**Table S4: Clinical and molecular characteristics of PD-L1 staining cohort**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Pt. ID\*** | **Age** | **Gender** | **Genotype** | **Stage** | **Prior therapies** | **Site of tissue tested** | **PD-L1 expression ≥ 5%** | **PD-L1 expression**  **≥ 1%** | **Total tumor membrane PD-L1 expression (%)** | **Comment** |
| VU2 | 67 | M | *NRASQ61R* | IVc | Temozolomide | Subcutaneous | POSITIVE | POSITIVE | 7 |  |
| VU3 | 58 | M | *NRASQ61R* | IVa | None | Subcutaneous | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells; high melanin pigment |
| VU5 | 42 | F | *NRASQ61R* | IVc | None | Subcutaneous | POSITIVE | POSITIVE | 37 |  |
| VU6 | 64 | M | *NRASQ61K* | IVc | None | Cervical lymph node | POSITIVE | POSITIVE | 50 |  |
| VU7 | 70 | M | *NRASQ61R* | IVc | None | Axillary lymph node | NEGATIVE | POSITIVE | 5 |  |
| VU8 | 53 | M | WT | IVc | Interleukin-2 | Retroperitoneum | POSITIVE | NEGATIVE | 0 |  |
| VU9 | 50 | M | WT | IVb | None | Axillary lymph node | POSITIVE | POSITIVE | 10 |  |
| VU11 | 77 | M | WT | IIIb | None | Cutaneous | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU12 | 66 | M | WT | IVc | None | Small bowel | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU13 | 50 | F | WT | IVc | Carboplatin + paclitaxel | Inguinal lymph node | NEGATIVE | POSITIVE | 2 |  |
| VU14 | 62 | F | WT | IVc | Alisertib | Cutaneous | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU15 | 61 | F | *BRAFV600E* | IIIb | None | Axillary lymph node | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU16 | 29 | M | *BRAFV600E* | IVb | None | Cutaneous | NEGATIVE | POSITIVE | 1 |  |
| VU18 | 69 | F | *BRAFV600E* | IVa | None | Subcutaneous | NEGATIVE | POSITIVE | 2 |  |
| VU19 | 23 | F | *BRAFV600E* | IVb | None | Axillary lymph node | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU20 | 71 | M | *NRASG12C* | IIIb | Ipilimumab (adjuvant) | Inguinal lymph node | NEGATIVE | NEGATIVE | 0 | Melanin pigment present; < 1% + PM tumor cells |
| VU21 | 63 | M | *NRASG13V* | IIIb | None | Axillary lymph node | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU22 | 78 | M | *NRAS Q61K* | IIIc | None | Cervical lymph node | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU23 | 49 | F | *NRASQ61R* | IIIc | None | Inguinal lymph node | POSITIVE | POSITIVE | 6 |  |
| VU24 | 72 | F | *NRASQ61R* | IVc | Dacarbazine | Small bowel | NEGATIVE | POSITIVE | 4 |  |
| VU25 | 72 | M | *NRASQ61R* | IIIb | None | Inguinal lymph node | NEGATIVE | POSITIVE | 1 | Lymph node; Prominent inflammatory infiltrate |
| VU27 | 44 | M | *NRASQ61L* | IVc | None | Inguinal lymph node | POSITIVE | POSITIVE | 50 |  |
| VU28 | 66 | M | WT | IIIb | None | Supraclavicular lymph node | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU31 | 60 | F | WT | IIIb | None | Postauricular lymph node | POSITIVE | POSITIVE | 95 | Lymph node |
| VU32 | 74 | F | WT | IIb | None | Cutaneous, arm | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU33 | 80 | F | WT | IVc | None | Colon | NEGATIVE | NEGATIVE | 0 |  |
| VU34 | 58 | M | WT | IIIb | None | Inguinal lymph node | POSITIVE | POSITIVE | 5 | Lymph node |
| VU36 | 50 | M | *BRAFV600E* | IIIb | None | Iliac lymph node | POSITIVE | POSITIVE | 5 | Prominent inflammatory infiltrate |
| VU37 | 71 | M | *BRAFV600K* | IIIc | None | Cutaneous, scalp | NEGATIVE | NEGATIVE | 0 | < 1% + PM tumor cells |
| VU38 | 42 | F | *BRAFV600E* | IVc | Vemurafenib | Cutaneous, arm | POSITIVE | POSITIVE | 25 |  |
| VU39 | 65 | F | *BRAFV600E* | IVc | None | Liver | NEGATIVE | NEGATIVE | 0 |  |
| VU40 | 43 | M | *BRAFV600E* | IIIc | Dabrafenib | Cervical lymph node | POSITIVE | POSITIVE | 50 |  |
| \*ID numbers VU1, 4, 10, 17, 26, 29, 30, 35 were not evaluable based on lack of tissue or excess pigmentation | | | | | | | | | | |