Supplemental Table 1: Imaging protocol used at different sites

Site	Positronmed Santiago Chile	Heidelberg University Hospital	Münster University Hospital	Technical University Munich	Osaka University Hospital
PET/CT scanner	Biograph mCT/ mCT Flow, Siemens	Biograph mCT Flow, Siemens	Biograph mCT, Siemens	Biograph mCT, Siemens	Discovery 710, GE
PET aquisition time / min p.i.	72±14 (range: 47-122)	93 ± 20 (range: 61-124)	137 ± 17 (range: 118-154)	88 ± 29 (range: 60–169)	NA
Injected activity / MBq	273±16 (range: 236-305)	250±57 (range: 106-353)	292.5 ± 34 (range: 243-336)	310 ±24 (range: 270–356)	NA
Reconstruc-tion	OSEM algorithm (2 iterations, 21 subsets)	OSEM algorithm (2 iterations, 21 subsets)		OSEM algorithm (4 iterations, 8 subsets)	OSEM algorithm (3 iterations, 8 subsets)
Corrections	Scatter, attenuation, TOF	Randoms, scatter, attenuation, decay	Scatter, attenuation, TOF	Randoms, dead time, scatter, attenuation	Randoms, scatter, attenuation, decay
Filer	Gaussian 4 mm FWHM	Gaussian 5 mm FWHM		Gaussian 5 mm FWHM	Gaussian 4 mm FWHM

Supplemental Table 2: Findings in individual patients and comparison of PSMA-PET/CT and histopathology for all positive lymph nodes.

Patient	LN total Histo	number of positive LN seen in the area of LND in PET/CT	number of positive LN according to histo-pathology	TP	FP	TN	FN	patient-based senistivity	patient-based specificity
1	32	3	3	3	0	29	0	1	1
2	16	7	7	7	0	9	0	1	1
3	19	0	0	0	0	19	0		1
4	10	0	1	0	0	9	1	0	1
5	37	0	0	0	0	37	0		1
6	13	2	4	2	0	9	2	0.5	1
7	18	0	0	0	0	18	0		1
8	16	0	0	0	0	16	0		1
9	16	0	0	0	0	16	0		1
10	11	0	0	0	0	11	0		1
11	17	2	2	2	0	15	0	1	1
12	34	4	4	4	0	30	0	1	1
13	15	1	1	1	0	14	0	1	1
14	8	0	0	0	0	8	0		1
15	12	0	0	0	0	12	0		1
16	14	0	0	0	0	14	0		1
17	14	2	1	1	1	12	0	1	0.92
18	9	0	0	0	0	9	0		1
19	11	1	0	0	1	10	0		0.91
20	15	0	0	0	0	15	0		1
21	18	1	2	1	0	16	1	0.5	1
22	4	0	0	0	0	4	0		1
23	8	0	0	0	0	8	0		1
24	10	0	0	0	0	10	0		1
25	9	1	0	0	1	8	0		0.89
26	10	0	0	0	0	10	0		1
27	22	0	0	0	0	22	0		1
28	17	0	0	0	0	17	0		1
29	15	0	0	0	0	15	0		1

30	24	0	0	0	0	24	0		1
31	21	0	0	0	0	21	0		1
32	11	0	0	0	0	11	0		1
33	20	0	0	0	0	20	0		1
34	7	0	0	0	0	7	0		1
35	13	0	0	0	0	13	0		1
36	12	0	0	0	0	12	0		1
37	9	0	0	0	0	9	0		1
38	19	0	0	0	0	19	0		1
39	16	0	0	0	0	16	0		1
40	20	3	3	3	0	17	0	1	1
41	10	0	0	0	0	10	0		1
42	19	1	1	1	0	18	0	1	1
43	21	0	0	0	0	21	0		1
44	21	0	0	0	0	21	0		1
45	27	0	0	0	0	27	0		1
46	61	3	5	3	0	56	2	0.6	1
47	15	0	0	0	0	15	0		1
48	21	0	0	0	0	21	0		1
49	31	3	4	3	0	27	1	0.75	1
50	15	1	1	1	0	14	0	1	1
51	24	1	1	1	0	23	0	1	1
52	24	3	3	3	0	21	0	1	1
53	32	0	0	0	0	32	0		1
54	5	0	0	0	0	5	0		1
55	12	0	0	0	0	12	0		1
56	39	16	14	14	2	23	0	1	0.92
57	12	0	0	0	0	12	0		1
58	28	0	0	0	0	28	0		1
59	23	1	2	1	0	21	1	0.5	1
60	21	0	0	0	0	21	0		1
61	26	0	3	0	0	23	3	0	1
62	23	0	0	0	0	23	0		1
63	15	2	0	0	2	13	0		0.87
64	13	1	3	1	0	10	2	0.33	1
65	26	0	0	0	0	26	0		1
66	17	0	0	0	0	17	0		1
67	27	1	2	1	0	25	1	0.5	1
68	14	0	0	0	0	14	0		1
69	23	3	8	3	0	15	5	0.38	1

70	18	0	0	0	0	18	0		1
71	15	0	0	0	0	15	0		1
72	19	1	0	0	1	18	0		0.95
73	35	0	0	0	0	34	1	0	1
74	30	2	3	2	0	27	1	0.67	1
75	24	0	0	0	0	24	0		1
76	17	0	0	0	0	17	0		1
77	12	1	1	1	0	11	0	1	1
78	5	0	0	0	0	5	0		1
79	14	0	0	0	0	14	0		1
80	12	0	0	0	0	12	0		1
81	11	0	0	0	0	11	0		1
82	21	10	13	10	0	8	3	0.77	1
83	33	7	11	7	0	22	4	0.64	1
84	22	0	0	0	0	22	0		1
85	10	0	0	0	0	10	0		1
86	17	0	0	0	0	17	0		1
87	28	0	0	0	0	28	0		1
88	10	0	0	0	0	10	0		1
89	11	1	1	1	0	10	0	1	1
90	6	0	0	0	0	6	0		1
91	34	4	10	4	0	24	6	0.4	1
92	32	1	1	1	0	31	0	1	1
93	3	0	0	0	0	3	0		1
94	26	1	1	1	0	25	0	1	1
95	12	0	0	0	0	12	0		1
96	2	1	1	1	0	1	0	1	1
	1746	**92**	**117**	**84**	**8**	**1620**	**34**	**0.7353**	**0.9943**

Supplemental Table 3: Findings in individual patients and comparison of PSMA-PET/CT and histopathology for positive lymph nodes >3mm.

