**Table S1**

|  |  |  |  |
| --- | --- | --- | --- |
| **PATIENT AND TUMOR CHARACTERISTICS (n=121)** | | | |
| Sex | Female | | 34/121 (28%) |
| Male | | 87/121 (72%) |
| Mean age at diagnosis (Range) | | | 60 (38-80) |
| M1 at diagnosis | | | 71/115 (62%) |
| Histology | Fuhrman Grade 2-3 | | 43/115 (37%) |
| Fuhrman Grade 4 | | 78/115 (63%) |
| Sarcomatoid differentiation | | 45/107 (43%) |
| **PATIENT CHARACTERISTICS AT START OF SUNITINIB** | | | |
| Karnofksi <80 | | | 15/121 (12%) |
| Neutrophils >4.500/mm³ | | | 47/118 (40%) |
| Platelets >400.000/mm³ | | | 16/121 (13%) |
| Hemoglobin low (<11.5 g/dl (women) or <13 g/dl (men)) | | | 46/120 (38%) |
| LDH >1.5 ULN | | | 13/114 (11%) |
| Corrected Calcium >10 mg/dl | | | 5/114 (4%) |
| Time from nephrectomy to systemic treatment <12 months | | | 84/121 (69%) |
| Immunotherapy before sunitinib | | | 36/119 (30%) |
| Site of metastasis | | Lung | 99/121 (82%) |
| Lymph nodes | 49/121 (40%) |
| Liver | 16/121 (13%) |
| Bone | 39/121 (32%) |
| Brain | 10/121 (8%) |
| MSKCC score | | Good risk | 16/115 (14%) |
| Intermediate risk | 69/115 (60%) |
| Poor risk | 30/115 (26%) |
| IMDC score | | Good risk | 15/118 (13%) |
| Intermediate risk | 72/118 (61%) |
| Poor risk | 31/118 (26%) |

**Table S2**

|  |  |  |
| --- | --- | --- |
| **Gene** | **AssayID** | **Regulation Trend in the unsupervised subgroups** |
| A1CF | Hs00205840\_m1 | ccrcc2.dn |
| ACADL | Hs00155630\_m1 | ccrcc4.dn |
| ADAMDEC1 | Hs00936068\_m1 | ccrcc4.up |
| AIM2 | Hs00915711\_m1 | ccrcc4.up |
| ALDOC | Hs00193059\_m1 | ccrcc3.dn |
| ANGPTL4 | Hs01101127\_m1 | ccrcc3.dn |
| ANXA9 | Hs00185977\_m1 | ccrcc3.up |
| ATP6V0A4 | Hs00220986\_m1 | ccrcc3.up |
| ATP6V0D2 | Hs01084784\_m1 | ccrcc3.up |
| C1QA | Hs00706358\_s1 | ccrcc4.up |
| C8orf22 | Hs00417609\_m1 | ccrcc1.up / ccrcc3.dn |
| CA9 | Hs01055351\_g1 | ccrcc3.dn |
| CATSPERG | Hs00404747\_m1 | ccrcc3.up |
| CAV1 | Hs00971716\_m1 | ccrcc3.dn |
| CD274 | Hs01125301\_m1 | ccrcc4.up |
