

Supplementary Materials: Prediction of Clinically Significant Cancer Using Radiomics Features of Pre-Biopsy of Multiparametric MRI in Men Suspected of Prostate Cancer

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Table S1. Holm-Bonferroni adjustment following Kruskal-Wallis test.

| Obs.tot | Obs group | df | statistic | p-value | holmBonf | Variance |
|---------|-----------|----|-----------|-----------|-----------|------------------------|
| 200 | 3 | 2 | 77.05261 | | | |
| 200 | 3 | 2 | 40.29552 | 1.855E-17 | 4.08E-16 | SumVarianceT2WI |
| 200 | 3 | 2 | 30.26405 | 1.778E-09 | 3.734E-08 | SumEntropyT2WI |
| 200 | 3 | 2 | 22.04339 | 2.681E-07 | 5.361E-06 | EntropyADC |
| 200 | 3 | 2 | 20.48376 | 1.634E-05 | 0.000311 | SumEntropyADC |
| 200 | 3 | 2 | 19.79669 | 3.565E-05 | 0.000642 | DifferenceEntropyT2WI |
| 200 | 3 | 2 | 18.80068 | 5.026E-05 | 0.000854 | SumSquareVarianceT2WI |
| 200 | 3 | 2 | 16.69491 | 8.27E-05 | 0.001323 | SumSquareVarianceADC |
| 200 | 3 | 2 | 16.5606 | 0.000237 | 0.003555 | CorrelationADC |
| 200 | 3 | 2 | 14.46591 | 0.000253 | 0.003555 | ContrastT2WI |
| 200 | 3 | 2 | 13.56251 | 0.000722 | 0.009391 | DifferenceVarianceT2WI |
| 200 | 3 | 2 | 13.53896 | 0.001135 | 0.013618 | AngularSecMomT2WI |
| 200 | 3 | 2 | 10.48425 | 0.001148 | 0.013618 | DifferenceVarianceADC |
| 200 | 3 | 2 | 10.31543 | 0.005289 | 0.05289 | ContrastADC |
| 200 | 3 | 2 | 10.26487 | 0.005755 | 0.05289 | SumAverageADC |
| 200 | 3 | 2 | 10.22021 | 0.005902 | 0.05289 | EntropyT2WI |
| 200 | 3 | 2 | 9.150617 | 0.006035 | 0.05289 | InverseDifferenceADC |
| 200 | 3 | 2 | 7.67837 | 0.010303 | 0.061819 | AngSecMomADC |
| 200 | 3 | 2 | 7.555213 | 0.021511 | 0.107556 | SumAverageT2WI |
| 200 | 3 | 2 | 5.623613 | 0.022877 | 0.107556 | InverseDifferenceT2WI |
| 200 | 3 | 2 | 4.792758 | 0.060096 | 0.180289 | CorrelationT2WI |
| 200 | 3 | 2 | 3.085075 | 0.091047 | 0.182094 | SumVarianceADC |
| 200 | 3 | 2 | | 0.213838 | 0.213838 | DifferentEntropyADC |

Table S2: Patients characteristics (n=200).

| | S/N | AGE | PSA | Volume | PSAD | Significant Gleason score | PIRADS |
|-----------|----------|----------|----------|----------|----------|---------------------------|----------|
| Stand dev | 57.86312 | 6.262884 | 4.984889 | 29.19453 | 0.115035 | 0.481205 | 0.666583 |
| Mean | 100.49 | 63.82 | 11.085 | 66.84475 | 0.19 | 0.64 | 4.589474 |
| n | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| Median | 100.5 | 64 | 10.25 | 59.75 | 0.16 | 1 | 5 |
| Minimum | 1 | 45 | 1.1 | 20 | 0.01 | 0 | 2 |
| Maximum | 200 | 75 | 21 | 207 | 0.56 | 1 | 5 |

