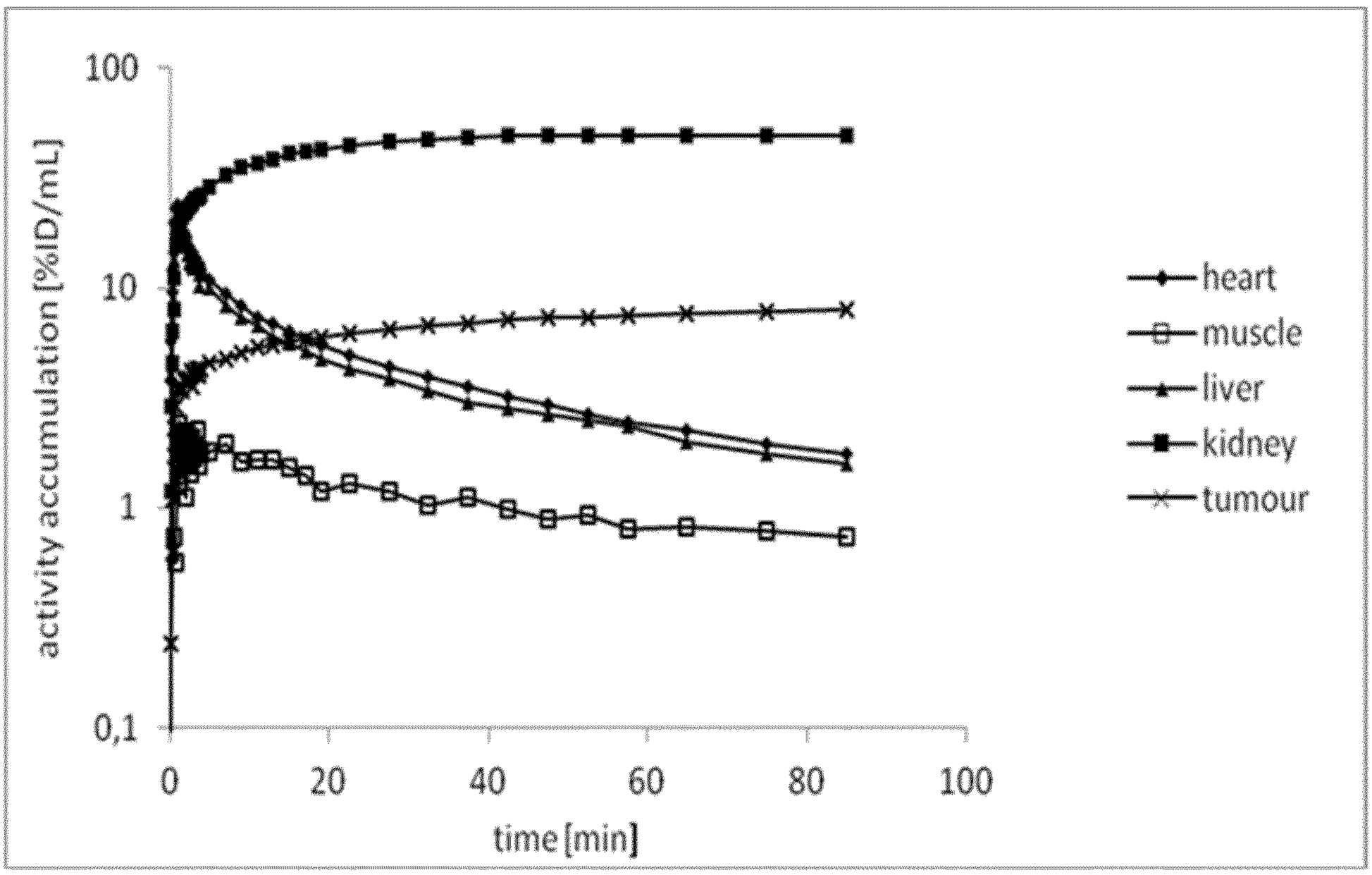
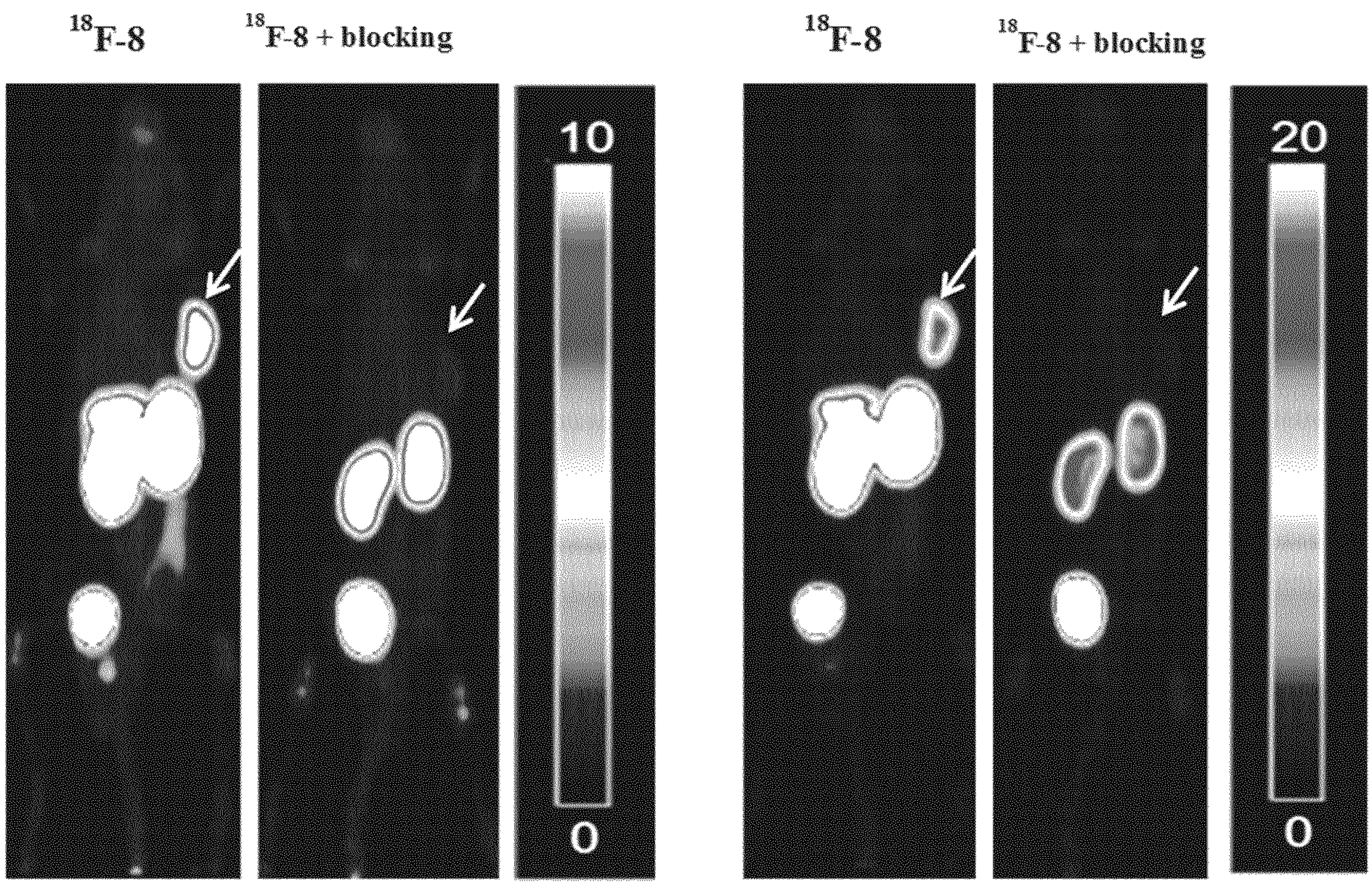

100
10
1
0,1
activity accumulation [%ID/mL]
0
20
40
60
80
100
time [min]
heart
muscle
liver
kidney
tumour

Figure 11



organ	%ID/mL
tumor	11.2 ±3.3
salivary glands	2.0 ± 0.37
muscle	0.59 ± 0.06
kidney	46.2 ± 7.7
heart	1.7 ± 0.33
liver	1.5 ± 0.24

Figure 12

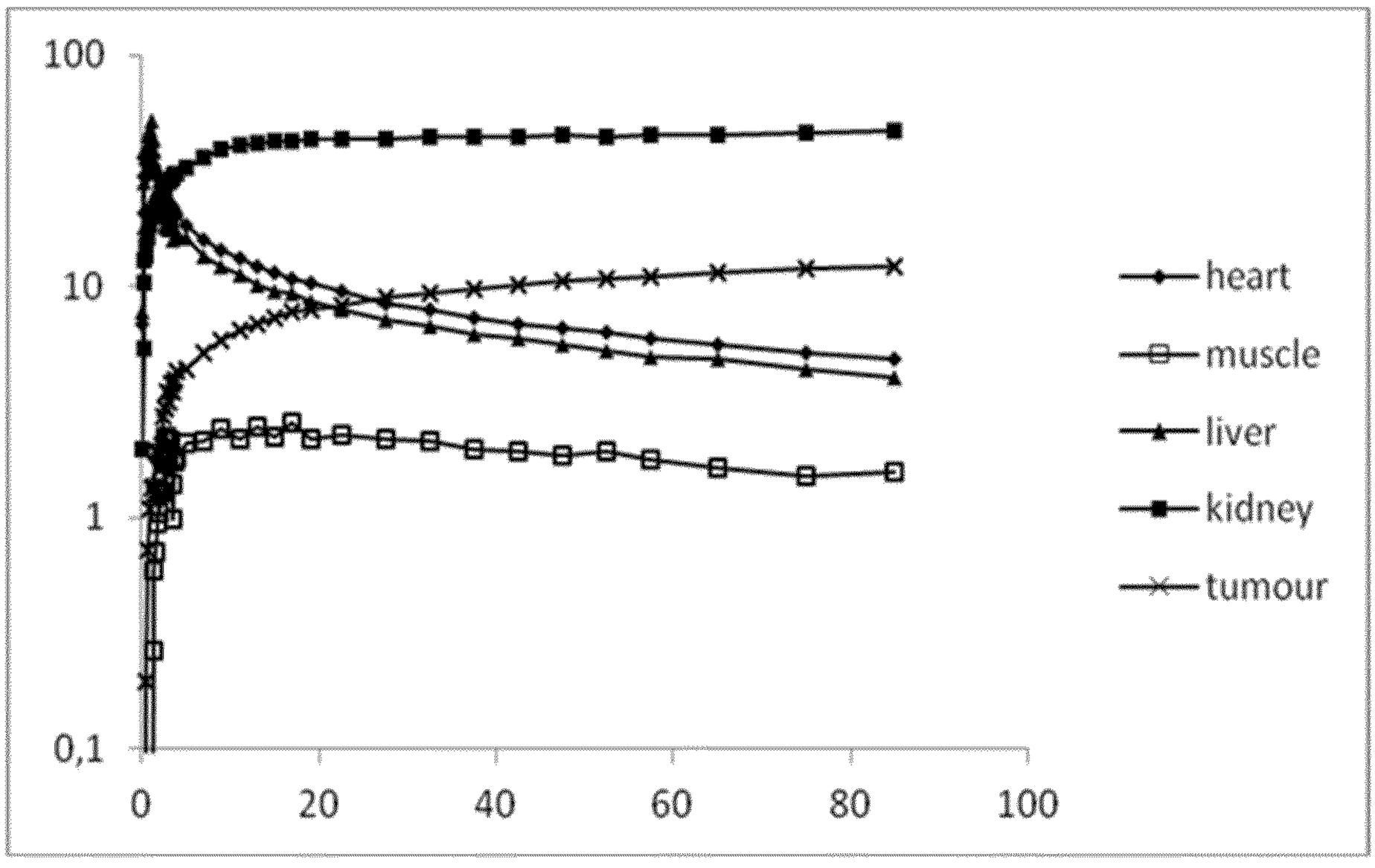
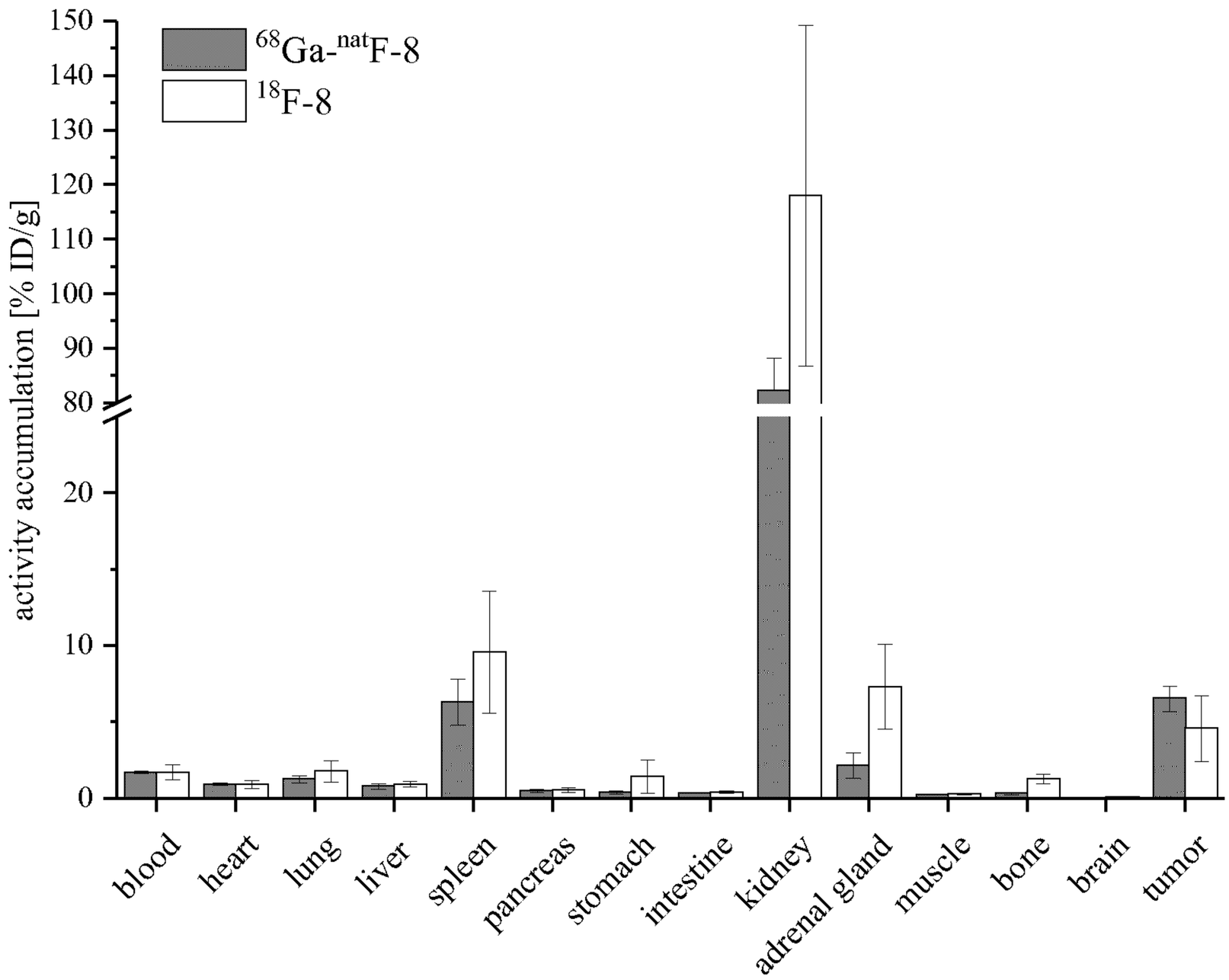
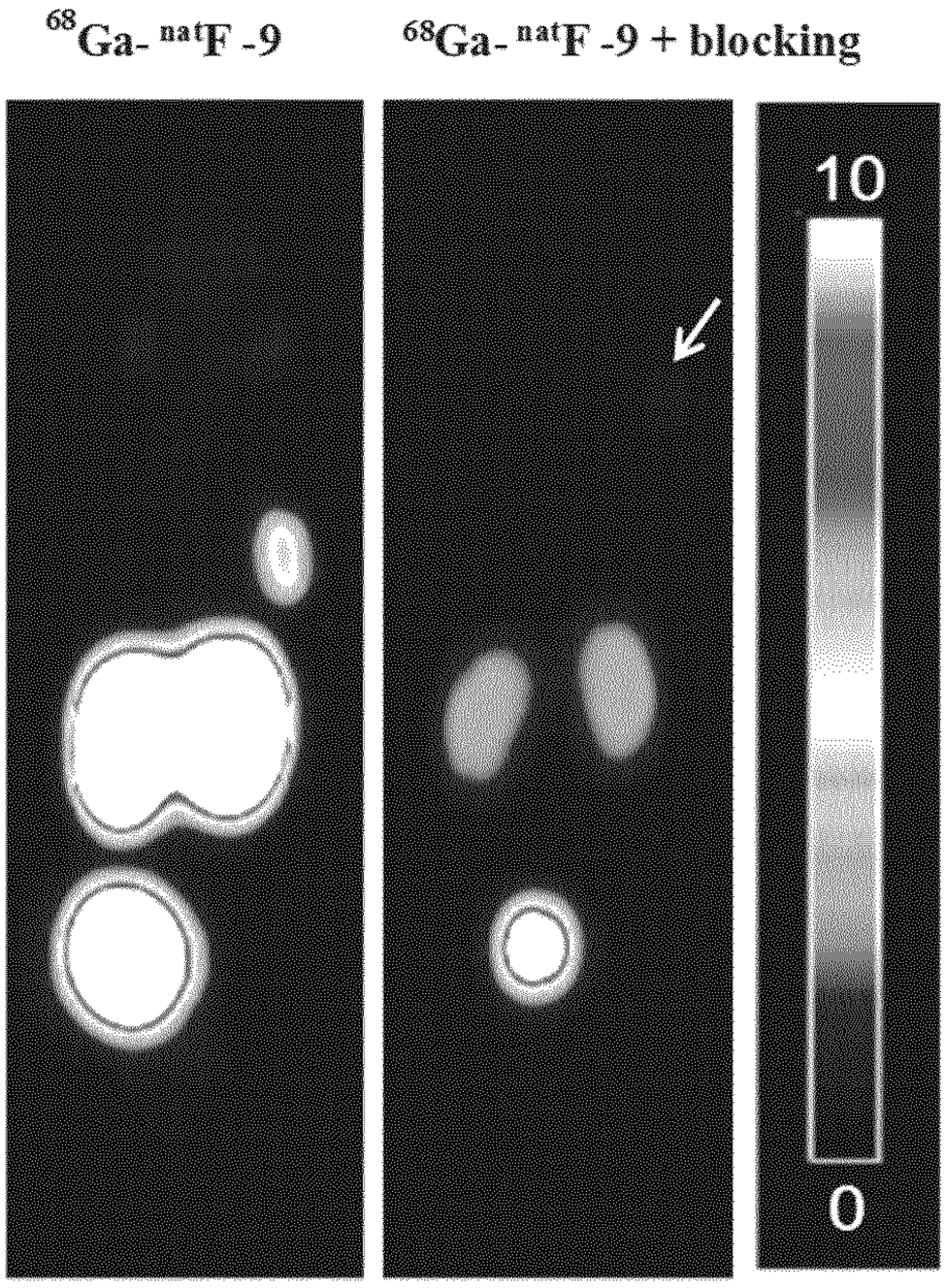


