Supplementary table 1

Additional PDAC patient demographics.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Area of Analysis** | | **Cells Quantified** | |  |  |
| **RAP Number** | **Tumor** | **Stroma** | **Tumor** | **Stroma** | **Autopsy Grade** | **Cachexia** |
| 116 | 5.19E+06 | 6.34E+06 | 11362 | 13589 | Moderately Differentiated | yes |
| 107 | 2.69E+07 | 1.63E+07 | 56144 | 2.77E+04 | Moderately Differentiated | minimal |
| 89 | 5.90E+06 | 7.45E+06 | 7036 | 9899 | Poorly Differentiated | none |
| 86 | 7.90E+06 | 3.69E+06 | 20653 | 7347 | Moderately Differentiated | high |
| 80 | 1.61E+07 | 5.53E+06 | 50830 | 15490 | Moderately Differentiated | high |
| 8 | 1.35E+07 | 7.90E+06 | 28280 | 19788 | Moderately Differentiated | none |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Metastases Present** | | | | | | | |  |  |
| **RAP Number** | **Liver** | **Lungs** | **Diaph.** | **Gall Bladder** | **Adrenal** | **Kidney** | **Stomach** | **Small Bowel** | **Large Bowel** |
| 116 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 107 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| 89 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 86 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 1 | 0 |
| 80 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 1 | 1 | 0 | 0 | soft tissue | 0 | 0 | 0 | 0 |
| **RAP Number** | **Lymph Nodes** | **Append.** | **Spleen** | **Ovary** | **Bladder** | **Prost.** | **Heart** | **Omentum/ Peritoneum** | |
| 116 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| 107 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | |
| 89 | 0 | 0 | 0 | n/a | 0 | 0 | 0 | 0 | |
| 86 | 1 | 0 | 0 | n/a | 0 | 0 | 0 | 1 | |
| 80 | 0 | 0 | 0 | 0 | 0 | n/a | 0 | 0 | |
| 8 | 1 | 0 | 0 | n/a | 0 | 0 | 0 | 0 | |
| **RAP Number** | **Cachexia** | | **Diabetes** | | **Alcohol** | | **Tobacco** | |  |
| 116 | yes | | no | | no | | no, extensive 2nd hand smoke | |  |
| 107 | minimal | | yes, type 1 | | no | | no | |  |
| 89 | none | | yes | | yes (sober > 1988) | | yes, remote since 1988 | |  |
| 86 | high | | no | | no | | no | |  |
| 80 | high | | no | | no | | yes - remote | |  |
| 8 | none | | unk | | unk | | unk | |  |

Supplementary table 2

Antibody labeling details.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Patient Number** | | | | | | **Secondary Conc (ug) in 100 uL BSA** | **Secondary Catalog Number** |
|  | **Primary Catalog Number** | 116 | 107 | 89 | 86 | 80 | 8 |
| **Antigen** | **Concentration (ug) put into 100 uL of BSA** | | | | | |
| PRG2\*\* | Genetex (GTX54611) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A-21206 |
| CD31 | Thermofisher (MA5-13188) | 9 | 9 | 9 | 9 | 9 | 9 |  |  |
| CD141 | Thermofisher (MA5-11454) | 5 | 5 | 5 | 5 | 5 | 5 |  |  |
| CD103 | Novus (NBP1-88142) | 5 | 5 | 5 | 5 | 5 | 5 |  |  |
| SMAα | Sigma Alderich (C6198) | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 |  |  |
| MPO | abcam (ab9535) | 3 | 6 | 3 | 3 | 3 | 3 |  |  |
| LOX-1 | Bioss (bs-2004R) | 5 | 6 | 5 | 5 | 6 | 5 |  |  |
| CD62L\*\* | R&D (AF728) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A-11015 |
| CD56 | Novus (NBP2-15184) | 3.48 | 10 | 3.48 | 3.48 | 3.48 | 3.48 |  |  |
| CD8 | Novus (NBP2-34588AF647) | 4 | 4 | 4 | 4 | 4 | 4 |  |  |
| Granzyme B | abcam (ab4059) | 1.89 | 4.26 | 1.89 | 1.89 | 1.90 | 1.89 |  |  |
| FOXP3\*\* | Genetex (GTX89934) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A-11055 |
| CD163 | Novus (NB110-40686) | 3.2 | 10 | 3.2 | 3.2 | 3.2 | 3.2 |  |  |
| CD4 | Novus (NBP1-19371) | 6 | 3..3 | 6 | 6 | 6 | 6 |  |  |
| MUC1\*\* | abcam (ab80952) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | ab173003 |
| Tryptase | abcam (ab9535) | 3.8 | 8 | 3.8 | 3.8 | 4 | 3.8 |  |  |
| EPCAM | Genetex (GTX28667) | 8 | 5.46 | 8 | 8 | 5 | 8 |  |  |
| Ki67 | abcam (ab15580) | 5 | 5 | 5 | 5 | 5 | 5 |  |  |
| CCR3\*\* | R&D (MAB155-100) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | A-21208 |
| CD3 | abcam (ab16669) | 22.4\* | 6.42 | 22.4\* | 22.4\* | 22.4\* | 22.4\* |  |  |
| CD19 | Genetex (gtx83387) | 12\* | 14\* | 12\* | 12\* | 12\* | 12\* |  |  |
| CD11b | R&D (MAB16991) | 2.78 | 6 | 2.78 | 2.78 | 2.78 | 2.78 |  |  |
| GFAP\*\* | Genetex (GTX85454) | 1 | 1 | 1 | 1 | 1 | 1 | 1 | ab150169 |
| IL10 | Genetex (GTX80555) | 6.34 | 3.42 | 6.34 | 6.34 | 6.34 | 6.34 |  |  |
| CXCR3 | R&D (MAB160) | 12\* | 10\* | 12\* | 12\* | 12\* | 12\* |  |  |
| CD45RA | abcam (ab755) | 10\* | 10\* | 10\* | 10\* | 10\* | 10\* |  |  |
| Vimentin | Novus (NBP2-34809AF488) | 4 | 4 | 4 | 4 | 4 | 4 |  |  |
| PD1 | Genetex (GTX20256) | 8 | 20.6\* | 8 | 8 | 8 | 8 |  |  |
| FAP | Genetex (GTX50969) | 4.4 | 5 | 4.4 | 4.4 | 4.4 | 4.4 |  |  |
| PDL1 | abcam (ab210931) | 4.45 | 6 | 4.45 | 4.45 | 4.45 | 4.45 |  |  |
| iNOS | Thermofisher (PA1-036) | 4.2 | 5 | 4.2 | 4.2 | 4.2 | 4.2 |  |  |

1 \*While BSA was removed samples following purchasing, some samples (particularly stored in serum) had high BSA contaminations that most likely persisted after labeling, causing inflated concentrated readings

2 \*\* Required Secondary

Supplementary table 3.1

Patient 107, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Patient 107** | | **107 w/o cancer markers** | | | **107 w/o cancer markers TOP 5** | | |
| Scores: 0.90725763, 0.90728225, 0.9135521, 0.90798795, 0.90964362, 0.90856042, 0.91005076, 0.91167929 0.91034932, 0.90698369 | | Scores: 0.9060634, 0.90530087, 0.91026789, 0.90543658, 0.90777081, 0.90500489, 0.90725511, 0.90975219 0.90676655, 0.90421518 | |  | Scores: 0.8100912, 0.80924463, 0.81467307, 0.81125316, 0.81356024, 0.81304961, 0.81204028, 0.81138887, 0.81293597, 0.81225742 | |  |
|  |  |
|  |  |
|  |  |
|  |  |
| PRG2 | 0.084233 | PRG2 | 0.090682 | | PRG2 | 0.217309 | |
| TRYPTASE | 0.083475 | TRYPTASE | 0.078256 | | TRYPTASE | 0.208028 | |
| MPO | 0.069125 | MPO | 0.071942 | | MPO | 0.207411 | |
| CD141 | 0.05566 | CD141 | 0.059539 | | CD141 | 0.196962 | |
| CD4 | 0.038487 | CD4 | 0.044613 | | CD4 | 0.17029 | |
| EPCAM | 0.037497 | CD103 | 0.041402 | |  |  | |
| CD103 | 0.035447 | CD31 | 0.033703 | |  |  | |
| MUC1 | 0.034657 | CD56 | 0.033559 | |  |  | |
| CD31 | 0.033522 | FOXP3 | 0.03319 | |  |  | |
| CD56 | 0.033502 | GZMB | 0.03302 | |  |  | |
| GZMB | 0.02847 | VIMENTIN | 0.031608 | |  |  | |
| CD163 | 0.028419 | GFAP | 0.031372 | |  |  | |
| FOXP3 | 0.028151 | CD163 | 0.031126 | |  |  | |
| VIMENTIN | 0.026941 | PDL1 | 0.029978 | |  |  | |
| PDL1 | 0.026831 | INOS | 0.029504 | |  |  | |
| GFAP | 0.026704 | CXCR3 | 0.026806 | |  |  | |
| INOS | 0.024606 | CD62L | 0.026784 | |  |  | |
| CXCR3 | 0.024574 | PD1 | 0.026706 | |  |  | |
| PD1 | 0.023927 | SMA | 0.025942 | |  |  | |
| CD62L | 0.023028 | LOX1 | 0.025569 | |  |  | |
| SMA | 0.02271 | CD8 | 0.025452 | |  |  | |
| CD11B | 0.022122 | CD45RA | 0.025181 | |  |  | |
| CD8 | 0.022088 | CD19 | 0.025022 | |  |  | |
| LOX1 | 0.021853 | CD11B | 0.024866 | |  |  | |
| CD45RA | 0.021523 | FAP | 0.02388 | |  |  | |
| FAP | 0.021285 | CCR3 | 0.02355 | |  |  | |
| CD19 | 0.020656 | IL10 | 0.023471 | |  |  | |
| CCR3 | 0.020605 | CD3 | 0.023279 | |  |  | |
| KI67 | 0.020266 |  |  | |  |  | |
| IL10 | 0.020009 |  |  | |  |  | |
| CD3 | 0.019624 |  |  | |  |  | |