| CD38 | Hs01120071\_m1 | ccrcc4.up |
| CDH16 | Hs00187880\_m1 | ccrcc3.up |
| CDH17 | Hs00184865\_m1 | ccrcc3.up |
| CKMT1A | Hs00179727\_m1 | ccrcc3.up |
| CP | Hs00236810\_m1 | ccrcc3.dn |
| CUBN | Hs00153607\_m1 | ccrcc2.up / ccrcc4.dn |
| CXCL13 | Hs00757930\_m1 | ccrcc4.up |
| CYP2B6 | Hs03044636\_m1 | ccrcc3.up |
| CYP2J2 | Hs00951113\_m1 | ccrcc2.up |
| DAZ1 | Hs00414014\_m1 | ccrcc2.up |
| DIO1 | Hs00174944\_m1 | ccrcc3.up |
| ERBB4 | Hs00955522\_m1 | ccrcc3.up |
| EYA1 | Hs00166804\_m1 | ccrcc1.up |
| FGA | Hs00241027\_m1 | ccrcc2.dn |
| GLYAT | Hs00973654\_m1 | ccrcc4.dn |
| GRIN2A | Hs01058345\_m1 | ccrcc1.up |
| HIST1H3J | Hs00361917\_s1 | ccrcc4.up |
| IGHA1 | Hs00733892\_m1 | ccrcc4.up |
| IGHD | Hs00920518\_g1 | ccrcc4.up |
| IGJ | Hs00950678\_g1 | ccrcc4.up |
| IGKC | Hs01557435\_g1 | ccrcc4.up |
| IGKV1-5 | Hs00736177\_m1 | ccrcc4.up |
| KNG1 | Hs00949376\_m1 | ccrcc3.up |
| KRT19 | Hs01051611\_gH | ccrcc4.up |
| LOX | Hs00942480\_m1 | ccrcc3.dn |
| LRP2 | Hs00189742\_m1 | ccrcc4.dn |
| MAP7D2 | Hs00404197\_m1 | ccrcc1.up |
| NCAM1 | Hs00287831\_s1 | ccrcc1.up |
| NCRNA00262 | Hs00703760\_s1 | ccrcc4.dn |
| NOSTRIN | Hs00976555\_m1 | ccrcc2.up |
| PFKFB2 | Hs01015408\_m1 | ccrcc3.up |
| PGF | Hs00182176\_m1 | ccrcc3.dn |
| PIGR | Hs00922561\_m1 | ccrcc1.dn / ccrcc3.up |
| PIM2 | Hs01546753\_g1 | ccrcc4.up |
| PLAU | Hs00170182\_m1 | ccrcc4.up |
| PPP1R1A | Hs00410058\_m1 | ccrcc2.dn |
| PRLR | Hs00168739\_m1 | ccrcc3.up |
| PVALB | Hs00161045\_m1 | ccrcc3.up |
| SCGN | Hs00199630\_m1 | ccrcc2.up |
| SFRP1 | Hs03928965\_s1 | ccrcc3.up |
| SFRP2 | Hs00293258\_m1 | ccrcc4.up |
| SLC17A3 | Hs00198361\_m1 | ccrcc2.up / ccrcc4.dn |
| SLC17A4 | Hs00193989\_m1 | ccrcc2.up |
| SLC22A8 | Hs01056647\_m1 | ccrcc3.up |
| SLC5A1 | Hs01573790\_m1 | ccrcc2.up |
| SLC5A12 | Hs00708960\_m1 | ccrcc2.up / ccrcc4.dn |
| SLC6A13 | Hs00378675\_m1 | ccrcc4.dn |
| SLPI | Hs00268206\_m1 | ccrcc2.dn / ccrcc4.up |
| SORCS3 | Hs01039447\_m1 | ccrcc1.up |
| SPOCK1 | Hs00270274\_m1 | ccrcc1.up |
