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Titel des Beitrags:
Harmonized PD-L1 immunohistochemistry for pulmonary squamous-cell and adenocarcinomas.

Abstract:
Immunohistochemistry of the PD-L1 protein may be predictive for anti-PD-1 and anti-PD-L1 immunotherapy in pulmonary adenocarcinoma and in clinically unselected cohorts of so-called non-small-cell lung cancer. Several PD-L1 immunohistochemistry assays with custom reagents and scoring-criteria are developed in parallel. Biomarker testing and clinical decision making would profit from harmonized PD-L1 diagnostics. To assess interobserver concordance and PD-L1 immunohistochemistry staining patterns, 15 pulmonary carcinoma resection specimens (adenocarcinoma: n=11, squamous-cell carcinoma: n=4) were centrally stained with the assays 28-8, 22C3, SP142, and SP263 according to clinical trial protocols. The slides were evaluated independently by nine pathologists. Proportions of PD-L1-positive carcinoma cells and immune cells were scored according to a 6-step system that integrates the criteria employed by the four PD-L1 immunohistochemistry assays. Proportion scoring of PD-L1-positive carcinoma cells showed moderate interobserver concordance coefficients for the 6-step scoring system (Light's kappa=0.47-0.50). The integrated dichotomous proportion cut-offs (>=1,>=5,>=10,>=50%)
showed good concordance coefficients (?=0.6-0.8). Proportion scoring of PD-L1-positive immune cells yielded low interobserver concordance coefficients both for the 6-step-score (<?0.2) and the dichotomous cut-offs (<?0.12-0.25). The assays 28-8 and 22C3 stained similar proportions of carcinoma cells in 12 of 15 cases. SP142 stained fewer carcinoma cells compared to 28-8, 22C3, and SP263 in four cases, whereas SP263 stained more carcinoma cells in nine cases. SP142 and SP263 stained immune cells more intensely. The data indicate that carcinoma cells can be reproducibly scored in PD-L1 immunohistochemistry for pulmonary adenocarcinoma and squamous-cell carcinoma. No differences in interobserver concordance were noticed among the tested assays. The scoring of immune cells yielded low concordance rates and might require specific standardization. The four tested PD-L1 assays did not show comparable staining patterns in all cases. Thus, studies that correlate staining patterns and response to immunotherapy are required to test the significance of the observed differences.