Supplementary table 3.2

Patient 89, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Patient 89** | | **89 w/o cancer markers** | | **89 w/o cancer markers TOP 5** | |
| Scores: 0.95659876, 0.95128432 0.94183643 0.95394154, 0.94892235, 0.94951284, 0.95512253 0.95187482 0.94892235, 0.95718925 | | Scores: 0.94892235, 0.94508415 0.93445527, 0.94656038, 0.94449365, 0.93563626, 0.94774136, 0.94508415, 0.94242693, 0.95276056 | | Scores: 0.88012991, 0.87983466 0.88131089, 0.88308237, 0.8807204, 0.88042516, 0.88928255, 0.87658695, 0.8768822, 0.88249188 | |
|  | |  | |  | |
| MPO | 0.152368 | MPO | 0.152057 | MPO | 0.275858 |
| CD141 | 0.136049 | CD141 | 0.145861 | CD141 | 0.243495 |
| TRYPTASE | 0.08996 | TRYPTASE | 0.08819 | TRYPTASE | 0.181649 |
| CD3 | 0.074468 | CD3 | 0.08014 | CD3 | 0.176602 |
| CD31 | 0.045565 | PDL1 | 0.049003 | PDL1 | 0.122395 |
| PDL1 | 0.042045 | CD31 | 0.048564 |  |  |
| CCR3 | 0.030834 | CCR3 | 0.031523 |  |  |
| KI67 | 0.026992 | CD45RA | 0.023163 |  |  |
| EPCAM | 0.020921 | FAP | 0.022939 |  |  |
| CD45RA | 0.020323 | PD1 | 0.022917 |  |  |
| FAP | 0.020209 | CD103 | 0.022577 |  |  |
| PD1 | 0.020029 | INOS | 0.021467 |  |  |
| PRG2 | 0.019238 | CD8 | 0.020901 |  |  |
| INOS | 0.019003 | CD56 | 0.02061 |  |  |
| CD19 | 0.018876 | PRG2 | 0.020555 |  |  |
| CD103 | 0.01886 | GFAP | 0.020448 |  |  |
| CD56 | 0.018774 | CD4 | 0.019533 |  |  |
| CD8 | 0.018762 | CD19 | 0.019241 |  |  |
| CXCR3 | 0.018006 | FOXP3 | 0.018798 |  |  |
| CD4 | 0.017819 | CD11B | 0.01873 |  |  |
| CD163 | 0.016973 | VIMENTIN | 0.018465 |  |  |
| VIMENTIN | 0.016872 | CD163 | 0.018245 |  |  |
| GFAP | 0.016558 | CXCR3 | 0.018014 |  |  |
| MUC1 | 0.016381 | LOX1 | 0.017162 |  |  |
| SMA | 0.016202 | CD62L | 0.01686 |  |  |
| CD11B | 0.016116 | SMA | 0.016537 |  |  |
| FOXP3 | 0.016094 | IL10 | 0.01441 |  |  |
| CD62L | 0.014876 | GZMB | 0.013091 |  |  |
| LOX1 | 0.014682 |  |  |  |  |
| IL10 | 0.01311 |  |  |  |  |
| GZMB | 0.013034 |  |  |  |  |

Supplementary table 3.3

Patient 86, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Patient 86** | | **86 w/o cancer markers** | | **86 w/o cancer markers TOP 5** | | |
| Scores: 0.8849189, 0.88408603, 0.88258443, 0.88289676, 0.88499979, 0.88264934, 0.88452329, 0.88554117, 0.88146004, 0.88472911 | | Scores: 0.88096279, 0.8807754, 0.87846167, 0.87885729, 0.88033565, 0.87794366, 0.88035896, 0.88139758, 0.87898222, 0.87929455 | | | Scores: 0.78035272, 0.77947821, 0.77689168, 0.77739141, 0.78130596, 0.78201845, 0.77897849, 0.77874485, 0.77916129, 0.77943197 | |
|  |
|  |
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|  |
| CD103 | 0.086451 | CD103 | 0.093384 | | CD103 | 0.225957 |  |
| CD8 | 0.076061 | CD8 | 0.084002 | | CD8 | 0.215281 |  |
| TRYPTASE | 0.068211 | TRYPTASE | 0.070981 | | TRYPTASE | 0.194216 |  |
| CD163 | 0.064311 | SMA | 0.06914 | | CD163 | 0.188829 |  |
| SMA | 0.06389 | CD163 | 0.06793 | | SMA | 0.175717 |  |
| CD3 | 0.040568 | MPO | 0.042798 | |  |  |  |
| MPO | 0.037813 | CD3 | 0.040534 | |  |  |  |
| CD11B | 0.034088 | CD11B | 0.037717 | |  |  |  |
| CD141 | 0.03344 | CD141 | 0.03735 | |  |  |  |
| CD4 | 0.031808 | CD4 | 0.035081 | |  |  |  |
| KI67 | 0.02914 | GZMB | 0.032288 | |  |  |  |
| MUC1 | 0.028294 | VIMENTIN | 0.028859 | |  |  |  |
| EPCAM | 0.028017 | CD19 | 0.028018 | |  |  |  |
| VIMENTIN | 0.025602 | LOX1 | 0.0275 | |  |  |  |
| PRG2 | 0.025576 | PRG2 | 0.027445 | |  |  |  |
| CD19 | 0.02535 | PD1 | 0.026353 | |  |  |  |
| LOX1 | 0.025039 | CD45RA | 0.024466 | |  |  |  |
| GZMB | 0.024642 | CCR3 | 0.024063 | |  |  |  |
| PD1 | 0.024484 | CD56 | 0.022114 | |  |  |  |
| CD45RA | 0.023961 | CD31 | 0.02192 | |  |  |  |
| CD56 | 0.021352 | FOXP3 | 0.021203 | |  |  |  |
| FOXP3 | 0.020237 | CXCR3 | 0.02113 | |  |  |  |
| CCR3 | 0.019507 | GFAP | 0.020518 | |  |  |  |
| CD31 | 0.019487 | INOS | 0.019821 | |  |  |  |
| GFAP | 0.019009 | CD62L | 0.019747 | |  |  |  |
| INOS | 0.018983 | FAP | 0.019671 | |  |  |  |
| CXCR3 | 0.018417 | PDL1 | 0.018259 | |  |  |  |
| FAP | 0.017104 | IL10 | 0.01771 | |  |  |  |
| PDL1 | 0.016748 |  |  | |  |  |  |
| CD62L | 0.016438 |  |  | |  |  |  |
| IL10 | 0.015973 |  |  | |  |  |  |

