

## Nanostring analysis of human renal cell carcinoma

**Supplementary Table 1.** Monocyte and Macrophage pathway scores and significance

|                       | PBMC Monocyte |          |          |          |          |          |          | Tumor TAM |          |          |          |          |          |          |          | P-value | Asterisks |
|-----------------------|---------------|----------|----------|----------|----------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|----------|---------|-----------|
|                       | Sample 1      | Sample 2 | Sample 4 | Sample 5 | Sample 6 | Sample 7 | Sample 8 | Sample 1  | Sample 2 | Sample 3 | Sample 4 | Sample 5 | Sample 6 | Sample 7 | Sample 8 |         |           |
| Adhesion              | -1.0558       | -1.1075  | -1.4722  | -2.5805  | -1.3310  | -1.6665  | -2.7233  | 1.8118    | 1.3656   | 0.7034   | 0.3974   | 1.2242   | 0.8501   | 1.4421   | 4.1421   | 0.0003  | ***       |
| Antigen Processing    | 1.3941        | -0.9404  | 2.2201   | -2.5763  | -1.6186  | 0.6180   | -0.2640  | 3.2933    | 0.2903   | -1.4694  | 1.0259   | -0.9741  | -0.9864  | -0.8631  | 0.8507   | 0.8665  | NS        |
| B-Cell Functions      | -1.3269       | 0.0729   | -1.3600  | -1.7395  | -1.5934  | -1.0021  | -1.3989  | 0.9962    | 2.2389   | 1.3469   | 0.2803   | 0.6312   | -0.2887  | 0.7839   | 2.3594   | 0.0006  | ***       |
| Cell Cycle            | -0.9866       | -1.9289  | -0.4710  | -2.0703  | -2.5522  | -1.2858  | -0.9698  | 1.6875    | 1.4784   | 1.4947   | -0.4209  | 1.7464   | 1.1728   | 0.4946   | 2.6111   | 0.0003  | ***       |
| Cell Functions        | -1.3873       | -2.2132  | -1.6915  | -1.0335  | -2.8186  | -0.6580  | -4.7132  | 1.7577    | 1.5950   | 1.2140   | 0.8685   | 1.0351   | 1.1991   | 2.2192   | 4.6265   | 0.0003  | ***       |
| Chemokines            | -3.0916       | 0.0483   | -3.6167  | -5.6430  | -3.3137  | -1.4837  | -5.7379  | 2.3189    | 4.3454   | 3.1289   | 2.1041   | 2.2490   | 3.2177   | 1.5176   | 3.9568   | 0.0003  | ***       |
| Cytokines             | -3.0177       | -0.0432  | -4.1333  | -5.0591  | -2.9709  | -0.6737  | -3.6281  | 3.1075    | 3.4547   | 2.3399   | -0.3614  | 2.2355   | 3.0996   | 0.5654   | 5.0850   | 0.0006  | ***       |
| Cytotoxicity          | -0.8177       | -0.2629  | 0.6824   | -0.6454  | 0.1653   | 1.4981   | 1.8354   | 0.7701    | -0.5162  | -1.5511  | -0.8626  | -0.8928  | -0.4730  | -0.5009  | 1.5713   | 0.2319  | NS        |
| Interleukins          | -1.8663       | 2.3024   | -2.9319  | -4.2052  | -3.1295  | -1.3276  | -3.4415  | 1.6879    | 2.4874   | 2.5988   | 0.0576   | 1.8014   | 2.3689   | 0.4498   | 3.1476   | 0.0037  | **        |
| Macrophage Functions  | -1.2108       | -0.8132  | -0.6709  | -1.5883  | -1.5562  | -1.0334  | -1.6055  | 0.6783    | 2.0574   | 1.2041   | 0.0222   | 1.0221   | -0.1263  | 0.3050   | 3.3154   | 0.0003  | ***       |
