

**Table S1. BMs-related genes.**

| <b>Genes</b> | <b>Description</b>                                            |
|--------------|---------------------------------------------------------------|
| ACAN         | aggrecan                                                      |
| ADAM10       | A disintegrin and metalloproteinase 10                        |
| ADAM17       | A disintegrin and metalloproteinase 17                        |
| ADAM9        | A Disintegrin And metalloproteinase 9                         |
| ADAMTS10     | ADAM-thrombospondins 10                                       |
| ADAMTS13     | ADAM-thrombospondins 13                                       |
| ADAMTS17     | ADAM-thrombospondins 17                                       |
| ADAMTS18     | ADAM-thrombospondins 18                                       |
| ADAMTS2      | ADAM-thrombospondins 2                                        |
| ADAMTS3      | ADAM-thrombospondins 3                                        |
| AGRN         | gene ID: 375790, OMIM: 103320                                 |
| AMELX        | amelogenin                                                    |
| AMTN         | amelotin                                                      |
| ANG          | angiopoietin                                                  |
| BGN          | biglycan                                                      |
| CD151        | cluster of differentiation 151                                |
| COL12A1      | collagen type XII $\alpha$ 1                                  |
| COL13A1      | collagen type XIII $\alpha$ 1                                 |
| COL17A1      | collagen type XVII $\alpha$ 1                                 |
| COL18A1      | collagen type XVIII $\alpha$ 1                                |
| COL2A1       | collagen type II $\alpha$ 1                                   |
| COL4A1       | collagen type IV $\alpha$ 1                                   |
| COL4A2       | collagen type IV $\alpha$ 2                                   |
| COL4A3       | collagen type IV $\alpha$ 3                                   |
| COL4A4       | collagen type IV $\alpha$ 4                                   |
| COL4A5       | collagen type IV $\alpha$ 5                                   |
| COL4A6       | collagen type IV $\alpha$ 6                                   |
| COL5A1       | collagen type V $\alpha$ 1                                    |
| COL6A1       | collagen type VI $\alpha$ 1                                   |
| COL6A2       | collagen type VI $\alpha$ 2                                   |
| COL6A3       | collagen type VI $\alpha$ 3                                   |
| COL7A1       | collagen type VII $\alpha$ 1                                  |
| COL8A2       | collagen type VIII $\alpha$ 1                                 |
| COL9A1       | collagen type IX $\alpha$ 1                                   |
| COL9A2       | collagen type IX $\alpha$ 2                                   |
| COL9A3       | collagen type IX $\alpha$ 3                                   |
| COLQ         | collagen like tail subunit of asymmetric acetylcholinesterase |
| CST3         | cystatin C                                                    |
| CTSA         | clinical and translational science awards                     |
| CTSB         | cathepsin B                                                   |
| CTSD         | cathepsin D                                                   |
| DAG1         | dystroglycan                                                  |

|        |                                                            |
|--------|------------------------------------------------------------|
| DCC    | deleted in colorectal cancer                               |
| DCN    | decorin                                                    |
| DDR2   | discoidin domain receptor 2                                |
| ECM1   | extracellular matrix protein 1                             |
| EFEMP1 | EGF-containing fibulin-like extracellular matrix protein 1 |
| EFEMP2 | EGF-containing fibulin-like extracellular matrix protein 2 |
| FBLN1  | fibulin-1                                                  |
| FBLN5  | fibulin-5                                                  |
| FBN1   | fibrillin-1                                                |
| FBN2   | fibrillin-2                                                |
| FGF9   | fibroblast growth factor 9                                 |
| FN1    | fibronectin 1                                              |
| FRAS1  | fraser syndrome 1                                          |
| FREM1  | RAS1-related extracellular matrix protein 1                |
| FREM2  | RAS1-related extracellular matrix protein 2                |
| GPC3   | glypican-3                                                 |
| GPC4   | glypican-4                                                 |
| GPC6   | glypican-6                                                 |
| HMCN1  | hemicentin1                                                |
| HSPG2  | heparan sulfate proteoglycan 2                             |
| ITGA2B | integrin alpha-b                                           |
| ITGA3  | integrin alpha-3                                           |
| ITGA6  | integrin alpha-6                                           |
| ITGA7  | integrin alpha-7                                           |
| ITGA8  | integrin alpha-8                                           |
| ITGB2  | integrin beta2                                             |
| ITGB3  | integrin beta3                                             |
| ITGB4  | integrin beta4                                             |
| ITGB6  | integrin beta6                                             |
| LAMA1  | laminin subunit alpha 1                                    |
| LAMA2  | laminin subunit alpha 2                                    |
| LAMA3  | laminin subunit alpha 3                                    |
| LAMA4  | laminin subunit alpha 4                                    |
| LAMB1  | laminin subunit beta 1                                     |
| LAMB2  | laminin subunit beta 2                                     |
| LAMB3  | laminin subunit beta 3                                     |
| LAMC2  | laminin subunit gamma 2                                    |
| LAMC3  | laminin subunit gamma 3                                    |
| LOXL1  | lysyl oxidase-like 1                                       |
| MMP1   | matrix metalloproteases 1                                  |
| MMP14  | matrix metalloproteases 14                                 |
| MMP2   | matrix metalloproteases 2                                  |
| MMP21  | matrix metalloproteases 21                                 |
| MPZL2  | myelin protein zero like-2                                 |