Supplementary table 3.4

Patient 80, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Patient 80** | | **80 w/o cancer markers** | | **80 w/o cancer markers TOP 5** | |
| Scores: 0.88084558, 0.88022602, 0.87472429, 0.87824341, 0.87638166, 0.87690516, 0.87774776, 0.87933385, 0.8826547, 0.87759603 | | Scores: 0.87529429, 0.87460038, 0.87043692, 0.87241952, 0.87263941, 0.87348517, 0.87167604, 0.87365865, 0.8740056, 0.87201983 | | Scores: 0.75415727, 0.75346336, 0.75331466, 0.75036554, 0.75506815, 0.75430597, 0.7522738, 0.75527248, 0.75259597, 0.75206939 | |
|  |
|  |
|  |
|  |
| SMA | 0.191885 | SMA | 0.194367 | SMA | 0.303339 |  |
| MPO | 0.116998 | MPO | 0.135961 | MPO | 0.265601 |  |
| CD8 | 0.071816 | CD8 | 0.079791 | CD8 | 0.165426 |  |
| LOX1 | 0.066925 | LOX1 | 0.066552 | LOX1 | 0.141602 |  |
| CD56 | 0.04878 | CD56 | 0.052414 | CD56 | 0.124031 |  |
| GZMB | 0.035893 | GZMB | 0.037046 |  |  |  |
| CXCR3 | 0.031652 | CXCR3 | 0.034465 |  |  |  |
| EPCAM | 0.029544 | FAP | 0.028482 |  |  |  |
| FAP | 0.025458 | CD62L | 0.026341 |  |  |  |
| CD141 | 0.023898 | INOS | 0.024596 |  |  |  |
| CD62L | 0.023567 | CD141 | 0.023201 |  |  |  |
| INOS | 0.022539 | CD19 | 0.022948 |  |  |  |
| CD45RA | 0.022301 | CD45RA | 0.022028 |  |  |  |
| CD19 | 0.020111 | PDL1 | 0.021953 |  |  |  |
| PDL1 | 0.019875 | CD11B | 0.021935 |  |  |  |
| CD103 | 0.019565 | CD103 | 0.020617 |  |  |  |
| KI67 | 0.018571 | PD1 | 0.020293 |  |  |  |
| CD11B | 0.018392 | CD31 | 0.019229 |  |  |  |
| MUC1 | 0.018314 | CD4 | 0.017752 |  |  |  |
| CD4 | 0.017754 | VIMENTIN | 0.016919 |  |  |  |
| PD1 | 0.016797 | CD163 | 0.016796 |  |  |  |
| CD31 | 0.016607 | PRG2 | 0.015638 |  |  |  |
| TRYPTASE | 0.016573 | TRYPTASE | 0.015594 |  |  |  |
| CD163 | 0.016134 | GFAP | 0.014299 |  |  |  |
| VIMENTIN | 0.015745 | CD3 | 0.013842 |  |  |  |
| PRG2 | 0.014395 | CCR3 | 0.013541 |  |  |  |
| CD3 | 0.013357 | FOXP3 | 0.012037 |  |  |  |
| GFAP | 0.013066 | IL10 | 0.011363 |  |  |  |
| CCR3 | 0.011857 |  |  |  |  |  |
| FOXP3 | 0.011804 |  |  |  |  |  |
| IL10 | 0.009825 |  |  |  |  |  |

Supplementary table 3.5

Patient 8, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Patient 8** | | **8 w/o cancer markers** | | **8 w/o cancer markers TOP 5** | | |
| Scores: 0.8744148, 0.87829822, 0.875821, 0.87648008, 0.87713916, 0.87634653, 0.87682098, 0.87502557, 0.87500284, 0.87629827 | | Scores: 0.87109677, 0.87429831, 0.87338924, 0.87345742, 0.87357106, 0.87148311, 0.87395741, 0.87393468, 0.87177564, 0.87218472 | | | Scores: 0.77194218, 0.76873253, 0.76923252, 0.76934615, 0.76959615, 0.76962411, 0.7706643, 0.77109611, 0.76632349, 0.7710052 | |
|  |
|  |
|  |
|  |
| SMA | 0.260445 | SMA | 0.278179 | | SMA | 0.378966 |  |
| CD8 | 0.120145 | CD8 | 0.122662 | | CD8 | 0.198128 |  |
| MPO | 0.1078 | MPO | 0.111432 | | MPO | 0.187657 |  |
| TRYPTASE | 0.043836 | TRYPTASE | 0.04625 | | TRYPTASE | 0.118787 |  |
| CD31 | 0.03781 | CD31 | 0.037108 | | CD31 | 0.116462 |  |
| CD141 | 0.029559 | CD141 | 0.030153 | |  |  |  |
| CD62L | 0.025092 | CD62L | 0.027794 | |  |  |  |
| CD19 | 0.022981 | CD19 | 0.024168 | |  |  |  |
| FOXP3 | 0.022161 | CXCR3 | 0.024032 | |  |  |  |
| CD4 | 0.021043 | CD4 | 0.023041 | |  |  |  |
| CXCR3 | 0.020749 | FOXP3 | 0.022881 | |  |  |  |
| CD11B | 0.020684 | CD11B | 0.020732 | |  |  |  |
| LOX1 | 0.018922 | LOX1 | 0.018694 | |  |  |  |
| EPCAM | 0.018468 | CD103 | 0.018606 | |  |  |  |
| CD56 | 0.018299 | CD56 | 0.01855 | |  |  |  |
| CD103 | 0.017993 | CD163 | 0.017703 | |  |  |  |
| CD163 | 0.017054 | CD45RA | 0.016729 | |  |  |  |
| CD45RA | 0.016304 | FAP | 0.016263 | |  |  |  |
| MUC1 | 0.016206 | PDL1 | 0.015477 | |  |  |  |
| PDL1 | 0.015557 | CCR3 | 0.01394 | |  |  |  |
| FAP | 0.014625 | IL10 | 0.01369 | |  |  |  |
| CCR3 | 0.01305 | PD1 | 0.012657 | |  |  |  |
| IL10 | 0.012785 | CD3 | 0.012579 | |  |  |  |
| GZMB | 0.012582 | PRG2 | 0.012439 | |  |  |  |
| CD3 | 0.011999 | GZMB | 0.012352 | |  |  |  |
| PRG2 | 0.011996 | VIMENTIN | 0.011205 | |  |  |  |
| PD1 | 0.011932 | INOS | 0.011171 | |  |  |  |
| INOS | 0.010457 | GFAP | 0.009514 | |  |  |  |
| VIMENTIN | 0.010411 |  |  | |  |  |  |
| KI67 | 0.009754 |  |  | |  |  |  |
| GFAP | 0.0093 |  |  | |  |  |  |

Supplementary table 3.6

Patient 116, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Patient 116** | | **116 w/o cancer  markers** | | **116 w/o cancer markers TOP  5** | | |
| Scores: 0.87502314, 0.87269923, 0.8731928, 0.87497943, 0.87261435, 0.87282262, 0.87413882, 0.8751054, 0.87362208, 0.87518509 | | Scores: 0.86918252, 0.86819537, 0.86959383, 0.87249095, 0.86994077, 0.86922365, 0.87132134, 0.87086889, 0.86975568, 0.8719768 | | | Scores: 0.77476607, 0.77528021, 0.77571208, 0.77638615, 0.77729105, 0.77583548, 0.77443702, 0.77622622, 0.77657124, 0.77439125 | |
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| CD31 | 0.149969 | CD31 | 0.163345 | | CD31 | 0.273333 |  |
| CD141 | 0.134404 | CD141 | 0.141339 | | CD141 | 0.233394 |  |
| CD19 | 0.102523 | CD19 | 0.104397 | | CD19 | 0.206673 |  |
| SMA | 0.093224 | SMA | 0.09276 | | SMA | 0.170119 |  |
| CD45RA | 0.055277 | TRYPTASE | 0.058481 | | TRYPTASE | 0.116481 |  |
| MPO | 0.049898 | CD45RA | 0.056638 | |  |  |  |
| TRYPTASE | 0.049426 | MPO | 0.048638 | |  |  |  |
| EPCAM | 0.039951 | CD163 | 0.041996 | |  |  |  |
| CD163 | 0.039661 | CD103 | 0.031631 | |  |  |  |
| CD103 | 0.029609 | LOX1 | 0.025509 | |  |  |  |
| LOX1 | 0.023032 | CD11B | 0.019312 | |  |  |  |
| CD11B | 0.018191 | CD4 | 0.018162 | |  |  |  |
| CD4 | 0.015697 | GZMB | 0.017086 | |  |  |  |
| CD8 | 0.0146 | CD8 | 0.01603 | |  |  |  |
| FAP | 0.013445 | CD62L | 0.015151 | |  |  |  |
| GZMB | 0.013236 | FAP | 0.014547 | |  |  |  |
| CD56 | 0.01316 | CD56 | 0.014485 | |  |  |  |
| CD62L | 0.012972 | CD3 | 0.013612 | |  |  |  |
| CD3 | 0.012205 | CCR3 | 0.012808 | |  |  |  |
| KI67 | 0.011748 | PD1 | 0.011074 | |  |  |  |
| CCR3 | 0.011454 | PRG2 | 0.011054 | |  |  |  |
| PD1 | 0.010451 | CXCR3 | 0.011053 | |  |  |  |
| MUC1 | 0.010411 | VIMENTIN | 0.010773 | |  |  |  |
| VIMENTIN | 0.010237 | GFAP | 0.010683 | |  |  |  |
| PRG2 | 0.010232 | INOS | 0.010284 | |  |  |  |
| CXCR3 | 0.01018 | FOXP3 | 0.009999 | |  |  |  |
| GFAP | 0.009265 | IL10 | 0.009829 | |  |  |  |
| FOXP3 | 0.009122 | PDL1 | 0.009323 | |  |  |  |
| INOS | 0.009032 |  |  | |  |  |  |
| PDL1 | 0.008835 |  |  | |  |  |  |
| IL10 | 0.008554 |  |  | |  |  |  |