| NK Cell Functions     | -0.0979       | -0.0460  | -0.9773  | -0.9133  | -0.6760  | -2.2328  | -2.5874  | 0.2731    | 2.2745   | -0.3817  | 1.3066   | 0.7216   | 1.3824   | 0.6385   | 1.3158   | 0.0012  | **        |
| Pathogen Defense      | -1.5720       | 1.3026   | -1.5992  | -3.2375  | -0.9933  | 0.2439   | -1.5532  | 2.2687    | 1.3128   | 0.6544   | -0.2925  | 0.2558   | 1.3215   | -0.1584  | 2.0466   | 0.0093  | **        |
| Regulation            | -3.0260       | -1.2138  | -3.4330  | -6.2974  | -4.3839  | -3.3938  | -6.2514  | 3.5748    | 4.8340   | 3.1101   | 1.4933   | 4.0083   | 2.2227   | 2.3823   | 6.3738   | 0.0003  | ***       |
| Senescence            | -2.3141       | -0.4213  | -1.5132  | -1.9636  | -1.6057  | -1.7148  | -1.7185  | -0.0811   | 2.2419   | 1.3659   | 0.7293   | 1.2969   | 1.9690   | 0.9321   | 2.7970   | 0.0003  | ***       |
| T-Cell Functions      | -2.2610       | -1.0323  | -2.4822  | -4.1559  | -2.9366  | -0.1883  | -2.8269  | 2.4046    | 3.8089   | 1.9163   | 0.6983   | 0.8491   | 0.8640   | 1.5177   | 3.8242   | 0.0003  | ***       |
| TLR                   | 0.8058        | -0.7034  | 0.6983   | 1.1861   | 0.2070   | 0.6505   | 0.1114   | -0.0198   | 0.5821   | -0.4519  | -1.4334  | -1.5281  | -0.1718  | -2.5368  | 2.6040   | 0.0939  | NS        |
| TNF Superfamily       | -2.1029       | -0.3065  | -2.0721  | -3.2043  | -1.4361  | -1.6322  | -0.6035  | 0.1752    | 1.3875   | 1.5592   | 0.2849   | 1.5877   | 1.3134   | 0.9862   | 4.0634   | 0.0003  | ***       |
| Transporter Functions | -0.7342       | -0.4820  | -0.3050  | -0.6891  | 0.5932   | 0.6318   | 2.2697   | 0.4090    | 0.0587   | -0.9276  | -2.5508  | -1.5788  | 1.5360   | -2.4398  | 4.2089   | 0.4634  | NS        |

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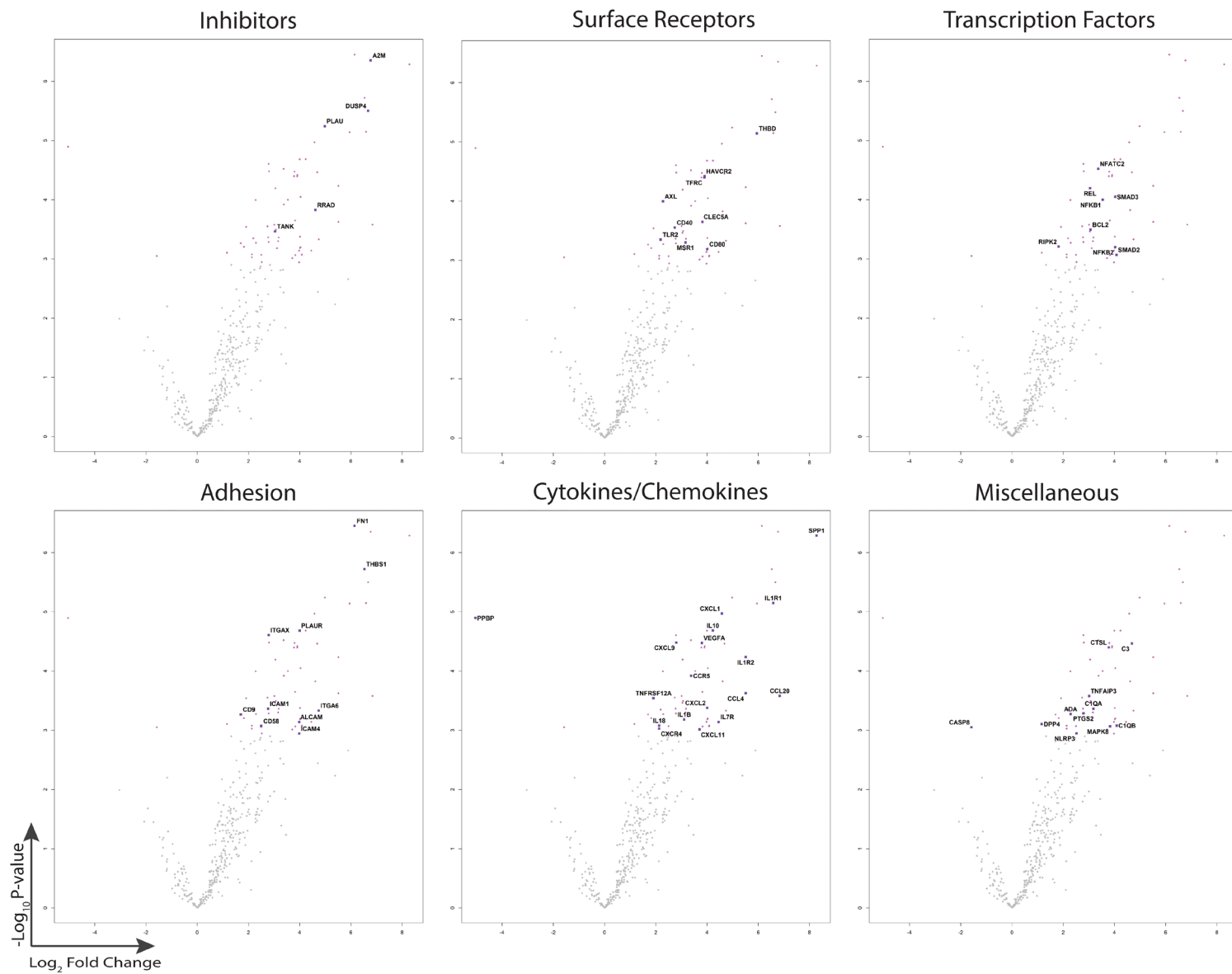
**Supplementary Table 2.** Monocyte and Macrophage normalized absolute gene expression levels and significance

| Probe Name | PBMC Monocyte |          |          |          |          |          |          | Tumor TAM |           |          |          |          |          |          | P-Value   | Aterisk  |          |
|------------|---------------|----------|----------|----------|----------|----------|----------|-----------|-----------|----------|----------|----------|----------|----------|-----------|----------|----------|
|            | Sample 1      | Sample 2 | Sample 4 | Sample 5 | Sample 6 | Sample 7 | Sample 8 | Sample 1  | Sample 2  | Sample 3 | Sample 4 | Sample 5 | Sample 6 | Sample 7 |           |          | Sample 8 |
| CXCR4      | 61531.39      | 12199.32 | 41868.19 | 34865.9  | 27862.19 | 56974.68 | 32859.38 | 100709.29 | 130051.44 | 92411.95 | 79525.76 | 70051.43 | 49654.31 | 86872.96 | 134298.58 | 0.0429   | *        |
