Table S1. PET imaging parameters and clinical risk features

| Groups                | SUVmax |        |        |        |        |        |        |        |        |        |        |
|-----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                       | Median | min    | max    | p      | Median | min    | max    | p      | Median | min    | max    | p      |
| PSA ≤ 20 (n = 8)       | 4.99   | 4.30   | 6.67   | <0.01* | 3.33   | 2.99   | 3.63   | <0.01* | 17.26  | 4.14   | 145.23 | <0.01* |
| PSA > 20 (n = 23)      | 7.13   | 4.37   | 19.43  |        | 4.01   | 3.18   | 8.03   |        | 94.53  | 7.14   | 860.33 | 19.35  |
| GS ≤ 7 (n = 14)        | 6.91   | 4.30   | 19.43  | 0.15   | 3.91   | 2.99   | 8.03   | 0.16   | 35.65  | 7.14   | 860.33 | 0.57   |
| GS 8-10 (n = 17)       | 5.62   | 4.53   | 13.31  |        | 3.54   | 3.12   | 5.30   |        | 67.81  | 4.14   | 721.20 | 18.96  |
| T2 (n = 4)             | 5.25   | 4.75   | 7.16   | 0.26   | 3.59   | 3.31   | 4.28   | 0.84   | 18.29  | 4.14   | 39.27  | 0.03*  |
| T3-4 (n = 27)          | 6.46   | 4.30   | 19.43  |        | 3.81   | 2.99   | 8.03   |        | 67.81  | 7.14   | 860.33 | 18.96  |
| N0 (n = 17)            | 6.36   | 4.30   | 19.43  | 0.44   | 3.61   | 2.99   | 6.67   | 0.60   | 39.27  | 4.14   | 291.22 | 0.19   |
| N1 (n = 14)            | 6.43   | 4.88   | 16.95  |        | 3.84   | 3.12   | 8.03   |        | 100.34 | 10.53  | 860.33 | 26.58  |
| M0 (n = 15)            | 5.41   | 4.30   | 11.88  | 0.04*  | 3.53   | 2.99   | 5.02   | 0.07   | 26.04  | 4.14   | 202.59 | <0.01* |
| M1 (n = 16)            | 6.49   | 5.08   | 19.43  |        | 3.99   | 3.20   | 8.03   |        | 124.64 | 13.67  | 860.33 | 27.15  |
| Stage II-III (n = 9)   | 5.62   | 4.30   | 11.88  | 0.22   | 3.53   | 2.99   | 5.02   | 0.20   | 21.12  | 4.14   | 97.16  | 0.01*  |
| Stage IV (n = 22)      | 6.41   | 4.66   | 19.43  |        | 3.91   | 3.12   | 8.03   |        | 81.17  | 10.53  | 860.33 | 22.70  |

*P value < 0.05; PSA, prostate-specific antigen; GS, Gleason score.
Table S2. DCE parameters and clinical risk features

| Groups                  | \( K_{\text{trans}}_{\text{max}} \) | \( K_{\text{ep}}_{\text{max}} \) | \( K_{\text{ep}}_{\text{kur}} \) | \( \text{iAUC}_{\text{kur}} \) |
|-------------------------|--------------------------------------|---------------------------------|-------------------------------|---------------------|
|                         | Median | min | max | p  | Median | min | max | p  | Median | min | max | p  |
| PSA \( \leq 20 \) (n = 8) | 298.0  | 159.0 | 1327.0 | 0.81 | 278.5  | 143.0 | 4000.0 | 0.67 | 6.8 | 2.2 | 145.0 | 0.71 | 2.8 | 2.3 | 3.9 | 0.91 |
| PSA > 20 (n = 23)       | 310.0  | 110.0 | 3993.0 | 0.80 | 227.0  | 66.0 | 4000.0 | 0.27 | 3.0 | 1.7 | 1640.8 | 0.67 | 2.8 | 1.6 | 11.3 |
| GS \( \leq 7 \) (n = 14)| 312.0  | 133.0 | 3993.0 | 0.80 | 192.0  | 66.0 | 4000.0 | 0.27 | 2.6 | 1.7 | 58.7 | 0.03* | 2.4 | 1.6 | 8.5 | 0.04* |
| GS 8-10 (n = 17)        | 276.0  | 110.0 | 1327.0 | 0.71 | 4000.0 | 78.0 | 4000.0 | 0.71 | 8.0 | 2.2 | 1640.8 | 0.71 | 3.2 | 2.2 | 11.3 |
| T2 (n = 4)              | 163.0  | 133.0 | 205.0 | 0.04*| 126.0  | 66.0 | 229.0 | 0.03*| 2.5 | 1.7 | 5.6 | 0.15 | 2.7 | 2.3 | 3.6 | 0.71 |
| T3-4 (n = 27)           | 320.0  | 110.0 | 3993.0 | 0.63 | 260.0  | 78.0 | 4000.0 | 0.04*| 3.5 | 1.9 | 1640.8 | 0.71 | 2.8 | 1.6 | 11.3 |
| N0 (n = 17)             | 265.0  | 110.0 | 3993.0 | 0.63 | 206.0  | 66.0 | 4000.0 | 0.33 | 3.0 | 1.7 | 1640.8 | 0.15 | 2.6 | 1.9 | 11.3 | 0.49 |
| N1 (n = 14)             | 312.0  | 141.0 | 1208.0 | 0.33 | 330.5  | 141.0 | 4000.0 | 0.33 | 8.3 | 1.9 | 145.0 | 0.33 | 3.1 | 1.9 | 8.5 |
| M0 (n = 15)             | 225.0  | 110.0 | 3993.0 | 0.57 | 206.0  | 66.0 | 4000.0 | 0.15 | 2.8 | 1.7 | 58.7 | 0.15 | 2.4 | 1.9 | 3.6 | 0.05* |
| M1 (n = 16)             | 315.0  | 141.0 | 1208.0 | 0.57 | 330.5  | 99.0 | 4000.0 | 0.57 | 8.3 | 1.9 | 1640.8 | 0.57 | 3.6 | 1.6 | 11.3 |
| Stage II-III (n = 9)    | 164.0  | 133.0 | 3993.0 | 0.85 | 206.0  | 66.0 | 4000.0 | 0.72 | 3.5 | 1.7 | 58.7 | 0.51 | 2.5 | 1.9 | 3.3 | 0.03* |
| Stage IV (n = 22)       | 312.0  | 110.0 | 1208.0 | 0.85 | 256.0  | 78.0 | 4000.0 | 0.85 | 3.1 | 1.9 | 1640.8 | 0.85 | 3.3 | 1.6 | 11.3 |

