

**Table S1** Clinical characteristics of selected PCa and BPH patients

Parameters	PCa	BPH	P value
Patients	478 (74.57)	163 (25.43)	–
Age (years)	70.00 (64.00, 76.00)	69.00 (62.00, 75.00)	0.08
SA/TP	0.8280 (0.7461, 0.9451)	0.7781 (0.7274, 0.8689)	<0.001

Data are presented as n (%) or median (quartile). BPH, benign prostatic hyperplasia; PCa, prostate cancer; SA/TP, sialic acid/total protein.

**Table S2** Comparison of clinical parameters between groups according to SA/TP levels ( $\leq 0.7973$  vs.  $> 0.7973$ )

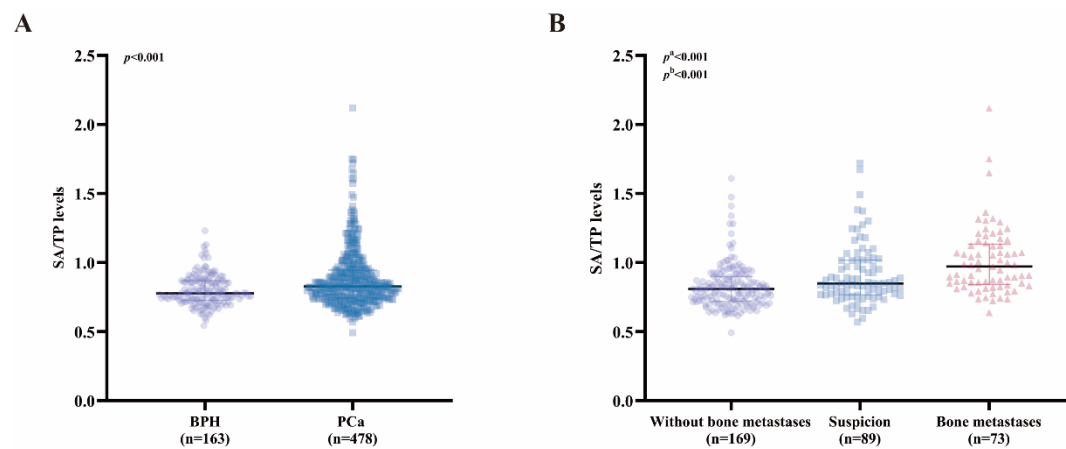
Variables	SA/TP $\leq 0.7973$ (n=283)	SA/TP $> 0.7973$ (n=358)	P value
Age (years)	69.00 (63.00, 74.00)	71.00 (64.00, 76.00)	0.01
AKP (U/L)	66.00 (56.00, 77.00)	75.50 (64.00, 103.00)	<0.001
LDH (U/L)	187.00 (169.00, 187.00)	196.00 (175.00, 236.00)	<0.001
FIB (g/L)	2.74 (2.52, 3.06)	3.40 (2.98, 4.03)	<0.001
PSA (ng/mL)	12.21 (6.87, 40.08)	31.77 (8.90, 138.63)	<0.001
Smoking history <sup>†</sup> (yes vs. no)	82/200	140/214	0.006
PCa patients (yes vs. no)	187/96	291/67	<0.001

Data are presented as median (quartile) or n/n. <sup>†</sup>, five cases of missing data were not included. AKP, alkaline phosphatase; FIB, fibrinogen; LDH, lactate dehydrogenase; PCa, prostate cancer; PSA, prostate-specific antigen; SA/TP, sialic acid/total protein.

**Table S3** Comparison of clinical parameters between groups according to SA/TP levels ( $\leq 0.8560$  vs.  $> 0.8560$ )

Variables	SA/TP $\leq 0.8560$ (n=280)	SA/TP $> 0.8560$ (n=198)	P value
Age (years)	70.00 (64.00, 75.00)	71.00 (64.00, 77.00)	0.28
AKP (U/L)	66.00 (55.00, 78.00)	86.00 (70.00, 131.50)	<0.001
LDH (U/L)	186.00 (169.00, 209.00)	205.50 (180.00, 253.50)	<0.001
FIB (g/L)	2.80 (2.55, 3.20)	3.6800 (3.27, 4.46)	<0.001
PSA (ng/mL)	24.75 (10.50, 73.40)	75.1850 (22.16, 248.63)	<0.001
Smoking history <sup>†</sup> (yes vs. no)	201/76	106/90	<0.001
GS <sup>‡</sup> ( $\leq 7$ vs. $> 7$ )	137/133	66/126	<0.001
pT stages <sup>Δ</sup> (pT2 vs. pT3–4)	205/67	137/50	0.61
Metastatic patients <sup>▼</sup>	20 (14.71)	53 (50.00)	<0.001

Data are presented as median (quartile), n/n, or n (%). <sup>†</sup>, five cases of missing data were not included; <sup>‡</sup>, 16 cases of missing data were not included. <sup>Δ</sup>, 19 cases of missing data were not included; <sup>▼</sup>, the total numbers of cases (bone metastases plus without bone metastases) in the two groups are 136 and 106, respectively. AKP, alkaline phosphatase; FIB, fibrinogen; GS, Gleason score; LDH, lactate dehydrogenase; PCa, prostate cancer; PSA, prostate-specific antigen; pT, pathological tumor; SA/TP, sialic acid/total protein.



**Figure S1** Comparison of pretreatment SA/TP in patients with BPH, PCa, and different bone metastasis statuses. (A) Comparison of pretreatment SA/TP levels between BPH patients and PCa patients; (B) comparison of pretreatment SA/TP levels among bone metastases, suspicious bone metastases, and without bone metastases in PCa patients.  $P^a$ , without bone metastases *vs.* suspicion *vs.* bone metastases;  $P^b$ , without bone metastases *vs.* bone metastases. BPH, benign prostatic hyperplasia; PCa, prostate cancer; SA/TP, sialic acid/total protein.