Supplemental Table 1

Dosimetry in ^{177}Lu-Pentixather treated patients

patient GBq[1]		kidneys maxV[6]	kidneys mean[7]	liver mean[7]	spleen mean[7]	lesion[8] maxV[6]
#1						
0.24	Gy/GBq[2]	1.39	1.02	0.38	0.49	3.3
15.2	Gy/GBq[3]	0.69	0.57	0.37	0.47	3.5
	Ratio	50%	55%	97%	96%	106%
	Gy[4]	10.5	8.7	5.6	7.1	53
#2						
0.2	Gy/GBq[2]	1.08	0.93	0.79	1.74	9.5
23.5	Gy/GBq[3]	0.53	0.5	0.56	1.4	3
	Ratio	49%	54%	71%	80%	32%
	Gy[4]	12.5	11.8	13.2	32.9	70
#3						
0.2	Gy/GBq[2]	2.53	2.28	0.95	1	4.6
7.8	Gy/GBq[3]	1.53	1.57	0.75	0.81	4.8
	Ratio	60%	69%	79%	81%	104%
	Gy[4]	11.9	12.2	5.9	6.3	37
#4						
0.21	Gy/GBq[2]	2.25	1.5	0.85	0.8	
9.9	Gy/GBq[3]	1.62	1.1	0.63	0.73	
	Ratio	72%	73%	74%	91%	
	Gy[4]	16	10.9	6.2	7.2	
#5						
0.21	Gy/GBq[2]	1.36	1	0.39	1.03	5.1
14.6	Gy/GBq[3]	0.96	0.78	0.43	0.83	4.5
	Ratio	71%	78%	110%	81%	88%
	Gy[4]	14	11.4	6.3	12.1	66
#6						
0.2	Gy/GBq[2]	2.21	1.36	0.54	0.69	0.7
7.6	Gy/GBq[3]	1.76	1.03	0.45	0.68	0.57
	Ratio	80%	76%	83%	99%	81%
	Gy[4]	13.4	7.8	3.4	5.2	4.3
mean Ratio[5] (%)		64 ± 13	68 ± 10	86 ± 15	88 ± 8 %	82 ± 30

[1)] Patient number and ^{177}Lu-Pentixather activities for diagnostics and treatment
[2)] Specific absorbed dose in pre-therapeutic dosimetry
[3)] Specific absorbed dose from therapy
[4)] Therapeutic absorbed dose
[5)] Mean ratio of specific absorbed doses in diagnostics and treatment
[6)] Absorbed dose in the contiguous 1 ml volume with the highest activity concentration
[7)] Absorbed dose in entire organ or large representative volume
[8)] Most dominant malignant lesion

Supplemental Table 2

Characteristics of the different administered radiopharmaceuticals

radionuclide 1	radionuclide 2	application interval	activity radionuclide 1	activity radionuclide 2
^{90}Y-CPCR4	^{153}Samarium-EDTMP	5 days	4.7 GBq	15.9 GBq
^{90}Y-CPCR4	^{188}Re-CD66	5 days	2.7 GBq	7.7 GBq
^{90}Y-CPCR4	^{90}Y-Zevalin	1 day	5.8 GBq	0.9 GBq
^{90}Y-CPCR4	^{188}Re-CD66	6 days	4.5 GBq	5.2 GBq
^{90}Y-CPCR4	^{188}Re-CD66	2 days	5.8 GBq	5.6 GBq
^{90}Y-CPCR4	^{188}Re-CD66	5 days	5.6 GBq	9.9 GBq
^{90}Y-CPCR4	^{188}Re-CD66	3 days	2.4 GBq	8.6 GBq
^{90}Y-CPCR4	^{188}Re-CD66	5 days	7.4 GBq	12.7 GBq

Supplemental Table 3

Higher grade toxicites respective of the administered radiopharmaceuticals

	^{177}Lu-CPCR4	^{90}Y-CPCR4	^{90}Y-CPCR4 + ^{188}Re-CD66	^{90}Y-CPCR4 + ^{153}Samarium-EDTMP	^{90}Y-CPCR4 + ^{90}Y-Zevalin
	6 patients	11 patients	6 patients	1 patient	1 patient
Events, no. (%)					
Anemia					
Grade ≥ 3	3 (50)	8 (80)	5 (83)	1 (100)	0 (0)
Thrombopenia					
Grade ≥ 3	6 (100)	7 (64)	6 (100)	1 (100)	1 (100)
Neutropenie					
Grade ≥ 3	5 (83)	8 (80)	5 (83)	1 (100)	1 (100)
Acute kidney failure					
Grade ≥ 3	0 (0)	1 (9)	0 (0)	0 (0)	0 (0)
Proteinuria					
Grade ≥ 3	0 (0)	1 (9)	0 (0)	0 (0)	0 (0)
Hypocalcemia					
Grade ≥ 3	2 (33)	2 (18)	0 (0)	0 (0)	0 (0)
oral Mucositis					
Grade ≥ 3	1 (17)	0 (0)	0 (0)	0 (0)	0 (0)
Arrythmia					
Grade ≥ 3	1 (17)	0 (0)	0 (0)	0 (0)	0 (0)
Hypertension					
Grade ≥ 3	1 (17)	1 (9)	0 (0)	0 (0)	0 (0)
Hypotension					
Grade ≥ 3	0 (0)	0 (0)	1 (17)	0 (0)	0 (0)
Peripheral edema					
Grade ≥ 3	0 (0)	0 (0)	2 (33)	0 (0)	0 (0)
Sensory					
Grade ≥ 3	0 (0)	1 (9)	0 (0)	0 (0)	0 (0)
Decrease of appetite					
Grade ≥ 3	1 (17)	1 (9)	0 (0)	0 (0)	0 (0)
Bleeding					
Grade ≥ 3	0 (0)	1 (9)	0 (0)	0 (0)	0 (0)
Infections					
Grade ≥ 3	0 (0)	7 (63)	2 (33)	0 (0)	0 (0)
Sweats					
Grade ≥ 3	0 (0)	0 (0)	1 (17)	0 (0)	0 (0)

