

## Supplemental information

# Unveiling the Potential: Urinary Exosomal mRNAs as Non-Invasive Biomarkers for Early Prostate Cancer Diagnosis

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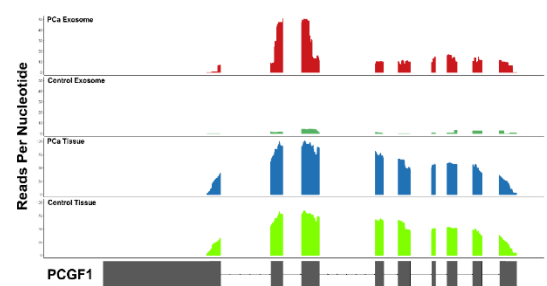
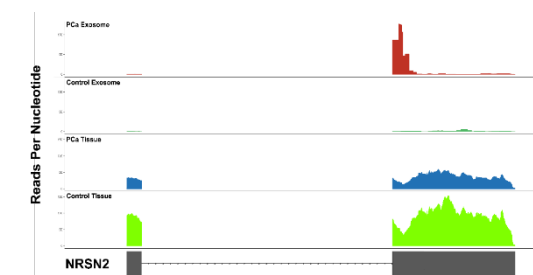
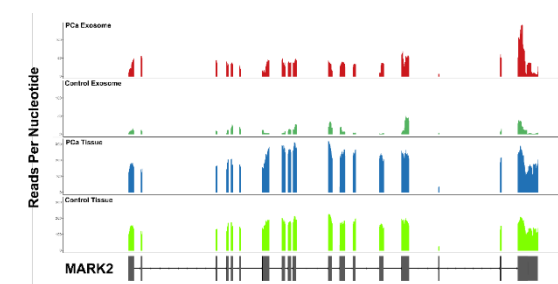
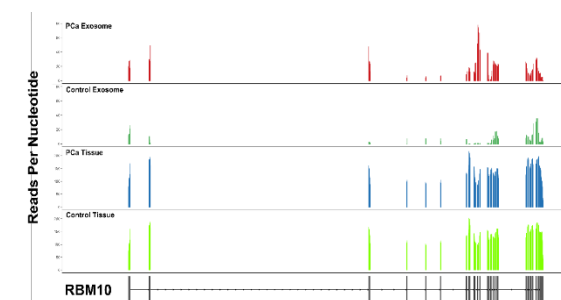
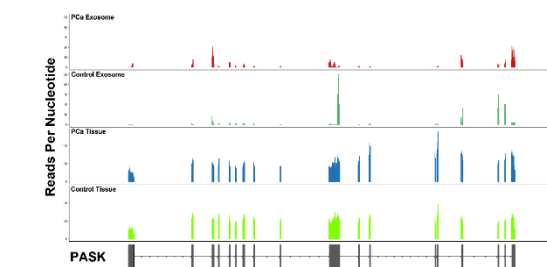
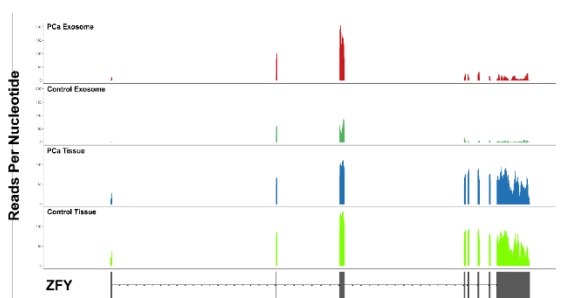
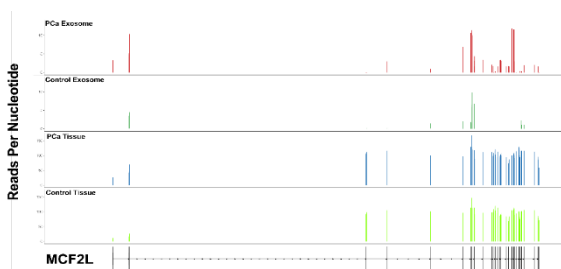
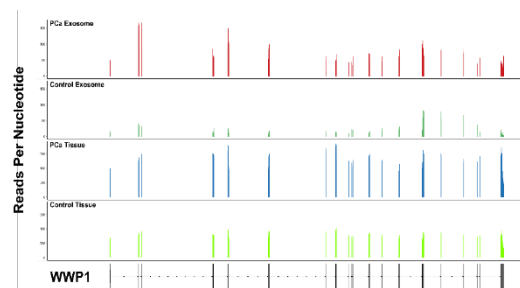
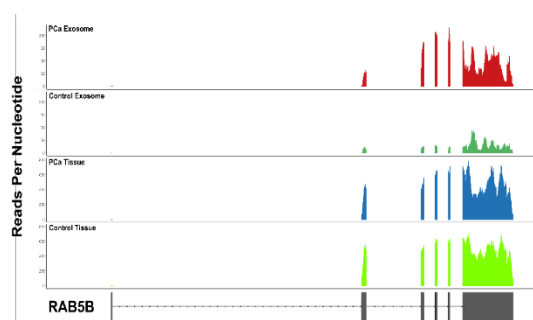
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## Supplemental Material 1