|          |                                                                  |
|----------|------------------------------------------------------------------|
| MUSK     | muscle-specific tyrosine kinase                                  |
| NTN1     | netrin-1                                                         |
| P3H1     | prolyl 3-hydroxylase 1                                           |
| P3H2     | prolyl 3-hydroxylase 2                                           |
| PTPRF    | Protein Tyrosine Phosphatase Receptor Type F                     |
| PXDN     | peroxidasin                                                      |
| ROBO2    | roundabout Guidance Receptor 2                                   |
| ROBO3    | roundabout Guidance Receptor 3                                   |
| ROBO4    | roundabout Guidance Receptor 4                                   |
| RPSA     | ribosomal protein S1                                             |
| SERPINF1 | serpin peptidase inhibitor, clade F, member 1                    |
| SMC3     | structural maintenance of chromosomes 3                          |
| SMOC1    | cysteine-related modular calcium binding 1                       |
| SMOC2    | cysteine-related modular calcium binding 2                       |
| SPARC    | Secreted protein acidic and rich in cysteine                     |
| TENM3    | teneurin transmembrane protein 3                                 |
| TENM4    | teneurin transmembrane protein 4                                 |
| TGFB2    | TGF-beta2                                                        |
| TGFB1    | transforming growth factor beta-induced                          |
| TIMP3    | tissue inhibitor of metalloproteinases-3                         |
| TLL1     | tolloid like 1                                                   |
| TNC      | Tenascin-C                                                       |
| USH2A    | Usher syndrome type IIA                                          |
| VCAN     | Usher syndrome type IIA                                          |
| ACHE     | Acetylcholinesterase                                             |
| ADAMTS1  | A disintegrin and metalloproteinase with thrombospondin motif-1  |
| ADAMTS14 | A disintegrin and metalloproteinase with thrombospondin motif-14 |
| ADAMTS15 | A disintegrin and metalloproteinase with thrombospondin motif-15 |
| ADAMTS16 | A disintegrin and metalloproteinase with thrombospondin motif-16 |
| ADAMTS19 | A disintegrin and metalloproteinase with thrombospondin motif-19 |
| ADAMTS20 | A disintegrin and metalloproteinase with thrombospondin motif-20 |
| ADAMTS4  | A disintegrin and metalloproteinase with thrombospondin motif-4  |
| ADAMTS5  | A disintegrin and metalloproteinase with thrombospondin motif-5  |
| ADAMTS6  | A disintegrin and metalloproteinase with thrombospondin motif-6  |
| ADAMTS7  | A disintegrin and metalloproteinase with thrombospondin motif-7  |
| ADAMTS8  | A disintegrin and metalloproteinase with thrombospondin motif-8  |
| ADAMTS9  | A disintegrin and metalloproteinase with thrombospondin motif-9  |
| BCAN     | bladder cancer advocacy network                                  |
| CCDC80   | circulatory coiled-coil domain-containing 80                     |
| CD44     | cluster of differentiation-44                                    |
| COL14A1  | collagen, type XIV, alpha1                                       |
| COL15A1  | collagen, type XV, alpha1                                        |
| COL28A1  | collagen, type XXVIII, alpha1                                    |
| COL8A1   | collagen, type VIII, alpha1                                      |

