



Supplemental Figure 1: hypervascularisation of liver metastases.

The large liver metastasis presents a central necrosis (A, arrow heads), low PSMA expression (B, dashed circle) and rim shaped MAA accumulation (C, arrow heads), which represents the hypervascularisation in the vital margin of the metastasis. The small liver metastasis (A, arrow) exhibits no central necrosis and shows a string MAA accumulation in the entire lesion (C, arrow).

Supplemental Table 1.

Patient ID	Age	Gleason Score	Diagnosis of Liver metastases prior to Lu-PSMA start	Taxane chemotherapy prior to Lu-PSMA	Enzalutamide or Abiraterone treatment	Lu-PSMA therapy alone	Lu-PSMA and SIRT
1	65.2	4 + 5 = 9	Yes	Yes	Yes	No	Yes
2	73.8	4 + 4 = 8	Yes	Yes	Yes	No	Yes
3	66.3	4 + 5 = 9	Yes	No	Yes	No	Yes
4	77.0	3 + 4 = 7	Yes	No	Yes	No	Yes
5	71.9	4 + 5 = 9	No	Yes	Yes	Yes	No
6	82.9	5 + 5 = 10	Yes	Yes	Yes	Yes	No
7	47.2	N/A	Yes	Yes	Yes	Yes	No
8	82.0	N/A	Yes	No	Yes	Yes	No
9	81.0	3 + 3 = 6	Yes	No	Yes	Yes	No
10	60.4	N/A	Yes	Yes	Yes	Yes	No
11	76.3	4 + 3 = 7	Yes	Yes	Yes	No	Yes
12	77.1	9	No	Yes	Yes	Yes	No
13	69.6	5 + 4 = 9	Yes	Yes	Yes	Yes	No
14	59.3	5 + 4 = 9	Yes	Yes	No	Yes	No
15	68.4	4 + 3 = 7	Yes	Yes	Yes	Yes	No
16	77.2	N/A	Yes	Yes	Yes	Yes	No
17	71.5	4 + 3 = 7	Yes	Yes	Yes	Yes	No
18	76.7	4 + 5 = 9	Yes	Yes	Yes	Yes	No
19	79.3	4 + 4 = 8	Yes	Yes	Yes	Yes	No
20	80.6	3 + 3 = 6	Yes	Yes	Yes	Yes	No
21	76.3	3 + 4 = 7	Yes	Yes	Yes	Yes	No
22	67.6	4 + 3 = 7	Yes	Yes	Yes	Yes	No
23	79.4	3 + 3 = 6	Yes	Yes	Yes	Yes	No
24	57.3	4 + 4 = 8	Yes	Yes	Yes	Yes	No
25	76.9	5 + 4 = 9	Yes	Yes	No	Yes	No
26	62.7	4 + 4 = 8	Yes	Yes	Yes	Yes	No
27	61.5	4 + 5 = 9	Yes	Yes	Yes	Yes	No
28	69.3	5 + 4 = 9	Yes	Yes	Yes	Yes	No
29	72.9	4 + 4 = 8	Yes	Yes	Yes	Yes	No
30	75.9	4 + 5 = 9	Yes	Yes	Yes	Yes	No
31	70.0	5 + 5 = 10	Yes	Yes	Yes	Yes	No
32	74.7	N/A	Yes	Yes	Yes	Yes	No
33	60.7	4 + 4 = 8	Yes	Yes	Yes	Yes	No
34	73.4	4 + 4 = 8	Yes	Yes	Yes	Yes	No
35	50.8	4 + 4 = 8	Yes	Yes	Yes	Yes	No
36	65.4	4 + 5 = 9	Yes	Yes	Yes	Yes	No

N/A = not available.

Supplemental Table 2.

Subgroup characteristics	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	Patient 7	Patient 8	Patient 9	Patient 10
Age at initial PET	65	74	66	77	72	83	47	82	81	60
baseline PSA [ng/ml]	50	786	N/A	41	6.5	150	4.9	88	858	221
hepatic metastases	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Extrahepatic metastases										
Lymph nodes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
Osseous	Yes	No	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Visceral (other than liver)	No	No	No	No	No	Lung	No	Adrenal gland	No	No
(Pre-) Treatment										
ADT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enzalutamide	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Abiraterone	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Chemotherapy (Docetaxel or Cabazitaxel)	both	Docetaxel	No	No	Docetaxel	Docetaxel	both	No	No	both
Prostate tumour										
Gleason Score	4 + 5	4 + 4	4 + 5	3 + 4	5 + 4	5 + 5	N/A	N/A	3 + 3	N/A
Pathological stage	pT3b, pN1	cT4, cN1	pT3b, pN0	pT3a, pN0	cT4 cN1	N/A	N/A	N/A	pT1c	N/A
Clinical condition										
Karnofsky Performance Status	100	90	100	90	60	80	100	60	90	70
ECOG Performance Status	0	0	0	0	2	1	0	2	0	1
Radionuclide therapies										
Lu-PSMA therapy without SIRT	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Lu-PSMA therapy and SIRT	Yes	Yes	Yes	Yes	No	No	No	No	No	No

N/A = not available; PSA = Prostate Specific Antigen; Lu-PSMA = ¹⁷⁷Lu-PSMA-617; SIRT = Selective Internal Radiation Therapy; baseline = start of Lu-PSMA; ADT = Androgen Deprivation Therapy.

Supplemental Table 3.

	Percentual change*	Percentual change*	<i>Passed D'Agostino & Pearson Normality test</i>	<i>P**</i>
	SIRT + Lu-PSMA	Lu-PSMA alone		
	Mean (95% CI)	Mean (95% CI)		
Alanine aminotransferase	+160.0% (-46.5-366.5)	+14.6% (-16.1-45.4)	no	**0.006
Aspartate aminotransferase	+130.3% (28.1-232.1)	+25.42% (2.1-48.6)	yes	**0.007
Gamma-glutamyltransferase	+652.1% (3.1-1301)	+14.9% (-22.35-52.11)	yes	***0.0003
Bilirubin	+92.5% (-273-422)	+2.6% (-11.79-17.06)	yes	n.s.

* = Blood parameter prior to therapy (Lu-PSMA or SIRT) compared to the corresponding parameter after therapy.
 ** = unpaired parametric t-test was used in case of Gaussian distribution, non-parametric Mann-Whitney test was used when data did not pass D'Agostino & Pearson normality test. Outliers have been removed prior to analysis;
 n.s. = not significant.

Supplemental Table 4.

	CTCAE SIRT + Lu-PSMA					CTCAE Lu-PSMA alone				
	0	1	2	3	4	0	1	2	3	4
Alanine aminotransferase	3	1	0	0	0	20	0	0	0	0
Aspartate aminotransferase	1	2	1	0	0	16	3	1	0	0
Gamma-glutamyltransferase	0	1	1	2	0	8	5	3	4	0
Bilirubin	3	1	0	0	0	20	0	0	0	0