Supplementary

Table S1 The comparison of the diagnosis abilities at Youden's index threshold

Modality	AUC	Cutoff value	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)
PSAd (ng/mL^2)	0.812 (95% CI: 0.719–0.905)	0.37	0.676 (95% CI: 0.495–0.826)	0.859 (95% CI: 0.762–0.927)	0.676 (95% CI: 0.495–0.826)	0.858 (95% CI: 0.761–0.927)
PI-RADS	0.806 (95% CI: 0.702–0.909)	4	0.794 (95% CI: 0.621–0.913)	0.821 (95% CI: 0.717–0.898)	0.659 (95% CI: 0.494–0.799	0.901 (95% CI: 0.807–0.959)
SUVmax	0.903 (95% CI: 0.846–0.960)	6.4	0.912 (95% CI: 0.763–0.981)	0.795 (95% CI: 0.688–0.878)	0.660 (95% CI: 0.507–0.791)	0.954 (95% CI: 0.871–0.990)
Model	0.936 (95% CI: 0.888–0.984)	0.316	0.882 (95% CI: 0.725–0.967)	0.910 (95% CI: 0.824–0.963)	0.811 (95% CI: 0.648–0.920)	0.947 (95% CI: 0.869–0.985)

AUC, area under the curve; CI, confidence interval; PSAd, prostate-specific antigen density; PI-RADS, Prostate Imaging Reporting and Data System; SUVmax, maximum standard uptake value.

Table S2 The baseline characteristics of external validation cohort

Characteristics	Overall (N=61)	Non-csPCa or non-tumor (N=16)	csPCa (N=45)	P value
Age (years)	66.0 [61.0, 72.0]	62.5 [57.8, 68.0]	69.0 [62.0, 72.0]	0.018
BMI (kg/m^2)	22.8 [21.1, 25.0]	23.3 [21.0, 26.3]	22.7 [21.2, 24.2]	0.546
tPSA (ng/mL)	16.3 [9.1, 31.7]	8.8 [6.1, 15.3]	20.6 [11.4, 34.4]	0.002
Comorbidity				
Hypertension	26 (43.3)	6 (37.5)	20 (45.5)	0.769
Diabetes	7 (11.7)	3 (18.8)	4 (9.1)	0.37
CHD	4 (6.7)	2 (12.5)	2 (4.5)	0.287
Smoking	26 (43.3)	6 (37.5)	20 (45.5)	0.769
Drinking	23 (38.3)	5 (31.2)	18 (40.9)	0.561
PSAd (ng/mL^2)	0.5 [0.2, 1.3]	0.2 [0.1, 0.3]	0.7 [0.3, 1.4]	<0.001
Prostate volume (mL)	32.9 [23.0, 53.3]	49.5 [35.6, 64.9]	31.4 [22.2, 42.6]	0.003
PI-RADS (%)				0.005
1	0 (0.0)	0 (0.0)	0 (0.0)	
2	2 (3.3)	2 (12.5)	0 (0.0)	
3	17 (27.9)	8 (50.0)	9 (20.0)	
4	5 (8.2)	0 (0.0)	5 (11.1)	
5	37 (60.7)	6 (37.5)	31 (68.9)	
SUVmax	8.2 [5.9, 14.2]	2.7 [0.0, 6.3]	12.2 [8.1, 20.8]	<0.001
Procedure				<0.001
MPB	19 (31.1)	11 (68.8)	8 (17.8)	
MBP	42 (68.9)	5 (31.2)	37 (82.2)	

Data are shown as n (%) or median [IQR]. Non-csPCa, non-clinically significant prostate cancer; non-tumor, non-cancer diseases; csPCa, clinically significant prostate cancer; IQR , interquartile range; BMI, Body mass index; tPSA, total prostate-specific antigen; CHD, coronary heart disease; PSAd, prostate-specific antigen density; PI-RADS, Prostate Imaging Reporting and Data System; SUVmax, maximum standard uptake value; MPB, the sequence of procedure being as follows: mpMRI, PET-CT, and biopsy; MBP, the sequence of procedure being as follows: mpMRI, biopsy, and PET-CT.

