

Supplementary Table 1: Sensitivity & Specificity Analysis

Imaging modality	Histology Positive		Histology Negative		Sensitivity (%) (CI)	Specificity (%) (CI)	PPV (%) (CI)	NPV (%) (CI)	+ LR (CI)	-LR (CI)
	TP	FN	FP	TN						
per Patient Basis										
MRI	4	4	5	13	50 (15.7 -84.3)	72.2 (46.5 - 90.3)	44.4 (13.7 - 78.8)	76.5 (50.1 -93.2)	1.8 (0.9 -3.8)	0.7 (0.3-1.9)
[11C]choline PET	6	3	4	13	66.7 (29.9 - 92.5)	76.4 (50.1 -93.2)	60 (26.2 - 87.8)	81.2 (54.4 - 96)	2.8 (1.7 - 4.8)	0.4 (0.1 - 1.5)
[11C]choline PET-CT	7	2	3	14	77.7 (40.0- 97.2)	82.4 (56.6- 96.2)	70 (34.8- 93.3)	87.5 (61.7- 98.4)	4.4 (2.9-6.7)	0.3 (0.05-1.3)
per Nodal basis										
MRI	5	22	5	374	18.5 (6.3-38.1)	98.7 (96.9 - 99.6)	50 (17.3 - 82.7)	94.4 (91.7 - 96.5)	14 (6.4 - 31.0)	0.8 (0.3 - 2.0)
[11C]choline PET	11	16	6	373	40.7 (22.4-61.2)	98.4 (96.6 - 99.4)	64.7 (38.3 - 85.8)	95.9 (93.4 - 97.6)	25.7 (16.3 - 40.6)	0.6 (0.3 - 1.4)
[11C]choline PET-CT	14	13	6	373	51.9 (31.9-71.3)	98.4 (96.6 - 99.4)	70 (45.7 - 88.1)	96.6 (94.3 - 98.2)	32.8 (22.8 - 47.1)	0.5 (0.2 - 1.2)

TP-true positive; FN-false negative; FP-false positive; TN-true negative; CI-confidence intervals; PPV-positive predictive value; NPV-negative predictive value; LR-likelihood ratio; + -positive; - -negative.

Supplementary Table 2: [¹¹C]choline PET-CT parameters shown along with immunohistochemistry scores for CHKα and Ki67 indices for malignant pelvic nodes and primary prostate tumours.

Pt No	Tissue	SUV 15,ave	SUV 15,max	SUV 60,ave	SUV 60,max	CHKα score	Ki67 score	Gleason score	PSA
1	node	7.24	11.57	7.26	12.88	3	1	7	8.5
2	tumour	5.88	11.79	5.96	15.08	3	2	6	21
4	tumour	5.03	15.56	5.24	17.46	3	1	7	84
5	tumour	4.84	9.52	4.94	10.64	3	3	9	27.5
6	tumour	4.27	8.81	3.52	9.99	1	7	9	79.4
7	tumour	3.54	6.95	3.74	8.74	1	2	6	16.4
8	tumour	5.57	8.55	5.39	9.83	2	17	9	29.6
10	tumour	4.79	8.81	4.86	12.03	1	7	8	13.5
	node	4.05	8.61	4.45	14.16	2	17		
11	tumour	4.99	7.44	4.3	7.38	3	2	7	8.1
12	tumour	8.80	13.24	9.28	16.62	3	2	7	51
14	tumour	3.98	6.24	3.7	7.7	1	17	9	15
15	tumour	5.83	11.37	6.22	14.19	3	13	9	209
	node	2.71	4.68	8.77	15.87	3	4		
17	tumour	8.75	13.65	7.01	13.6	3	2	7	169
	node	2.37	5.11	2.46	5.99	1	4		
20	tumour	4.11	9.41	3.75	9.08	1	9	7	21
	node	3.27	7.24	1.44	6.37	1	4		
22	tumour	3.97	6.80	4.03	9.18	2	2	7	22.7
23	tumour	6.81	12.21	6.5	15.72	3	2	8	59.5
24	tumour	4.67	8.04	4.84	10.49	3	3	9	45
24	node	1.45	4.56	1.27	5.03	2	3		
25	tumour	4.65	9.52	3.55	9.39	1	1	9	24.5
26	tumour	2.44	3.89	2.19	4.73	1	2	7	8.2
27	tumour	2.72	5.38	2.73	7.98	1	2	7	44.8
	node	2.09	6.84	1.82	8.72	3	3		
28	tumour	3.71	8.09	3.08	7.87	1	2	7	25

Tumour – indicates malignant cores from prostate biopsy

Node – indicates metastatic pelvic nodes from eLPL

Supplementary Table 3: Correlation of [¹¹C]choline PET-CT SUVs with immunohistochemistry and biomarkers in prostate tumours.

	SUV 15, ave		SUV 15, max		SUV 60, ave		SUV 60, max	
	r	p	r	p	r	p	r	p
CHKα score	0.55	0.0031	0.46	0.02	0.68	<0.0001	0.63	0.0004
Ki 67 score	-0.22	0.27	-0.27	0.18	-0.12	0.566	-0.11	0.59
GS	0.12	0.5668	0.17	0.4174	0.08	0.7133	0.19	0.3598
PSA levels	0.42	0.03	0.46	0.019	0.45	0.022	0.49	0.0105

GS= Gleason score, r= Spearman's correlation coefficient, p= significance value.

Supplementary Table 4: Review of Literature

Author	Tracer (Administered Activity MBq)	Number of patients	Prevalence of LN metastases	Sensitivity (%)	Specificity (%)
Sensitivity & Specificity – Per Patient Basis					
De Jong et al(20)	[¹¹ C]choline PET (400)	67	22.4% (15/67)	80	96
Kotzerke et al(21)	[¹¹ C]choline PET (mean 1000: range of 370-1250)	12	16.6% (2/12)	50	90
Schiavina et al(22)	[¹¹ C]choline PET-CT (370)	57	26% (15/57)	60	98
Husarik et al(35)	[¹⁸ F]choline-PET-CT (200)	25	12% (3/25)	33	100
Hacker et al(34)	[¹⁸ F]FCH PET-CT (4.07 MBq/ kg)*	20	50% (10/20)	10	80
Behesti et al(33)	[¹⁸ F]FCH PET-CT (4.07 MBq/ kg)*	130 (111 lymphadenectomy)	31% (40/130)	45	96
Our study	[¹¹ C]choline PET-CT (700)	26	34.6% (9/26)	77.7	82.4
Sensitivity & Specificity – Per Nodal Basis					
Author	Tracer (Administered Activity MBq)	Number Of nodes	Prevalence of LN metastases	Sensitivity (%)	Specificity (%)
Schiavina et al(22)	[¹¹ C]choline PET-CT (370)	892	4.6% (41/892)	41.4	99.8
Husarik et al(35)	[¹⁸ F]choline-PET-CT (200)	115	4.3% (5/115)	20	100
Our study	[¹¹ C]choline PET-CT (700)	406	6.7% (27/406)	52	98.4

* Average weight of individual-70 kg - Administered activity of 285 MBq