Patient	**LN total Histo**	**number of positive LN seen in the area of LND in PET/CT**	**number of positive LN according to histo-pathology**	**TP**	**FP**	**TN**	**FN**	**patient-based-sensitivity**	**patient-based specificity**
1	32	3	3	3	0	29	0	1	1
2	16	7	7	7	0	9	0	1	1
3	19	0	0	0	0	19	0		1
4	10	0	1	0	0	9	1	0	1
5	37	0	0	0	0	37	0		1
6	13	2	4	2	0	9	2	0.5	1
7	18	0	0	0	0	18	0		1
8	16	0	0	0	0	16	0		1
9	16	0	0	0	0	16	0		1
10	11	0	0	0	0	11	0		1
11	17	2	2	2	0	15	0	1	1
12	34	4	4	4	0	30	0	1	1
13	15	1	1	1	0	14	0	1	1
14	8	0	0	0	0	8	0		1
15	12	0	0	0	0	12	0		1
16	14	0	0	0	0	14	0		1
17	14	2	1	1	1	12	0	1	.92
18	9	0	0	0	0	9	0		1
19	11	1	0	0	1	10	0		0.91
20	15	0	0	0	0	15	0		1
21	18	1	2	1	0	16	1	0.5	1
22	4	0	0	0	0	4	0		1
23	8	0	0	0	0	8	0		1
24	10	0	0	0	0	10	0		1
25	9	1	0	0	1	8	0		0.89
26	10	0	0	0	0	10	0		1
27	22	0	0	0	0	22	0		1
28	17	0	0	0	0	17	0		1
29	15	0	0	0	0	15	0		1
30	24	0	0	0	0	24	0		1
31	21	0	0	0	0	21	0		1

32	11	0	0	0	0	11	0		1
33	20	0	0	0	0	20	0		1
34	7	0	0	0	0	7	0		1
35	13	0	0	0	0	13	0		1
36	12	0	0	0	0	12	0		1
37	9	0	0	0	0	9	0		1
38	19	0	0	0	0	19	0		1
39	16	0	0	0	0	16	0		1
40	20	3	3	3	0	17	0	1	1
41	10	0	0	0	0	10	0		1
42	19	1	1	1	0	18	0	1	1
43	21	0	0	0	0	21	0		1
44	21	0	0	0	0	21	0		1
45	27	0	0	0	0	27	0		1
46	61	3	4	3	0	57	1	0.75	1
47	15	0	0	0	0	15	0		1
48	21	0	0	0	0	21	0		1
49	31	3	3	3	0	28	0	1	1
50	15	1	1	1	0	14	0	1	1
51	24	1	1	1	0	23	0	1	1
52	24	3	3	3	0	21	0	1	1
53	32	0	0	0	0	32	0		1
54	5	0	0	0	0	5	0		1
55	12	0	0	0	0	12	0		1
56	39	16	14	14	2	23	0	1	0.92
57	12	0	0	0	0	12	0		1
58	28	0	0	0	0	28	0		1
59	23	1	2	1	0	21	1	0.5	1
60	21	0	0	0	0	21	0		1
61	26	0	0	0	0	26	0		1
62	23	0	0	0	0	23	0		1
63	15	2	1	1	1	13	0	1	0.93
64	13	1	1	1	0	12	0	1	1
65	26	0	0	0	0	26	0		1
66	17	0	0	0	0	17	0		1
67	27	1	1	1	0	26	0	1	1
68	14	0	0	0	0	14	0		1
69	23	3	5	3	0	18	2	0.6	1
70	18	0	0	0	0	18	0		1
71	15	0	0	0	0	15	0		1

72	19	1	0	0	1	18	0		0.95
73	35	0	0	0	0	35	0		1
74	30	2	3	2	0	27	1	0.67	1
75	24	0	0	0	0	24	0		1
76	17	0	0	0	0	17	0		1
77	12	1	1	1	0	11	0	1	1
78	5	0	0	0	0	5	0		1
79	14	0	0	0	0	14	0		1
80	12	0	0	0	0	12	0		1
81	11	0	0	0	0	11	0		1
82	21	10	13	10	0	8	3	0.77	1
83	33	7	9	7	0	24	2	0.78	1
84	22	0	0	0	0	22	0		1
85	10	0	0	0	0	10	0		1
86	17	0	0	0	0	17	0		1
87	28	0	0	0	0	28	0		1
88	10	0	0	0	0	10	0		1
89	11	1	1	1	0	10	0	1	1
90	6	0	0	0	0	6	0		1
91	34	4	9	4	0	25	5	0.44	1
92	32	1	1	1	0	31	0	1	1
93	3	0	0	0	0	3	0		1
94	26	1	1	1	0	25	0	1	1
95	12	0	0	0	0	12	0		1
96	2	1	1	1	0	1	0	1	1
	1746	**92**	**104**	**85**	**7**	**1635**	**19**	**0.8551**	**0.9949**