Figure 13



	^{68}Ga-^{nat}F -8	^{18}F-8
blood	1.7 ± 0.09	1.7 ± 0.48
heart	0.93 ± 0.08	0.92 ± 0.27
lung	1.3 ± 0.23	1.8 ± 0.70
liver	0.79 ± 0.17	0.93 ± 0.17
spleen	6.3 ± 1.5	9.6 ± 4.0
pancreas	0.48 ± 0.11	0.55 ± 0.14
stomach	0.42 ± 0.11	1.4 ± 1.1
intestine	0.35 ± 0.01	0.42 ± 0.10
kidneys	82.3 ± 5.9	118 ± 31.2
adrenals	2.2 ± 0.82	7.3 ± 2.8
muscle	0.24 ± 0.02	0.30 ± 0.06
bone	0.32 ± 0.07	1.3 ± 0.31
brain	0.06 ± 0.003	0.07 ± 0.01
tumor	6.5 ± 0.84	4.6 ± 2.2

Figure 14



organ	%ID/mL
tumor	4.1 ± 0.34
salivary glands	1.1 ± 0.11
muscle	0.27 ± 0.09
kidney	43.6 ± 2.6
heart	0.65 ± 0.25
liver	0.49 ± 0.07

Figure 15

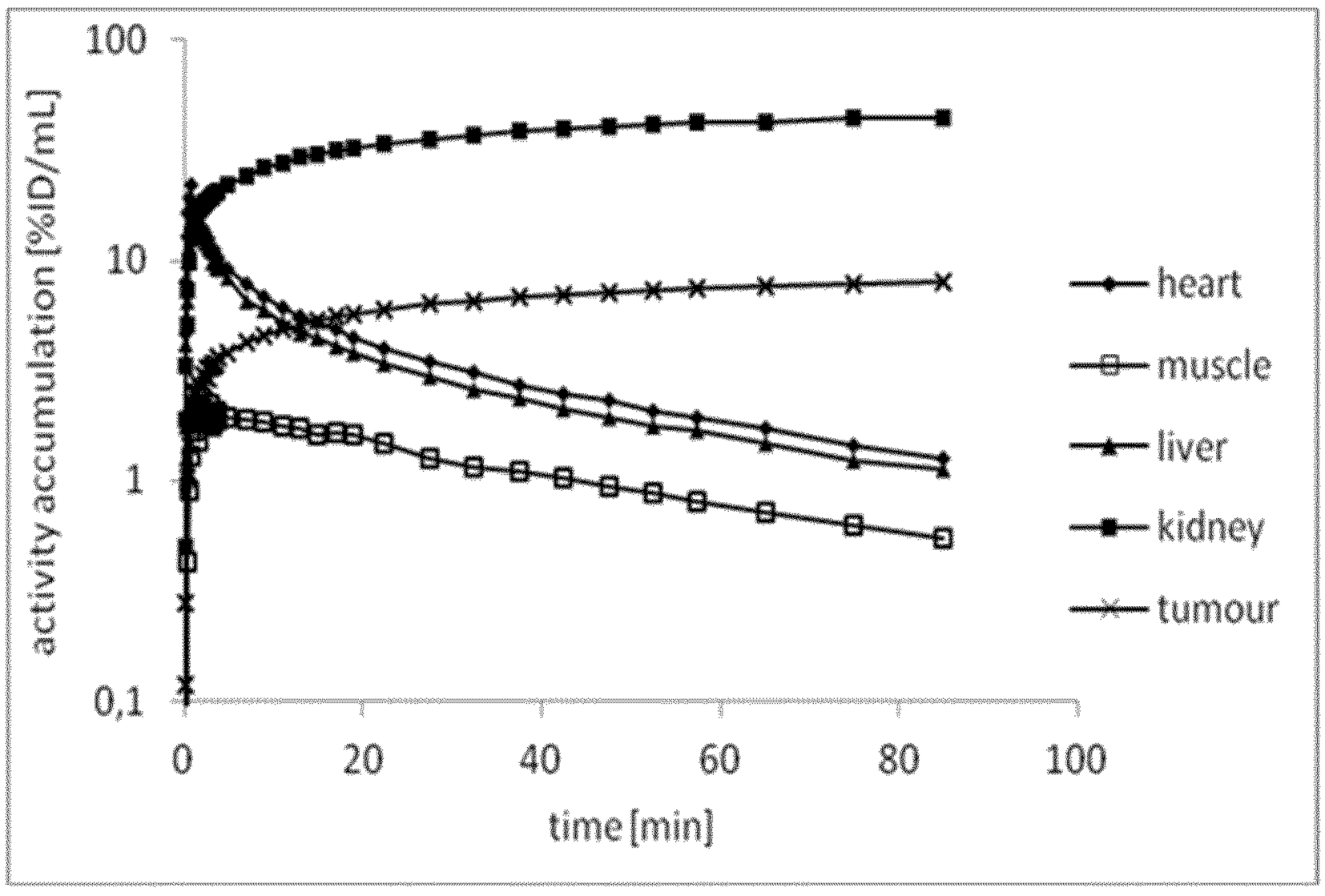
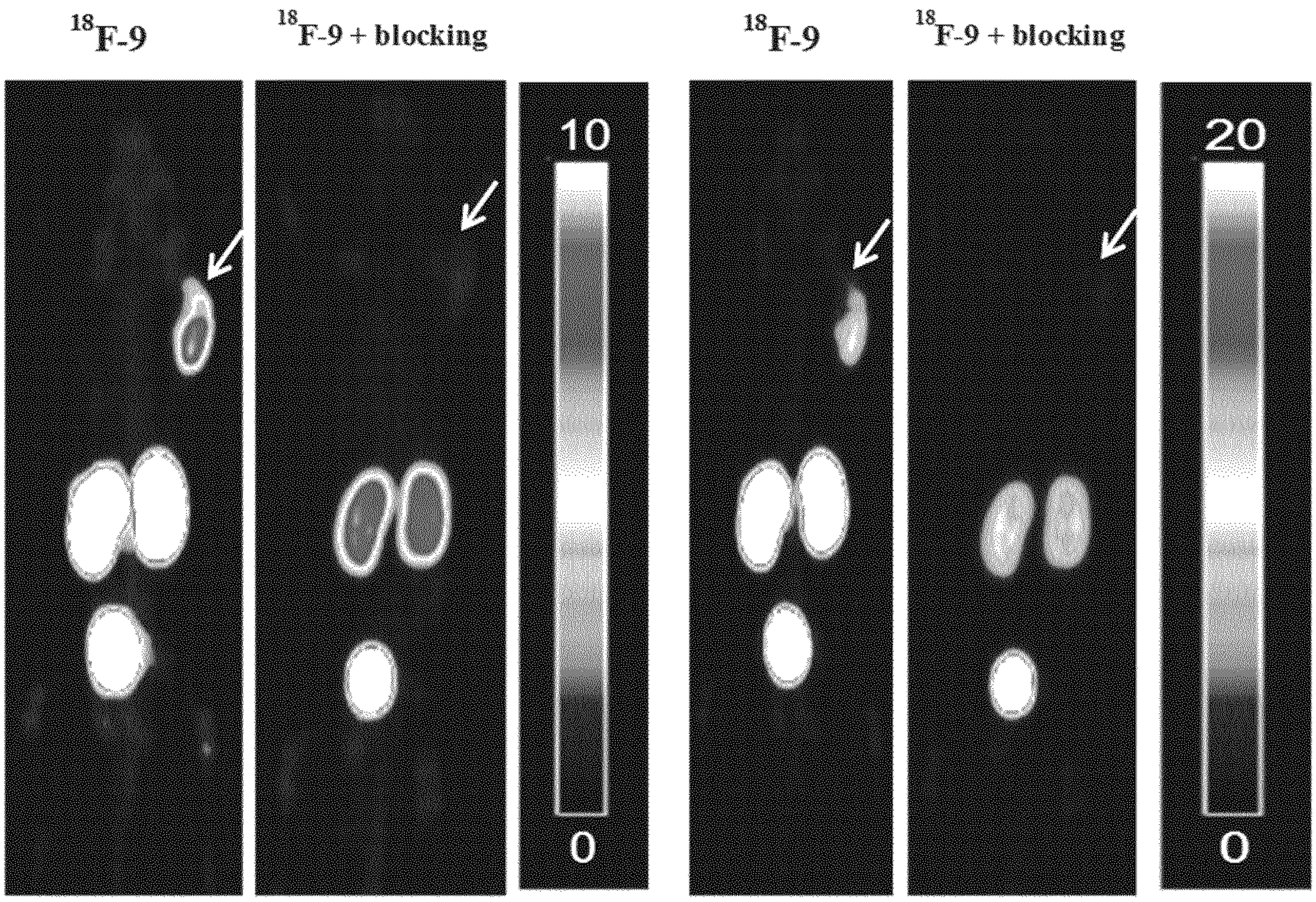

