

Table S1 Contingency table evaluating the accuracy of free-to-total PSA ratio and PSA density in predicting Pca and csPca

	Pca in men with low testosterone level			Pca in men with normal testosterone level		
	Positive	Negative	Total	Positive	Negative	Total
Free-to-total PSA ratio 16.25 [†]	134	86	220	36	43	79
Free-to-total PSA ratio 16.25 [†]	86	177	263	18	55	73
Total	220	263	483	54	98	152
PSA density 0.197 ng/mL ^{2†}	136	73	209	37	40	77
PSA density 0.197 ng/mL ²	84	190	274	17	58	75
Total	220	263	483	54	98	152
Free-to-total PSA ratio 16.38	90	136	226	23	56	79
Free-to-total PSA ratio 16.38 [†]	42	215	257	9	64	73
Total	132	351	483	32	120	152
PSA density 0.195 ng/mL ^{2†}	87	130	217	22	55	77
PSA density 0.195 ng/mL ²	45	221	266	10	65	75
Total	132	351	483	32	120	152

[†], the cutoff values of free-to-total PSA ratio and PSA density for Pca are 16.25 and 0.197 ng/mL², respectively, and those for csPca are 16.38 and 0.195 ng/mL², respectively. Pca, prostate cancer; csPca, clinically significant prostate cancer, PSA, prostate-specific antigen.

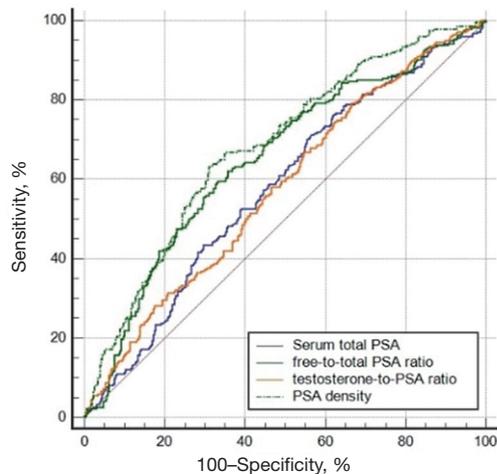


Figure S1 Receiver-operating characteristic (ROC) curves of prostate-specific antigen (PSA) parameters for predicting prostate cancer in men with gray-zone PSA levels. Serum total PSA, area under the ROC curve (AUC) with 95% confidence interval (95% CI): 0.577 (0.538–0.616); cutoff: 5.53 ng/mL (sensitivity 70.07%, specificity 44.6%); free-to-total PSA ratio, AUC (95% CI): 0.650 (0.611–0.687); cutoff: 16.25 (sensitivity 62.04%, specificity 64.27%); testosterone-to-total PSA ratio, AUC (95% CI): 0.577 (0.537–0.616); cutoff: 48.48 (sensitivity 79.2%, specificity 33.52%); PSA density: AUC (95% CI): 0.682 (0.644–0.718); cutoff: 0.197 ng/mL² (sensitivity 63.14%, specificity 68.98%).

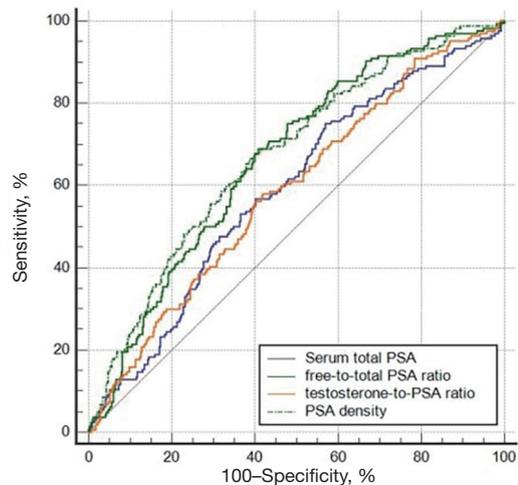


Figure S2 Receiver-operating characteristic (ROC) curves of prostate-specific antigen (PSA) parameters for predicting clinically significant prostate cancer in men with gray-zone PSA levels. Serum total PSA, area under the ROC curve (AUC) with 95% confidence interval (95% CI): 0.590 (0.551–0.629); cutoff: 5.53 ng/mL (sensitivity 75.0%, specificity 43.1%); free-to-total PSA ratio, AUC (95% CI): 0.666 (0.627–0.702); cutoff: 16.38 (sensitivity 63.9%, specificity 59.2%); testosterone-to-total PSA ratio, AUC (95% CI): 0.592 (0.553–0.631); cutoff: 29.88 (sensitivity 57.9%, specificity 58.1%); PSA density, AUC (95% CI): 0.673 (0.635–0.709); cutoff: 0.195 ng/mL² (sensitivity 66.5%, specificity 61.4%).

