**Supplementary Table 1.** Characteristics of the included studies.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Author** | **Year** | **Country** | **microRNAs** | **Regulation mode** | **Sample size** | | | | **Specimen** | **Diagnostic power** | | |
| **Case** | **No.** | **Control** | **No.** | **Sen (%)** | **Spe (%)** | **AUC** |
| Mitchell, P. S. | 2008 | USA | miR-141 | Up | PCA | 25 | HI | 25 | Serum | 0.80 | 0.92 | 0.91 |
| Mahn, R. | 2011 | Germany | let-7i | Up | PCA | 35 | BPH | 7 | Serum | 0.83 | 0.86 | 0.91 |
| Mahn, R. | 2011 | Germany | miR-16 | Up | PCA | 35 | BPH | 7 | Serum | 0.69 | 1.00 | 0.84 |
| Mahn, R. | 2011 | Germany | miR-26a | Up | PCA | 35 | BPH | 7 | Serum | 0.97 | 0.86 | 0.92 |
| Mahn, R. | 2011 | Germany | miR-32 | Up | PCA | 35 | BPH | 7 | Serum | 0.60 | 0.71 | 0.65 |
| Mahn, R. | 2011 | Germany | miR-195 | Up | PCA | 35 | BPH | 7 | Serum | 0.77 | 1.00 | 0.88 |
| Mahn, R. | 2011 | Germany | let-7i | Up | PCA | 37 | BPH | 18 | Serum | 0.81 | 0.61 | 0.70 |
| Mahn, R. | 2011 | Germany | miR-16 | Up | PCA | 37 | BPH | 18 | Serum | 0.62 | 0.72 | 0.64 |
| Mahn, R. | 2011 | Germany | miR-26a | Up | PCA | 37 | BPH | 18 | Serum | 0.89 | 0.56 | 0.70 |
| Mahn, R. | 2011 | Germany | miR-32 | Up | PCA | 37 | BPH | 18 | Serum | 0.49 | 0.72 | 0.59 |
| Mahn, R. | 2011 | Germany | miR-195 | Up | PCA | 37 | BPH | 18 | Serum | 0.76 | 0.67 | 0.67 |
| Chen, Z. H. | 2012 | China | let-7c | Down | PCA | 80 | HI | 54 | Plasma | 0.69 | 0.70 | 0.78 |
| Chen, Z. H. | 2012 | China | let-7e | Down | PCA | 80 | HI | 54 | Plasma | 0.78 | 0.75 | 0.80 |
| Chen, Z. H. | 2012 | China | miR-30c | Down | PCA | 80 | HI | 54 | Plasma | 0.80 | 0.69 | 0.82 |
| Chen, Z. H. | 2012 | China | miR-622 | Up | PCA | 80 | HI | 54 | Plasma | 0.90 | 0.63 | 0.79 |
| Chen, Z. H. | 2012 | China | miR-1285 | Up | PCA | 80 | HI | 54 | Plasma | 0.61 | 0.57 | 0.64 |
| Chen, Z. H. | 2012 | China | let-7c | Down | PCA | 80 | BPH | 44 | Plasma | 0.75 | 0.71 | 0.78 |
| Chen, Z. H. | 2012 | China | let-7e | Down | PCA | 80 | BPH | 44 | Plasma | 0.77 | 0.73 | 0.80 |
| Chen, Z. H. | 2012 | China | miR-30c | Down | PCA | 80 | BPH | 44 | Plasma | 0.61 | 0.83 | 0.76 |
| Chen, Z. H. | 2012 | China | miR-622 | Up | PCA | 80 | BPH | 44 | Plasma | 0.71 | 0.68 | 0.76 |
| Chen, Z. H. | 2012 | China | miR-1285 | Up | PCA | 80 | BPH | 44 | Plasma | 0.61 | 0.64 | 0.64 |
| Chen, Z. H. | 2012 | China | let-7c+let-7e+ miR-30c+ miR-622+ miR-1285 | \* | PCA | 80 | HI | 54 | Plasma | 0.74 | 0.84 | 0.86 |
| Chen, Z. H. | 2012 | China | let-7c+let-7e+ miR-30c+ miR-622+ miR-1285 | \* | PCA | 80 | BPH | 44 | Plasma | 0.81 | 0.93 | 0.92 |
