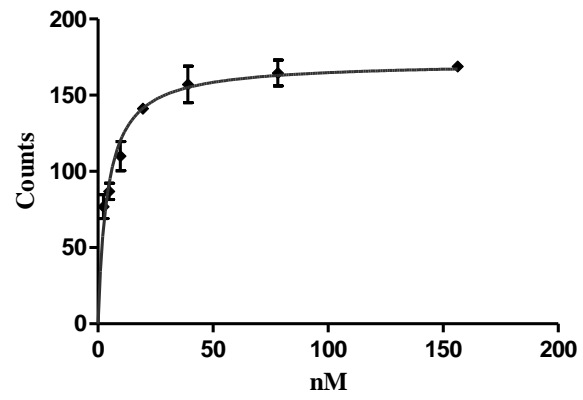
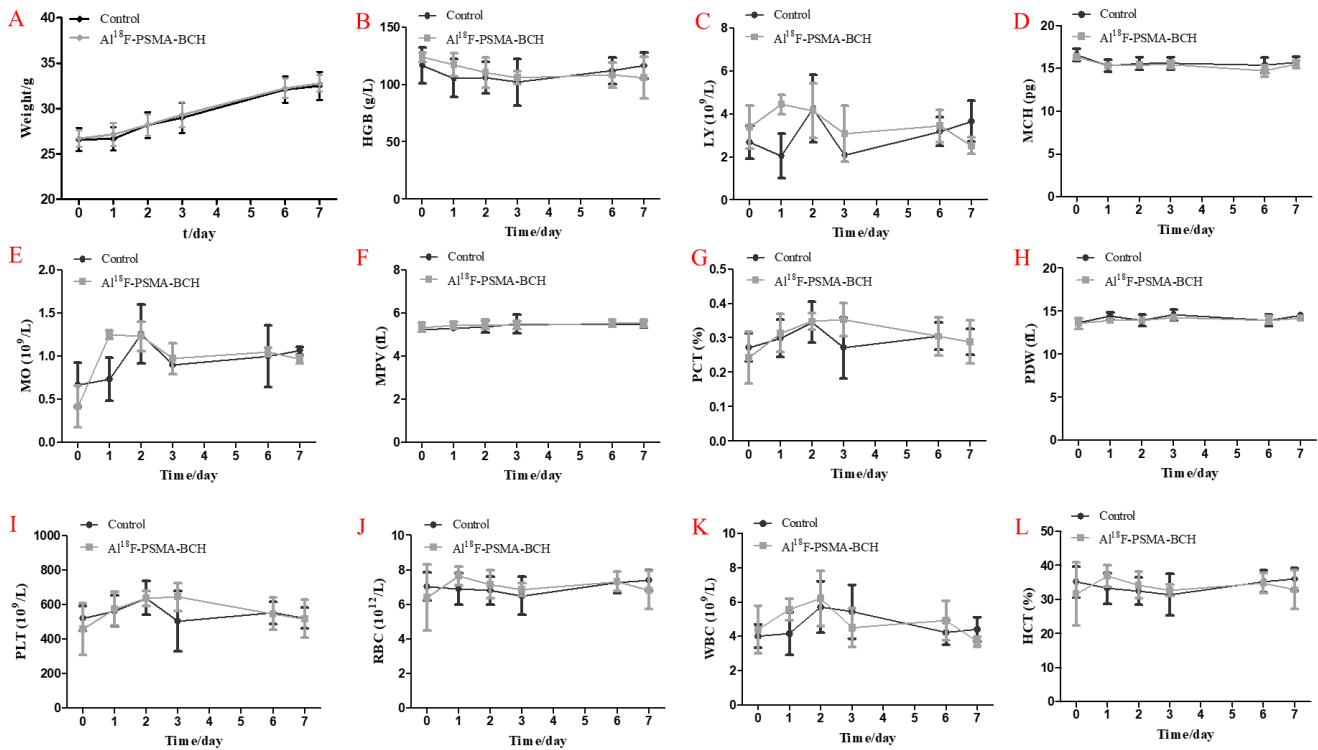


Supplemental Figure 1. A: ESI-MS chromatogram of Al¹⁹F-PSMA-BCH and HPLC chromatogram of co-injection of Al¹⁹F-PSMA-BCH (blue) and Al¹⁹F-PSMA-BCH (black). The mobile phase was a mixture of MeCN/0.1% TFA (A) and H₂O/0.1% TFA (B); 5%-60% B in 0-15 min; flow rate: 1 mL/min.



Supplemental Figure2. Binding saturation curve of Al¹⁸F-PSMA-BCH to PSMA in 22Rv1 cell lines.