|        |                                                           |
|--------|-----------------------------------------------------------|
| CSPG4  | chondroitin sulfate proteoglycan 4                        |
| DDR1   | discoidin domain receptor1                                |
| EGFL6  | epidermal growth factor-like domain multiple 6            |
| EGFLAM | EGF like, fibronectin type III and laminin G domains      |
| EVA1A  | eva-1 homolog A                                           |
| EVA1B  | eva-1 homolog B                                           |
| EVA1C  | eva-1 homolog B                                           |
| FBLN2  | fibulin-2                                                 |
| FBN3   | fibrillin 3                                               |
| FMOD   | fibromodulin                                              |
| FREM3  | FRAS1-related extracellular matrix protein 3              |
| GPC1   | glypican-1                                                |
| GPC2   | glypican-2                                                |
| GPC5   | glypican-15                                               |
| HAPLN1 | hyaluronan and proteoglycan link protein 1                |
| HAPLN2 | hyaluronan and proteoglycan link protein 2                |
| HMCN2  | hemicentin 2                                              |
| ISLR   | immunoglobulin superfamily containing leucine-rich repeat |
| ITGA1  | integrin Alpha 1                                          |
| ITGA10 | integrin Alpha 10                                         |
| ITGA2  | integrin Alpha 2                                          |
| ITGA4  | integrin Alpha 4                                          |
| ITGA5  | integrin Alpha 5                                          |
| ITGA9  | integrin Alpha 9                                          |
| ITGAM  | integrin Subunit Alpha M                                  |
| ITGAV  | integrin Subunit Alpha V                                  |
| ITGAX  | integrin Subunit Alpha X                                  |
| ITGB1  | integrinbeta1                                             |
| ITGB5  | integrinbeta5                                             |
| ITGB7  | integrinbeta7                                             |
| ITGB8  | integrinbeta8                                             |
| LAD1   | leukocyte adhesion deficiency Type 1                      |
| LAMA5  | laminin alpha5                                            |
| LAMB4  | laminin beta4                                             |
| LAMC1  | laminin gamma 1                                           |
| LOXL2  | lysyl oxidase-like 2                                      |
| LOXL4  | lysyl oxidase-like 4                                      |
| LUM    | lumican                                                   |
| MATN1  | matrilin-1                                                |
| MATN2  | matrilin-2                                                |
| MATN4  | matrilin-4                                                |
| MEGF6  | multiple EGF-like domains 6                               |
| MEGF9  | multiple EGF-like domains 9                               |
| MEP1A  | meprin 1A                                                 |

|         |                                                                 |
|---------|-----------------------------------------------------------------|
| MEP1B   | meprin 1B                                                       |
| MMP17   | matrix metalloproteinase-17                                     |
| MMP26   | matrix metalloproteinase-26                                     |
| MMP7    | matrix metalloproteinase-7                                      |
| MMRN2   | multimerin-2                                                    |
| NELL1   | neural EGFL like 1                                              |
| NELL2   | neural EGFL like 2                                              |
| NID1    | nidogen-1                                                       |
| NID2    | nidogen-2                                                       |
| NPNT    | nephronectin                                                    |
| NTN4    | netrin-4                                                        |
| OGN     | osteoglycin                                                     |
| OPTC    | opticin                                                         |
| PAPLN   | papilin                                                         |
| PHF13   | survival time associated PHD finger in ovarian cancer 1 (SPOC1) |
| PODN    | podocin                                                         |
| POSTN   | periostin                                                       |
| PTN     | pleiotrophin                                                    |
| PXDNL   | peroxidasin-like                                                |
| RECK    | reversion-inducing cysteine-rich protein with Kazal motifs      |
| ROBO1   | roundabout 1                                                    |
| SDC1    | syndecan-1                                                      |
| SDC4    | syndecan-4                                                      |
| SEMA3B  | semaphorin 3B                                                   |
| SLIT1   | <i>SLIT</i> gene family members 1 (1q23.3-q24)                  |
| SLIT2   | <i>SLIT</i> gene family members 2                               |
| SLIT3   | <i>SLIT</i> gene family members 3 (5q35-34)                     |
| SPARCL1 | secreted, acidic and rich in cysteine-like 1                    |
| SPOCK1  | SPARC/osteonectin, CWCV and Kazal-like domains proteoglycan 1   |
| SPOCK2  | SPARC/osteonectin, CWCV and Kazal-like domains proteoglycan 2   |
| SPOCK3  | SPARC/osteonectin, CWCV and Kazal-like domains proteoglycan 3   |
| SPON1   | spondin 1                                                       |
| SPON2   | spondin 2                                                       |
| TENM1   | teneurin transmembrane protein 1                                |
| TENM2   | teneurin transmembrane protein 2                                |
| THBS1   | thrombospondin-1                                                |
| THBS2   | thrombospondin-2                                                |
| THBS4   | thrombospondin-4                                                |
| TIMP1   | tissue inhibitor of metalloproteinase-1                         |
| TIMP2   | tissue inhibitor of metalloproteinase-2                         |
| TINAG   | tubulo-interstitial nephritis antigen                           |
| TINAGL1 | tubulointerstitial nephritis antigen-like 1                     |
| UNC5A   | uncoordinated 5A                                                |
| UNC5B   | uncoordinated 5B                                                |

