RESPONSES TO IMMUNOTHERAPY BASED ON PROGRAMMED DEATH-LIGAND 1 (PD-L1) COPY NUMBER VARIATION (CNV) STATUS IN PATIENTS WITH ADVANCED NON-SMALL CELL LUNG CANCER (NSCLC)

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Background: Immunotherapy has shown promise in treating patients with metastatic NSCLC, but response rates vary. This study aims to investigate the relationship between PD-L1 CNV and response to immunotherapy in patients with NSCLC.

Methods: We conducted a retrospective analysis of patients who received immunotherapy, and were identified to have information on CNV status for PD-L1 through the MayoComplete Solid Tumor Panel (MCSTP) Next Generation Sequencing (NGS) assay. Response to therapy was evaluated using evidence of radiographic progression, date of death or date of last follow-up. Progression-free survival (PFS) and Overall survival (OS) were defined as time interval between date of initiation of immunotherapy to date of radiographic progression and date of death respectively.

Results: 98 patients were included in the study, most of whom had received immunotherapy as a first-line treatment (77%). The median age was 70.5 years (range: 39–88), and 64% were male. The most common histology was adenocarcinoma (68%), followed by squamous cell carcinoma (16%) and others (16%). We found that PD-L1 CNV was altered in 54% of patients with either heterozygous deletion (34%) or copy number gain (20%). We observed higher median PD-L1 CNV copy number gain compared to normal/deletions (80% vs 5%, p=0.0172) (table 1).

In terms of smoking status, 94% of patients had a history of smoking (84% former smokers, 10% current smokers and 6% never smokers). Most patients had stage IV disease at treatment initiation (68%), and the ECOG performance status was mostly 0 or 1 (78%). The median PFS and OS for the cohort was 5.4 and 23.8 months respectively (table 1). We observed improved response to immunotherapy with higher PD-L1 IHC% as has been reported previously. However, we did not find any significant differences in median PFS by presence (7.5 [normal] vs 5.0 months [altered], p=0.28) and type (7.5 [normal] vs 5.5 [deletion] vs 4.4 months [gain], p=0.56) of PD-L1 CNV alteration. Similarly, there were no significant differences in OS by presence (23.8 [normal] vs 26.6 [altered] months, p=0.38) and type (23.7 [normal] vs 26.6 [deletion] vs not reached [gain] months, p=0.51) of PD-L1 CNV alteration (figure 1).

Conclusions: Our study did not find any significant difference in median PFS and OS between patients with normal PD-L1 CNV and those with altered PD-L1 CNV, including different types of PD-L1 CNV alterations. Our study suggests that PD-L1 CNV status may not be a reliable predictive biomarker for response to immunotherapy in patients with advanced NSCLC.

Abstract 534 Table 1

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Abstract 534 Figure 1  Overall survival (days)

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