Supplemental Figures 3. A: The weight of mice in radiotoxicity study of Al¹⁸F-PSMA-BCH (n=7). B-L: Result of radiotoxicity studies of Al¹⁸F-PSMA-BCH (40 mCi/kg). HCT (hematocrit), HGB (hemoglobin), LY (absolute value of lymphocytes), MCH (mean corpuscular hemoglobin), MO (absolute value of monocyte), MPV (mean platelet volume), PCT (platelet counts), PDW (platelet distribution width), PLT (platelet counts), RBC (red blood cell count), WBC (white blood count).

Supplemental table 1. Biodistribution of Al¹⁸F-PSMA-BCH with/without ZJ-43 (50 µg/mice) in mice bearing both tumors of 22Rv1 and PC-3 (60 min p.i., X±SD, n=4)

	Non-blocked	ZJ-43 blocked
Heart	0.36 ±0.04	0.10 ±0.04
Liver	0.16±0.06	0.11±0.05
Lung	0.42 ±0.17	0.15 ±0.07
Kidney	14.15±2.32	1.27±0.10
Spleen	0.61 ±0.13	0.18 ±0.07
Stomach*	0.22 ±0.05	0.12 ±0.05
Bone	1.59±0.07	1.57±0.07
Muscle	0.37 ±0.08	0.09 ±0.01
Large intestine	0.75 ±0.09	0.14 ±0.04
Small intestine	1.36 ±0.20	0.17 ±0.08
22Rv1	7.87 ±2.37	0.46 ±0.11
PC-3	0.54 ±0.22	0.53 ±0.16
Blood	0.18 ±0.05	0.15 ±0.05
Brain	0.09 ±0.02	0.03 ±0.01

* The data of stomach was measured with content.

Supplemental table 2. Organ biodistribution of Al¹⁸F-PSMA-BCH in newly diagnosed PCa patients

(SUV_{mean}, X±SD, n=11)

	SUV _{mean}		SUV _{max}	
	1 h	2 h	1 h	2 h
Submandibular glands	10.77±3.06	13.22±4.01*	14.03±4.34	17.25±5.67*
Parotid glands	7.10±1.67	9.06±2.46*	9.39±2.57	11.92±4.22*
Lacrimal glands	6.41±2.32	8.14±2.96*	8.49±3.47	11.21±5.58*
Kidneys	16.26±1.75	19.52±2.62*	23.81±3.83	26.67±4.89*
Liver	4.63±0.93	4.50±0.85	8.09±3.87	5.75±1.90
Spleen	5.46±1.34	5.19±1.37	6.79±1.78	6.63±2.08
Heart	2.44±0.37	2.01±0.26*	3.31±0.60	2.89±1.00
Colon	1.16±0.24	1.07±0.28	2.89±0.81	2.05±0.61*
Small Intestine	4.48±1.65	5.58±1.72	7.02±2.75	11.53±5.76
Pancreas	2.01±0.36	1.83±0.31	3.01±0.44	2.71±0.80
Muscle	0.51±0.13	0.44±0.10	1.30±0.63	0.95±0.31
Marrow	1.35±0.29	1.35±0.28	2.09±0.58	1.81±0.50
Lung	0.80±0.18	0.71±0.16	1.67±0.27	1.37±0.54
Bone	0.45±0.23	0.54±0.21	0.85±0.50	0.91±0.53
Brain	0.18±0.06	0.16±0.05	1.80±0.81	1.45±0.63
Gallbladder	1.72±0.55	2.25±0.72	2.45±0.90	2.78±0.48

*Significance of differences between 1 h and 2 h: *: P<0.05

Supplemental Table 3. Time-Integrated Activity Coefficients [h] of Al¹⁸F-PSMA-BCH (n=11)

Source organ	Mean [h]	SD
kidneys	2.27E-01	5.69E-02
Salivary glands	3.12E-02	7.33E-03
Spleen	2.75E-02	2.13E-02
Liver	1.77E-01	5.16E-02
Urinary bladder content	4.10E-02	1.37E-02
Stomach	1.14E-02	3.97E-03
Gallbladder	9.15E-04	4.45E-04
Pancreas	3.99E-03	2.00E-03
Small intestine	4.42E-02	1.52E-02
Heart	5.94E-02	1.16E-02
Lung	7.58E-02	2.82E-02
Thyroid	4.24E-04	1.10E-04
Red bone marrow	6.67E-03	2.50E-03
Bone	5.89E-02	2.45E-02
Colon	1.06E-02	3.58E-03
Muscle	3.22E-01	4.22E-02
Brain	6.61E-03	2.50E-03
Whole body	1.27E-00	2.11E-01