|       |                  |
|-------|------------------|
| UNC5C | uncoordinated 5C |
| UNC5D | uncoordinated 5D |
| VTN   | vitronectin      |

---

**Table S2. BMs-related genes difference.**

| <b>Gene</b> | <b>conMean</b> | <b>treatMean</b> | <b>logFC</b> | <b>pValue</b> | <b>fdr</b> |
|-------------|----------------|------------------|--------------|---------------|------------|
| LINC01549   | 0.012134       | 3.318709         | 8.095386     | 5.84E-21      | 3.13E-20   |
| AC025048.2  | 0.931849       | 0.248691         | -1.90574     | 1.97E-25      | 2.37E-24   |
| LINC01060   | 0.230745       | 1.318617         | 2.514653     | 1.07E-11      | 2.21E-11   |
| LINC00837   | 0.009455       | 0.655881         | 6.116218     | 5.00E-16      | 1.53E-15   |
| AC078846.1  | 0.396929       | 0.701438         | 0.821436     | 1.24E-08      | 2.04E-08   |
| AC083900.1  | 0.136808       | 0.49387          | 1.851981     | 4.05E-05      | 5.17E-05   |
| UNC5B-AS1   | 0.419999       | 1.860809         | 2.147473     | 4.78E-15      | 1.32E-14   |

**Table S3: The uniCox of Sankey diagram.**

| gene       | HR          | HR.95L      | HR.95H      | pvalue      |
|------------|-------------|-------------|-------------|-------------|
| AC025048.2 | 0.003873946 | 0.000129496 | 0.115891507 | 0.001360582 |
| AC078846.1 | 2.938050464 | 1.675528443 | 5.151891371 | 0.000169115 |
| AC083900.1 | 3.831083458 | 2.055086844 | 7.141888191 | 2.37E-05    |
| LINC00837  | 1.332996037 | 1.17203205  | 1.51606642  | 1.20E-05    |
| LINC01060  | 1.515850333 | 1.167516017 | 1.968111957 | 0.001792751 |
| LINC01549  | 1.244320799 | 1.137358732 | 1.361342036 | 1.87E-06    |
| UNC5B-AS1  | 1.154527359 | 1.065735733 | 1.250716646 | 0.000432789 |

**Table S4. BMs-related lncRNA geneCoef.**

| <b>Gene</b> | <b>Coef</b>        |
|-------------|--------------------|
| LINC01549   | 0.0348906913504095 |
| AC025048.2  | -0.236231409095137 |
| LINC01060   | 0.0550792840664837 |
| LINC00837   | 0.0862863534750948 |
| AC078846.1  | 0.167048285077639  |
| AC083900.1  | 0.108049486920319  |
| UNC5B-AS1   | 0.0842897443797948 |

**Table S5: Multivariate independent prognostic analysis in all tumour samples**

| <b>ID</b>  | <b>HR</b>         | <b>HR.95L</b>     | <b>HR.95H</b>    | <b>p-value</b>       |
|------------|-------------------|-------------------|------------------|----------------------|
| Age        | 1.02108386416135  | 0.919240044696268 | 1.13421109498681 | 0.697130097698083    |
| Gender     | 0.863736881231648 | 0.334309771486821 | 2.23158717940491 | 0.762289904075469    |
| Metastatic | 3.32128453503739  | 1.36425958384971  | 8.08565400108909 | 0.00818853306538188  |
| RiskScore  | 1.35523296381273  | 1.16165027691749  | 1.58107515032692 | 0.000110918793100847 |