| Bryant, R. J. | 2012 | UK | miR-107 | Down | PCA | 78 | HI | 28 | Plasma | 0.67 | 0.43 | 0.62 |
| Egidi, M. G. | 2013 | Italy | miR-21 | Down | PCA | 38 | HI | 40 | Serum | 0.53 | 0.73 | 0.60 |
| Egidi, M. G. | 2013 | Italy | miR-141 | Up | PCA | 38 | HI | 40 | Serum | 0.79 | 0.83 | 0.81 |
| Egidi, M. G. | 2013 | Italy | miR-21+ miR-141 | Up | PCA | 38 | HI | 40 | Serum | 0.68 | 0.85 | 0.81 |
| Srivastava, A. | 2013 | USA | miR-205+ miR-214 | Down | PCA | 36 | HI | 12 | Urine | 0.89 | 0.80 | 0.87 |
| Kotb, S. | 2014 | Egypt | miR-21 | Up | PCA | 10 | BPH | 10 | Serum | 0.90 | 0.90 | \* |
| Kotb, S. | 2014 | Egypt | miR-221 | Up | PCA | 10 | BPH | 10 | Serum | 0.80 | 0.80 | \* |
| Liao YF. | 2014 | China | miR-141 | Up | PCA | 75 | BPH | 52 | Serum | 0.68 | 0.70 | 0.79 |
| Liao YF. | 2014 | China | miR-141 | Up | PCA | 75 | HI | 40 | Serum | 0.73 | 0.77 | 0.80 |
| Kelly, B. D | 2015 | Ireland | miR-141 | Up | PCA | 75 | BPH | 27 | Serum | 0.94 | 0.53 | 0.66 |
| Kelly, B. D | 2015 | Ireland | let-7a | Down | PCA | 75 | BPH | 27 | Serum | 0.93 | 0.51 | 0.68 |
| Kelly, B. D | 2015 | Ireland | let-7a+ miR-141+ miR-145+ miR-155 | \* | PCA | 75 | BPH | 27 | Serum | 0.97 | 0.63 | 0.80 |
| Xu, S. | 2015 | China | miR-129 | Down | PCA | 98 | HI | 56 | Blood | 0.89 | 0.67 | 0.85 |
| Huang, W. | 2015 | China | miR-21 | Up | PCA | 75 | HI | 75 | Blood | 0.88 | 0.86 | 0.90 |
| Kachakova, D | 2015 | Bulgaria | let-7c | Down | PCA | 59 | BPH | 16 | Plasma | 0.75 | 0.61 | 0.76 |
| Kachakova, D | 2015 | Bulgaria | miR-30c | Down | PCA | 59 | BPH | 16 | Plasma | 0.63 | 0.42 | 0.63 |
| Kachakova, D | 2015 | Bulgaria | miR-141 | Down | PCA | 59 | BPH | 16 | Plasma | 0.50 | 0.71 | 0.51 |
| Kachakova, D | 2015 | Bulgaria | miR-375 | Down | PCA | 59 | BPH | 16 | Plasma | 0.81 | 0.73 | 0.81 |
| Kachakova, D | 2015 | Bulgaria | let-7c | Down | PCA | 59 | HI | 11 | Plasma | 0.63 | 0.71 | 0.63 |
| Kachakova, D | 2015 | Bulgaria | miR-30c | Down | PCA | 59 | HI | 11 | Plasma | 0.56 | 0.54 | 0.59 |
| Kachakova, D | 2015 | Bulgaria | miR-141 | Down | PCA | 59 | HI | 11 | Plasma | 0.57 | 0.57 | 0.57 |
| Kachakova, D | 2015 | Bulgaria | miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.78 | 0.63 | 0.71 |
| Kachakova, D | 2015 | Bulgaria | let-7c + miR-141 | Down | PCA | 59 | BPH | 16 | Plasma | 0.80 | 0.81 | 0.75 |
| Kachakova, D | 2015 | Bulgaria | miR-141 + miR-375 | Down | PCA | 59 | BPH | 16 | Plasma | 0.75 | 0.75 | 0.70 |
| Kachakova, D | 2015 | Bulgaria | let-7c+ miR-30c+ miR-141 | Down | PCA | 59 | BPH | 16 | Plasma | 0.80 | 0.81 | 0.75 |