Supplementary table 3.7

All patients, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **All Patients** | | **All w/o cancer  markers** | | **All w/o cancer markers TOP 5** | | |  |
| Score: 0.87676956, 0.87553856, 0.87585564, 0.87596755, 0.87538703, 0.87481115, 0.87596755, 0.87615406 | | Score: 0.87385993, 0.8723305, 0.87136063, 0.87091299, 0.87152609, 0.87136063, 0.87158444, 0.87324443 | | | Score: 0.77157512, 0.77256365, 0.77202275, 0.77081041, 0.77345469, 0.7738879, 0.76877739, 0.77142591 | | |
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| SMA | 0.064561 | SMA | 0.07053 | | SMA | 0.212624 | |  |
| MPO | 0.053944 | MPO | 0.059569 | | MPO | 0.209851 | |  |
| TRYPTASE | 0.048793 | CD8 | 0.052547 | | TRYPTASE | 0.195872 | |  |
| CD8 | 0.047451 | TRYPTASE | 0.049265 | | CD8 | 0.191214 | |  |
| CD141 | 0.041969 | CD141 | 0.046063 | | CD141 | 0.190439 | |  |
| CD19 | 0.035848 | CD19 | 0.039117 | |  |  | |  |
| LOX1 | 0.034951 | PRG2 | 0.038267 | |  |  | |  |
| CD31 | 0.034834 | LOX1 | 0.038257 | |  |  | |  |
| PRG2 | 0.034388 | CD31 | 0.037677 | |  |  | |  |
| GZMB | 0.033879 | CD4 | 0.036835 | |  |  | |  |
| CD4 | 0.033679 | GZMB | 0.036779 | |  |  | |  |
| CD103 | 0.033359 | CD103 | 0.036737 | |  |  | |  |
| CD56 | 0.032764 | CD56 | 0.03627 | |  |  | |  |
| CD45RA | 0.031071 | CD45RA | 0.033616 | |  |  | |  |
| EPCAM | 0.03107 | CD11B | 0.031768 | |  |  | |  |
| CD163 | 0.028989 | CD163 | 0.031123 | |  |  | |  |
| MUC1 | 0.028877 | CD62L | 0.03025 | |  |  | |  |
| CD11B | 0.028663 | PDL1 | 0.029093 | |  |  | |  |
| CD62L | 0.027545 | CXCR3 | 0.028842 | |  |  | |  |
| PDL1 | 0.026601 | INOS | 0.028742 | |  |  | |  |
| CXCR3 | 0.026374 | FOXP3 | 0.02827 | |  |  | |  |
| FAP | 0.025743 | FAP | 0.028259 | |  |  | |  |
| INOS | 0.025641 | VIMENTIN | 0.026674 | |  |  | |  |
| FOXP3 | 0.025641 | CD3 | 0.026415 | |  |  | |  |
| KI67 | 0.024679 | PD1 | 0.025739 | |  |  | |  |
| CD3 | 0.024303 | GFAP | 0.02531 | |  |  | |  |
| VIMENTIN | 0.024243 | CCR3 | 0.024877 | |  |  | |  |
| PD1 | 0.023596 | IL10 | 0.023107 | |  |  | |  |
| GFAP | 0.022794 |  |  | |  |  | |  |
| CCR3 | 0.022653 |  |  | |  |  | |  |
| IL10 | 0.021097 |  |  | |  |  | |  |

Supplementary table 3.8

Patient 107 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jackknife 107** | | **Jackknife 107 w/o cancer  markers** | | **Jackknife 107 w/o cancer markers TOP 5** | | |
| Scores: 0.90725763 0.90728225 0.9135521 0.90798795 0.90964362 0.90856042 0.91005076 0.91167929 0.91034932 | | Scores: 0.9060634 0.90530087 0.91026789 0.90543658 0.90777081 0.90500489 0.90725511 0.90975219 0.90676655 | | | Scores: 0.8100912 0.80924463 0.81467307 0.81125316 0.81356024 0.81304961 0.81204028 0.81138887 | |
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| SMA | 0.092143 | SMA | 0.095838 | | SMA | 0.235327 |  |
| MPO | 0.064065 | MPO | 0.070828 | | MPO | 0.220206 |  |
| CD8 | 0.061986 | CD8 | 0.069 | | CD8 | 0.200634 |  |
| LOX1 | 0.041129 | CD19 | 0.045169 | | TRYPTASE | 0.177696 |  |
| TRYPTASE | 0.040943 | TRYPTASE | 0.044302 | | CD19 | 0.166137 |  |
| CD19 | 0.040926 | LOX1 | 0.043886 | |  |  |  |
| CD141 | 0.038826 | CD141 | 0.042897 | |  |  |  |
| CD103 | 0.037708 | CD103 | 0.041212 | |  |  |  |
| CD31 | 0.03583 | CD31 | 0.03911 | |  |  |  |
| EPCAM | 0.034273 | GZMB | 0.036802 | |  |  |  |
| GZMB | 0.03361 | CD45RA | 0.035549 | |  |  |  |
| CD45RA | 0.032764 | CD11B | 0.033653 | |  |  |  |
| CD11B | 0.030388 | CD56 | 0.032295 | |  |  |  |
| CD56 | 0.029243 | CD163 | 0.030785 | |  |  |  |
| CD163 | 0.028758 | CXCR3 | 0.03004 | |  |  |  |
| CXCR3 | 0.027089 | CD4 | 0.02821 | |  |  |  |
| CD4 | 0.026009 | CD62L | 0.027463 | |  |  |  |
| MUC1 | 0.024827 | FAP | 0.026924 | |  |  |  |
| CD62L | 0.024694 | PDL1 | 0.025977 | |  |  |  |
| FAP | 0.024329 | PRG2 | 0.02544 | |  |  |  |
| PDL1 | 0.023844 | CD3 | 0.023949 | |  |  |  |
| KI67 | 0.023725 | INOS | 0.023932 | |  |  |  |
| PRG2 | 0.023255 | FOXP3 | 0.022571 | |  |  |  |
| INOS | 0.022143 | PD1 | 0.022085 | |  |  |  |
| CD3 | 0.021438 | VIMENTIN | 0.021781 | |  |  |  |
| FOXP3 | 0.021036 | CCR3 | 0.021063 | |  |  |  |
| VIMENTIN | 0.020191 | IL10 | 0.019881 | |  |  |  |
| PD1 | 0.019995 | GFAP | 0.01936 | |  |  |  |
| CCR3 | 0.019421 |  |  | |  |  |  |
| IL10 | 0.017791 |  |  | |  |  |  |
| GFAP | 0.017621 |  |  | |  |  |  |