**Table S6. Univariate independent prognostic analysis in all tumor samples**

| <b>ID</b>  | <b>HR</b>         | <b>HR.95L</b>     | <b>HR.95H</b>    | <b>p-value</b>       |
|------------|-------------------|-------------------|------------------|----------------------|
| Age        | 0.99726585943713  | 0.909740930887522 | 1.09321144144699 | 0.953415475049241    |
| Gender     | 0.584438058173388 | 0.261347131675169 | 1.30695080390635 | 0.190862617604124    |
| Metastatic | 4.37197904721888  | 1.94258945832024  | 9.83954726380995 | 0.00036477485109664  |
| RiskScore  | 1.45417620681742  | 1.26676762241722  | 1.66931045840817 | 1.04256619211874e-07 |

**Table S7. Results of correlation analysis between risk score and immune cells**

| <b>Cell</b>                | <b>pValue</b>        |
|----------------------------|----------------------|
| T cells CD8 <sup>+</sup>   | 0.0309628992573854   |
| T cells regulatory (Tregs) | 0.0032266457027349   |
| Dendritic cells resting    | 0.000445706165543161 |

**Table S8. Immune score**

| <b>ID</b>                | <b>StromalScore</b> | <b>ImmuneScore</b> | <b>ESTIMATEScore</b> |
|--------------------------|---------------------|--------------------|----------------------|
| TARGET-40-PAKZZK-01A-01R | 972.048732484208    | 740.680472035389   | 1712.7292045196      |
| TARGET-40-PALECC-01A-01R | 465.254933420925    | 849.098872045128   | 1314.35380546605     |
| TARGET-40-PALFYN-01A-01R | 1682.07246291649    | 1707.90507659617   | 3389.97753951266     |
| TARGET-40-PARDAX-01A-01R | -88.4259129417026   | -33.941465582061   | -122.367378523764    |
| TARGET-40-0A4I9K-01A-01R | 572.668843172366    | 529.20643934825    | 1101.87528252062     |
| TARGET-40-PARBGW-01A-01R | 408.329073674273    | 857.002219092429   | 1265.3312927667      |
| TARGET-40-PAPKWD-01A-01R | -580.290379603443   | -327.278637271778  | -907.569016875221    |
| TARGET-40-PAKUZU-01A-01R | 704.696041630478    | 257.365599254072   | 962.06164088455      |
| TARGET-40-PAKXLD-01A-01R | 195.825528894215    | -815.718652759855  | -619.893123865639    |
| TARGET-40-PALKDP-01A-01R | 9.63202905196125    | -548.975038077542  | -539.343009025581    |
| TARGET-40-PAVALD-01A-01R | -191.97581893399    | -1095.51094721749  | -1287.48676615148    |
| TARGET-40-PAPFLB-01A-01R | 182.933996224257    | 522.631457428256   | 705.565453652513     |
| TARGET-40-PANXSC-01A-01R | 844.38438147734     | 1433.65199984856   | 2278.0363813259      |
| TARGET-40-PATMPU-01A-01R | 26.2361674411193    | 233.323607223595   | 259.559774664714     |
| TARGET-40-0A4I0Q-01A-01R | 1045.25609045524    | 491.963969832303   | 1537.22006028754     |
| TARGET-40-PATJVI-01A-01R | 286.016064078725    | 931.977758341363   | 1217.99382242009     |
| TARGET-40-PAMRHD-01A-01R | 579.870826167987    | 727.129868266609   | 1307.0006944346      |
| TARGET-40-PAMYYJ-01A-01R | 395.283314627642    | 325.744658388867   | 721.027973016509     |
| TARGET-40-PAMLKS-01A-01R | -505.363464157572   | -504.544480051366  | -1009.90794420894    |
| TARGET-40-PAMJXS-01A-01R | 367.367569132124    | 312.776647979382   | 680.144217111506     |
| TARGET-40-PALKGN-01A-01R | 1062.29979188119    | 1173.08747900257   | 2235.38727088376     |