| IL1B       | 11058.84      | 46640.93 | 11309.56 | 2732.56  | 6394.84  | 9100.23  | 4036.34  | 52409.08  | 72597.88  | 49989.59 | 18024.8  | 31804.07 | 45976.52 | 18692.78 | 109931.34 | 0.0365   | *        |
| ICAM1      | 9122.28       | 14217.88 | 2367.91  | 2958.06  | 5790.98  | 13609.03 | 4079.67  | 35518.45  | 37564.26  | 29229.46 | 17102.38 | 18603.96 | 23531.5  | 17203.73 | 44857.86  | 0.0303   | *        |
| CXCL2      | 4069.52       | 15496.82 | 1241.23  | 950.72   | 408.09   | 1477.07  | 100      | 21195.86  | 37071.97  | 15110.02 | 9980.32  | 15098.25 | 19020.58 | 9455.59  | 53157.34  | 0.0303   | *        |
| PLAUR      | 4530.6        | 3466.1   | 1332.88  | 979.67   | 3705.98  | 1479.57  | 1407.34  | 10423.04  | 21154.61  | 11288.57 | 7471.48  | 8425.3   | 15854.22 | 6714     | 39643.85  | 0.00462  | **       |
| TNFAIP3    | 3782.09       | 9320.57  | 978.24   | 662      | 1667.59  | 708.49   | 1681.23  | 7986.32   | 11874.26  | 8287.75  | 7586.08  | 8653.96  | 10236.78 | 6962.58  | 17435.31  | 0.0227   | *        |
| TLR2       | 3027.59       | 3762.49  | 3766.53  | 3453.99  | 3562.01  | 5582.81  | 3396.5   | 9697.49   | 7708.58   | 7303     | 6456.93  | 8477.22  | 10175.5  | 9737.96  | 15453.68  | 0.0305   | *        |
| NFKB1      | 1647.93       | 2973.01  | 828.82   | 1503.02  | 1341.32  | 2440.91  | 1582.97  | 7372.59   | 9563.07   | 13584    | 2312.23  | 6212.64  | 6866.55  | 4534.73  | 23696.65  | 0.0107   | *        |
| THBS1      | 675.46        | 229.32   | 318.78   | 100      | 100      | 100      | 169.44   | 6523.5    | 2166.86   | 8776.64  | 475.25   | 6544.14  | 11648.5  | 2117.73  | 24766.57  | 0.00126  | **       |
| C1QB       | 3579.69       | 100      | 371.57   | 959.1    | 100      | 100      | 100      | 6423.38   | 6053.78   | 5524.39  | 18669.71 | 11620.49 | 816.63   | 13722.44 | 100       | 0.0408   | *        |
| PTGS2      | 2461.11       | 5478.32  | 2794.27  | 957.58   | 893.87   | 2420.89  | 823.21   | 10841.73  | 11344.41  | 8436.75  | 5803.04  | 5095.32  | 4210.43  | 2921.39  | 13596.37  | 0.0327   | *        |
| TANK       | 2560.51       | 3777.9   | 2111.89  | 2990.81  | 1955.53  | 1699.88  | 1543.51  | 8696.27   | 9300.12   | 5530.21  | 2638.05  | 3518.7   | 7125.79  | 2347     | 21262.94  | 0.026    | *        |
| CCL4       | 287.43        | 16010.75 | 100      | 100      | 135.69   | 100      | 100      | 6610.62   | 9535.39   | 4448.85  | 5292.95  | 6191.67  | 4867.98  | 2566.62  | 9290.29   | 0.0217   | *        |
| REL        | 1744.93       | 2878.75  | 629.58   | 1097.75  | 1031.63  | 1339.37  | 464.21   | 5550.9    | 5688.02   | 6944.49  | 3807.65  | 3969.02  | 3167.54  | 3622.47  | 9350.57   | 0.00772  | **       |
| CD58       | 1443.13       | 1998.62  | 2636.87  | 3576.63  | 1493.58  | 605.85   | 1999.99  | 6016.4    | 4438.51   | 4560.59  | 1176.34  | 4603.06  | 2026.85  | 2759.69  | 9960.88   | 0.0408   | *        |