Supplementary table 3.9

Patient 89 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife 89** | | **Jackknife 89 w/o cancer markers** | | **Jackknife 89 w/o cancer markers TOP 5** | |
| Scores: 0.88128136 0.87845425 0.88088317 0.88181891 0.88265276 0.88018635 0.87972844 0.88054472 0.88279446 | | Scores: 0.87829497 0.87604523 0.87847416 0.87670224 0.87886993 0.87956916 0.87580632 0.87694115 0.87867325 | | Scores: 0.78971888 0.78619495 0.78788723 0.78973879 0.78895813 0.78912161 0.78579677 0.79155053 0.78754878 | |
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| SMA | 0.066942 | SMA | 0.071041 | MPO | 0.215193 |  |
| MPO | 0.05856 | MPO | 0.064297 | SMA | 0.210727 |  |
| TRYPTASE | 0.051477 | CD8 | 0.056136 | TRYPTASE | 0.196084 |  |
| CD8 | 0.049907 | TRYPTASE | 0.052273 | CD141 | 0.190205 |  |
| CD141 | 0.043337 | CD141 | 0.046778 | CD8 | 0.187791 |  |
| CD19 | 0.036399 | CD19 | 0.04036 |  |  |  |
| PRG2 | 0.036163 | PRG2 | 0.039422 |  |  |  |
| CD31 | 0.034465 | CD4 | 0.037628 |  |  |  |
| CD4 | 0.034053 | CD31 | 0.037539 |  |  |  |
| GZMB | 0.033461 | GZMB | 0.036164 |  |  |  |
| LOX1 | 0.033153 | LOX1 | 0.036104 |  |  |  |
| CD56 | 0.032484 | CD56 | 0.034994 |  |  |  |
| CD103 | 0.031452 | CD103 | 0.034631 |  |  |  |
| EPCAM | 0.031222 | CD45RA | 0.03304 |  |  |  |
| CD45RA | 0.030002 | CD163 | 0.031004 |  |  |  |
| MUC1 | 0.029791 | CD11B | 0.030433 |  |  |  |
| CD163 | 0.028962 | CD62L | 0.02948 |  |  |  |
| CD11B | 0.02755 | INOS | 0.028527 |  |  |  |
| CD62L | 0.026285 | PDL1 | 0.02843 |  |  |  |
| CXCR3 | 0.025727 | FOXP3 | 0.027955 |  |  |  |
| INOS | 0.025666 | CXCR3 | 0.027945 |  |  |  |
| PDL1 | 0.025646 | FAP | 0.027774 |  |  |  |
| FAP | 0.025512 | VIMENTIN | 0.026377 |  |  |  |
| FOXP3 | 0.025353 | PD1 | 0.025493 |  |  |  |
| PD1 | 0.023361 | CD3 | 0.025434 |  |  |  |
| VIMENTIN | 0.023344 | GFAP | 0.024632 |  |  |  |
| KI67 | 0.023277 | CCR3 | 0.023944 |  |  |  |
| CD3 | 0.02259 | IL10 | 0.022162 |  |  |  |
| GFAP | 0.02226 |  |  |  |  |  |
| CCR3 | 0.021506 |  |  |  |  |  |
| IL10 | 0.020093 |  |  |  |  |  |

Supplementary table 3.10

Patient 86 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife 86** | | **Jackknife 86 w/o cancer markers** | | **Jackknife 86 w/o cancer markers TOP 5** | |
| Scores: 0.8849189 0.88408603 0.88258443 0.88289676 0.88499979 0.88264934 0.88452329 0.88554117 0.88146004 | | Scores: 0.88096279 0.8807754 0.87846167 0.87885729 0.88033565 0.87794366 0.88035896 0.88139758 0.87898222 | | Scores: 0.78035272 0.77947821 0.77689168 0.77739141 0.78130596 0.78201845 0.77897849 0.77874485 0.77916129 | |
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| SMA | 0.08476 | SMA | 0.09022 | SMA | 0.232491 |  |
| MPO | 0.053247 | MPO | 0.058991 | MPO | 0.202899 |  |
| TRYPTASE | 0.048502 | CD8 | 0.050578 | CD141 | 0.190355 |  |
| CD8 | 0.045692 | TRYPTASE | 0.049771 | TRYPTASE | 0.188959 |  |
| CD141 | 0.04257 | CD141 | 0.046121 | CD8 | 0.185296 |  |
| LOX1 | 0.036625 | CD31 | 0.038982 |  |  |  |
| CD19 | 0.035378 | CD19 | 0.038937 |  |  |  |
| CD31 | 0.034705 | LOX1 | 0.038414 |  |  |  |
| PRG2 | 0.034618 | PRG2 | 0.038028 |  |  |  |
| CD4 | 0.03294 | CD4 | 0.036632 |  |  |  |
| CD56 | 0.032394 | CD56 | 0.035447 |  |  |  |
| EPCAM | 0.031778 | GZMB | 0.033616 |  |  |  |
| GZMB | 0.030984 | CD45RA | 0.033592 |  |  |  |
| CD45RA | 0.030809 | CD103 | 0.033302 |  |  |  |
| CD103 | 0.030368 | CD11B | 0.03168 |  |  |  |
| CD11B | 0.028945 | CD62L | 0.030207 |  |  |  |
| CD62L | 0.027682 | CD163 | 0.029057 |  |  |  |
| MUC1 | 0.027163 | CXCR3 | 0.028411 |  |  |  |
| CD163 | 0.027121 | PDL1 | 0.028257 |  |  |  |
| CXCR3 | 0.026257 | FAP | 0.027912 |  |  |  |
| FAP | 0.025594 | INOS | 0.027893 |  |  |  |
| PDL1 | 0.025436 | FOXP3 | 0.027397 |  |  |  |
| FOXP3 | 0.025196 | VIMENTIN | 0.026168 |  |  |  |
| INOS | 0.024992 | CD3 | 0.025424 |  |  |  |
| VIMENTIN | 0.023509 | PD1 | 0.024685 |  |  |  |
| CD3 | 0.023425 | GFAP | 0.024144 |  |  |  |
| KI67 | 0.022946 | CCR3 | 0.023955 |  |  |  |
| PD1 | 0.022442 | IL10 | 0.022183 |  |  |  |
| GFAP | 0.02196 |  |  |  |  |  |
| CCR3 | 0.021872 |  |  |  |  |  |
| IL10 | 0.020092 |  |  |  |  |  |

Supplementary table 3.11

Patient 80 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jackknife 80** | | **Jackknife 80 w/o cancer markers** | | **Jackknife 80 w/o cancer markers TOP 5** | | |
| Scores: 0.88084558 0.88022602 0.87472429 0.87824341 0.87638166 0.87690516 0.87774776 0.87933385 0.8826547 | | Scores: 0.87529429 0.87460038 0.87043692 0.87241952 0.87263941 0.87348517 0.87167604 0.87365865 0.8740056 | | | Scores: 0.75415727 0.75346336 0.75331466 0.75036554 0.75506815 0.75430597 0.7522738 0.75527248 | |
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| MPO | 0.065706 | TRYPTASE | 0.058577 | | MPO | 0.221049 |  |
| TRYPTASE | 0.05671 | SMA | 0.055922 | | TRYPTASE | 0.212998 |  |
| SMA | 0.051615 | CD141 | 0.046161 | | SMA | 0.193696 |  |
| CD141 | 0.042325 | CD8 | 0.043217 | | CD141 | 0.193519 |  |
| CD8 | 0.039609 | CD4 | 0.041725 | | CD8 | 0.178737 |  |
| CD4 | 0.037943 | CD19 | 0.04124 | |  |  |  |
| CD19 | 0.037527 | PRG2 | 0.040602 | |  |  |  |
| CD31 | 0.036981 | CD31 | 0.039648 | |  |  |  |
| PRG2 | 0.036864 | CD103 | 0.037462 | |  |  |  |
| CD103 | 0.034069 | CD45RA | 0.033949 | |  |  |  |
| CD56 | 0.030909 | CD56 | 0.033323 | |  |  |  |
| CD45RA | 0.030704 | CD163 | 0.032232 | |  |  |  |
| EPCAM | 0.03067 | FOXP3 | 0.032051 | |  |  |  |
| CD163 | 0.030085 | GZMB | 0.03203 | |  |  |  |
| FOXP3 | 0.029135 | CD11B | 0.031961 | |  |  |  |
| CD11B | 0.028993 | LOX1 | 0.031271 | |  |  |  |
| GZMB | 0.028179 | CD62L | 0.031112 | |  |  |  |
| MUC1 | 0.028142 | CXCR3 | 0.029036 | |  |  |  |
| CD62L | 0.027886 | CD3 | 0.027892 | |  |  |  |
| LOX1 | 0.027593 | INOS | 0.027781 | |  |  |  |
| CXCR3 | 0.026547 | PDL1 | 0.027654 | |  |  |  |
| PDL1 | 0.025388 | FAP | 0.026534 | |  |  |  |
| CD3 | 0.025185 | VIMENTIN | 0.026329 | |  |  |  |
| KI67 | 0.025083 | PD1 | 0.025931 | |  |  |  |
| INOS | 0.024799 | CCR3 | 0.025653 | |  |  |  |
| FAP | 0.024667 | GFAP | 0.025501 | |  |  |  |
| VIMENTIN | 0.024366 | IL10 | 0.023959 | |  |  |  |
| PD1 | 0.024221 |  |  | |  |  |  |
| GFAP | 0.023118 |  |  | |  |  |  |
| CCR3 | 0.02299 |  |  | |  |  |  |
| IL10 | 0.021991 |  |  | |  |  |  |