| Kachakova, D | 2015 | Bulgaria | let-7c+miR-141+ miR-375 | Down | PCA | 59 | BPH | 16 | Plasma | 0.78 | 0.88 | 0.82 |
| Kachakova, D | 2015 | Bulgaria | miR-30c+miR-141+ miR-375 | Down | PCA | 59 | BPH | 16 | Plasma | 0.76 | 0.88 | 0.81 |
| Kachakova, D | 2015 | Bulgaria | let-7c+miR-30c+miR-375 | Down | PCA | 59 | BPH | 16 | Plasma | 0.71 | 0.63 | 0.66 |
| Kachakova, D | 2015 | Bulgaria | miR-141 + miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.77 | 0.70 | 0.75 |
| Kachakova, D | 2015 | Bulgaria | let-7c+miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.76 | 0.67 | 0.70 |
| Kachakova, D | 2015 | Bulgaria | miR-30c + miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.75 | 0.70 | 0.69 |
| Kachakova, D | 2015 | Bulgaria | let-7c+ miR-141+miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.73 | 0.74 | 0.71 |
| Kachakova, D | 2015 | Bulgaria | miR-30c+miR-141+ miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.82 | 0.61 | 0.69 |
| Kachakova, D | 2015 | Bulgaria | let-7c+ miR-30c+miR-141 +miR-375 | Down | PCA | 59 | HI | 11 | Plasma | 0.77 | 0.78 | 0.77 |
| Akbayır, S. | 2016 | Turkey | miR-125b-5p | Down | PCA | 13 | BPH | 44 | Plasma | 1.00 | 0.73 | 0.82 |
| Akbayır, S. | 2016 | Turkey | miR-194-5p | Down | PCA | 13 | BPH | 44 | Plasma | 1.00 | 0.50 | 0.81 |
| Gao, Y. | 2016 | China | miR-21 | Up | PCA | 57 | BPH | 28 | Plasma | 0.88 | 0.75 | 0.80 |
| Gao, Y. | 2016 | China | miR-375 | Up | PCA | 57 | BPH | 28 | Plasma | 0.75 | 0.75 | 0.76 |
| Gao, Y. | 2016 | China | miR-21+ miR-375 | Up | PCA | 57 | BPH | 28 | Plasma | 0.86 | 0.68 | 0.80 |
| Yang, B. | 2016 | China | miR-21 | Up | PCA | 92 | BPH | 85 | Blood | 0.94 | 0.93 | 0.97 |
| Yang, B. | 2016 | China | miR-21 | Up | PCA | 92 | HI | 97 | Blood | 0.95 | 0.93 | 0.98 |
| Salido-Guadarrama | 2016 | Mexico | miR-100+miR-200b | Up | PCA | 73 | BPH | 70 | Urine | 0.82 | 0.81 | 0.88 |
| Feng, Q. | 2016 | China | miR-32 | Up | PCA | 103 | HI | 103 | Serum | 0.87 | 0.90 | 0.91 |
| Alekseev, B. | 2017 | Russian | miR- 155-5p+miR-619-5p | \* | PCA | 188 | BPH+HI | 57 | Serum | 0.81 | 0.69 | 0.82 |
| Alekseev, B. | 2017 | Russian | miR-155-5p+miR-619-5p+miR- 6777-5p | \* | PCA | 188 | BPH+HI | 57 | Serum | 0.80 | 0.81 | 0.85 |
| Alekseev, B. | 2017 | Russian | miR-6085+miR-6511b-5p+miR-6886-5p | \* | PCA | 188 | BPH+HI | 57 | Serum | 0.81 | 0.81 | 0.86 |
| Alekseev, B. | 2017 | Russian | miR-155-5p+miR-619-5p+miR- 6777-5p+ miR-6085+miR-6511b-5p+miR-6886-5p | \* | PCA | 188 | BPH+HI | 57 | Serum | 0.84 | 0.85 | 0.91 |
| Zidan, H. E. | 2018 | Egypt | miR-15a | Down | PCA | 70 | BPH | 70 | Serum | 0.89 | 0.85 | 0.88 |