Visualized each exon of the genes using Integrative Genomics Viewer (IGV)

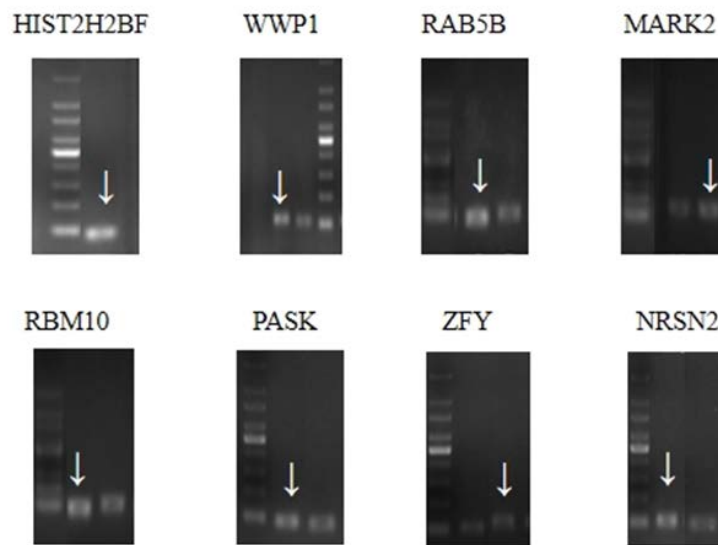


Supplemental Material 2  
Specific primers and probes

| Number | Primer Name  | Primer Sequence           | Length | Probe Name   | Probe Sequence          | Fluorescent Group |
|--------|--------------|---------------------------|--------|--------------|-------------------------|-------------------|
| 1      | rab5b-F2     | GCCATGACTAGCAGAAGCACA     | 87     | rab5b-P2     | CTAGGCCCAATGGGCAACC     | FAM               |
|        | rab5b-R2     | GATTCTCCCAGCAGGACCAA      |        |              |                         |                   |
| 2      | rab5b-F3     | TCCTCAGCCAGTCCGTTTG       | 115    |              |                         |                   |
|        | rab5b-R3     | GCTTGGGCACCCCTGTAGTA      |        |              |                         |                   |
| 3      | wwp1-F7      | TAATGCGTCTGTCACGGGTAC     | 107    |              |                         |                   |
|        | wwp1-R7      | AAGTCAGTATTCTTGAAGTGGAGG  |        |              |                         |                   |
| 4      | wwp1-F12     | TGAAGAACCCTGCCAGAA        | 104    | wwp1-P12     | TTATGATCAACAAAGTACCTTAC | FAM               |
|        | wwp1-R12     | TGCGAGGATCTTTGAATGTTG     |        |              |                         |                   |
| 5      | mcf2l-F2     | TGACTGTTGGAGATTTATCCTGTG  | 108    |              |                         |                   |
|        | mcf2l-R2     | ACATCAATTTGGTGATCCGTTT    |        |              |                         |                   |
| 6      | mcf2l-F13    | TTACCTGCTGGCCTCACAAAC     | 112    | mcf2l-P13    | ACAAGTGCCAGTCCCAGGAC    | FAM               |
|        | mcf2l-R13    | CTGGATCTTATTTCCGCACC      |        |              |                         |                   |
| 7      | hist2h2bf-F2 | CCCAGAGTTACCACAGGAAGACA   | 86     | hist2h2bf-P2 | CTCTTGACTCACAACAGCCACA  | VIC               |
|        | hist2h2bf-R2 | AAGTTGGACTCAGAGGGGACAG    |        |              |                         |                   |
| 8      | zfy-F3       | TGACCCAGACTCAGTTGTAATCC   | 104    |              |                         |                   |
|        | zfy-R3       | CATTTTCAGATACATCTGCCTCTTC |        |              |                         |                   |
| 9      | zfy-F4       | TGGATGATGCTGGCAAAATAG     | 142    | zfy-P4       | TTCCACTGGAGTGACCATCGA   | FAM               |
|        | zfy-R4       | TCTTCTCCAGGGTCAGCTTTAA    |        |              |                         |                   |
| 10     | mark2-F7     | CCTTATGCTGCCCCAGAACT      | 99     | mark2-P7     | AACTCCTAGGCTCCACACATC   | FAM               |