|                              |                   |                   |                   |
|------------------------------|-------------------|-------------------|-------------------|
| TARGET-40-<br>PAMHLF-01A-01R | 1020.8226358399   | 180.566040742882  | 1201.38867658279  |
| TARGET-40-<br>PAMHYN-01A-01R | 878.108832825093  | 815.554569845963  | 1693.66340267106  |
| TARGET-40-<br>PALZGU-01A-01R | 562.326520529641  | 724.635290911473  | 1286.96181144111  |
| TARGET-40-<br>PASEFS-01A-01R | -180.595782007142 | -1417.787043064   | -1598.38282507114 |
| TARGET-40-<br>PAVECB-01A-01R | 1339.6901291986   | 127.97162656661   | 1467.66175576521  |
| TARGET-40-<br>PANZHX-01A-01R | 1189.11458780318  | 1361.74150334424  | 2550.85609114742  |
| TARGET-40-<br>PASKZZ-01A-01R | 1398.52409498287  | 444.022195295144  | 1842.54629027801  |
| TARGET-40-<br>0A4I42-01A-01R | 40.4394300945696  | 242.210730171705  | 282.650160266274  |
| TARGET-40-<br>PANGRW-01A-01R | 905.56477476788   | 721.682968611111  | 1627.24774337899  |
| TARGET-40-<br>0A4I65-01A-01R | 903.305241371732  | 276.290791653694  | 1179.59603302543  |
| TARGET-40-<br>PASUUH-01A-01R | 269.049084139441  | 1840.31938307348  | 2109.36846721292  |
| TARGET-40-<br>PATAWV-01A-01R | 682.401285962518  | 172.578378434001  | 854.979664396519  |
| TARGET-40-<br>0A4I0W-01A-01R | 1346.17329042439  | 594.506069835546  | 1940.67936025994  |
| TARGET-40-<br>PAVCLP-01A-01R | 1092.47533669065  | 933.850269917498  | 2026.32560660815  |
| TARGET-40-<br>PAUTWB-01A-01R | 888.671831529332  | 1223.26103365723  | 2111.93286518656  |
| TARGET-40-<br>PAUTYB-01A-01R | 317.647050730449  | 1215.93254635482  | 1533.57959708527  |
| TARGET-40-<br>PAUBIT-01A-01R | 1275.47019813245  | 436.174570644876  | 1711.64476877732  |
| TARGET-40-<br>PAUXPZ-01A-01R | 336.255131202576  | -8.85264573164218 | 327.402485470933  |
| TARGET-40-<br>PAUYTT-01A-01R | 495.917793827294  | -288.833977742708 | 207.083816084586  |
| TARGET-40-<br>PAUUML-01A-01R | -92.0703138950635 | -1009.00070068289 | -1101.07101457796 |
| TARGET-40-<br>PAUVUL-01A-01R | 85.7536883049324  | 315.077074414033  | 400.830762718965  |
| TARGET-40-<br>0A4HX8-01A-01R | 306.537478626079  | 13.5062554053996  | 320.043734031478  |