| Zidan, H. E. | 2018 | Egypt | miR-16-1 | Down | PCA | 70 | HI | 70 | Serum | 0.85 | 0.83 | 0.85 |
| Porzycki, P. | 2018 | Poland | miR-106b | Up | PCA | 20 | HI | 10 | Serum | 0.95 | 0.50 | 0.75 |
| Porzycki, P. | 2018 | Poland | miR-141-3p | Up | PCA | 20 | HI | 10 | Serum | 0.65 | 0.88 | 0.83 |
| Porzycki, P. | 2018 | Poland | miR-21 | Up | PCA | 20 | HI | 10 | Serum | 0.90 | 0.75 | 0.86 |
| Porzycki, P. | 2018 | Poland | miR-375 | Up | PCA | 20 | HI | 10 | Serum | 1.00 | 0.75 | 0.91 |
| Porzycki, P. | 2018 | Poland | miR-141-3p+ miR-21+ miR-375 | Up | PCA | 20 | HI | 10 | Serum | 0.93 | 0.63 | 0.86 |
| Luo, ZG. | 2018 | China | miR-107 | Up | PCA | 30 | BPH | 30 | Serum | 0.67 | 0.83 | 0.81 |
| Bidarra, D. | 2019 | Portugal | miR-182-5p | Up | PCA | 252 | HI | 52 | Plasma | 0.48 | 0.77 | 0.64 |
| Dülgeroğlu, Y. | 2019 | Turkey | miR-375 | Down | PCA | 25 | BPH | 33 | Serum | 0.76 | 0.80 | 0.83 |
| Dülgeroğlu, Y. | 2019 | Turkey | miR-93-5p | Down | PCA | 25 | BPH | 33 | Serum | 0.61 | 0.71 | 0.63 |
| Dülgeroğlu, Y. | 2019 | Turkey | miR-125b-5p | Down | PCA | 25 | BPH | 33 | Serum | 0.67 | 0.88 | 0.81 |
| Dülgeroğlu, Y. | 2019 | Turkey | miR-30c-5p | Down | PCA | 25 | BPH | 33 | Serum | 0.73 | 0.80 | 0.79 |
| Dülgeroğlu, Y. | 2019 | Turkey | miR-26b-5p | Down | PCA | 25 | BPH | 33 | Serum | 0.82 | 0.92 | 0.92 |
| Dülgeroğlu, Y. | 2019 | Turkey | let-7c-5p | Down | PCA | 25 | BPH | 33 | Serum | 0.91 | 0.72 | 0.89 |
| Ibrahim, N. H. | 2019 | Egypt | miR‐21 | Up | PCA | 50 | BPH+HI | 80 | Plasma | 0.91 | 1.00 | 0.96 |
| Ibrahim, N. H. | 2019 | Egypt | miR‐221 | Up | PCA | 50 | BPH+HI | 80 | Plasma | 0.46 | 1.00 | 0.87 |
| Ibrahim, N. H. | 2019 | Egypt | miR‐18a | Up | PCA | 50 | BPH+HI | 80 | Plasma | 0.96 | 1.00 | 0.996 |
| Ibrahim, N. H. | 2019 | Egypt | miR‐21+miR‐18a | Up | PCA | 50 | BPH+HI | 80 | Plasma | 0.96 | 1.00 | 0.97 |
| Jin, Y. Y. | 2019 | China | miR-324 | Up | PCA | 50 | BPH+HI | 50 | Serum | 0.86 | 0.82 | 0.91 |
| Lyu, J. | 2019 | China | miR-365a-3p | Up | PCA | 36 | BPH | 54 | Serum | 0.46 | 0.81 | 0.60 |
| Lyu, J. | 2019 | China | miR-4286 | Up | PCA | 36 | BPH | 54 | Serum | 0.68 | 0.53 | 0.61 |
| Lyu, J. | 2019 | China | miR-424-5p | Down | PCA | 36 | BPH | 54 | Serum | 0.32 | 0.95 | 0.67 |
| Lyu, J. | 2019 | China | miR-29b-3p | Up | PCA | 36 | BPH | 54 | Serum | 0.27 | 0.95 | 0.59 |
| Lyu, J. | 2019 | China | miR-27a-3p | Up | PCA | 36 | BPH | 54 | Serum | 0.28 | 0.97 | 0.60 |
| Urabe, F. | 2019 | Japan | miR-17-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.88 | 0.93 | 0.97 |