Supplemental Table 4

Renal and hepatobiliary toxicities	
Events	no. (%)
Acute kidney failure	
any grade	2 (8)
grade ≥ 3	1 (4)
Proteinuria	
any grade	8 (32)
grade ≥ 3	1 (4)
Hematuria	
any grade	7 (27)
grade ≥ 3	0 (0)
Hyperbilirubinemia	
any grade	6 (24)
grade ≥ 3	0 (0)
Elevation of liver enzymes [ASAT, ALAT, AP]	
any grade	15 (60)
grade ≥ 3	0 (0)

Supplemental Table 5

Infectious side effects	
Adverse events	no. (%)
Fever	
any grade	13 (52)
grade ≥ 3	0 (0)
Infections	
any grade	14 (56)
grade ≥ 3	9 (36)
Chills	
any grade	1 (4)
grade ≥ 3	0 (0)
Sweats	
any grade	3 (12)
grade ≥ 3	1 (4)
Myalgia / Arthralgia	
any grade	0 (0)
grade ≥ 3	0 (0)

Supplemental Table 6

Electrolyte disorders	
Events	no. (%)
Hypoglycemia	
any grade	1 (4)
grade ≥ 3	0 (0)
Hyperglycemia	
any grade	22 (88)
grade ≥ 3	0 (0)
Hypocalcemia	
any grade	19 (76)
grade ≥ 3	4 (16)
Hypercalcemia	
any grade	1 (4)
grade ≥ 3	0 (0)
Hypokalemia	
any grade	13 (52)
grade ≥ 3	0 (0)
Hyperkalemia	
any grade	7 (28)
grade ≥ 3	0 (0)
Hypomagnesemia	
any grade	10 (40)
grade ≥ 3	0 (0)
Hyponatremia	
any grade	12 (48)
grade ≥ 3	0 (0)

Supplemental Table 7

Gastrointestinal toxicities	
Events	no. (%)
Nausea	
any grade	4 (16)
grade ≥ 3	0 (0)
Vomiting	
any grade	1 (4)
grade ≥ 3	0 (0)
Diarrhea	
any grade	4 (16)
grade ≥ 3	0 (0)
Constipation	
any grade	3 (12)
grade ≥ 3	0 (0)
Oral mucositis	
any grade	10 (40)
grade ≥ 3	1 (4)
Xerostomia	
any grade	2 (8)
grade ≥ 3	0 (0)

Supplemental Table 8

Cardiovascular toxicities	
Adverse events	no. (%)
Arrythmia	
any grade	3 (12)
grade ≥ 3	1 (4)
Pericardial effusion	
any grade	5 (20)
grade ≥ 3	0 (0)
Hypertension	
any grade	17 (68)
grade ≥ 3	2 (8)
Hypotension	
any grade	8 (32)
grade ≥ 3	1 (4)
Thrombosis	
any grade	2 (8)
grade ≥ 3	0 (0)
Peripheral edema	
any grade	5 (20)
grade ≥ 3	2 (8)

Supplemental Table 8

Infectious side effects	
Adverse events	no. (%)
Fever	
any grade	13 (52)
grade ≥ 3	0 (0)
Infections	
any grade	14 (56)
grade ≥ 3	9 (36)
Chills	
any grade	1 (4)
grade ≥ 3	0 (0)
Sweats	
any grade	3 (12)
grade ≥ 3	1 (4)
Myalgia / Arthralgia	
any grade	0 (0)
grade ≥ 3	0 (0)

Supplemental Table 9

Toxicities of the nervous system	
Adverse events	no. (%)
Sensory	
any grade	2 (8)
grade ≥ 3	1 (4)
Motory	
any grade	6 (24)
grade ≥ 3	0 (0)
Consciousness	
any grade	3 (12)
grade ≥ 3	0 (0)
Headache	
any grade	3 (12)
grade ≥ 3	0 (0)
Vertigo	
any grade	3 (12)
grade ≥ 3	0 (0)
Insomnia	
any grade	7 (28)
grade ≥ 3	0 (0)

Supplemental Table 10

General disorders	
Adverse events	no. (%)
Allergic reaction	
any grade	1 (4)
grade ≥ 3	0 (0)
Decrease of appetite	
any grade	3 (12)
grade ≥ 3	2 (8)
Weight loss	
any grade	3 (12)
grade ≥ 3	0 (0)
Weight gain	
any grade	3 (12)
grade ≥ 3	0 (0)
Bleeding	
any grade	7 (28)
grade ≥ 3	1 (4)