Supplementary table 3.12

Patient 8 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jackknife 8** | | **Jackknife 8 w/o cancer markers** | | **Jackknife 8 w/o cancer markers TOP 5** | | |
| Scores: 0.8744148 0.87829822 0.875821 0.87648008 0.87713916 0.87634653 0.87682098 0.87502557 0.87500284 | | Scores: 0.87109677 0.87429831 0.87338924 0.87345742 0.87357106 0.87148311 0.87395741 0.87393468 0.87177564 | | | Scores: 0.77194218 0.76873253 0.76923252 0.76934615 0.76959615 0.76962411 0.7706643 0.77109611 | |
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| TRYPTASE | 0.052036 | MPO | 0.054997 | | SMA | 0.208776 |  |
| MPO | 0.050917 | TRYPTASE | 0.054978 | | TRYPTASE | 0.206616 |  |
| SMA | 0.049641 | SMA | 0.054426 | | MPO | 0.204683 |  |
| CD141 | 0.044679 | CD141 | 0.047832 | | CD141 | 0.196221 |  |
| CD8 | 0.043745 | CD8 | 0.047327 | | CD8 | 0.183705 |  |
| LOX1 | 0.042096 | LOX1 | 0.044421 | |  |  |  |
| PRG2 | 0.03839 | PRG2 | 0.041677 | |  |  |  |
| GZMB | 0.037232 | GZMB | 0.041058 | |  |  |  |
| CD19 | 0.035774 | CD103 | 0.039323 | |  |  |  |
| CD103 | 0.035723 | CD19 | 0.039244 | |  |  |  |
| CD31 | 0.035572 | CD31 | 0.038135 | |  |  |  |
| CD4 | 0.033082 | CD4 | 0.03641 | |  |  |  |
| CD56 | 0.032245 | CD56 | 0.03566 | |  |  |  |
| CD45RA | 0.031809 | CD45RA | 0.034454 | |  |  |  |
| CD163 | 0.030299 | CD163 | 0.0321 | |  |  |  |
| EPCAM | 0.029985 | CD11B | 0.030854 | |  |  |  |
| MUC1 | 0.028714 | INOS | 0.029858 | |  |  |  |
| CD11B | 0.028043 | CXCR3 | 0.02926 | |  |  |  |
| PDL1 | 0.026722 | PDL1 | 0.029122 | |  |  |  |
| INOS | 0.026388 | FAP | 0.028332 | |  |  |  |
| CXCR3 | 0.026293 | GFAP | 0.027956 | |  |  |  |
| FAP | 0.025959 | CD62L | 0.027867 | |  |  |  |
| GFAP | 0.025209 | FOXP3 | 0.026741 | |  |  |  |
| CD62L | 0.02484 | VIMENTIN | 0.026738 | |  |  |  |
| KI67 | 0.024385 | CD3 | 0.026705 | |  |  |  |
| FOXP3 | 0.024309 | PD1 | 0.026034 | |  |  |  |
| VIMENTIN | 0.024215 | CCR3 | 0.025539 | |  |  |  |
| PD1 | 0.024145 | IL10 | 0.022951 | |  |  |  |
| CD3 | 0.024099 |  |  | |  |  |  |
| CCR3 | 0.022902 |  |  | |  |  |  |
| IL10 | 0.020552 |  |  | |  |  |  |

Supplementary table 3.13

Patient 116 Jackknife resampling, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Jackknife 116** | | **Jackknife 116 w/o cancer markers** | | **Jackknife 116 w/o cancer markers TOP 5** | | |
| Scores: 0.87502314 0.87269923 0.8731928 0.87497943 0.87261435 0.87282262 0.87413882 0.8751054 0.87362208 | | Scores: 0.86918252 0.86819537 0.86959383 0.87249095 0.86994077 0.86922365 0.87132134 0.87086889 0.86975568 | | | Scores: 0.77476607 0.77528021 0.77571208 0.77638615 0.77729105 0.77583548 0.77443702 0.77622622 | |
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|  |
| SMA | 0.066826 | SMA | 0.07109 | | SMA | 0.215156 |  |
| MPO | 0.056605 | MPO | 0.062276 | | MPO | 0.212353 |  |
| CD8 | 0.051391 | CD8 | 0.055959 | | CD8 | 0.199708 |  |
| TRYPTASE | 0.043367 | TRYPTASE | 0.045351 | | CD141 | 0.187034 |  |
| CD141 | 0.041211 | CD141 | 0.044142 | | TRYPTASE | 0.185749 |  |
| CD4 | 0.036466 | CD4 | 0.039645 | |  |  |  |
| CD56 | 0.035787 | CD56 | 0.039319 | |  |  |  |
| PRG2 | 0.035781 | PRG2 | 0.038781 | |  |  |  |
| LOX1 | 0.034476 | LOX1 | 0.038122 | |  |  |  |
| GZMB | 0.032896 | GZMB | 0.036121 | |  |  |  |
| CD103 | 0.031847 | CD103 | 0.035058 | |  |  |  |
| MUC1 | 0.030621 | CD19 | 0.03415 | |  |  |  |
| CD19 | 0.030278 | CD62L | 0.03296 | |  |  |  |
| CD62L | 0.030111 | CD31 | 0.032338 | |  |  |  |
| EPCAM | 0.029483 | CD11B | 0.031521 | |  |  |  |
| CD31 | 0.029286 | CD45RA | 0.030971 | |  |  |  |
| CD11B | 0.028545 | CD163 | 0.030669 | |  |  |  |
| CD45RA | 0.02831 | PDL1 | 0.03061 | |  |  |  |
| CD163 | 0.028021 | INOS | 0.030222 | |  |  |  |
| PDL1 | 0.027955 | FOXP3 | 0.02916 | |  |  |  |
| INOS | 0.027283 | CXCR3 | 0.029066 | |  |  |  |
| FOXP3 | 0.026375 | FAP | 0.028037 | |  |  |  |
| CXCR3 | 0.025872 | VIMENTIN | 0.027234 | |  |  |  |
| FAP | 0.025675 | CD3 | 0.026783 | |  |  |  |
| VIMENTIN | 0.025112 | PD1 | 0.026026 | |  |  |  |
| KI67 | 0.025008 | GFAP | 0.025427 | |  |  |  |
| CD3 | 0.024205 | CCR3 | 0.025275 | |  |  |  |
| PD1 | 0.023876 | IL10 | 0.023686 | |  |  |  |
| GFAP | 0.023001 |  |  | |  |  |  |
| CCR3 | 0.022892 |  |  | |  |  |  |
| IL10 | 0.021439 |  |  | |  |  |  |

Supplementary table 3.14

Patient 107 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 107** | | **Jackknife and tested against 107 w/o cancer markers** | | **Jackknife and tested against 107 w/o cancer markers TOP 5** | |
| Scores: 0.90725763 0.90728225 0.9135521 0.90798795 0.90964362 0.90856042 0.91005076 0.91167929 | | Scores: 0.9060634 0.90530087 0.91026789 0.90543658 0.90777081 0.90500489 0.90725511 0.90975219 | | Scores: 0.8100912 0.80924463 0.81467307 0.81125316 0.81356024 0.81304961 0.81204028 0.81138887 | |
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|  |
| SMA | 0.092143 | SMA | 0.095838 | SMA | 0.235327 |  |
| MPO | 0.064065 | MPO | 0.070828 | MPO | 0.220206 |  |
| CD8 | 0.061986 | CD8 | 0.069 | CD8 | 0.200634 |  |
| LOX1 | 0.041129 | CD19 | 0.045169 | TRYPTASE | 0.177696 |  |
| TRYPTASE | 0.040943 | TRYPTASE | 0.044302 | CD19 | 0.166137 |  |
| CD19 | 0.040926 | LOX1 | 0.043886 |  |  |  |
| CD141 | 0.038826 | CD141 | 0.042897 |  |  |  |
| CD103 | 0.037708 | CD103 | 0.041212 |  |  |  |
| CD31 | 0.03583 | CD31 | 0.03911 |  |  |  |
| EPCAM | 0.034273 | GZMB | 0.036802 |  |  |  |
| GZMB | 0.03361 | CD45RA | 0.035549 |  |  |  |
| CD45RA | 0.032764 | CD11B | 0.033653 |  |  |  |
| CD11B | 0.030388 | CD56 | 0.032295 |  |  |  |
| CD56 | 0.029243 | CD163 | 0.030785 |  |  |  |
| CD163 | 0.028758 | CXCR3 | 0.03004 |  |  |  |
| CXCR3 | 0.027089 | CD4 | 0.02821 |  |  |  |
| CD4 | 0.026009 | CD62L | 0.027463 |  |  |  |
| MUC1 | 0.024827 | FAP | 0.026924 |  |  |  |
| CD62L | 0.024694 | PDL1 | 0.025977 |  |  |  |
| FAP | 0.024329 | PRG2 | 0.02544 |  |  |  |
| PDL1 | 0.023844 | CD3 | 0.023949 |  |  |  |
| KI67 | 0.023725 | INOS | 0.023932 |  |  |  |
| PRG2 | 0.023255 | FOXP3 | 0.022571 |  |  |  |
| INOS | 0.022143 | PD1 | 0.022085 |  |  |  |
| CD3 | 0.021438 | VIMENTIN | 0.021781 |  |  |  |
| FOXP3 | 0.021036 | CCR3 | 0.021063 |  |  |  |
| VIMENTIN | 0.020191 | IL10 | 0.019881 |  |  |  |
| PD1 | 0.019995 | GFAP | 0.01936 |  |  |  |
| CCR3 | 0.019421 |  |  |  |  |  |
| IL10 | 0.017791 |  |  |  |  |  |
| GFAP | 0.017621 |  |  |  |  |  |

