***Supplemental Table 1. UPMC 09-021 patient demographics.***

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| *Study*  *Number* | ***Age*** | ***Race*** | ***Sex1*** | ***Stage*** | ***Prognosis Group2*** | ***Outcome Group3*** | ***Overall Survival4*** | ***Progression Free Survival4*** |
| 1 | 82 | White | F | STAGE IIIC | PD | Bad | 6.37 | 3.20 |
| 2 | 74 | White | M | STAGE IIIB | PD | Bad | 14.03 | 2.03 |
| 3 | 82 | White | F | STAGE IV | PD | Bad | 13.63 | 2.10 |
| 4 | 74 | White | M | STAGE IV | PD | Bad | 1.07 | 0.80 |
| 5 | 44 | White | M | STAGE IV | PD | Bad | 0.67 | 0.40 |
| 6 | 67 | White | M | STAGE IV | SD | Good | 39.80 | 5.53 |
| 7 | 42 | White | M | STAGE IV | SD | Good | 20.00 | 7.23 |
| 8 | 74 | White | F | STAGE IV | SD | Good | 13.07 | 8.77 |
| 9 | 66 | White | M | STAGE IV | SD | Good | 27.43 | 5.73 |
| 10 | 61 | White | M | STAGE IV | PR | Good | 44.33 | 13.47 |
| 11 | 56 | White | M | STAGE IV | PD | Bad | 14.833 | 1.77 |
| 12 | 44 | White | M | STAGE IV | SD | Good | 41.73 | 3.93 |
| 13 | 74 | White | M | STAGE IIC | NED1 | Good | 42.53 | 18.43 |
| 14 | 58 | White | F | UNKNOWN | PD | Bad | 28.43 | 1.70 |
| 15 | 52 | White | F | STAGE IV | NED2 | Bad | 42.70 | 6.97 |
| 16 | 75 | White | F | STAGE IIB | NED2 | Bad | 38.60 | 9.30 |
| 17 | 64 | White | M | STAGE III | PD | Bad | 4.63 | 2.37 |
| 18 | 68 | White | M | STAGE IV | NED2 | Bad | 39.90 | 5.07 |
| 19 | 64 | White | M | UNKNOWN | SD | Good | 3.50 | 3.23 |
| 20 | 61 | White | F | UNKNOWN | NED2 | Bad | 20.27 | 19.27 |
| 21 | 60 | White | M | STAGE IV | PR | Good | 40.17 | 7.30 |
| 22 | 70 | White | F | STAGE IV | PD | Bad | 3.03 | 2.03 |
| 23 | 28 | White | M | UNKNOWN | PD | Bad | 11.20 | 2.13 |
| 24 | 42 | White | F | STAGE IV | PD | Bad | 3.27 | 2.13 |
| 25 | 52 | White | M | STAGE IIB | PD | Bad | 0.67 | 0.67 |
| 26 | 60 | White | M | STAGE IIIA | NED1 | Good | 36.13 | 3.67 |
| 27 | 59 | White | F | STAGE IIIB | NED1 | Good | 35.87 | 13.73 |
| 28 | 47 | White | M | STAGE IV | PD | Bad | 11.8 | 1.63 |
| 29 | 60 | White | M | STAGE IIIA | NED1 | Good | 32.33 | 14.00 |
| 30 | 45 | White | F | STAGE IIIB | NED1 | Good | 37.50 | 37.50 |
| 31 | 66 | White | M | STAGE IIIC | NED1 | Good | 37.30 | 30.70 |
| 32 | 41 | White | F | STAGE IIIB | NED2 | Bad | 26.57 | 2.53 |
| 33 | 46 | White | F | STAGE IIIB | PD | Bad | 1.67 | 0.90 |
| 34 | 88 | White | M | STAGE IV | SD | Good | 8.27 | 3.37 |
| 35 | 52 | White | F | STAGE IV | SD | Good | 24.27 | 13.07 |

1M: Male; F: Female

2PD: Progressive Disease, SD: Stable Disease, NED1: No Evidence of Disease at time of enrollment and remained NED for ≤ 18 months, NED2: No Evidence of Disease at time of enrollment and remained NED for ≥ 18 months, PR: Partial Responder (RECIST)

3Clinical Outcome groups used for experimental analysis. Patients who did not progress during the trial where considered to have a “good” outcome, while patients who progressed were considered to have a “bad” outcome.

4Time in months

***Supplemental Table 2. Critical DC markers are not prognostic factors for overall survival or progression free survival in advanced melanoma patients.***

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| **Endpoint** | **Factor** | **Cell Type** | **HR** | **95% CI for HR** | **p** |
| OS | HLA-DR | AdV/DC | 1.1 | (0.73-1.7) | 0.59 |
|  | CD80 | AdV/DC | 1.3 | (0.87-1.9) | 0.21 |
|  | CD86 | AdV/DC | 0.74 | (0.43-1.3) | 0.28 |
|  | CD83 | AdV/DC | 0.88 | (0.59-1.3) | 0.55 |
|  | CCR7 | AdV/DC | 1 | (0.73-1.4) | 0.9 |
|  | CD40 | AdV/DC | 1.2 | (0.68-2) | 0.57 |
|  | CD11C | AdV/DC | 1 | (0.95-1.06) | 0.88 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Endpoint** | **Factor** | **Cell Type** | **HR** | **95% CI for HR** | **p** |
| PFS | HLA-DR | AdV/DC | 1.1 | (0.74-1.5) | 0.73 |
|  | CD80 | AdV/DC | 1.1 | (0.79-1.5) | 0.61 |
|  | CD86 | AdV/DC | 0.82 | (0.55-1.2) | 0.36 |
|  | CD83 | AdV/DC | 1.2 | (0.86-1.6) | 0.32 |
|  | CCR7 | AdV/DC | 0.9 | (0.63-1.3) | 0.57 |
|  | CD40 | AdV/DC | 1.2 | (0.73-1.8) | 0.52 |
|  | CD11C | AdV/DC | 1.3 | (0.73-1.73) | 0.59 |