|        | mark2-R7     | TCCGCTGACCAGTGTATAGAGGA   |        |              |                         |                   |
| 11     | mark2-F15    | GACCAGCAGAATTTGCCCTAC     | 96     |              |                         |                   |
|        | mark2-R15    | GAAGTTGCTGAAGATGCTCCC     |        |              |                         |                   |
| 12     | pask-F2      | TTAACAGCCTTTGAAGAGGACC    | 125    |              |                         |                   |
|        | pask-R2      | TGTCTGTGGCTGAGGAAAA       |        |              |                         |                   |
| 13     | pask-F7      | TGTTCTGCACCATCAGTGGC      | 94     | pask-P7      | TCATCACCCCTCCTGCCGGAT   | VIC               |
|        | pask-R7      | CCGTAACCAACAGTGTGACG      |        |              |                         |                   |
| 14     | rbm10-F12    | CTACTACCAACAGGATGAGGGCTAT | 111    |              |                         |                   |
|        | rbm10-R12    | CCTTTGGTTCCAGTGATGCC      |        |              |                         |                   |
| 15     | rbm10-F16    | TACCTGTACTGGGATGGGGAGA    | 134    | rbm10-P16    | ATGTTCCCGCCCTGGAGCAGT   | VIC               |
|        | rbm10-R16    | TGAGCTGTCTTGGTCTTGTGCT    |        |              |                         |                   |
| 16     | nrsn2-F1     | ATGCCGAGCTGCAATCGTT       | 115    |              |                         |                   |
|        | nrsn2-R1     | CAGTGCCTGCACAGTCCTCATA    |        |              |                         |                   |
| 17     | nrsn2-F2     | ACATCTCCTTCAACCCGTCC      | 112    | nrsn2-P2     | CACTCCTTCTCTGCATGACCT   | VIC               |
|        | nrsn2-R2     | GAATCTGATCCAAAGCCCTCAT    |        |              |                         |                   |
| 18     | pcgf1-F1     | CAAGACATTCTGGCAAAGACAA    | 94     |              |                         |                   |
|        | pcgf1-R1     | GGTTTAGCATCAAGCGGTGAC     |        |              |                         |                   |
| 19     | pcgf1-F4     | TGACAATGAAGTTCTCCCTGATC   | 86     | pcgf1-P4     | CTGCATGACCTTGGGCAAACC   | JOE               |
|        | pcgf1-R4     | GTAAGAGCAAAGGGGATGGC      |        |              |                         |                   |
| 20     | actb-F6      | TGCGTTACACCCTTTCTT        | 150    | actb-P6      | AAAACCTAACTTGGCAGAAAA   | FAM               |
|        | actb-R6      | CTGTCACCTTCACCGTTC        |        |              |                         |                   |

### Supplemental Material 3

DNA gel electrophoresis of PCR products of eight genes.