Supplementary table 3.15

Patient 89 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 89** | | **Jackknife and tested against 89 w/o cancer markers** | | **Jackknife and tested against 89 w/o cancer markers TOP 5** | |
| Scores: 0.88128136 0.87845425 0.88088317 0.88181891 0.88265276 0.88018635 0.87972844 0.88054472 0.88279446 0.88167719 | | Scores: 0.87829497 0.87604523 0.87847416 0.87670224 0.87886993 0.87956916 0.87580632 0.87694115 | | Scores: 0.78971888 0.78619495 0.78788723 0.78973879 0.78895813 0.78912161 0.78579677 0.79155053 | |
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| SMA | 0.066942 | SMA | 0.071041 | MPO | 0.215193 |  |
| MPO | 0.05856 | MPO | 0.064297 | SMA | 0.210727 |  |
| TRYPTASE | 0.051477 | CD8 | 0.056136 | TRYPTASE | 0.196084 |  |
| CD8 | 0.049907 | TRYPTASE | 0.052273 | CD141 | 0.190205 |  |
| CD141 | 0.043337 | CD141 | 0.046778 | CD8 | 0.187791 |  |
| CD19 | 0.036399 | CD19 | 0.04036 |  |  |  |
| PRG2 | 0.036163 | PRG2 | 0.039422 |  |  |  |
| CD31 | 0.034465 | CD4 | 0.037628 |  |  |  |
| CD4 | 0.034053 | CD31 | 0.037539 |  |  |  |
| GZMB | 0.033461 | GZMB | 0.036164 |  |  |  |
| LOX1 | 0.033153 | LOX1 | 0.036104 |  |  |  |
| CD56 | 0.032484 | CD56 | 0.034994 |  |  |  |
| CD103 | 0.031452 | CD103 | 0.034631 |  |  |  |
| EPCAM | 0.031222 | CD45RA | 0.03304 |  |  |  |
| CD45RA | 0.030002 | CD163 | 0.031004 |  |  |  |
| MUC1 | 0.029791 | CD11B | 0.030433 |  |  |  |
| CD163 | 0.028962 | CD62L | 0.02948 |  |  |  |
| CD11B | 0.02755 | INOS | 0.028527 |  |  |  |
| CD62L | 0.026285 | PDL1 | 0.02843 |  |  |  |
| CXCR3 | 0.025727 | FOXP3 | 0.027955 |  |  |  |
| INOS | 0.025666 | CXCR3 | 0.027945 |  |  |  |
| PDL1 | 0.025646 | FAP | 0.027774 |  |  |  |
| FAP | 0.025512 | VIMENTIN | 0.026377 |  |  |  |
| FOXP3 | 0.025353 | PD1 | 0.025493 |  |  |  |
| PD1 | 0.023361 | CD3 | 0.025434 |  |  |  |
| VIMENTIN | 0.023344 | GFAP | 0.024632 |  |  |  |
| KI67 | 0.023277 | CCR3 | 0.023944 |  |  |  |
| CD3 | 0.02259 | IL10 | 0.022162 |  |  |  |
| GFAP | 0.02226 |  |  |  |  |  |
| CCR3 | 0.021506 |  |  |  |  |  |
| IL10 | 0.020093 |  |  |  |  |  |

Supplementary table 3.16

Patient 86 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 86** | | **Jackknife and tested against 86 w/o cancer markers** | | **Jackknife and tested against 86 w/o cancer markers TOP 5** | |
| Scores: 0.8849189 0.88408603 0.88258443 0.88289676 0.88499979 0.88264934 0.88452329 0.88554117 | | Scores: 0.88096279 0.8807754 0.87846167 0.87885729 0.88033565 0.87794366 0.88035896 0.88139758 | | Scores: 0.78035272 0.77947821 0.77689168 0.77739141 0.78130596 0.78201845 0.77897849 0.77874485 | |
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| SMA | 0.08476 | SMA | 0.09022 | SMA | 0.232491 |  |
| MPO | 0.053247 | MPO | 0.058991 | MPO | 0.202899 |  |
| TRYPTASE | 0.048502 | CD8 | 0.050578 | CD141 | 0.190355 |  |
| CD8 | 0.045692 | TRYPTASE | 0.049771 | TRYPTASE | 0.188959 |  |
| CD141 | 0.04257 | CD141 | 0.046121 | CD8 | 0.185296 |  |
| LOX1 | 0.036625 | CD31 | 0.038982 |  |  |  |
| CD19 | 0.035378 | CD19 | 0.038937 |  |  |  |
| CD31 | 0.034705 | LOX1 | 0.038414 |  |  |  |
| PRG2 | 0.034618 | PRG2 | 0.038028 |  |  |  |
| CD4 | 0.03294 | CD4 | 0.036632 |  |  |  |
| CD56 | 0.032394 | CD56 | 0.035447 |  |  |  |
| EPCAM | 0.031778 | GZMB | 0.033616 |  |  |  |
| GZMB | 0.030984 | CD45RA | 0.033592 |  |  |  |
| CD45RA | 0.030809 | CD103 | 0.033302 |  |  |  |
| CD103 | 0.030368 | CD11B | 0.03168 |  |  |  |
| CD11B | 0.028945 | CD62L | 0.030207 |  |  |  |
| CD62L | 0.027682 | CD163 | 0.029057 |  |  |  |
| MUC1 | 0.027163 | CXCR3 | 0.028411 |  |  |  |
| CD163 | 0.027121 | PDL1 | 0.028257 |  |  |  |
| CXCR3 | 0.026257 | FAP | 0.027912 |  |  |  |
| FAP | 0.025594 | INOS | 0.027893 |  |  |  |
| PDL1 | 0.025436 | FOXP3 | 0.027397 |  |  |  |
| FOXP3 | 0.025196 | VIMENTIN | 0.026168 |  |  |  |
| INOS | 0.024992 | CD3 | 0.025424 |  |  |  |
| VIMENTIN | 0.023509 | PD1 | 0.024685 |  |  |  |
| CD3 | 0.023425 | GFAP | 0.024144 |  |  |  |
| KI67 | 0.022946 | CCR3 | 0.023955 |  |  |  |
| PD1 | 0.022442 | IL10 | 0.022183 |  |  |  |
| GFAP | 0.02196 |  |  |  |  |  |
| CCR3 | 0.021872 |  |  |  |  |  |
| IL10 | 0.020092 |  |  |  |  |  |