100
10
1
0,1
activity accumulation [%ID/mL]
0
20
40
60
80
100
time [min]
heart
muscle
liver
kidney
tumour

Figure 16



organ	%ID/mL
tumor	6.9 ± 0.34
salivary glands	1.5 ± 0.20
muscle	0.56 ± 0.12
kidney	40.3 ± 7.4
heart	1.1 ± 0.41
liver	1.0 ± 0.40

Figure 17

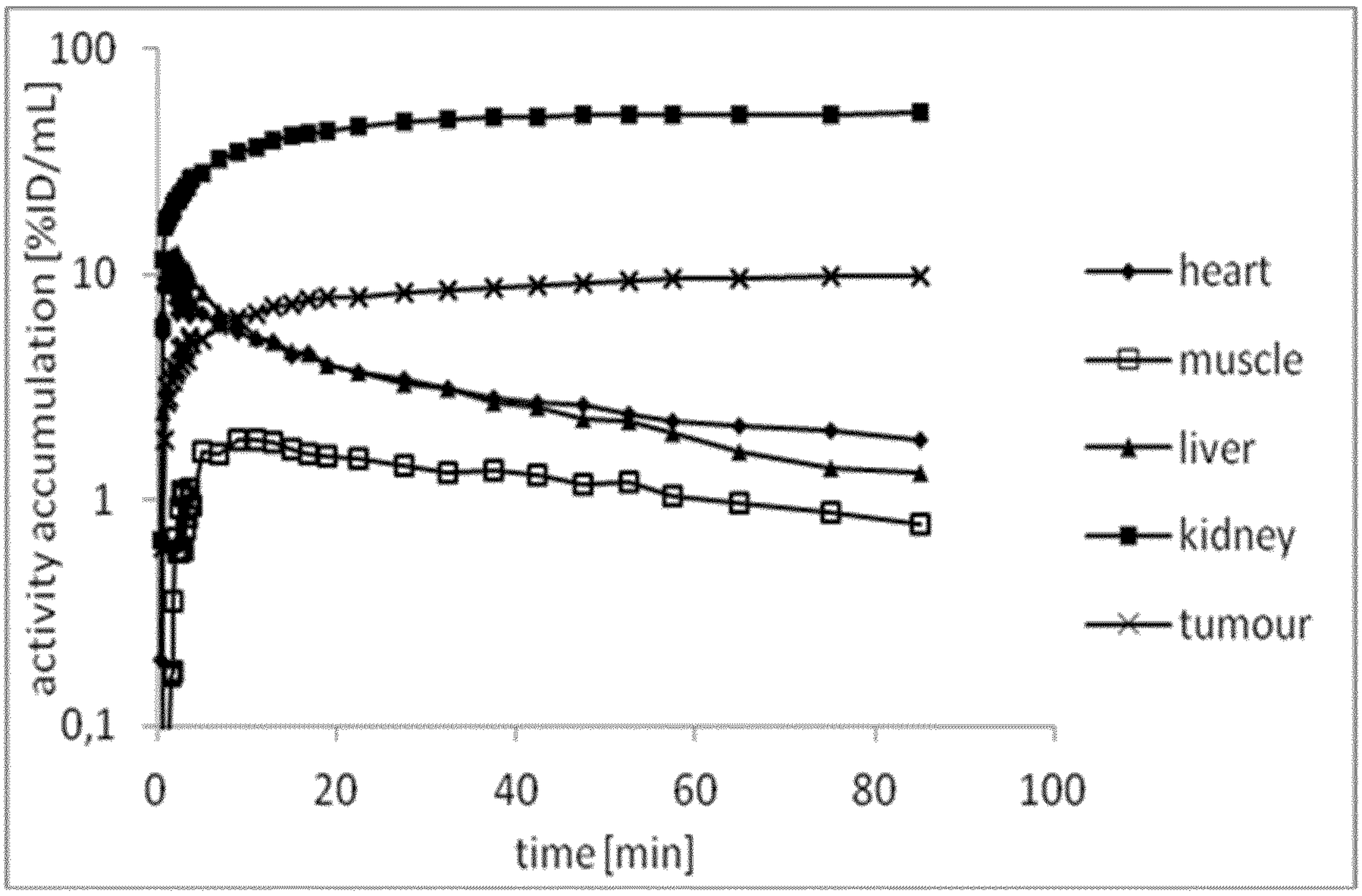
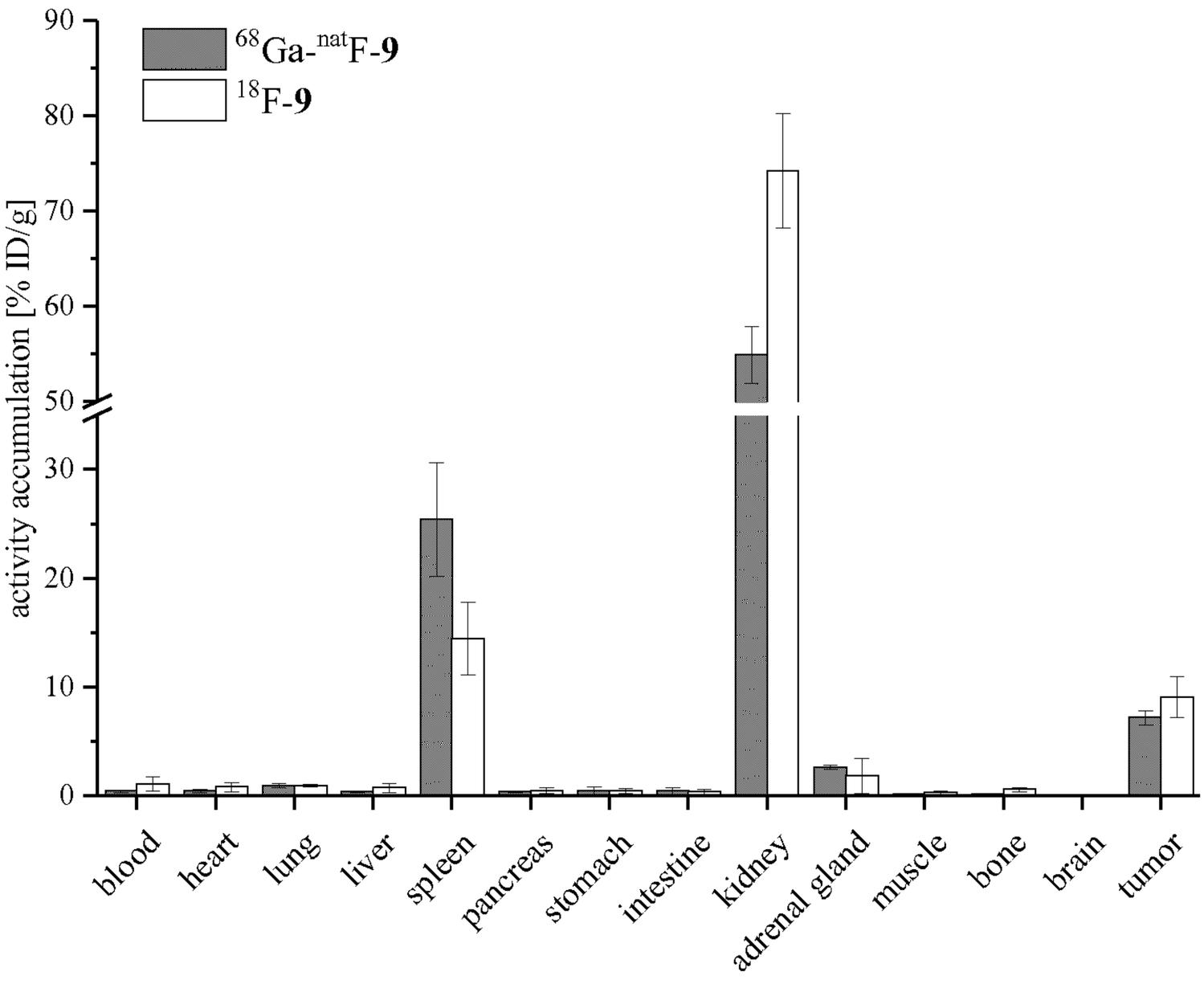
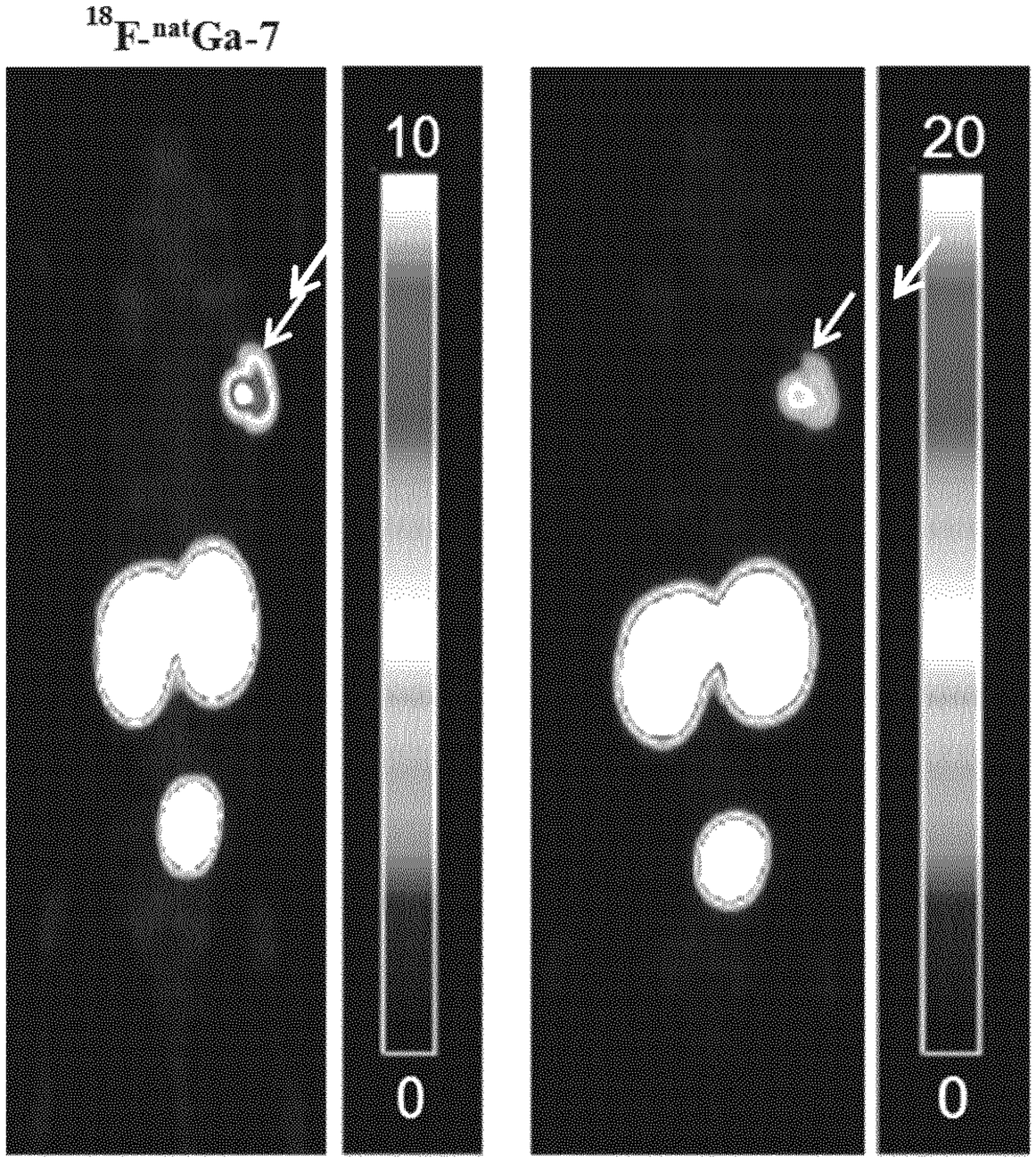

100
10
1
0,1
activity accumulation [%ID/mL]
0
20
40
60
80
100
time [min]
heart
muscle
liver
kidney
tumour