Table S3. GLCM T2WI texture features showing the Standard deviation, mean, number, median, minimum, and maximum.

| AngularSec MomT2WI | Contrast tT2WI | Correlation onT2WI | SumSquareVarianceT2WI | InverseDifferenceT2WI | SumAverageT2WI | SumVarianceT2WI | SumEntropyT2WI | EntropyT2WI | DifferenceVarianceT2WI | DifferenceEntropyT2WI |
|--------------------|----------------|--------------------|-----------------------|-----------------------|----------------|-----------------|----------------|-------------|------------------------|-----------------------|
| 0.150208 | 25.60642 | 0.181285 | 27.0797 | 0.179048 | 12.7754 | 13.19336 | 4.176457 | 1.149206 | 9.765953 | 1.348403 |
| 0.4005 | 52.36 | 0.5505 | 73.42 | 0.3235 | 67.015 | 41.975 | 3.8455 | 2.623 | 40.445 | 3.051 |
| 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| 0.4 | 50 | 0.6 | 75.5 | 0.2 | 65 | 40.5 | 3.5 | 2.4 | 41 | 3.1 |
| 0.1 | 15 | 0.2 | 20 | 0.1 | 20 | 10 | 1.1 | 1 | 20 | 1.1 |
| 0.9 | 188 | 0.9 | 146 | 0.9 | 99 | 80 | 44 | 6.1 | 57 | 7.2 |

Table S4. GLCM ADC texture features showing the Standard deviation, mean, number, median, minimum and maximum.

| AngularSecMomADC | Contrast tADC | Correlation onADC | SumSquareVarianceADC | InverseDifferenceADC | SumAverageADC | SumVarianceADC | SumEntropyADC | EntropyADC | DifferenceVarianceADC | DifferenceEntropyADC |
|------------------|---------------|-------------------|----------------------|----------------------|---------------|----------------|---------------|------------|-----------------------|----------------------|
| 0.739036 | 18.50003 | 0.222127 | 17.92867 | 0.191422 | 20.40981 | 16.66998 | 0.964133 | 1.039752 | 9.070676 | 1.166338 |
| 0.7575 | 50.49 | 0.4675 | 74.745 | 0.329 | 39.55 | 41.785 | 2.686 | 1.961 | 29.435 | 2.0825 |
| 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 | 200 |
| 0.4 | 47 | 0.4 | 80 | 0.3 | 36.5 | 40 | 2.6 | 1.4 | 27 | 1.5 |
| 0.1 | 18 | 0.1 | 40 | 0.1 | 6 | 10 | 1 | 1 | 10 | 1 |
| 3.9 | 94 | 0.9 | 107 | 0.9 | 93 | 93 | 5 | 5.6 | 50 | 5 |

Table S5. Description of Gray-level co-occurrence Metrix (GLCM) features computed within the region of interest (ROI) of prostate tumour.

| Texture Features (2 nd order statistic Characterizing spatial relationship between intensity values within ROIs). | Description |
|--|--|
| Angular Second moment | Measures the textural uniformity that is pixel pair recurrences. It detects disorder in textures |
| Contrast | Measures local intensity variations |
| Correlation | Explains the linear dependency of Grey level values to their respective voxels in the GLCM |
| Sum Square Variance | Measures the distribution of neighbouring intensity level pairs about the average of intensity level in the GLCM |
| Inverse Difference | Measures of the local homogeneity of an image |
| Sum Average | Measures the relationship between occurrences of pairs with lower intensity values and occurrences of pairs with higher intensity values |
| Sum Variance | Explains the weights elements that differ from the average value of the GLCM. |
| Sum Entropy | Explains the sum of neighbourhood intensity value differences. |
| Entropy | Explains the randomness in the GLCM |
| Difference Variance | Measure of heterogeneity that places higher weights on differing intensity level pairs that deviate more from the mean. |
| Difference Entropy | Measure of the randomness/variability in neighbourhood intensity value differences. |