| SPP1       | 100           | 100      | 100      | 100      | 100      | 100      | 100      | 100       | 1656.78   | 980.1    | 3124.54  | 100      | 1058.2   | 20874.46 | 2030.6    | 0.000457 | ***      |
| SMAD3      | 1211.99       | 466.8    | 685.37   | 634.58   | 629.75   | 100      | 644.48   | 7143.74   | 6435.35   | 1695.96  | 797.71   | 1236.14  | 758.89   | 1915.01  | 9286.52   | 0.0103   | *        |
| CD40       | 3227.59       | 414.23   | 227.13   | 817.41   | 1175.6   | 761.06   | 680.85   | 2657.77   | 7396.21   | 2337.33  | 3006.57  | 1371.93  | 2247.21  | 2910.53  | 4490.68   | 0.0231   | *        |
| FN1        | 100           | 100      | 100      | 358.81   | 100      | 100      | 100      | 557.82    | 2208.38   | 1242     | 6840.06  | 775.83   | 1280.92  | 6477.49  | 6886.72   | 0.000457 | ***      |
| MSR1       | 1852.72       | 206.66   | 1178.47  | 845.59   | 100      | 100      | 100      | 1742.38   | 5448.79   | 2740.08  | 4237.96  | 2245.62  | 650.48   | 3738.31  | 2252.88   | 0.0324   | *        |
| CCL20      | 100           | 1699.51  | 100      | 100      | 100      | 100      | 100      | 148.23    | 3552.79   | 6156.45  | 575.25   | 1800.29  | 5842.52  | 888.12   | 3669.4    | 0.0227   | *        |
| BCL2       | 657.49        | 177.66   | 1067.9   | 754.94   | 319.02   | 320.45   | 1643.32  | 1126.04   | 5211.55   | 1705.28  | 1835.85  | 2086.85  | 1338.66  | 3433.02  | 5711.31   | 0.025    | *        |
| VEGFA      | 119.76        | 100      | 100      | 310.05   | 239.26   | 816.14   | 100      | 3367.73   | 5620.8    | 3088.12  | 2316.72  | 1938.08  | 1910.19  | 2389.24  | 945.61    | 0.00533  | **       |
| SMAD2      | 956.9         | 464.99   | 566.82   | 433.46   | 1481.15  | 100      | 100      | 3393.73   | 838.28    | 271.21   | 917.92   | 100      | 1669.8   | 995.52   | 12127.11  | 0.0408   | *        |
| A2M        | 100           | 100      | 100      | 100      | 100      | 100      | 100      | 100       | 4377.23   | 1039.46  | 3459.35  | 1060.4   | 639.87   | 5451.81  | 3514.94   | 0.000457 | ***      |
| NLRP3      | 449.11        | 1677.76  | 436.32   | 100      | 562.42   | 1036.45  | 525.34   | 1638.35   | 3060.5    | 3004.31  | 662.88   | 2700.93  | 2350.91  | 1671.26  | 2995.04   | 0.0498   | *        |
| ITGAX      | 1227.56       | 501.24   | 362.61   | 246.06   | 466.1    | 580.81   | 177.95   | 2971.14   | 2625.54   | 4155.52  | 1050.5   | 1010.48  | 2066.92  | 2419.41  | 1066.16   | 0.00505  | **       |
| C1QA       | 1600.02       | 303.65   | 100      | 326.05   | 100      | 100      | 100      | 863.39    | 3058.52   | 2738.92  | 4240.21  | 2660.99  | 216.83   | 3372.69  | 100       | 0.0303   | *        |
| HAVCR2     | 347.31        | 171.31   | 500.08   | 289.48   | 641.14   | 327.96   | 100      | 388.78    | 1812.97   | 2110.35  | 2352.67  | 726.9    | 1977.36  | 1901.74  | 5707.54   | 0.00533  | **       |