Figure 18



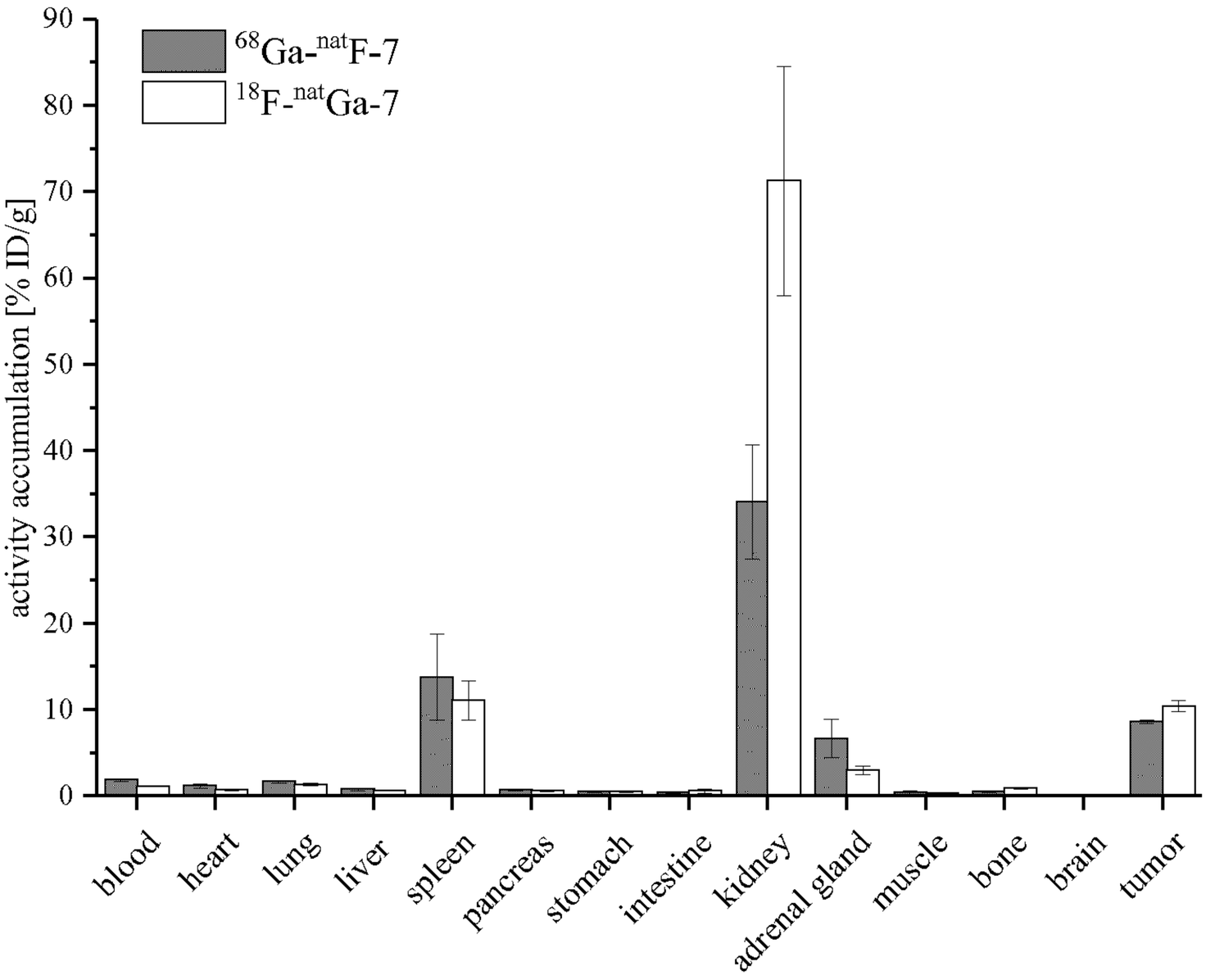
	^{68}Ga-^{nat}F -9	^{18}F-9
blood	0.46 ± 0.11	1.1 ± 0.67
heart	0.48 ± 0.17	0.81 ± 0.40
lung	0.94 ± 0.20	0.98 ± 0.12
liver	0.42 ± 0.07	0.74 ± 0.45
spleen	25.43 ± 5.2	14.5 ± 3.3
pancreas	0.39 ± 0.09	0.48 ± 0.26
stomach	0.48 ± 0.40	0.46 ± 0.23
intestine	0.44 ± 0.34	0.41 ± 0.21
kidneys	54.9 ± 3.0	74.3 ± 6.1
adrenals	2.7 ± 0.19	1.9 ± 1.6
muscle	0.19 ± 0.06	0.32 ± 0.18
bone	0.18 ± 0.05	0.60 ± 0.17
brain	0.04 ± 0.01	0.06 ± 0.04
tumor	7.2 ± 0.63	9.1 ± 1.9

Figure 19



organ	%ID/mL
tumor	7.2 ± 0.22
salivary glands	1.2 ± 0.09
muscle	0.58 ± 0.09
kidney	48.3 ± 11.9
heart	0.80 ± 0.12
liver	0.74 ± 0.04

Figure 20



	^{68}Ga-^{nat}F -7	^{18}F-^{nat}Ga-7
blood	1.9 ± 0.14	1.1 ± 0.03
heart	1.2 ± 0.27	0.7 ± 0.07
lung	1.7 ± 0.16	1.4 ± 0.17
liver	0.77 ± 0.10	0.67 ± 0.07
spleen	13.8 ± 5.0	11.1 ± 2.3
pancreas	0.71 ± 0.11	0.60 ± 0.10
stomach	0.51 ± 0.07	0.49 ± 0.07
intestine	0.43 ± 0.07	0.60 ± 0.27
kidneys	34.1 ± 6.6	71.3 ± 13.3
adrenals	6.7 ± 2.2	3.0 ± 0.45
muscle	0.42 ± 0.22	0.36 ± 0.06
bone	0.52 ± 0.11	0.91 ± 0.11
brain	0.06 ± 0.01	0.11 ± 0.08
tumor	8.6 ± 0.20	10.4 ± 0.67

Figure 21

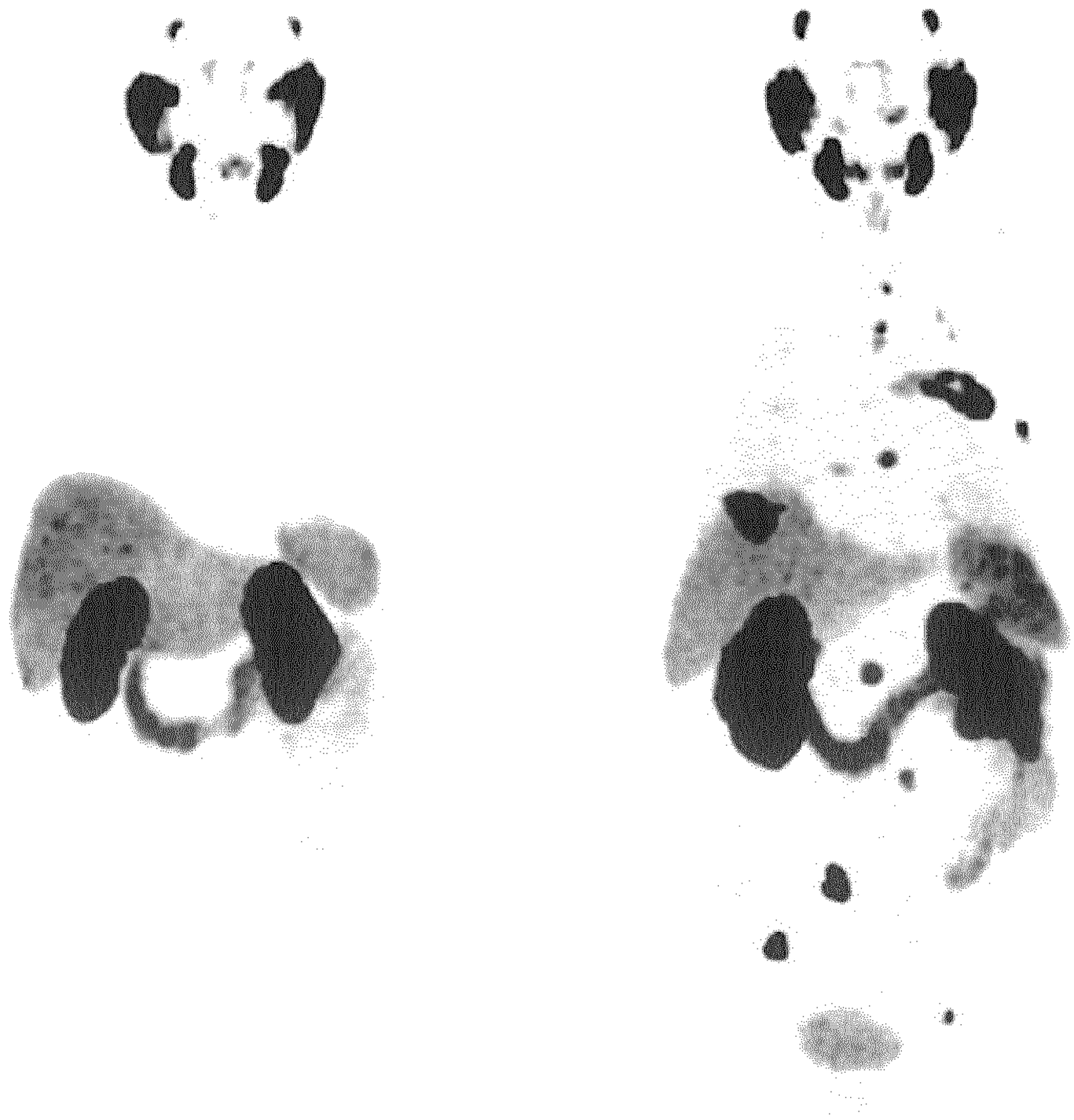
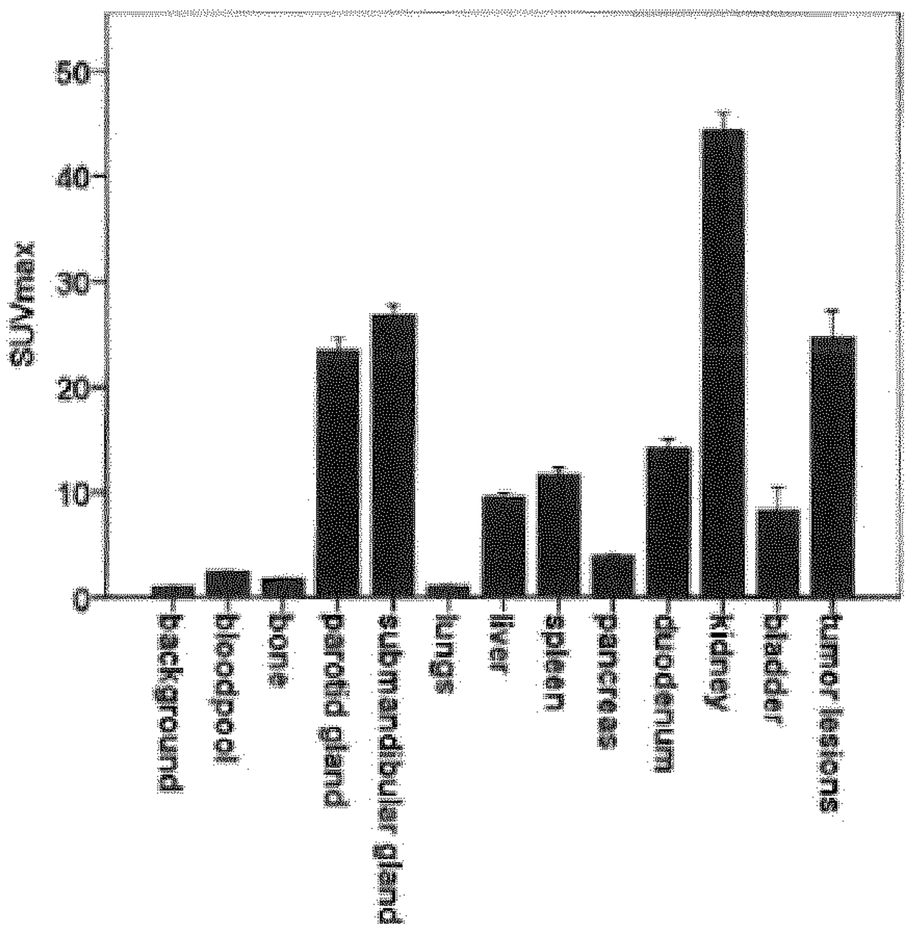


Figure 22

	SUVmax			SUVmean		
	mean	min	max	mean	min	max
background	1,0	0,6	1,9	0,6	0,4	1,2
bloodpool	2,4	1,6	3,9	2,0	1,1	17,0
parotid gland	23,5	8,2	42,3	16,8	5,5	32,7
submandibular gland	26,7	10,1	43,8	19,6	7,0	29,7
lungs	1,0	0,5	3,1	0,7	0,3	2,0
liver	9,5	4,5	25,2	7,0	3,2	17,7
spleen	11,8	4,7	21	9,1	3,4	17,1
pancreas	3,9	1,8	9,2	2,7	1,3	7,4
duodenum	14,2	2,8	32,7	10,5	1,9	23,9
bone	1,7	0,8	3,1	1,1	0,6	2,1
kidney	44,3	19,1	75,2	32,1	13,2	54,7
bladder	8,3	0,5	112,0	6,1	0,3	85,7
tumor lesions	26,6	4,0	95,4	19,2	2,7	71,7



