# P3.12: IMM2510, an Anti-PD-L1/VEGF Bispecific Antibody Fusion Protein for Advanced IO-pretreated SQ-NSCLC: A Phase I Study

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## INTRODUCTION

- Preclinical and clinical studies showed that combination of anti-VEGF molecules with immune checkpoint inhibitors (ICIs) significantly enhances anticancer efficacy. Up to dates, PD- L1/VEGF bispecific antibodies demonstrate superior antitumor activity compared to monotherapy or even the combination of PD-L1 inhibitors with anti-VEGF antibodies[1,2].
- IMM2510 is a novel bi-specific antibody fusion protein targeting both PD-L1 and VEGF[3]. (Right Pannel, molecular model of IMM2510) Results from the dose-escalation phase and the relapsed/refractory (R/R) soft tissue sarcoma cohort were previously presented at ASCO 2025. [3,4]

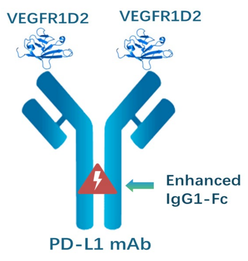


Figure 1: Molecular Model of IMM2510

- Here, we present preliminary efficacy and safety data of IMM2510 in advanced squamous non-small-cell lung cancer (sq-NSCLC) patients (pts) from phase I dose-escalation and cohort-expansion study.

## METHODS

- IMM2510-01 is an ongoing, phase I, multicenter, open-label study evaluating the safety, efficacy, recommended phase 2 dose (RP2D), and pharmacokinetics (PK) of IMM2510 monotherapy in pts with advanced solid tumors (NCT05972460).
- Dose escalation was conducted across 9 dose levels. No dose-limiting toxicities (DLTs) were observed, and 20 mg/kg every 2 weeks (Q2W) was selected as the RP2D.
- The cohort-expansion phase is currently ongoing, recruiting pts with r/r-STS, NSCLC and other solid tumors.
- Tumor assessments are performed every 8 weeks per RECIST v1.1, and safety is evaluated according to CTCAE v5.0.

## DISCUSSION AND CONCLUSION

### Actionable Take Away Message

- 23 eligible IO + chemotherapy treated sq-NSCLC pts were enrolled in a phase I study. Pts received IMM2510 at 3, 6, 10, 20 mg/kg every 2 weeks I.V
- All of 17 efficacy-assessable pts had prior IO plus chemotherapy, with ORR of 35.3%, DCR of 76.5%, median DoR of 7.59 months and median PFS of 9.4 months.
- Grade ≥3 TRAEs included decreased platelet count (8.7%), decreased lymphocyte count (8.7%), and infusion-related reaction (8.7%) . They were clinically manageable.

### Future Direction for Research

Based on these findings, a phase II study evaluating IMM2510 in combination with chemotherapy in advanced NSCLC is in progress to further assess its therapeutic potential.

## REFERENCES & ACKNOWLEDGEMENTS

1. Cui, X. et al. (2021) : A Novel Bispecific Antibody Targeting PD-L1 and VEGF With Combined Anti-Tumor Activities. Front Immunol. 2;12:778978.
2. Lu, Q. et al. (2024): IMM2510, an anti-PD-L1/VEGF bispecific antibody fusion protein, in patients with advanced solid tumors: A phase I dose-escalation study. Journal of Clinical Oncology, 42(16), e14506-e14506.
3. Xu H. et al (2025): IMM2510, an anti-PD-L1/VEGF bispecific antibody fusion protein, in patients with R/R STS: A phase Ib expansion study. Journal of Clinical Oncology Volume 43, Number 16_suppl
4. Lau SCM et al.(2022) Squamous cell lung cancer: Current landscape and future therapeutic options. Cancer Cell. 14;40(11):1279-1293.

## RESULTS

### Baseline Characteristics

As of 13 June 2025, 23 pts with sq-NSCLC received IMM2510 monotherapy (7 in dose escalation, including 2 at 3mg, 1 at 6mg/kg and 4 at 10mg/kg; 16 in cohort expansion at 20 mg/kg [RP2D]). Median age was 61 years; 17 pts (73.9%) had ECOG PS 1. All 23 pts had metastatic sites: lung 10 (43.5%), liver 4 (17.4%), bone 7 (30.4%) and brain 2 (8.7%). Median prior systemic therapy lines: 2 (range, 1–5). Tumor PD-L1 TPS <1%, 1–49%, and ≥50% were detected in 7 (30.4%), 8 (34.8%), and 3 (13.0%) pts, respectively. All 23 pts had prior PD-(L)1 plus chemotherapy; 6 pts (26.1%) had prior anti-VEGF therapy.

