Whole-Slide Scoring of PD-L1 Using cTA™

Image analysis tools overcome some of the challenges in conventional anatomic pathology practice, particularly for whole-slide imaging of non-small cell lung cancer (NSCLC) samples. A continuous scale, the CST PD-L1 E1L3N XP Assay demonstrated the highest PD-L1 membrane staining intensity overall, while all 4 PD-L1 IHC assays had a strong correlation between mean membrane staining intensity and the percentage of PD-L1 across all 4 assays.

In understanding the differences among the 4 PD-L1 IHC assays, IHC staining intensity was investigated as a measurement of PD-L1 across all 4 assays.

Comparison of PD-L1 IHC Assays Using cTA™-Aided Scoring

The cTA™-aided PD-L1 scoring identified differences and similarities in IHC assay scoring. Since cTA™-Aided digital scoring of PD-L1 IHC assays provided a better diagnostic continuum, we wanted the cTA platform to investigate the inter- and intra-rater agreement of digital PD-L1 IHC assays. The inter-rater agreement of manual PD-L1 IHC scoring was assessed with the Chi-squared test and Cramer’s V statistics. The intra-rater agreement for digital PD-L1 IHC staining was evaluated by calculating the intra-class correlation coefficient (ICC).

Assessment of PD-L1 IHC Scoring Harmonization Using Staining-Intensity Data

The cTA™ platform demonstrates that the relationship between PD-L1 staining and IHC staining intensity is differential between commercial and within assays.

Conclusions

As compared with a manual scoring approach, cTA™-Aided scoring:

• Improves precision in the scoring of a challenging biomarker stain such as PD-L1.

• Exhibits improved reliability as determined by the correlation of a reference method (ie, mRNA expression) with IHC scores.

• Better captures the full diagnostic spectrum of PD-L1 scoring and better defines positivity for PD-L1 samples that have low staining intensity.

• Can be used to understand PD-L1 scoring and staining intensity in multiple PD-L1 IHC assays to develop a robust method for harmonizing assay interpretations.