Supplementary table 3.17

Patient 80 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 80** | | **Jackknife and tested against 80 w/o cancer markers** | | **Jackknife and tested against 80 w/o cancer markers TOP 5** | |
| Scores: 0.88084558 0.88022602 0.87472429 0.87824341 0.87638166 0.87690516 0.87774776 0.87933385 | | Scores: 0.87529429 0.87460038 0.87043692 0.87241952 0.87263941 0.87348517 0.87167604 0.87365865 | | Scores: 0.75415727 0.75346336 0.75331466 0.75036554 0.75506815 0.75430597 0.7522738 0.75527248 0.75259597 | |
|  |
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|  |
| MPO | 0.065706 | MPO | 0.071248 | MPO | 0.221049 |  |
| TRYPTASE | 0.05671 | TRYPTASE | 0.058577 | TRYPTASE | 0.212998 |  |
| SMA | 0.051615 | SMA | 0.055922 | SMA | 0.193696 |  |
| CD141 | 0.042325 | CD141 | 0.046161 | CD141 | 0.193519 |  |
| CD8 | 0.039609 | CD8 | 0.043217 | CD8 | 0.178737 |  |
| CD4 | 0.037943 | CD4 | 0.041725 |  |  |  |
| CD19 | 0.037527 | CD19 | 0.04124 |  |  |  |
| CD31 | 0.036981 | PRG2 | 0.040602 |  |  |  |
| PRG2 | 0.036864 | CD31 | 0.039648 |  |  |  |
| CD103 | 0.034069 | CD103 | 0.037462 |  |  |  |
| CD56 | 0.030909 | CD45RA | 0.033949 |  |  |  |
| CD45RA | 0.030704 | CD56 | 0.033323 |  |  |  |
| EPCAM | 0.03067 | CD163 | 0.032232 |  |  |  |
| CD163 | 0.030085 | FOXP3 | 0.032051 |  |  |  |
| FOXP3 | 0.029135 | GZMB | 0.03203 |  |  |  |
| CD11B | 0.028993 | CD11B | 0.031961 |  |  |  |
| GZMB | 0.028179 | LOX1 | 0.031271 |  |  |  |
| MUC1 | 0.028142 | CD62L | 0.031112 |  |  |  |
| CD62L | 0.027886 | CXCR3 | 0.029036 |  |  |  |
| LOX1 | 0.027593 | CD3 | 0.027892 |  |  |  |
| CXCR3 | 0.026547 | INOS | 0.027781 |  |  |  |
| PDL1 | 0.025388 | PDL1 | 0.027654 |  |  |  |
| CD3 | 0.025185 | FAP | 0.026534 |  |  |  |
| KI67 | 0.025083 | VIMENTIN | 0.026329 |  |  |  |
| INOS | 0.024799 | PD1 | 0.025931 |  |  |  |
| FAP | 0.024667 | CCR3 | 0.025653 |  |  |  |
| VIMENTIN | 0.024366 | GFAP | 0.025501 |  |  |  |
| PD1 | 0.024221 | IL10 | 0.023959 |  |  |  |
| GFAP | 0.023118 |  |  |  |  |  |
| CCR3 | 0.02299 |  |  |  |  |  |
| IL10 | 0.021991 |  |  |  |  |  |

Supplementary table 3.18

Patient 8 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 8** | | **Jackknife and tested against 8 w/o cancer markers** | | **Jackknife and tested against 8 w/o cancer markers TOP 5** | |
| Scores: 0.8744148 0.87829822 0.875821 0.87648008 0.87713916 0.87634653 0.87682098 0.87502557 | | Scores: 0.87109677 0.87429831 0.87338924 0.87345742 0.87357106 0.87148311 0.87395741 0.87393468 | | Scores: 0.77194218 0.76873253 0.76923252 0.76934615 0.76959615 0.76962411 0.7706643 0.77109611 0.76632349 | |
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|  |
| TRYPTASE | 0.052036 | MPO | 0.054997 | SMA | 0.208776 |  |
| MPO | 0.050917 | TRYPTASE | 0.054978 | TRYPTASE | 0.206616 |  |
| SMA | 0.049641 | SMA | 0.054426 | MPO | 0.204683 |  |
| CD141 | 0.044679 | CD141 | 0.047832 | CD141 | 0.196221 |  |
| CD8 | 0.043745 | CD8 | 0.047327 | CD8 | 0.183705 |  |
| LOX1 | 0.042096 | LOX1 | 0.044421 |  |  |  |
| PRG2 | 0.03839 | PRG2 | 0.041677 |  |  |  |
| GZMB | 0.037232 | GZMB | 0.041058 |  |  |  |
| CD19 | 0.035774 | CD103 | 0.039323 |  |  |  |
| CD103 | 0.035723 | CD19 | 0.039244 |  |  |  |
| CD31 | 0.035572 | CD31 | 0.038135 |  |  |  |
| CD4 | 0.033082 | CD4 | 0.03641 |  |  |  |
| CD56 | 0.032245 | CD56 | 0.03566 |  |  |  |
| CD45RA | 0.031809 | CD45RA | 0.034454 |  |  |  |
| CD163 | 0.030299 | CD163 | 0.0321 |  |  |  |
| EPCAM | 0.029985 | CD11B | 0.030854 |  |  |  |
| MUC1 | 0.028714 | INOS | 0.029858 |  |  |  |
| CD11B | 0.028043 | CXCR3 | 0.02926 |  |  |  |
| PDL1 | 0.026722 | PDL1 | 0.029122 |  |  |  |
| INOS | 0.026388 | FAP | 0.028332 |  |  |  |
| CXCR3 | 0.026293 | GFAP | 0.027956 |  |  |  |
| FAP | 0.025959 | CD62L | 0.027867 |  |  |  |
| GFAP | 0.025209 | FOXP3 | 0.026741 |  |  |  |
| CD62L | 0.02484 | VIMENTIN | 0.026738 |  |  |  |
| KI67 | 0.024385 | CD3 | 0.026705 |  |  |  |
| FOXP3 | 0.024309 | PD1 | 0.026034 |  |  |  |
| VIMENTIN | 0.024215 | CCR3 | 0.025539 |  |  |  |
| PD1 | 0.024145 | IL10 | 0.022951 |  |  |  |
| CD3 | 0.024099 |  |  |  |  |  |
| CCR3 | 0.022902 |  |  |  |  |  |
| IL10 | 0.020552 |  |  |  |  |  |

Supplementary table 3.19

Patient 116 Jackknife resampling and testing against knocked out samples, score accuracy of RFA in 70:30 retesting and proportion of antigen in impact.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Jackknife and tested against 116** | | **Jackknife and tested against 116 w/o cancer markers** | | **Jackknife and tested against 116 w/o cancer markers TOP 5** | |
| Scores: 0.87502314 0.87269923 0.8731928 0.87497943 0.87261435 0.87282262 0.87413882 0.8751054 | | Scores: 0.86918252 0.86819537 0.86959383 0.87249095 0.86994077 0.86922365 0.87132134 0.87086889 | | Scores: 0.77476607 0.77528021 0.77571208 0.77638615 0.77729105 0.77583548 0.77443702 0.77622622 | |
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|  |
| SMA | 0.066826 | SMA | 0.07109 | SMA | 0.215156 |  |
| MPO | 0.056605 | MPO | 0.062276 | MPO | 0.212353 |  |
| CD8 | 0.051391 | CD8 | 0.055959 | CD8 | 0.199708 |  |
| TRYPTASE | 0.043367 | TRYPTASE | 0.045351 | CD141 | 0.187034 |  |
| CD141 | 0.041211 | CD141 | 0.044142 | TRYPTASE | 0.185749 |  |
| CD4 | 0.036466 | CD4 | 0.039645 |  |  |  |
| CD56 | 0.035787 | CD56 | 0.039319 |  |  |  |
| PRG2 | 0.035781 | PRG2 | 0.038781 |  |  |  |
| LOX1 | 0.034476 | LOX1 | 0.038122 |  |  |  |
| GZMB | 0.032896 | GZMB | 0.036121 |  |  |  |
| CD103 | 0.031847 | CD103 | 0.035058 |  |  |  |
| MUC1 | 0.030621 | CD19 | 0.03415 |  |  |  |
| CD19 | 0.030278 | CD62L | 0.03296 |  |  |  |
| CD62L | 0.030111 | CD31 | 0.032338 |  |  |  |
| EPCAM | 0.029483 | CD11B | 0.031521 |  |  |  |
| CD31 | 0.029286 | CD45RA | 0.030971 |  |  |  |
| CD11B | 0.028545 | CD163 | 0.030669 |  |  |  |
| CD45RA | 0.02831 | PDL1 | 0.03061 |  |  |  |
| CD163 | 0.028021 | INOS | 0.030222 |  |  |  |
| PDL1 | 0.027955 | FOXP3 | 0.02916 |  |  |  |
| INOS | 0.027283 | CXCR3 | 0.029066 |  |  |  |
| FOXP3 | 0.026375 | FAP | 0.028037 |  |  |  |
| CXCR3 | 0.025872 | VIMENTIN | 0.027234 |  |  |  |
| FAP | 0.025675 | CD3 | 0.026783 |  |  |  |
| VIMENTIN | 0.025112 | PD1 | 0.026026 |  |  |  |
| KI67 | 0.025008 | GFAP | 0.025427 |  |  |  |
| CD3 | 0.024205 | CCR3 | 0.025275 |  |  |  |
| PD1 | 0.023876 | IL10 | 0.023686 |  |  |  |
| GFAP | 0.023001 |  |  |  |  |  |
| CCR3 | 0.022892 |  |  |  |  |  |
| IL10 | 0.021439 |  |  |  |  |  |

**Supplementary figure captions**

Supplementary Figure 1: Out of bag (oob)-error-plot of RFA. Out of bag errors compared to number of trees in RFA

Supplementary Figure 2: Neighborhood Analysis of Tissue by Sample. The neighborhood fractions for each patient. Neighborhoods defined in Fig. 5B.

Supplementary Fig. 1

Chart, histogram

Description automatically generated

Supplementary Fig. 2

Chart, bar chart

Description automatically generated