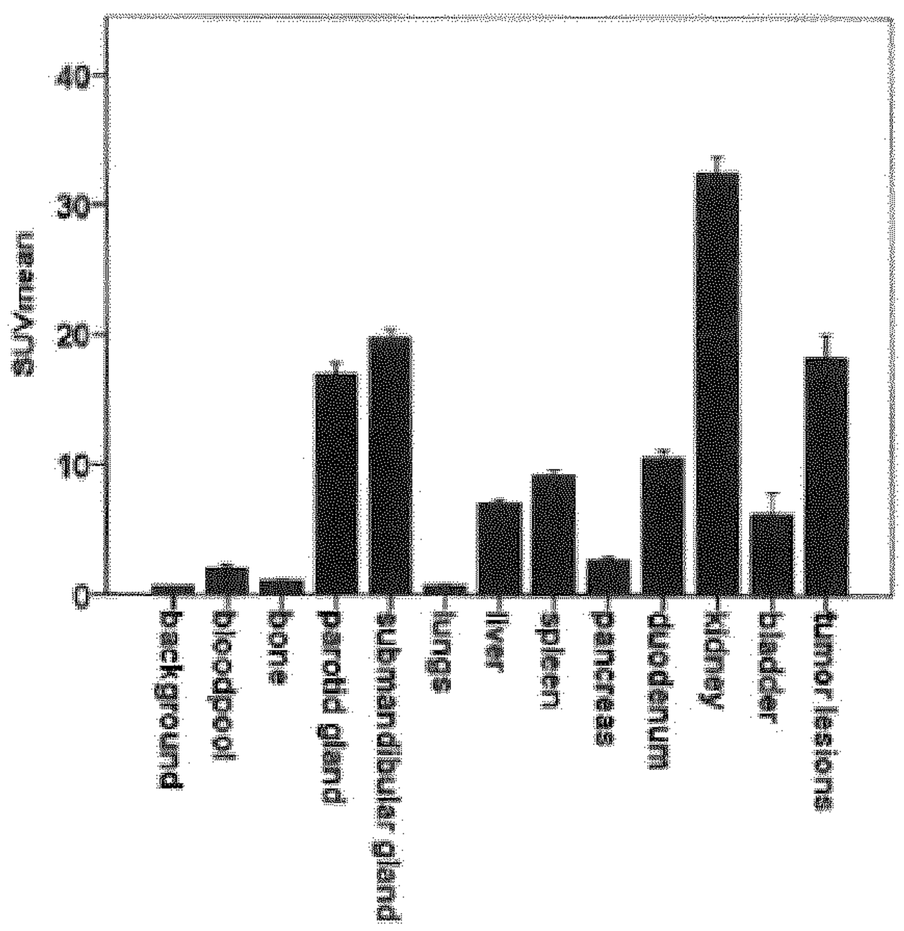
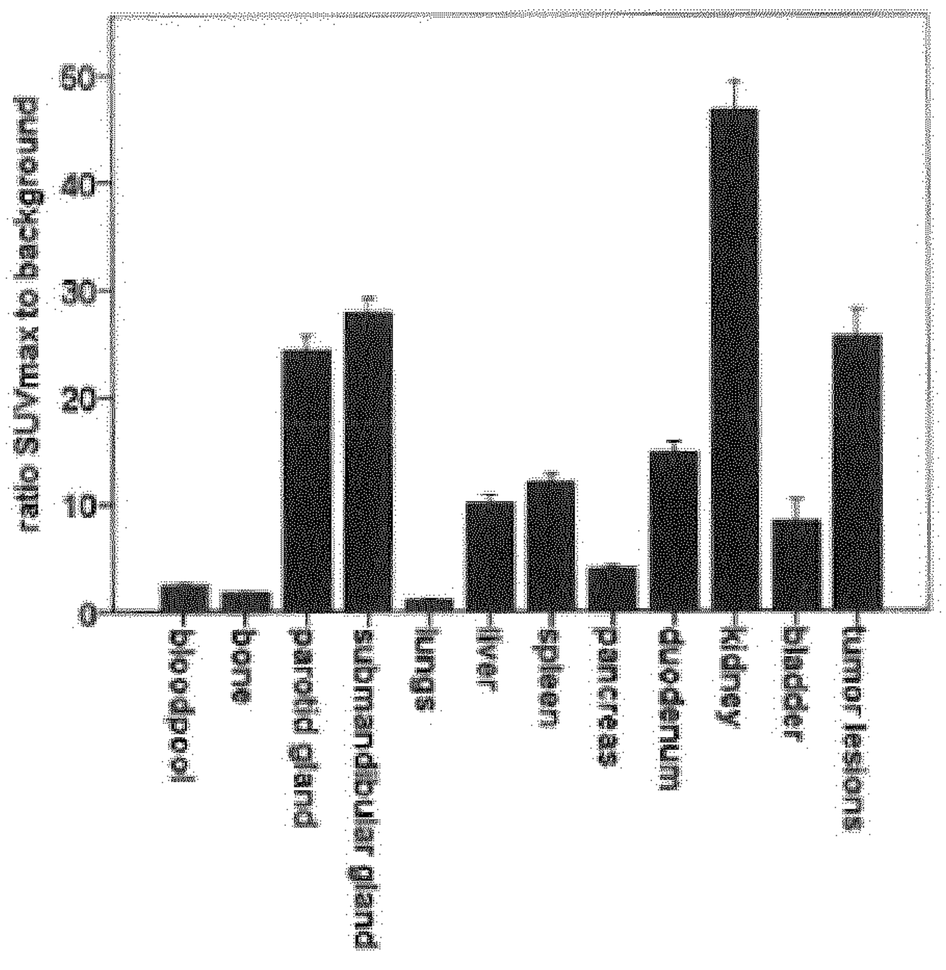


Figure 23

	ratio SUVmax to background			ratio SUVmean to background		
	mean	min	max	mean	min	max
bloodpool	2,5	1,3	4,8	3,1	1,5	21,3
parotid gland	24,3	8,2	45,3	27,5	9,2	54,5
submandibular gland	27,8	10,1	54,7	32,5	11,7	61,8
lungs	1,1	0,4	3,3	1,1	0,4	4,0
liver	10,1	2,9	42,0	11,7	3,7	44,3
spleen	12,3	4,7	35,0	14,9	5,7	39,5
pancreas	4,0	1,5	11,3	4,3	1,9	10,8
duodenum	14,8	2,8	31,3	17,3	3,2	35,3
bone	1,7	0,9	2,9	1,8	1,0	3,2
kidney	46,7	16,9	98,7	53,8	19,8	109,3
bladder	8,3	0,6	112,0	9,8	0,5	142,8
tumor lesions	28,6	5,0	83,4	31,9	5,4	83,2



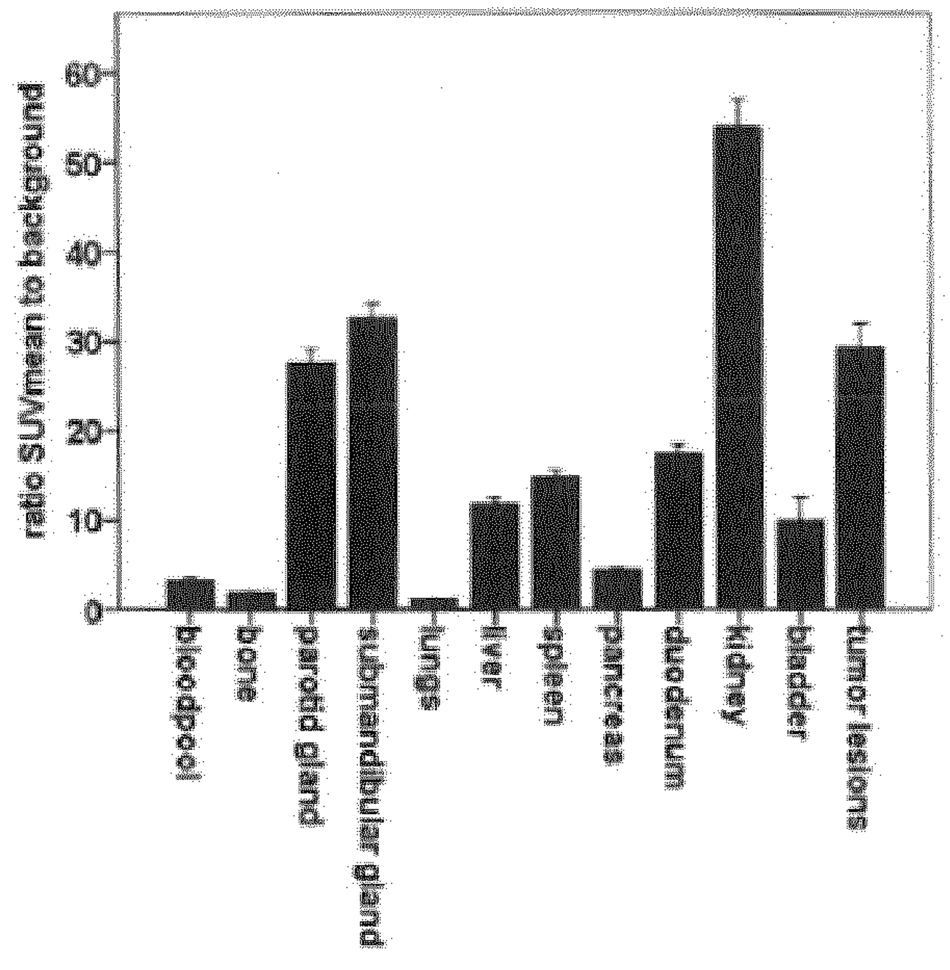


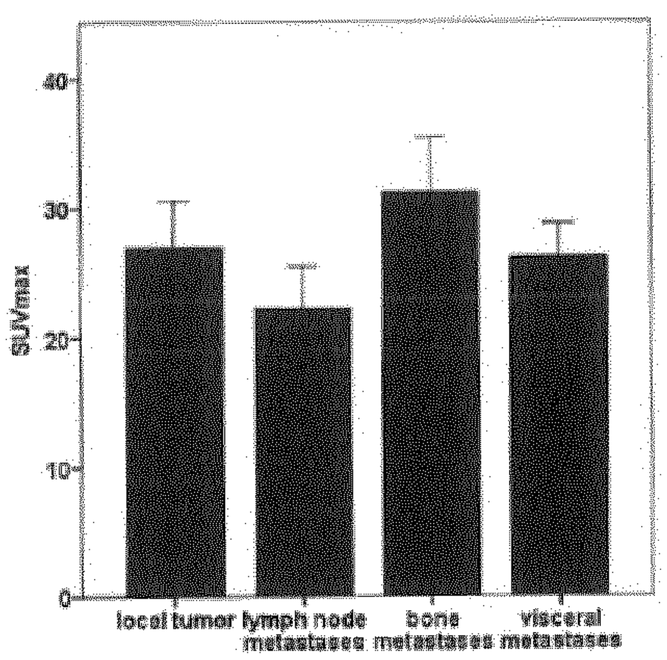
Figure 24

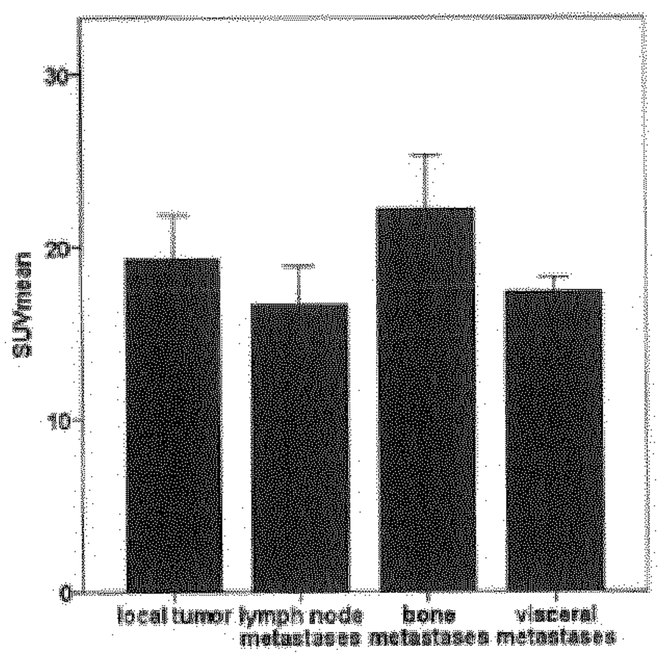
local tumor		SUVmax	ratio SUVmax	SUVmean	ratio SUVmean
	mean	26,9	29,6	19,3	32,4
	min	4	5	2,7	5,4
	max	75,1	83,4	19,3	83,2

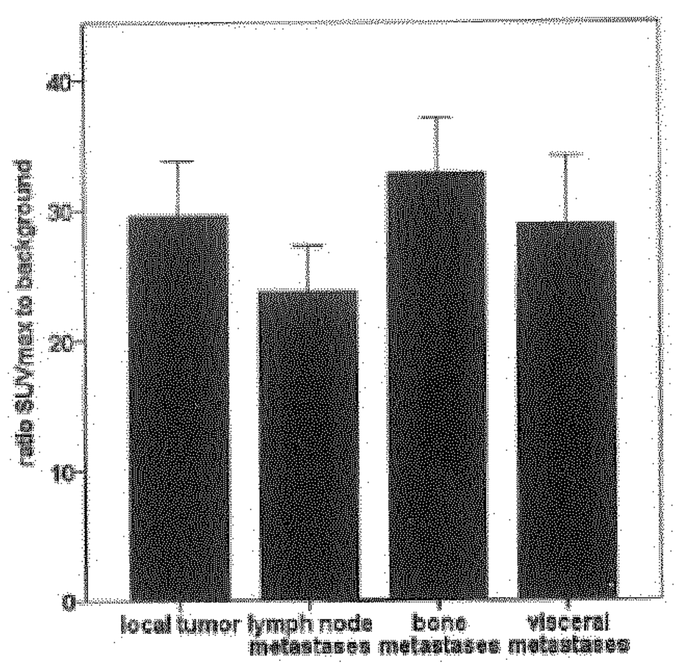
lymph node metastases		SUVmax	ratio SUVmax	SUVmean	ratio SUVmean
	mean	22,2	23,7	16,6	27,3
	min	8,1	5,8	6,4	7,1
	max	67,5	63,6	44,6	70,7

bone metastses		SUVmax	ratio SUVmax	SUVmean	ratio SUVmean
	mean	31,2	32,8	22,2	36,6
	min	7,9	7,9	5,3	8,8
	max	95,4	73,4	71,7	80

visceral metastases		SUVmax	ratio SUVmax	SUVmean	ratio SUVmean
	mean	26,1	28,9	17,4	30,2
	min	20,4	18,5	15,5	22,1
	max	32,5	40,6	19,1	38,2







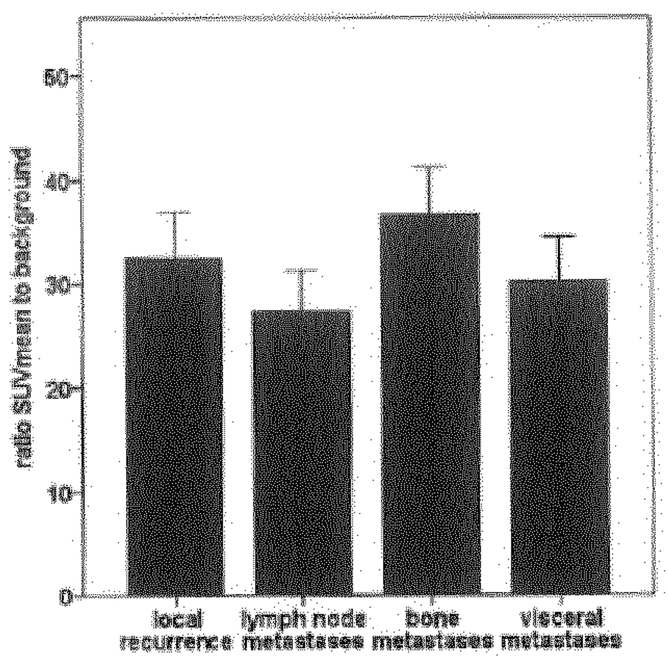
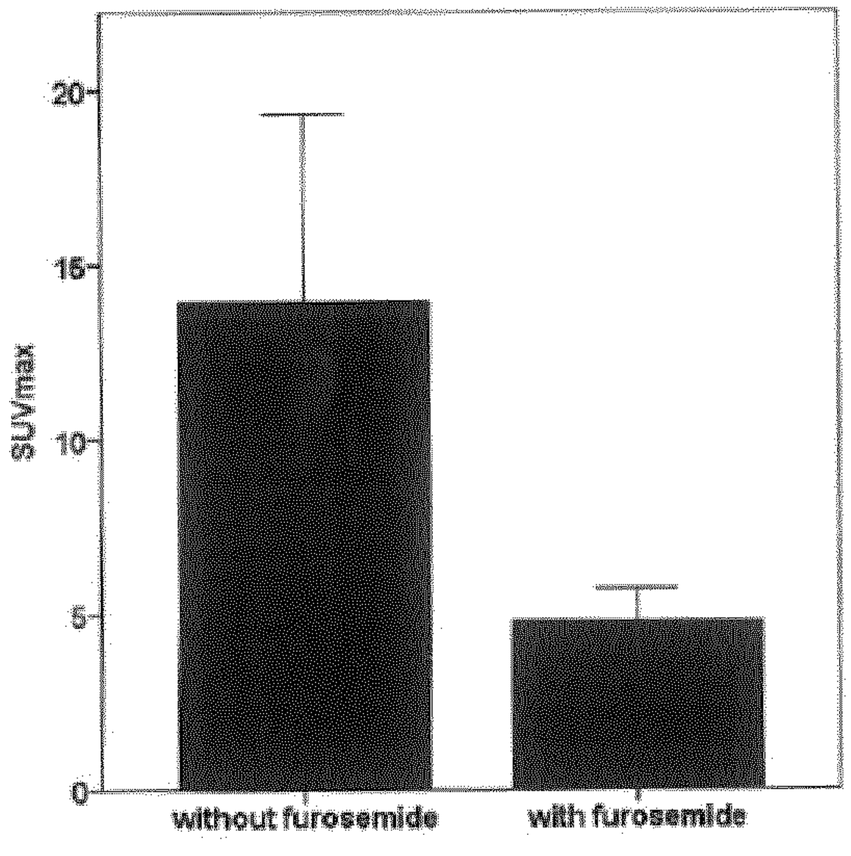