|                              |                   |                   |                   |
|------------------------------|-------------------|-------------------|-------------------|
| TARGET-40-<br>PALWWX-01A-01R | 813.539152144065  | 677.3205742906    | 1490.85972643466  |
| TARGET-40-<br>PAMTCM-01A-01R | -51.6341893420825 | -719.079824628013 | -770.714013970095 |
| TARGET-40-<br>PAMEKS-01A-01R | 885.5767762713    | -152.555320839639 | 733.021455431661  |
| TARGET-40-<br>PARJXU-01A-01R | 900.829522357731  | -21.1066910170567 | 879.722831340674  |
| TARGET-40-<br>PARGTM-01A-01R | -204.069611792901 | 237.246474509955  | 33.1768627170538  |
| TARGET-40-<br>PARFTG-01A-01R | 753.799664947262  | 678.713603699594  | 1432.51326864686  |
| TARGET-40-<br>PARKAF-01A-01R | 303.450507859285  | 268.943088537019  | 572.393596396304  |
| TARGET-40-<br>PAPWWC-01A-01R | 310.060971916538  | 442.882223645475  | 752.943195562013  |
| TARGET-40-<br>PASFCV-01A-01R | 1742.09913541584  | 1543.21290414984  | 3285.31203956568  |
| TARGET-40-<br>PAVDTY-01A-01R | 572.740787827263  | 870.498603658899  | 1443.23939148616  |
| TARGET-40-<br>PANVJJ-01A-01R | 1419.62907586347  | 533.955226648763  | 1953.58430251224  |
| TARGET-40-<br>PANMIG-01A-01R | 1073.86554619382  | 237.915490202445  | 1311.78103639626  |
| TARGET-40-<br>0A4I4O-01A-01R | 475.849734753243  | 355.190452469043  | 831.040187222286  |
| TARGET-40-<br>PASSLM-01A-01R | 37.0539970430915  | -220.382689437209 | -183.328692394118 |
| TARGET-40-<br>PALHRL-01A-01R | -117.488611839616 | 598.549618781366  | 481.061006941749  |
| TARGET-40-<br>PAPIJR-01A-01R | 855.474826567205  | 1378.74892250601  | 2234.22374907321  |
| TARGET-40-<br>PAKFVX-01A-01R | -541.387246754934 | 457.387649410522  | -83.9995973444114 |
| TARGET-40-<br>PAPNVD-01A-01R | -349.092435113037 | -558.087167108309 | -907.179602221346 |
| TARGET-40-<br>0A4I5B-01A-01R | 776.364020288667  | 1208.7754468092   | 1985.13946709787  |
| TARGET-40-<br>0A4HLD-01A-01R | 65.0301349388869  | 2.0117218635209   | 67.0418568024078  |
| TARGET-40-<br>PASYUK-01A-01R | 2026.25677706725  | 2516.44749828856  | 4542.70427535581  |
| TARGET-40-<br>PATUXZ-01A-01R | -11.5720188998687 | -196.309161744045 | -207.881180643914 |

|                          |                   |                   |                  |
|--------------------------|-------------------|-------------------|------------------|
| TARGET-40-0A4HXS-01A-01R | 529.899231319821  | 541.486845756557  | 1071.38607707638 |
| TARGET-40-PASEBY-01A-01R | 800.043018616423  | 1008.73746344574  | 1808.78048206216 |
| TARGET-40-PAPXGT-01A-01R | 790.738414429629  | 1278.42218916416  | 2069.16060359379 |
| TARGET-40-0A4HMC-01A-01R | 505.596143077711  | 1243.949809922    | 1749.54595299971 |
| TARGET-40-PANSEN-01A-01R | 1066.09889966172  | 58.9541675201753  | 1125.05306718189 |
| TARGET-40-0A4I4E-01A-01R | 728.249431100752  | -743.946403804211 | -15.696972703459 |
| TARGET-40-0A4I48-01A-01R | 1101.57731371108  | 1112.12491773793  | 2213.70223144901 |
| TARGET-40-PASNZV-01A-01R | 594.867439533599  | 1037.08218131002  | 1631.94962084362 |
| TARGET-40-PASRNE-01A-01R | 752.752770310429  | 916.499889977851  | 1669.25266028828 |
| TARGET-40-0A4I4M-01A-01R | 1375.08291727999  | 1391.77257585202  | 2766.85549313201 |
| TARGET-40-PANGPE-01A-01R | 800.627226051856  | 451.243465499374  | 1251.87069155123 |
| TARGET-40-0A4I8U-01A-01R | 830.407522024211  | 558.850896906748  | 1389.25841893096 |
| TARGET-40-0A4I6O-01A-01R | 866.845226918058  | 22.9070850436384  | 889.752311961696 |
| TARGET-40-PANZZJ-01A-01R | 1312.63339924762  | 1070.93004933341  | 2383.56344858103 |
| TARGET-40-PATMXR-01A-01R | -77.4022330258133 | 209.809058245355  | 132.406825219542 |
| TARGET-40-PATPBS-01A-01R | 568.025595216925  | 737.350567239542  | 1305.37616245647 |
| TARGET-40-PATMIF-01A-01R | 1133.01583191247  | 1579.13648527394  | 2712.15231718641 |
| TARGET-40-PATEEM-01A-01R | 818.439437337922  | 242.470231768269  | 1060.90966910619 |

---

## Supplementary description:

Table S1: BMs-related genes.

Table S2: BMs-related genes difference.

Table S3: The uniCox of Sankey diagram.

Table S4: BMs-related lncRNA geneCoef.

Table S5: Multivariate independent prognostic analysis in all tumour samples

Table S6. Univariate independent prognostic analysis in all tumor samples

Table S7. Results of correlation analysis between risk score and immune cells

Table S8. Immune score