| Urabe, F. | 2019 | Japan | miR-1185-2-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.89 | 0.81 | 0.92 |
| Urabe, F. | 2019 | Japan | miR-17-3p +miR-1185-2-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.91 | 0.97 | 0.99 |
| Urabe, F. | 2019 | Japan | miR-17-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.87 | 0.83 | 0.91 |
| Urabe, F. | 2019 | Japan | miR-1185-2-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.86 | 0.79 | 0.92 |
| Urabe, F. | 2019 | Japan | miR-17-3p +miR-1185-2-3p | Up | PCA | 384 | BPH | 100 | Serum | 0.90 | 0.90 | 0.95 |
| Yang, X. | 2019 | China | miR-221 | Up | PCA | 43 | BPH+HI | 62 | Serum | 0.33 | 0.98 | 0.71 |
| Ghorbanmehr, N. | 2019 | Iran | miR-21-5p | Up | PCA | 23 | BPH+HI | 42 | Urine | 0.81 | 0.88 | 0.88 |
| Ghorbanmehr, N. | 2019 | Iran | miR-141-3p | Up | PCA | 23 | BPH+HI | 42 | Urine | 0.81 | 0.86 | 0.79 |
| Ghorbanmehr, N. | 2019 | Iran | miR-205-5p | Up | PCA | 23 | BPH+HI | 42 | Urine | 0.82 | 0.69 | 0.76 |
| Borkowetz, A. | 2020 | Germany | miR-16 | Down | PCA | 26 | BPH | 24 | Urine | 0.65 | 0.88 | 0.74 |
| Borkowetz, A. | 2020 | Germany | miR-195 | Down | PCA | 26 | BPH | 24 | Urine | 0.62 | 0.79 | 0.73 |
| Borkowetz, A. | 2020 | Germany | miR-16 | Down | PCA | 15 | BPH | 19 | Urine | 0.80 | 0.90 | 0.82 |
| Borkowetz, A. | 2020 | Germany | miR-195 | Down | PCA | 15 | BPH | 19 | Urine | 0.67 | 0.79 | 0.77 |
| Ciszkowicz, E. | 2020 | Poland | miR-21 | Up | PCA | 40 | BPH | 62 | Serum | 0.50 | 0.92 | 0.76 |
| Ciszkowicz, E. | 2020 | Poland | miR-93 | Up | PCA | 40 | BPH | 62 | Serum | 0.95 | 0.79 | 0.92 |
| Ciszkowicz, E. | 2020 | Poland | miR-141 | Up | PCA | 40 | BPH | 62 | Serum | 0.92 | 0.66 | 0.85 |
| Ciszkowicz, E. | 2020 | Poland | miR-182 | Up | PCA | 40 | BPH | 62 | Serum | 0.85 | 0.79 | 0.88 |
| Ciszkowicz, E. | 2020 | Poland | miR-205 | Down | PCA | 40 | BPH | 62 | Serum | 0.90 | 0.52 | 0.70 |
| Ciszkowicz, E. | 2020 | Poland | miR-375 | Up | PCA | 40 | BPH | 62 | Serum | 0.73 | 0.90 | 0.89 |
| Ciszkowicz, E. | 2020 | Poland | let-7a | Down | PCA | 40 | BPH | 62 | Serum | 0.40 | 0.92 | 0.67 |
| Ciszkowicz, E. | 2020 | Poland | miR-93+miR-375 | Up | PCA | 40 | BPH | 62 | Serum | 0.81 | 0.85 | 0.91 |
| Zheng, XM. | 2020 | China | miR-34b | Up | PCA | 40 | BPH+HI | 80 | Serum | 0.73 | 0.77 | 0.79 |
| Peng, YG. | 2020 | China | miR-135 | Up | PCA | 108 | BPH+HI | 102 | Serum | 0.82 | 0.93 | 0.93 |

Note: Up: upregulated, Down: downregulated, PCA: prostate cancer, BPH: benign prostate hyperplasia, HI: healthy individuals, Se: sensitivity, Sp specificity, AUC: area under the curve, \*: no reported.