Figure 25

	SUVmax			SUVmean		
	mean	min	max	mean	min	max
with furosemide	4,8	1,6	32	3,4	1,1	26,6
without furosemide	13,9	0,5	112	10,5	0,3	85,7



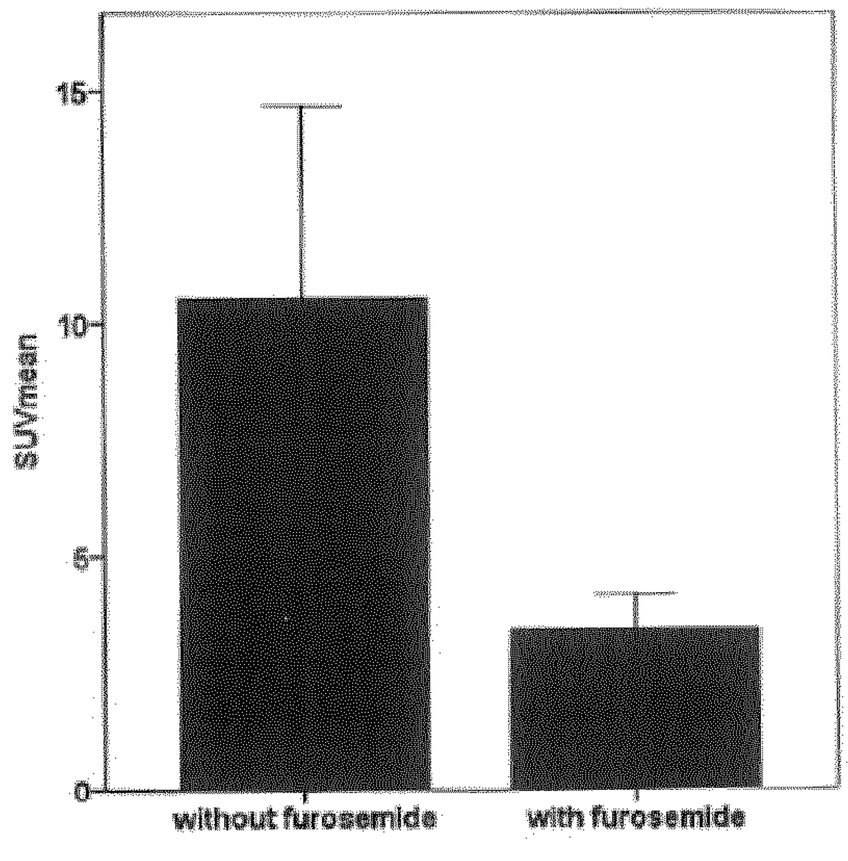
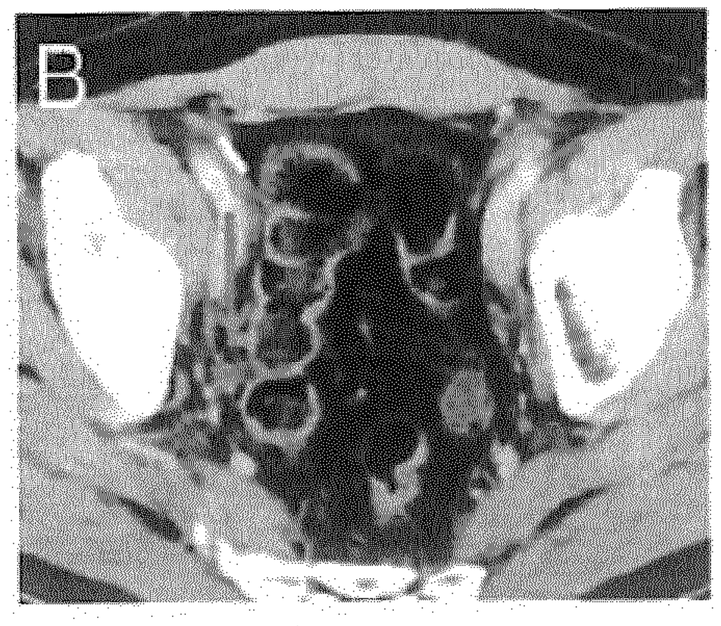
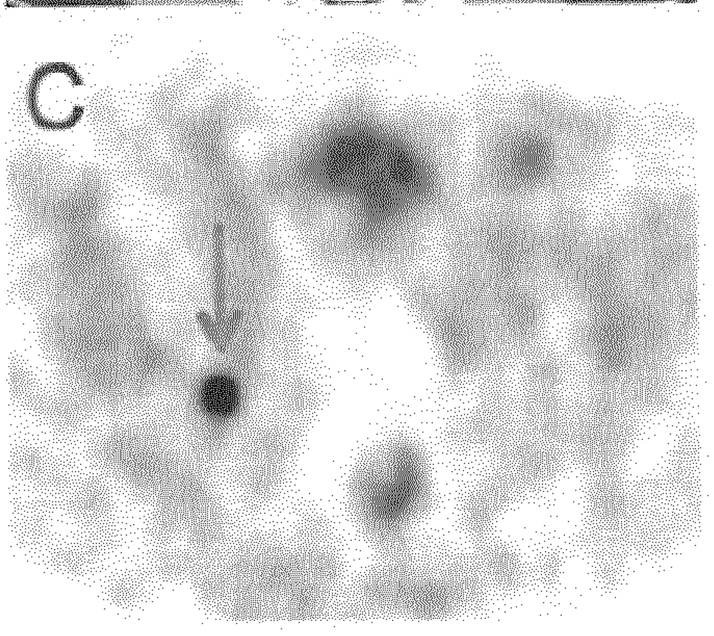