*P value < 0.05. \( K_{\text{trans}}_{\text{kur}} \) and \( \text{iAUC}_{\text{kur}}_{\text{max}} \) were omitted in Table S2 because of a lack of significant results in all comparisons. PSA, prostate-specific antigen; GS, Gleason score.
| Groups          | Median | min | max  | p     | Median | min | max  | p     | Median | min | max  | p     |
|-----------------|--------|-----|------|-------|--------|-----|------|-------|--------|-----|------|-------|
| PSA ≤ 20 (n = 8) | 74.0   | 5.0 | 283.0| 0.23  | 1060.7 | 943.4| 1357.4| 0.11  | 3.7    | 2.4 | 4.7 | 0.98  |
| PSA > 20 (n = 23)| 17.0   | 1.0 | 485.0|       | 980.5  | 674.7| 1247.9| 0.11  | 3.1    | 2.4 | 5.7 |       |
| GS ≤ 7 (n = 14) | 67.0   | 2.0 | 485.0| 0.06  | 1070.3 | 910.3| 1357.4| 0.02* | 2.8    | 2.4 | 4.7 | 0.11  |
| GS 8-10 (n = 17)| 7.0    | 1.0 | 269.0|       | 958.2  | 674.7| 1123.0| 0.04* | 3.7    | 2.4 | 5.7 |       |
| T2 (n = 4)      | 251.0  | 145.0| 485.0| 0.01* | 947.7  | 921.2| 1247.9| 0.07  | 2.5    | 2.4 | 3.8 | 0.04* |
| T3-4 (n = 27)   | 11.0   | 1.0 | 462.0|       | 1036.3 | 674.7| 1357.4| 0.00   | 3.6    | 2.4 | 5.7 |       |
| N0 (n = 17)     | 28.0   | 2.0 | 485.0| 0.12  | 1051.4 | 674.7| 1357.4| 0.07  | 2.8    | 2.4 | 4.7 | 0.22  |
| N1 (n = 14)     | 8.0    | 1.0 | 233.0|       | 992.8  | 859.4| 1131.7| 0.00   | 3.7    | 2.4 | 5.7 |       |
| M0 (n = 15)     | 145.0  | 2.0 | 485.0| 0.03* | 1002.8 | 674.7| 1357.4| 0.38  | 3.1    | 2.4 | 4.7 | 0.57  |
| M1 (n = 16)     | 6.0    | 1.0 | 137.0|       | 1009.5 | 874.3| 1118.7| 0.00   | 3.4    | 2.4 | 5.7 |       |
| Stage II-III (n = 9) | 269.0 | 9.0 | 485.0| <0.01*| 1117.9 | 921.2| 1357.4| 0.04* | 2.7    | 2.4 | 4.7 | 0.22  |
| Stage IV (n = 22)| 6.5    | 1.0 | 233.0|       | 973.9  | 674.7| 1131.7| 0.00   | 3.6    | 2.4 | 5.7 |       |

*P value < 0.05. PSA, prostate-specific antigen; GS, Gleason score.
(a) UV/P/ADCmin

- <11.8
- >11.8

Log-rank p=0.015

(b) Kepkur/ADCmin

- <0.5689
- >0.5689

Log-rank p=0.032