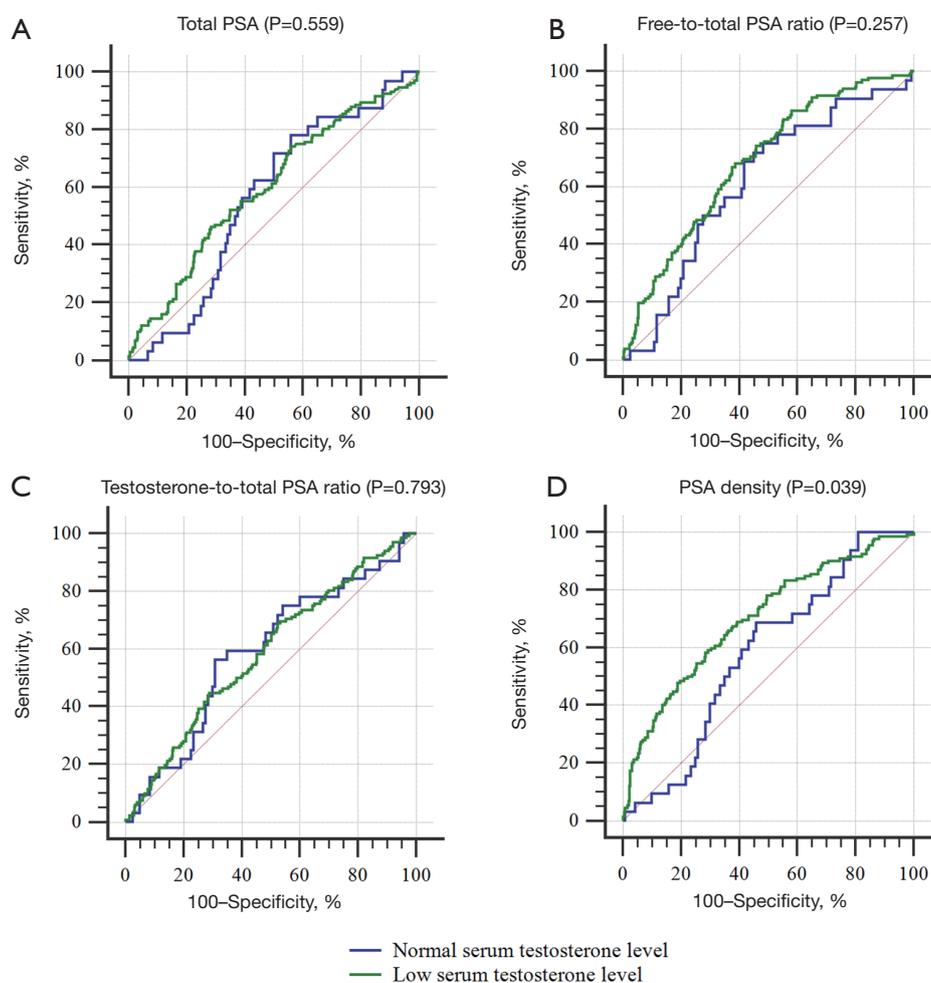


Figure S3 Comparison of receiver-operating characteristic (ROC) curves of prostate-specific antigen (PSA) parameters for predicting clinically significant prostate cancer between the low and normal testosterone groups of men with gray-zone PSA levels. (A) Total PSA (P=0.559): Normal serum testosterone level (≥ 300 ng/dL), area under the ROC curve (AUC) with 95% confidence interval (95% CI): 0.563 (0.480–0.643); low serum testosterone level (< 300 ng/dL), AUC (95% CI): 0.598 (0.553–0.642). (B) Free-to-total PSA ratio (P=0.257): normal serum testosterone level (≥ 300 ng/dL), AUC (95% CI): 0.616 (0.534–0.694); low serum testosterone level (< 300 ng/dL), AUC (95% CI): 0.684 (0.640–0.725). (C) Testosterone-to-total PSA ratio (P=0.954): normal serum testosterone level (≥ 300 ng/dL), AUC (95% CI): 0.590 (0.507–0.669); low serum testosterone level (< 300 ng/dL), AUC (95% CI): 0.586 (0.541–0.630). (D) PSA density (P=0.039): normal serum testosterone level (≥ 300 ng/dL), AUC (95% CI): 0.580 (0.498–0.660); low serum testosterone level (< 300 ng/dL), AUC (95% CI): 0.701 (0.658–0.741).