Figure 26







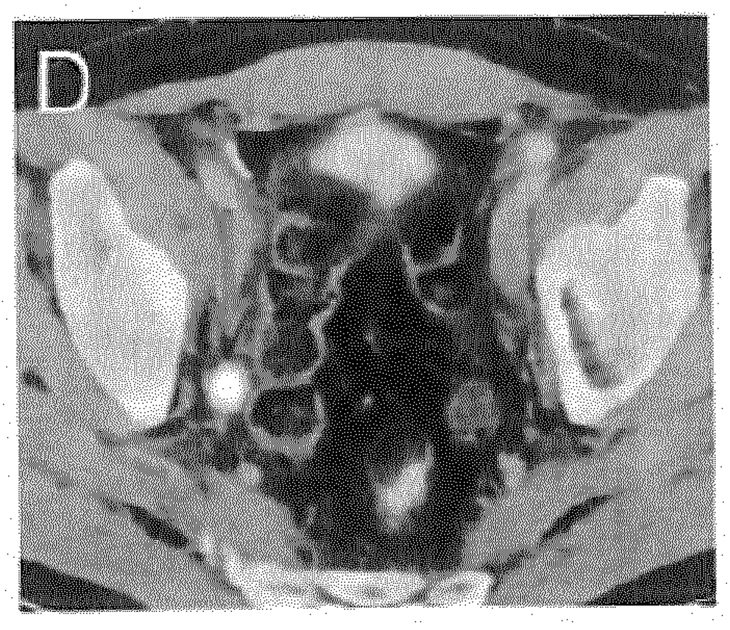


Figure 27

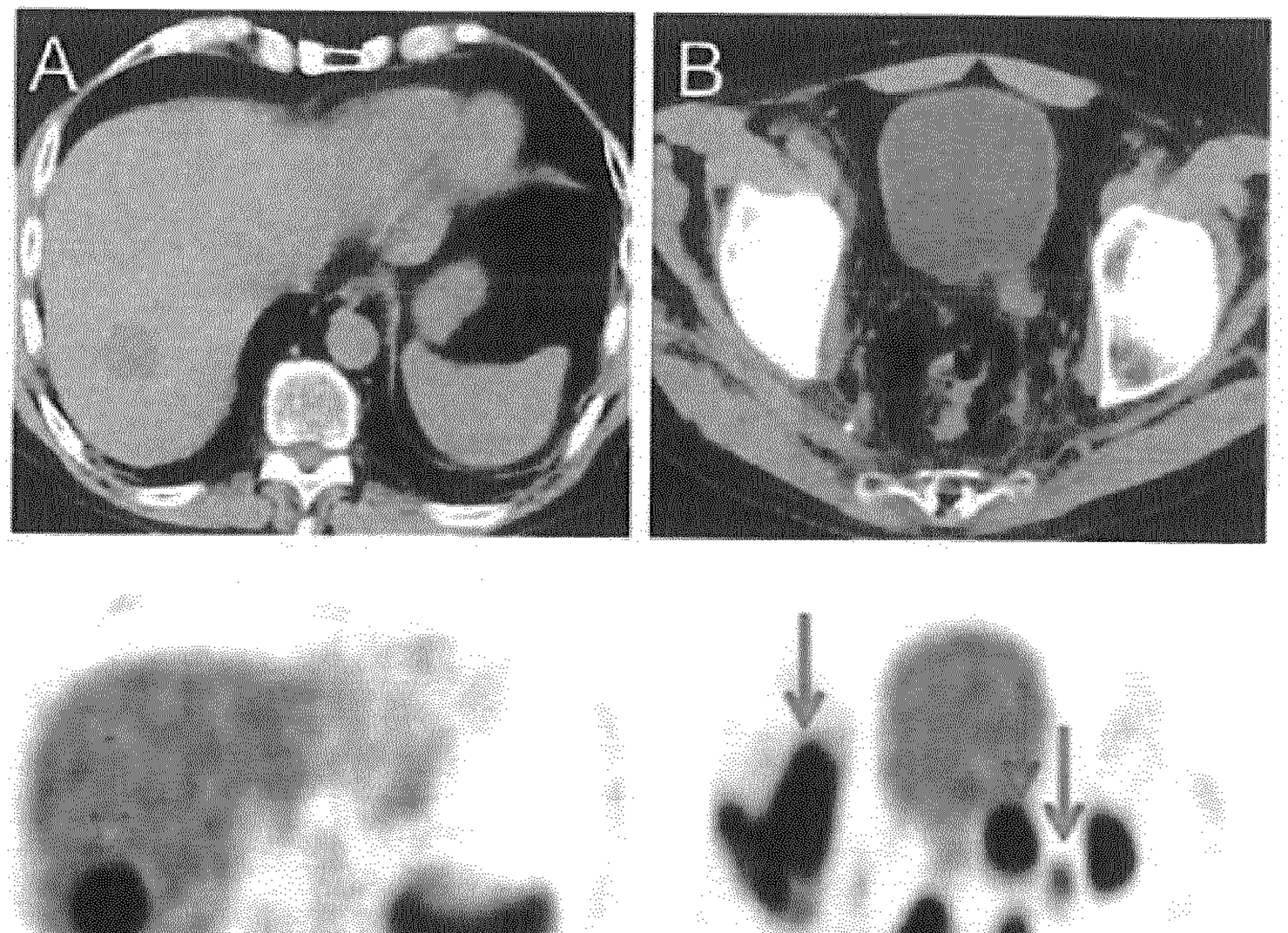


Figure 28

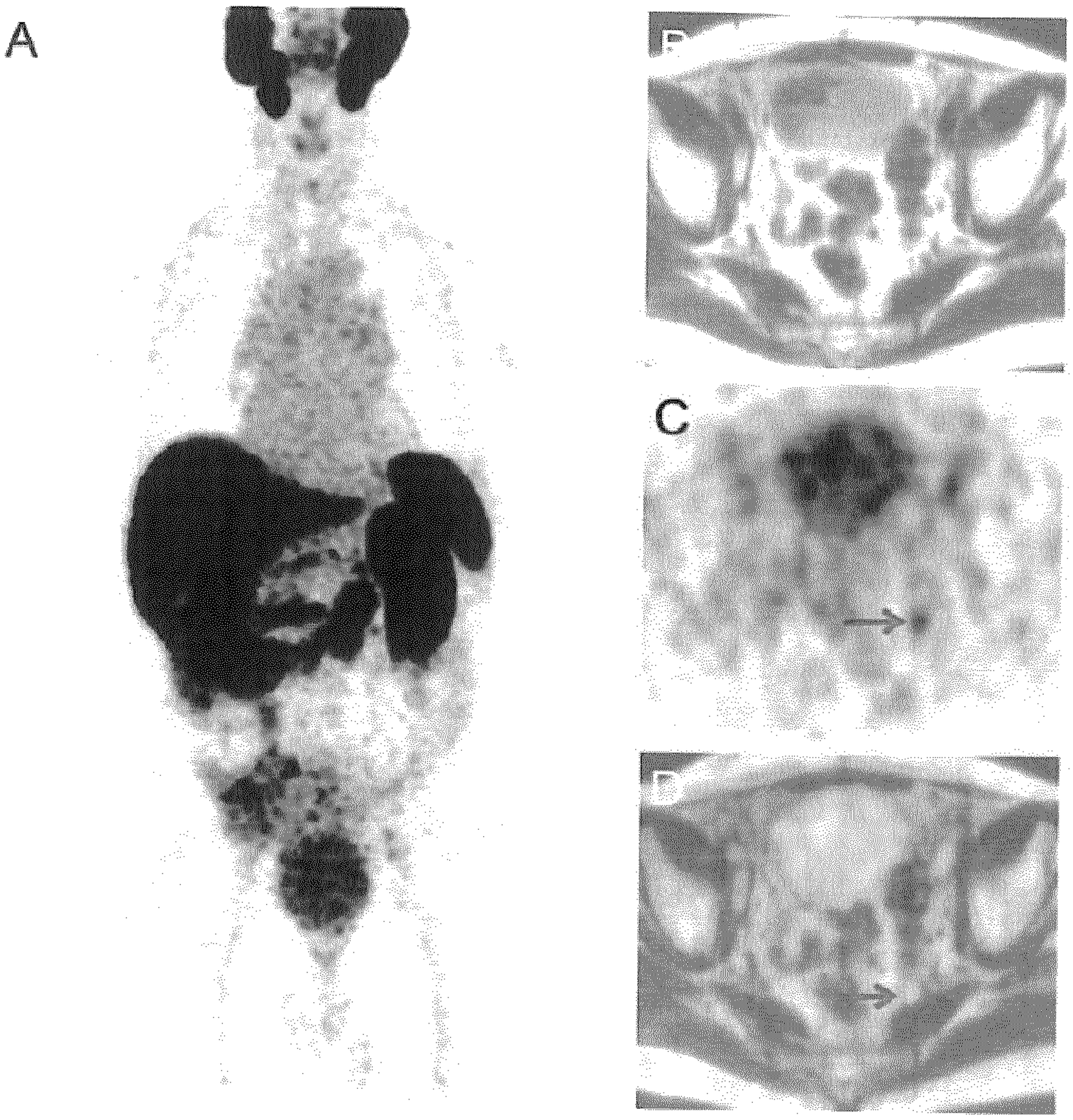
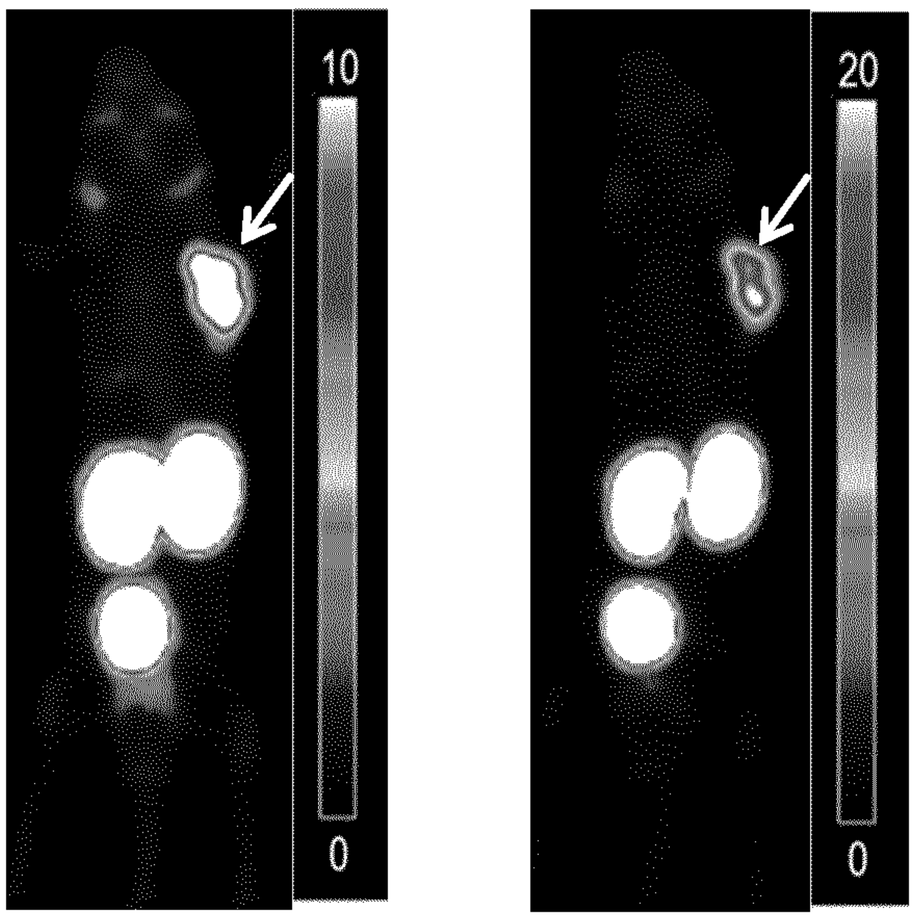


Figure 29



ROI-	%ID/mL
tumor	10.9 ± 3.2
salivary glands	1.7 ± 0.1
muscle	0.41 ± 0.09
kidney	53 ± 5.9
heart	1.2 ± 0.12
liver	0.96 ± 0.03

Figure 30

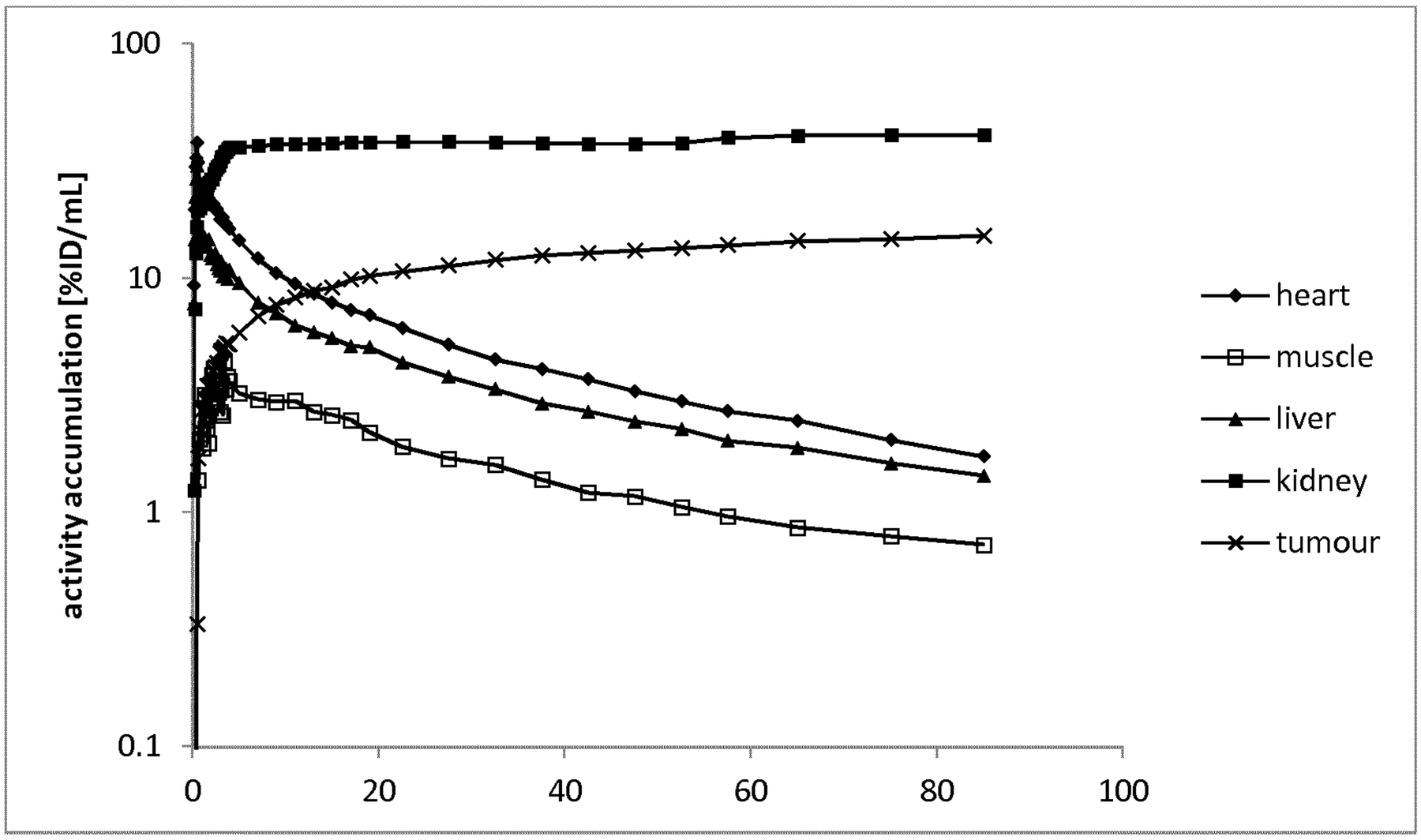
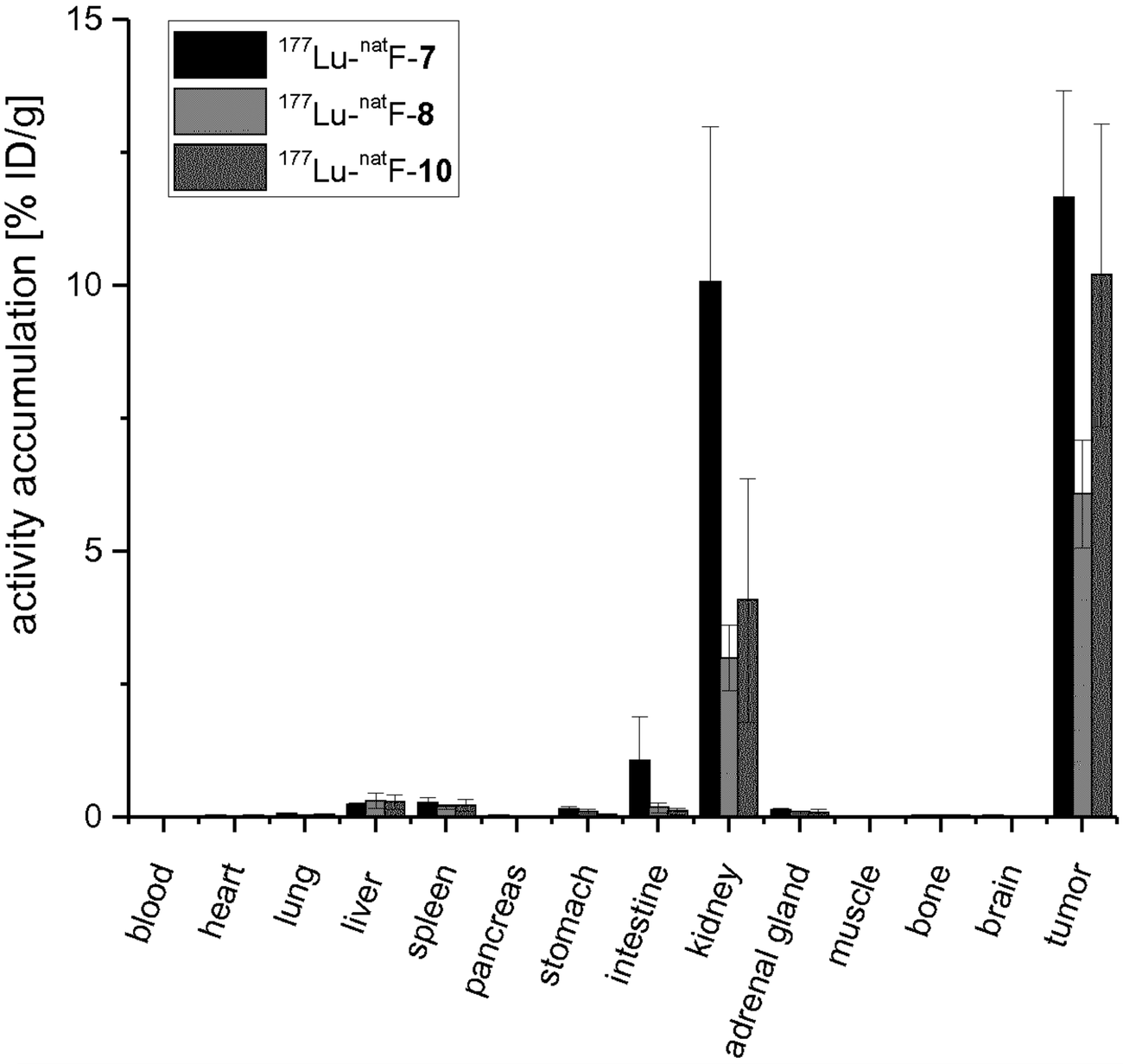
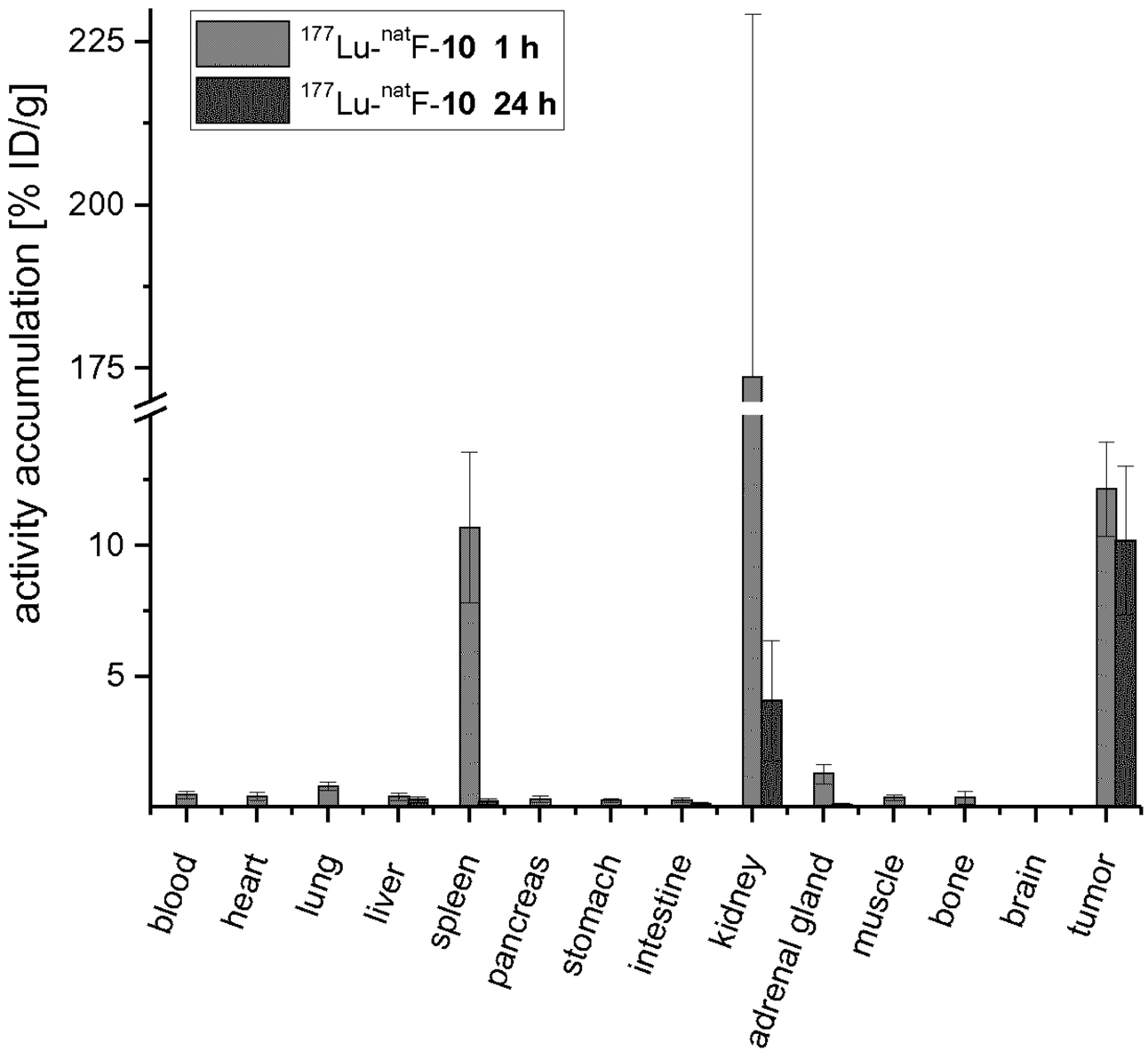

