



The first hospital of jilin university
吉林大学白求恩第一医院



IASLC 2026 World
Conference on Lung Cancer
SEPTEMBER 12 – 15, 2026
SEOUL, REPUBLIC OF KOREA

Control #: 504: Autologous natural killer cell infusion as consolidation therapy after first-line chemoradiotherapy for limited-stage small-cell lung cancer—A cohort analysis of a randomized phase II study (NCT03410368)

Jiuwei Cui^{1*}, Rilan Bai, Wei Song, Jin Lu, Hua He, Naifei Chen, Ziling Liu, Kewei Ma, Xiaofeng Cong, Xi Li, Dan Li, Xu Wang, Kaidan Chi, Guanran Ding, Ruotong Shi, Yibo Wang, Ruohan Yang¹, Zehao Li, Xiao Chen^{*}

¹Cancer Center, The First Hospital of Jilin University, Changchun, Jilin 130021, P.R. China

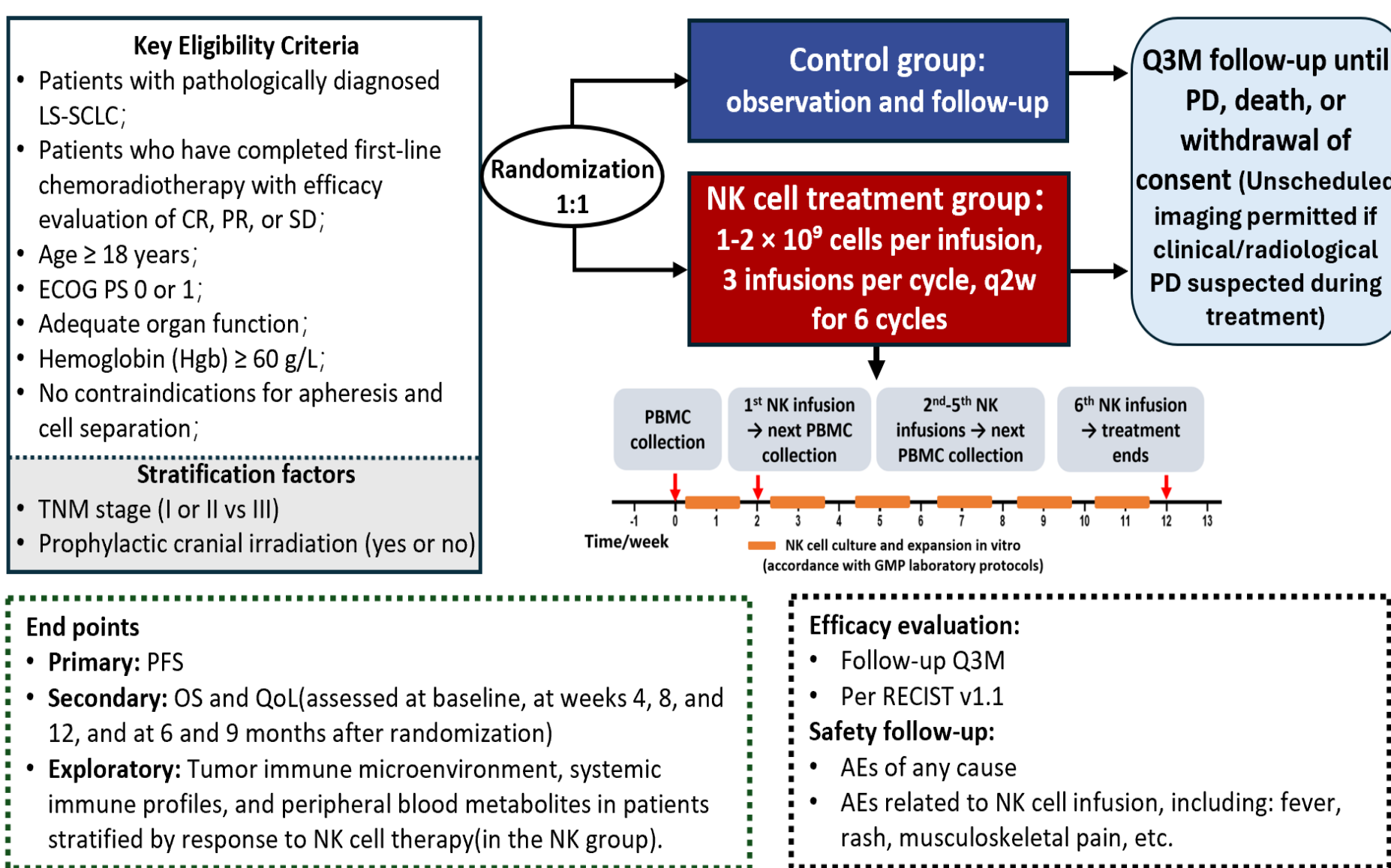
^{*}**Correspondence:** cuijw@jlu.edu.cn; chenxiaoj@jlu.edu.cn;