| STK39 | Hs01085351\_m1 | ccrcc1.up |
| SULT1C4 | Hs00198159\_m1 | ccrcc4.dn |
| TGFA | Hs00608187\_m1 | ccrcc3.dn |
| TNFAIP6 | Hs01113602\_m1 | ccrcc2.up |
| VEGFA | Hs03929054\_s1 | ccrcc3.dn |

**Table S3: (A)**



**Table S3: (B)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **AFFY** | **METHY** | **SNP** | **RTQ** |
| KIDN001T | 1 | 1 | 1 | 1 |
| KIDN006T | 1 | 1 | 1 | 1 |
| KIDN009T | 1 | 1 | 1 | 1 |
| KIDN011T | 1 | 1 | 1 | 1 |
| KIDN012T | 0 | 1 | 1 | 1 |
| KIDN014T | 0 | 1 | 1 | 1 |
| KIDN015T | 0 | 0 | 0 | 0 |
| KIDN016T | 0 | 0 | 0 | 0 |
| KIDN017T | 0 | 1 | 1 | 0 |
| KIDN018T | 0 | 1 | 1 | 1 |
| KIDN021T | 1 | 1 | 1 | 1 |
| KIDN024T | 0 | 0 | 0 | 0 |
| KIDN025T | 1 | 1 | 1 | 1 |
| KIDN026T | 0 | 0 | 0 | 0 |
| KIDN027T | 1 | 1 | 1 | 1 |
| KIDN028T | 0 | 1 | 1 | 1 |
| KIDN029T | 1 | 0 | 0 | 1 |
| KIDN035T | 1 | 1 | 1 | 1 |
| KIDN036T | 1 | 1 | 1 | 1 |
| KIDN040T | 0 | 1 | 1 | 1 |
| KIDN043T | 0 | 0 | 0 | 0 |
| KIDN045T | 1 | 1 | 1 | 1 |
| KIDN048T | 1 | 1 | 1 | 1 |
| KIDN050T | 1 | 1 | 1 | 1 |
| KIDN056T | 1 | 1 | 1 | 1 |
| KIDN060T | 1 | 1 | 1 | 1 |
| KIDN062N | 1 | 1 | 1 | 1 |
| KIDN062T | 1 | 1 | 1 | 1 |
| KIDN065T | 1 | 1 | 1 | 1 |
| KIDN066T | 0 | 1 | 1 | 1 |
| KIDN068T | 1 | 1 | 1 | 1 |
| KIDN073T | 1 | 0 | 0 | 1 |
| KIDN081T | 0 | 0 | 1 | 1 |
| KIDN083T | 0 | 1 | 1 | 1 |
| KIDN085T | 0 | 1 | 1 | 1 |
| KIDN095T | 0 | 1 | 1 | 1 |
| KIDN101T | 1 | 1 | 1 | 1 |
| KIDN102T | 1 | 1 | 1 | 1 |
| KIDN105T | 0 | 1 | 1 | 1 |
| KIDN106N | 1 | 1 | 1 | 1 |
| KIDN106T | 1 | 1 | 1 | 0 |
| KIDN107T | 1 | 1 | 1 | 1 |
| KIDN109T | 0 | 1 | 1 | 0 |
| KIDN113T | 0 | 1 | 1 | 1 |
| KIDN135T | 0 | 1 | 1 | 0 |
| KIDN156T | 1 | 1 | 1 | 1 |
| KIDN159T | 0 | 1 | 1 | 1 |
| KIDN160T | 0 | 1 | 1 | 1 |
| KIDN162T | 1 | 1 | 1 | 1 |
| KIDN163T | 1 | 1 | 1 | 1 |
| KIDN165T | 1 | 1 | 1 | 1 |
| KIDN168T | 0 | 0 | 0 | 0 |
| KIDN182T | 1 | 1 | 1 | 1 |
| KIDN183N | 1 | 0 | 0 | 1 |
| KIDN183T | 0 | 1 | 1 | 1 |
| KIDN185T | 1 | 1 | 1 | 1 |
| KIDN187T | 1 | 1 | 1 | 1 |
| KIDN188T | 0 | 1 | 1 | 1 |