100
10
1
0.1
activity accumulation [%ID/mL]
0
20
40
60
80
100
heart
muscle
liver
kidney
tumour

Figure 31



	^{177}Lu-rh-7	^{177}Lu-rh-8	^{177}Lu-rh-10
blood	0.006 ± 0.001	0.002 ± 0.0004	0.004 ± 0.001
heart	0.03 ± 0.01	0.02 ± 0.007	0.03 ± 0.007
lung	0.07 ± 0.01	0.04 ± 0.01	0.05 ± 0.007
liver	0.23 ± 0.03	0.31 ± 0.14	0.28 ± 0.13
spleen	0.27 ± 0.09	0.20 ± 0.04	0.22 ± 0.11
pancreas	0.02 ± 0.007	0.02 ± 0.005	0.02 ± 0.001
stomach	0.15 ± 0.05	0.11 ± 0.04	0.04 ± 0.008
intestine	1.1 ± 0.82	0.18 ± 0.09	0.11 ± 0.06
kidneys	10.1 ± 2.9	3.0 ± 0.62	4.1 ± 2.3
adrenals	0.13 ± 0.04	0.09 ± 0.03	0.09 ± 0.06
muscle	0.01 ± 0.006	0.01 ± 0.003	0.01 ± 0.003
bone	0.03 ± 0.01	0.03 ± 0.007	0.02 ± 0.01
brain	0.03 ± 0.02	0.009 ± 0,002	0.01 ± 0.003
LNCaP	11.7 ± 2.0	6.08 ± 1.01	10.2± 2.8

Figure 32



	1 h	24 h
blood	0.48 ± 0.15	0.004 ± 0.001
heart	0.42 ± 0.15	0.03 ± 0.007
lung	0.80 ± 0.16	0.05 ± 0.007
liver	0.40 ± 0.13	0.28 ± 0.13
spleen	10.7 ± 2.9	0.22 ± 0.11
pancreas	0.31 ± 0.12	0.02 ± 0.001
stomach	0.26 ± 0.08	0.04 ± 0.008
intestine	0.28 ± 0.10	0.11 ± 0.06
kidneys	173 ± 55.5	4.1 ± 2.3
adrenals	1.3 ± 0.37	0.09 ± 0.06
muscle	0.36 ± 0.10	0.01 ± 0.003
bone	0.37 ± 0.24	0.02 ± 0.01
brain	0.05 ± 0.01	0.01 ± 0.003
LNCaP	12.2 ± 1.8	10.2± 2.8

Figure 33

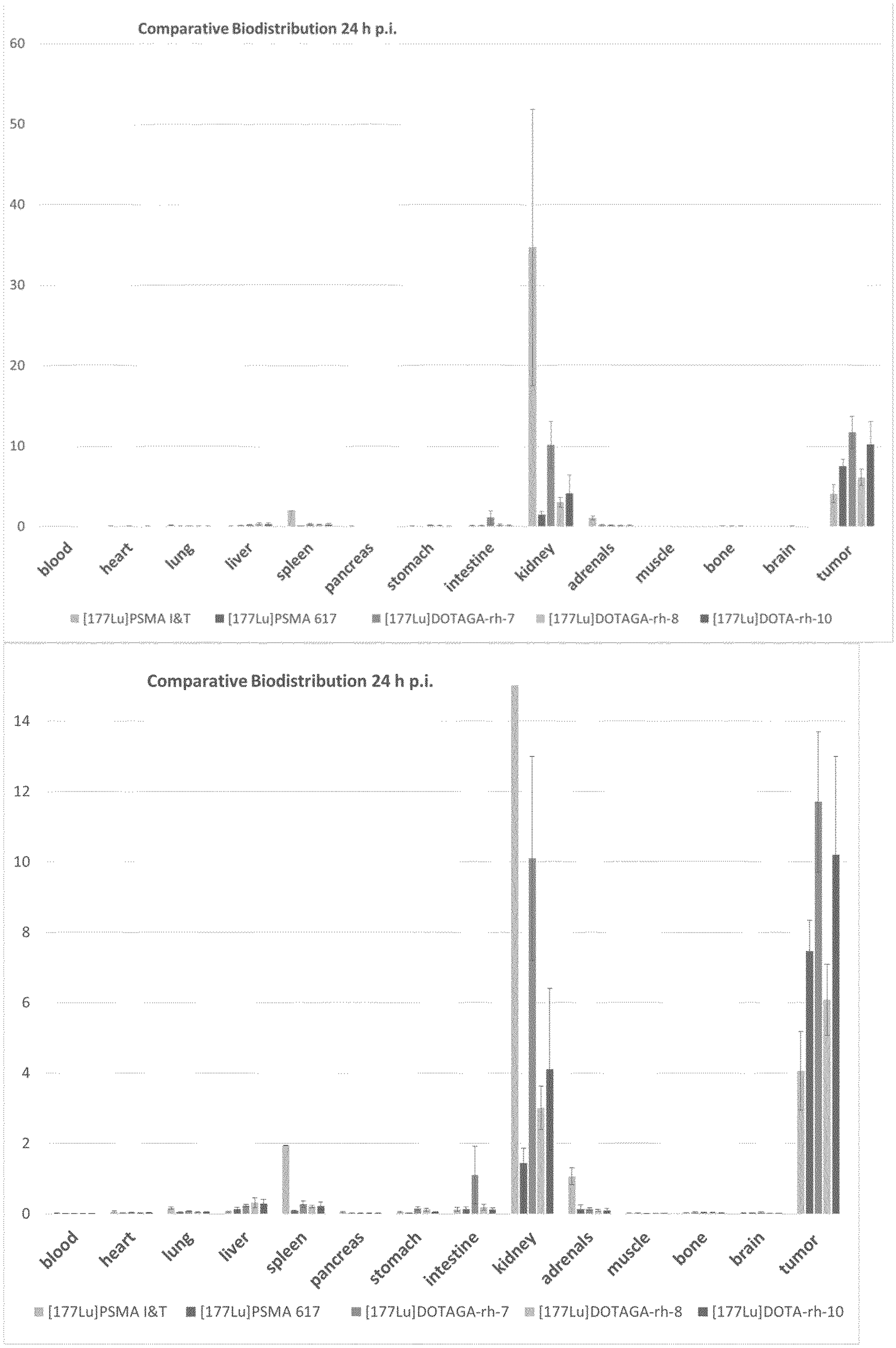
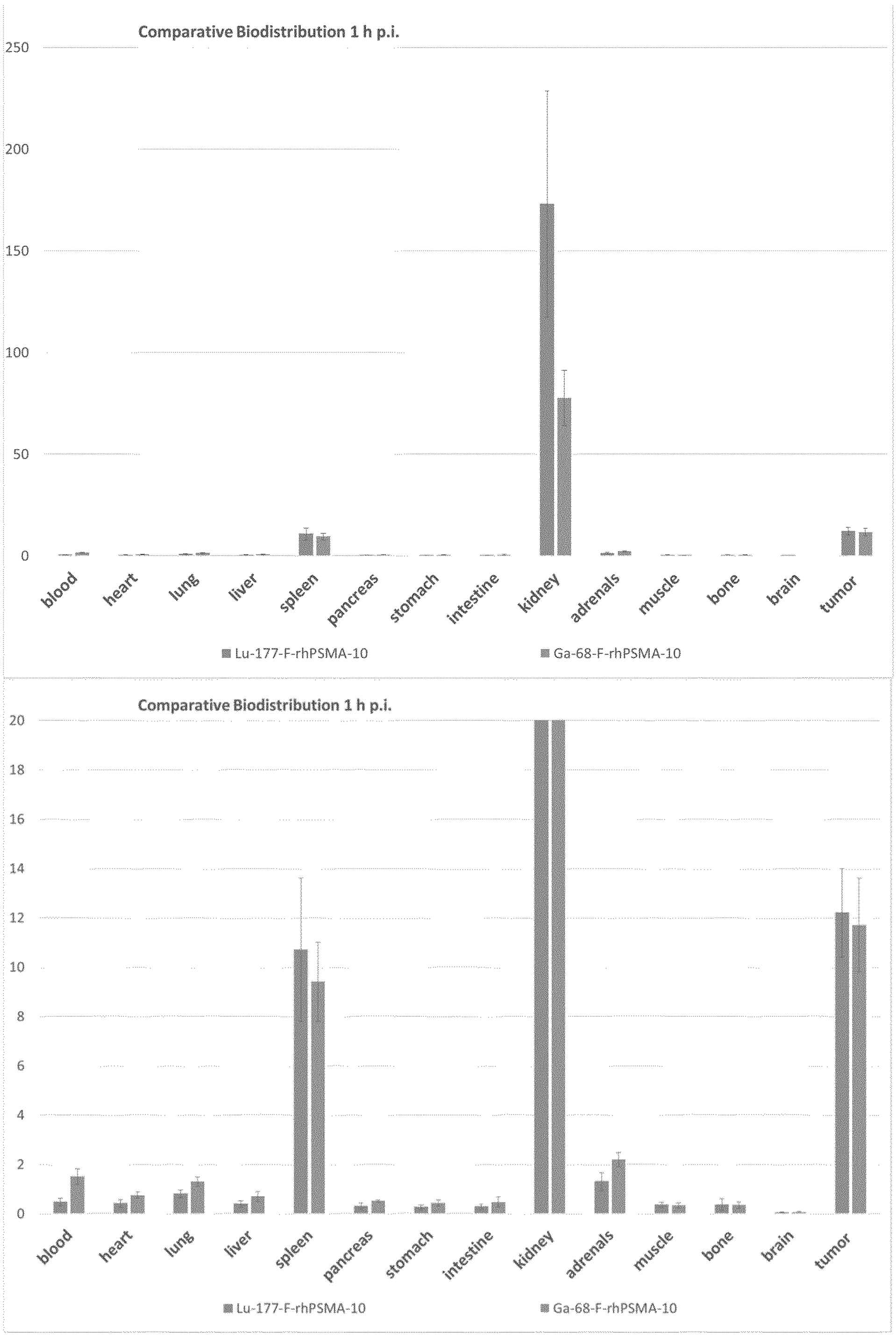

Comparative Biodistribution 24 h p.i.
60
50
40
30
20
10
0
blood
heart
lung
liver
spleen
pancreas
stomach
intestine
kidney
adrenals
muscle
bone
brain
tumor
[177Lu]PSMA I&T
[177Lu]PSMA 617
[177Lu]DOTAGA-rh-7
[177Lu]DOTAGA-rh-8
[177Lu]DOTA-rh-10
Comparative Biodistribution 24 h p.i.
14
12
10
8
6
4
2
0
blood
heart
lung
liver
spleen
pancreas
stomach
intestine
kidney
adrenals
muscle
bone
brain
tumor
[177Lu]PSMA I&T
[177Lu]PSMA 617
[177Lu]DOTAGA-rh-7
[177Lu]DOTAGA-rh-8
[177Lu]DOTA-rh-10

Figure 34


Comparative Biodistribution 1 h p.i.
250
200
150
100
50
0
blood
heart
lung
liver
spleen
pancreas
stomach
intestine
kidney
adrenals
muscle
bone
brain
tumor
Lu-177-F-rhPSMA-10
Ga-68-F-rhPSMA-10
Comparative Biodistribution 1 h p.i.
20
18
16
14
12
10
8
6
4
2
0
blood
heart
lung
liver
spleen
pancreas
stomach
intestine
kidney
adrenals
muscle
bone
brain
tumor
Lu-177-F-rhPSMA-10
Ga-68-F-rhPSMA-10