### Efficacy Results

- As of 6 August 2025, the median follow-up of 17 efficacy-evaluable sq-NSCLC pts was 3.75 months. ORR was 35.3% (6/17) and DCR was 76.5% (13/17).
- Median DoR was 7.59 months (95% CI: 4.07–NA); median PFS was 9.4 months (95% CI: 1.87–NA).
- 17 efficacy-evaluable sq-NSCLC pts were plotted individually as Fig 2 (waterfall plot) and Fig 3 (swimming plot).
- Best overall response (BOR) analyzed by TPS subgroups was illustrated in Table 1.
- Enrollment for the sq-NSCLC cohort and further PD/PK analyses are ongoing.

### Safety Results

As of 13 June 2025, all pts experienced treatment-emergent adverse events (TEAEs). 13 subjects experienced ≥G3 TEAE (56.5%) and 10 subjects experienced ≥G3 Treatment-Related Adverse Event (TRAE) (43.5%). One subject experienced TEAE( 4.3%) leading to dosing discontinuation. The occurrence rate of VEGF-related TRAEs is low, no≥G3 hypertension, one G3 proteinuria and G3 pulmonary hemorrhage (1/23, 4.3%). No patient experienced TRAE that led to death.

| | TPS <1% | TPS 1-49% | TPS >=50% | Unknown | Total |
|---|---|---|---|---|---|
| **N** | 5 | 6 | 3 | 3 | 17 |
| CR n (%) | 0 | 0 | 0 | 0 | 0 |
| PR n (%) | 1 (20) | 3 (50) | 1 (33.3) | 1 (33.3) | 6 (35.3) |
| SD n (%) | 1 (20) | 3 (50) | 1 (33.3) | 2 (66.7) | 7 (41.2) |
| PD n (%) | 3 (60) | 0 | 1 (33.3) | 0 | 4 (23.5) |
| **ORR** | | | | | |
| n (%) | 1 (20) | 3 (50) | 1 (33.3) | 1 (33.3) | 6 (35.3) |
| 95% CI | 0.51, 71.64 | 11.81, 88.19 | 0.84, 90.57 | 0.84, 90.57 | 14.21, 61.67 |
| **DCR** | | | | | |
| n (%) | 2 (40) | 6 (100) | 2 (66.7) | 3 (100) | 13 (76.5) |
| 95% CI | 5.27, 85.34 | 54.07, 100 | 9.43, 99.16 | 29.24, 100 | 50.10, 93.19 |

Table 1: BOR by PD-L1 TPS Subgroups

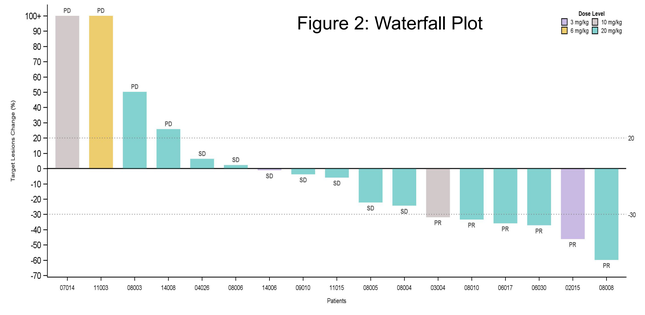


Figure 2: Waterfall Plot

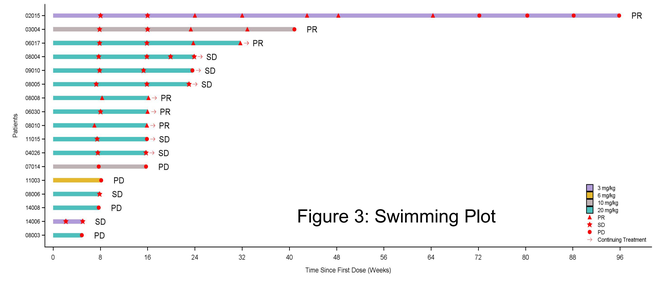


Figure 3: Swimming Plot