| KIDN190T | 1 | 1 | 1 | 1 |
| KIDN191T | 0 | 1 | 1 | 1 |
| KIDN192T | 1 | 1 | 1 | 1 |
| KIDN200T | 1 | 1 | 1 | 1 |
| KIDN201T | 1 | 1 | 1 | 1 |
| KIDN203T | 1 | 1 | 1 | 1 |
| KIDN204T | 0 | 0 | 0 | 0 |
| KIDN205T | 0 | 0 | 0 | 0 |
| KIDN207T | 0 | 0 | 0 | 0 |
| KIDN215T | 0 | 1 | 1 | 1 |
| KIDN237T | 0 | 1 | 1 | 1 |
| KIDN239T | 0 | 1 | 1 | 1 |
| KIDN244T | 0 | 0 | 0 | 1 |
| KIDN248T | 0 | 1 | 1 | 1 |
| KIDN251T | 0 | 1 | 1 | 1 |
| KIDN252T | 0 | 1 | 1 | 1 |
| KIDN253T | 0 | 1 | 1 | 1 |
| KIDN256T | 0 | 1 | 1 | 0 |
| KIDN257N | 1 | 1 | 1 | 1 |
| KIDN257T | 1 | 1 | 1 | 1 |
| KIDN258N | 1 | 1 | 1 | 1 |
| KIDN258T | 1 | 1 | 1 | 1 |
| KIDN259T | 1 | 1 | 1 | 1 |
| KIDN260T | 1 | 1 | 1 | 1 |
| KIDN261T | 1 | 1 | 1 | 1 |
| KIDN262T | 1 | 1 | 1 | 0 |
| KIDN263T | 0 | 1 | 1 | 1 |
| KIDN264T | 0 | 0 | 0 | 1 |
| KIDN266T | 0 | 1 | 1 | 1 |
| KIDN267T | 0 | 1 | 1 | 1 |
| KIDN268T | 1 | 1 | 1 | 1 |
| KIDN269T | 0 | 1 | 1 | 1 |
| KIDN270T | 1 | 0 | 0 | 1 |
| KIDN272T | 1 | 1 | 1 | 1 |
| KIDN273T | 0 | 1 | 1 | 0 |
| KIDN274T | 1 | 1 | 1 | 1 |
| KIDN275T | 0 | 1 | 1 | 1 |
| KIDN276T | 1 | 1 | 1 | 1 |
| KIDN277T | 0 | 1 | 1 | 1 |
| KIDN278T | 0 | 1 | 1 | 0 |
| KIDN280T | 0 | 1 | 1 | 0 |
| KIDN281T | 1 | 1 | 1 | 1 |
| KIDN282T | 0 | 1 | 1 | 1 |
| KIDN285T | 1 | 0 | 0 | 1 |
| KIDN287T | 0 | 1 | 1 | 0 |
| KIDN289T | 1 | 1 | 1 | 1 |
| KIDN290T | 0 | 0 | 0 | 1 |
| KIDN292T | 1 | 1 | 1 | 1 |
| KIDN294T | 1 | 1 | 1 | 1 |
| KIDN296T | 0 | 1 | 1 | 1 |
| KIDN297N | 1 | 1 | 1 | 1 |
| KIDN297T | 0 | 1 | 1 | 1 |
| KIDN299T | 0 | 1 | 1 | 1 |
| KIDN300T | 0 | 1 | 1 | 1 |
| KIDN301T | 0 | 1 | 1 | 1 |
| KIDN304T | 0 | 1 | 1 | 1 |
| KIDN306T | 0 | 0 | 0 | 1 |
| KIDN307T | 0 | 1 | 1 | 1 |
| KIDN310T | 1 | 1 | 1 | 1 |
| KIDN311T | 1 | 1 | 1 | 1 |
| KIDN321T | 0 | 1 | 1 | 0 |
| KIDN326T | 0 | 1 | 1 | 0 |
| KIDN328T | 0 | 1 | 1 | 1 |
| KIDN332T | 0 | 1 | 1 | 1 |
| KIDN333T | 0 | 1 | 1 | 1 |
| KIDN335T | 0 | 1 | 1 | 0 |
| KIDN337T | 0 | 1 | 1 | 1 |
| KIDN339T | 0 | 1 | 1 | 1 |
| KIDN340T | 0 | 0 | 0 | 0 |