### Supplemental Material 4

Multivariate logistic regression analysis results table.

| Predictor   | Estimate | SE    | Z      | p     | Odds Ratio | Lower  | Upper    |
|-------------|----------|-------|--------|-------|------------|--------|----------|
| (Intercept) | 4.934    | 1.301 | 3.792  | 0.0   | 138.907    | 13.866 | 2414.107 |
| RAB5B       | -0.712   | 0.317 | -2.244 | 0.025 | 0.491      | 0.251  | 0.884    |
| HST2H2BF    | 0.031    | 0.225 | 0.138  | 0.89  | 1.031      | 0.655  | 1.6      |
| PASK        | 0.107    | 0.243 | 0.442  | 0.659 | 1.113      | 0.691  | 1.82     |
| MARK2       | 0.255    | 0.2   | 1.273  | 0.203 | 1.29       | 0.879  | 1.941    |
| NRSN2       | -0.326   | 0.269 | -1.212 | 0.225 | 0.722      | 0.419  | 1.215    |
| ZFY         | -0.196   | 0.141 | -1.392 | 0.164 | 0.822      | 0.616  | 1.08     |
| RBM         | 0.005    | 0.228 | 0.021  | 0.983 | 1.005      | 0.644  | 1.594    |
| WWP1        | -0.619   | 0.188 | -3.301 | 0.001 | 0.538      | 0.355  | 0.761    |

# Supplemental Material 5

Table S1 mRNAs in urine exosomes and characteristics of patient samples.

| Index     | Overall sample<br>P 值 | Puncture negative | Puncture positive          |
|-----------|-----------------------|-------------------|----------------------------|
| PSA       |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) 0.047 <sup>#</sup>  |
| Median    | 8.83                  | 8.24              | 10.26                      |
| IQR       | 6.35-11.97            | 6.36-10.41        | 6.35-14.44                 |
| WWP1      |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 40.06                 | 20.615            | 212.28                     |
| IQR       | 10.07-117.27          | 6.76-52.26        | 87.14-480.48               |
| RBM10     |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 14.78                 | 9.89              | 57.5                       |
| IQR       | 5.28-57.5             | 2.92-24.44        | 25.71-152.4                |
| ZFY       |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 23.58                 | 13.81             | 75.18                      |
| IQR       | 6.02-72.42            | 3.03-40.78        | 35.20-196.23               |
| NRSN2     |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 19.38                 | 11.51             | 107.30                     |
| IQR       | 6.58-95.66            | 4.10-30.74        | 51.17-263.32               |
| MARK2     |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 31.47                 | 14.91             | 188.77                     |
| IQR       | 9.42-188.77           | 6.77-64.68        | 48.10-521.58               |
| PASK      |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 11.54                 | 7.05              | 48.14                      |
| IQR       | 2.94-33.28            | 1.58-14.94        | 12.01-112.97               |
| HIST2H2BF |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 88.75                 | 61.1              | 409.01                     |
| IQR       | 24.2-285.32           | 16.09-183.50      | 122.37-1432.91             |
| RAB5B     |                       |                   |                            |
| Cases (%) | 135(100)              | 92(68)            | 43(32) <0.001 <sup>#</sup> |
| Median    | 62.64                 | 32.41             | 211.28                     |
| IQR       | 17.79-166.74          | 10.86-83.65       | 101.07-482.13              |