**Supplementary Appendix**

**Supplementary Table S1.** Comparison of PD-L1 diagnostic assays for patients with NSCLC

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Test** | **Ventana SP263(1)** | **Dako 22C3 (2)** | **Dako 28-8 (3)** | **Ventana SP142 (4)** |
| **Developed as companion diagnostic assay for:** | Durvalumab (AstraZeneca/ MedImmune) | Pembrolizumab (Merck Sharp & Dohme) | Nivolumab (Bristol-Myers Squibb) | Atezolizumab (Genentech) |
| **Instrument** | VENTANA BenchMark ULTRA  | Dako Autostainer Link 48 | Dako Autostainer Link 48 | VENTANA BenchMark ULTRA  |
| **PD-L1 antibody** | Clone SP263 (rabbit monoclonal) | Clone 22C3 (mouse monoclonal) | Clone 28-8 (rabbit monoclonal)  | Clone SP142 (rabbit monoclonal) |
| **Compartment** | Tumor cell membrane | Tumor cell membrane | Tumor cell membrane | Tumor cells and tumor-infiltrating immune cells |
| **Cut-off(s) for high PD-L1 expression** | ≥25% of tumor cells(5) | ≥1%; ≥50% of tumor cells(6) | ≥1%; ≥5%; ≥10% of tumor cells (7) | ≥50% of tumor cellsor ≥10% of tumor area with immune cells (if <50% of tumor cells) (8) |
| **Approval status** | CE-IVDIVD Class I  | IVD companion diagnostic | IVD complementary diagnostic | IVD complementary diagnostic |

Abbreviations: CE, European Conformity; IVD, in vitro diagnostic; PD-L1, programmed cell death ligand-1.

**Supplementary Table S2.** Detailed scoring criteria for each assay in the study\*

|  |  |
| --- | --- |
| **Assay** | **Tumour cell scoring (%)** |
| **Ventana SP263** | <1, 1–4, 5–9, ≥10, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |
| **Dako 22C3** | 0 to 5 in increments of 1%, 10, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |
| **Dako 28-8** | 0 to 10 in increments of 1%, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |

**\***Scoring was performed as per manufacturers’ recommendations, but additional granularity was included to provide meaningful data for comparisons.

**Supplementary Table S3.** Demographics of patients who provided study samples

|  |  |
| --- | --- |
| **Parameter** | ***N* = 493** |
| Age range in years, n (%)≤60>60Unknown |  231 (46.9)257 (52.1)5 (1.0) |
| Sex, n (%)FemaleMale |  118 (23.9)375 (76.1) |
| Ethnicity, n (%)CaucasianAsian/Pacific IslanderUnknown |  371 (75.3)121 (24.5)1 (0.2) |
| Disease stage (TNM), n (%)IIIIIIIVUnknown |  188 (38.1)191 (38.7)98 (19.9)2 (0.4)14 (2.8) |
| Histology, n (%)Non-squamousSquamousAdenosquamous |  270 (54.8)210 (42.6)13 (2.6) |

**Supplementary Table S4.** OPA for pairwise assay comparisons across the full assay range

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Ventana SP263 vs. Dako 28-8** | **Dako 22C3 vs. Dako 28-8** | **Ventana SP263 vs. Dako 22C3** |
| **Expression cut-off** | **OPA** | **Lower 95% CI** | **OPA** | **Lower 95% CI** | **OPA** | **Lower 95% CI** |
| ≥1% | 91.7% | 89.3% | 93.7% | 91.6% | 91.1% | 88.7% |
| ≥5% | 94.1% | 92.1% | 95.3% | 93.5% | 92.7% | 90.5% |
| ≥10% | 92.9% | 90.7% | 94.9% | 93.0% | 92.7% | 90.5% |
| ≥20% | 94.5% | 92.5% | 97.4% | 95.8% | 93.1% | 90.9% |
| ≥25% | 94.9% | 93.0% | 96.6% | 94.9% | 94.3% | 92.3% |
| ≥30% | 96.3% | 94.6% | 97.2% | 95.6% | 95.5% | 93.7% |
| ≥40% | 96.8% | 95.1% | 97.0% | 95.4% | 94.1% | 92.1% |
| ≥50% | 95.9% | 94.2% | 97.2% | 95.6% | 93.5% | 91.4% |
| ≥60% | 95.7% | 93.9% | 96.1% | 94.4% | 93.5% | 91.4% |
| ≥70% | 95.5% | 93.7% | 95.7% | 93.9% | 94.5% | 92.5% |
| ≥80% | 95.1% | 93.2% | 96.3% | 94.6% | 94.7% | 92.8% |
| ≥90% | 94.9% | 93.0% | 96.8% | 95.1% | 93.3% | 91.2% |
| 100% | 95.9% | 94.2% | 97.8% | 96.3% | 94.9% | 93.0% |

Abbreviations: CI, confidence interval; OPA, overall percentage agreement.

**References**

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