https://dx.doi.org/10.21037/tau-22-832

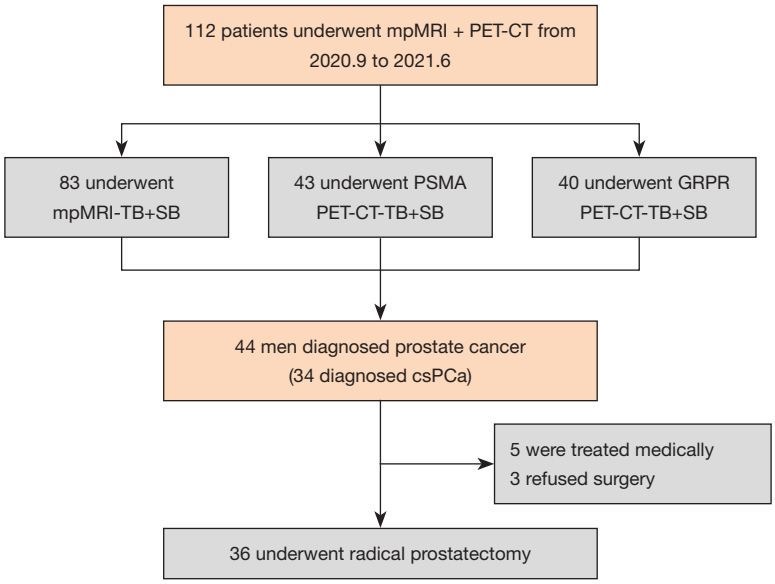

Figure S1 The flowchart of the research procedure. mpMRI, multiparametric magnetic resonance imaging; PET-CT: positron emission tomography-computed tomography imaging; mpMRI-TB+SB, mpMRI guided targeted biopsy and systematic biopsy; PSMA, prostate-specific membrane antigen; PET/CT-TB+SB, PET-CT-guided targeted biopsy and systematic biopsy; GRPR, gastrin-releasing peptide receptor; csPCa, clinically significant prostate cancer.

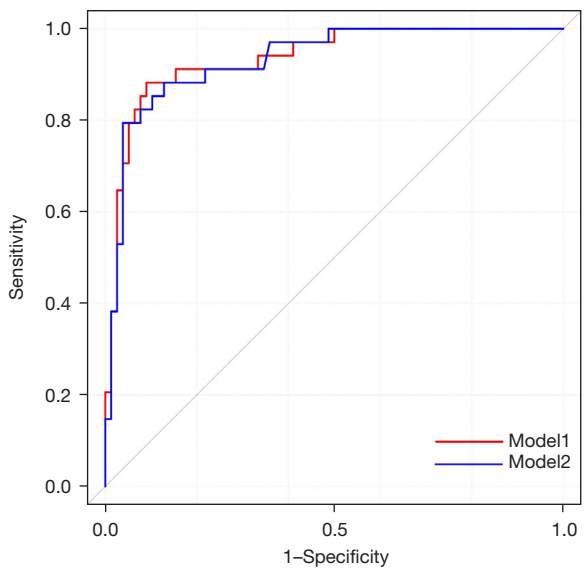

Figure S2 Comparison of receiver operating characteristic (ROC) analysis of the two models (model 1: Prostate Imaging Reporting and Data System (PI-RADS) + maximum standardized uptake value (SUVmax) + prostate-specific antigen density (PSAd); model 2: PI-RADS + SUVmax). The area under the curve (AUC) of model 1 was 0.936 and that of model 2 was 0.933. The test revealed a non-significant difference in the AUC of the two ROC curves, with a p-value of 0.4303.

https://dx.doi.org/10.21037/tau-22-832