| CTSL       | 772.47        | 100      | 533.95   | 499.74   | 215.44   | 100      | 318.76   | 910.2     | 2313.17   | 741.47   | 1223.53  | 813.77   | 2031.56  | 3803.47  | 4648.91   | 0.00533  | **       |
| CCR5       | 566.47        | 484.02   | 272.95   | 431.18   | 175.04   | 533.25   | 311.02   | 2701.98   | 4432.58   | 1666.86  | 1406.66  | 576.13   | 494.93   | 1037.75  | 3620.43   | 0.0122   | *        |
| THBD       | 137.73        | 100      | 100      | 100      | 100      | 100      | 100      | 808.77    | 1805.06   | 2458.39  | 123.59   | 644.03   | 1458.86  | 714.36   | 5221.55   | 0.0024   | **       |
| RIPK2      | 1143.73       | 1640.59  | 834.79   | 294.05   | 763.36   | 500.7    | 312.57   | 3084.26   | 2046.26   | 1331.63  | 2284.14  | 1133.29  | 1098.27  | 1257.37  | 843.89    | 0.0365   | *        |
| DUSP4      | 100           | 100      | 100      | 100      | 100      | 100      | 100      | 2699.38   | 3299.72   | 3559.54  | 613.45   | 534.19   | 263.96   | 1102.91  | 100       | 0.00168  | **       |
| IL18       | 1225.17       | 711.53   | 221.15   | 851.69   | 422.59   | 498.2    | 141.59   | 334.17    | 2625.54   | 970.78   | 1378.57  | 942.58   | 1118.3   | 1613.34  | 1525.78   | 0.0408   | *        |
| CXCL1      | 100           | 164.97   | 100      | 100      | 259.98   | 100      | 100      | 367.98    | 2004.75   | 556.4    | 503.34   | 333.5    | 1901.94  | 1531.28  | 1717.91   | 0.00316  | **       |
| PLAU       | 100           | 100      | 100      | 100      | 100      | 100      | 100      | 293.86    | 3558.72   | 731      | 1620.13  | 665      | 332.31   | 1462.5   | 100       | 0.0024   | **       |

## Nanostring analysis of human renal cell carcinoma

|        |         |        |         |         |         |        |         |         |         |         |        |         |        |         |         |         |    |
|--------|---------|--------|---------|---------|---------|--------|---------|---------|---------|---------|--------|---------|--------|---------|---------|---------|----|
| CLEC5A | 726.96  | 100    | 100     | 100     | 259.98  | 100    | 100     | 656.64  | 1128.9  | 1343.27 | 871.86 | 141.79  | 814.28 | 1476.98 | 1966.56 | 0.0212  | *  |
| IL1R1  | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 359.83  | 846.24  | 100    | 1017.47 | 655.19 | 596.1   | 4004.7  | 0.0024  | ** |
| ADA    | 586.83  | 454.11 | 376.55  | 362.62  | 218.55  | 332.97 | 301.74  | 980.41  | 1366.15 | 827.61  | 269.65 | 389.41  | 943.9  | 1018.44 | 1424.06 | 0.0327  | *  |
| TFRC   | 131.74  | 171.31 | 183.3   | 201.88  | 123.26  | 100    | 100     | 352.38  | 100     | 838.09  | 910.06 | 1471.78 | 312.28 | 698.67  | 2124.79 | 0.00533 | ** |
| ALCAM  | 323.36  | 177.66 | 137.47  | 100     | 263.09  | 100    | 100     | 806.17  | 199.68  | 178.09  | 419.08 | 506.24  | 100    | 587.66  | 3187.18 | 0.0384  | *  |
| C3     | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 1700.28 | 264.23  | 1604.4 | 100     | 100    | 1773.83 | 100     | 0.00533 | ** |
| NFATC2 | 100     | 100    | 263.99  | 100     | 168.83  | 100    | 100     | 1024.62 | 648.48  | 373.65  | 805.57 | 743.88  | 603.34 | 993.1   | 100     | 0.00533 | ** |
| IL7R   | 132.94  | 100    | 100     | 100     | 162.62  | 100    | 100     | 100     | 1708.19 | 533.12  | 199.99 | 239.64  | 100    | 181     | 1695.31 | 0.0384  | *  |
| IL1R2  | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 218.45  | 316.33  | 100     | 100    | 307.54  | 810.74 | 100     | 2689.89 | 0.00736 | ** |
| CXCL11 | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 230.15  | 2720.44 | 100     | 1146   | 100     | 100    | 100     | 100     | 0.0437  | *  |
| RRAD   | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 244.45  | 579.28  | 253.75  | 276.39 | 100     | 453.68 | 225.65  | 2456.31 | 0.0147  | *  |
| NFKB2  | 100     | 190.35 | 100     | 100     | 136.72  | 100    | 100     | 327.67  | 251.09  | 126.88  | 100    | 184.72  | 266.32 | 100     | 2546.73 | 0.0365  | *  |
| ITGA6  | 192.82  | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 100     | 100     | 361.78 | 100     | 100    | 368.04  | 2335.76 | 0.031   | *  |
| IL10   | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 850.14  | 728.67  | 211.22 | 100     | 972.18 | 243.75  | 100     | 0.00462 | ** |
| AXL    | 100     | 100    | 144.45  | 100     | 100     | 100    | 100     | 141.73  | 733.49  | 180.42  | 383.12 | 429.35  | 100    | 619.03  | 100     | 0.0107  | *  |
| MAPK8  | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 200.24  | 100     | 100     | 100    | 482.27  | 100    | 100     | 1224.39 | 0.0408  | *  |
| CASP8  | 2812.02 | 503.96 | 1176.48 | 1391.04 | 1024.38 | 610.85 | 1605.41 | 100     | 415.18  | 199.05  | 450.54 | 283.57  | 532.64 | 252.2   | 100     | 0.0415  | *  |
| CXCL9  | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 618.93  | 421.12  | 171.11  | 387.62 | 120.82  | 168.51 | 183.42  | 100     | 0.00533 | ** |
| ICAM4  | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 369.71  | 187.41  | 100    | 184.72  | 100    | 100     | 828.82  | 0.0498  | *  |
| CD80   | 100     | 100    | 100     | 100     | 100     | 100    | 100     | 100     | 100     | 167.62  | 261.78 | 143.78  | 100    | 100     | 621.61  | 0.0365  | *  |
| CD9    | 100     | 115.11 | 100     | 100     | 119.11  | 100    | 100     | 100     | 421.12  | 152.49  | 253.92 | 100     | 100    | 353.56  | 100     | 0.0327  | *  |

# Nanostring analysis of human renal cell carcinoma



**Supplementary Figure 1.** Macrophage differentially expressed genes. Macrophage (N=8)  $\log_2$  Fold Change for differentially expressed genes represented by gene classification grouping.