INTRODUCTION

Small-cell lung cancer (SCLC) is an aggressive malignancy characterized by early recurrence and metastatic potential. Autologous cellular immunotherapy (CIT) has demonstrated favorable safety and efficacy across various tumors. We conducted a prespecified cohort analysis of a phase II clinical trial (NCT03410368) evaluating the safety and efficacy of autologous NK cell consolidation therapy following first-line chemoradiotherapy for limited-stage SCLC (LS-SCLC)

METHODS

- **Study Design:** A cohort of a randomized, controlled, open-label, single-center phase II clinical trial
- **Intervention:** Autologous NK cell infusion (n=25) vs. Routine follow-up (n=26);
- **Primary endpoint:** Progression-free survival (PFS)
- **Secondary endpoints:** Overall survival (OS) and Quality of Life (QoL).
- **Exploratory endpoints:** Characterization of the tumor immune microenvironment, systemic immune profiles, and peripheral blood metabolites in patients stratified by treatment response.



DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Compared to the control group, the autologous NK cell consolidation group achieved longer median PFS and median OS.
- In terms of safety, the incidence of AEs was similar between the autologous NK cell therapy group and the observation group.
- QoL was maintained without compromise and showed significant improvement in baseline-adjusted GHS at 6 courses versus observation, alongside a favorable LC13 trend.
- Preliminary immune features were explored between responders and non-responders in patients treated with NK cells.

Future Direction for Research

- Autologous NK cell therapy represents a promising consolidation strategy for LS-SCLC following chemoradiotherapy, with efficacy and safety profiles supporting further investigation. Validation through larger trials incorporating predictive biomarkers is warranted.

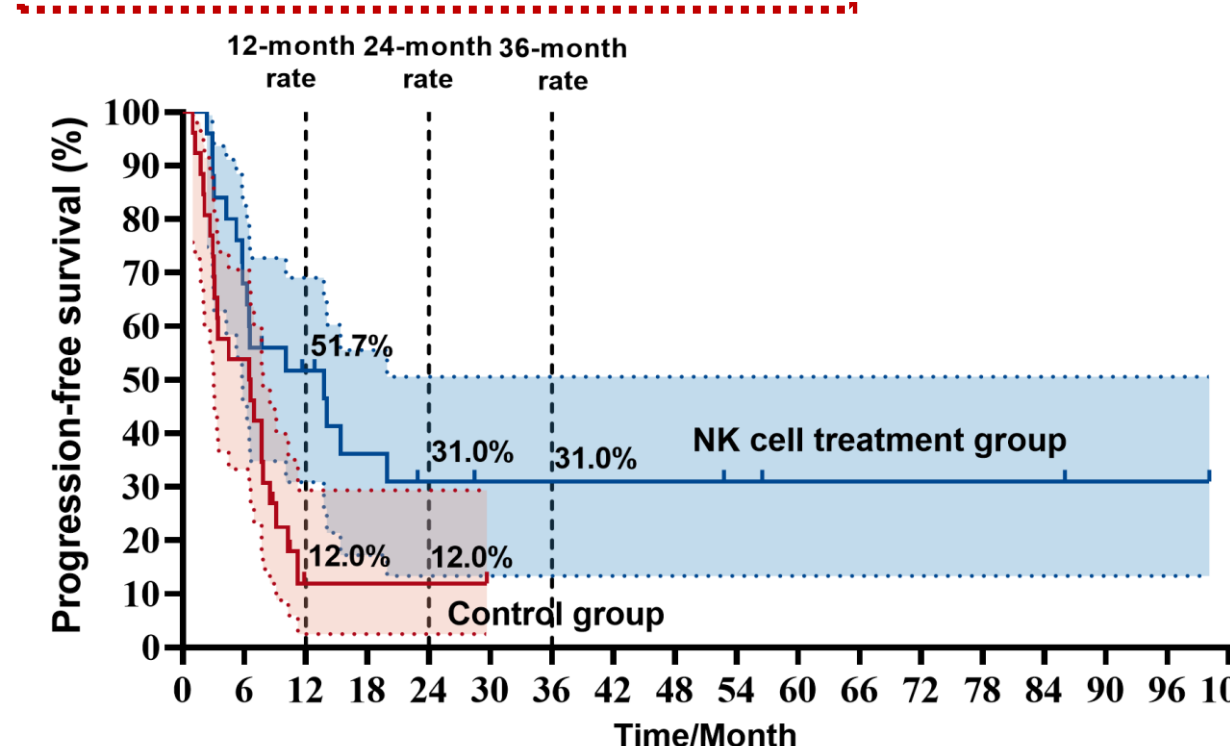
REFERENCES & ACKNOWLEDGEMENTS

- We extend our sincere gratitude to all patients and their families for their participation in this study.
- We gratefully acknowledge all study investigators, steering committee members, and site staff for their dedicated contributions to the execution and oversight of this study.

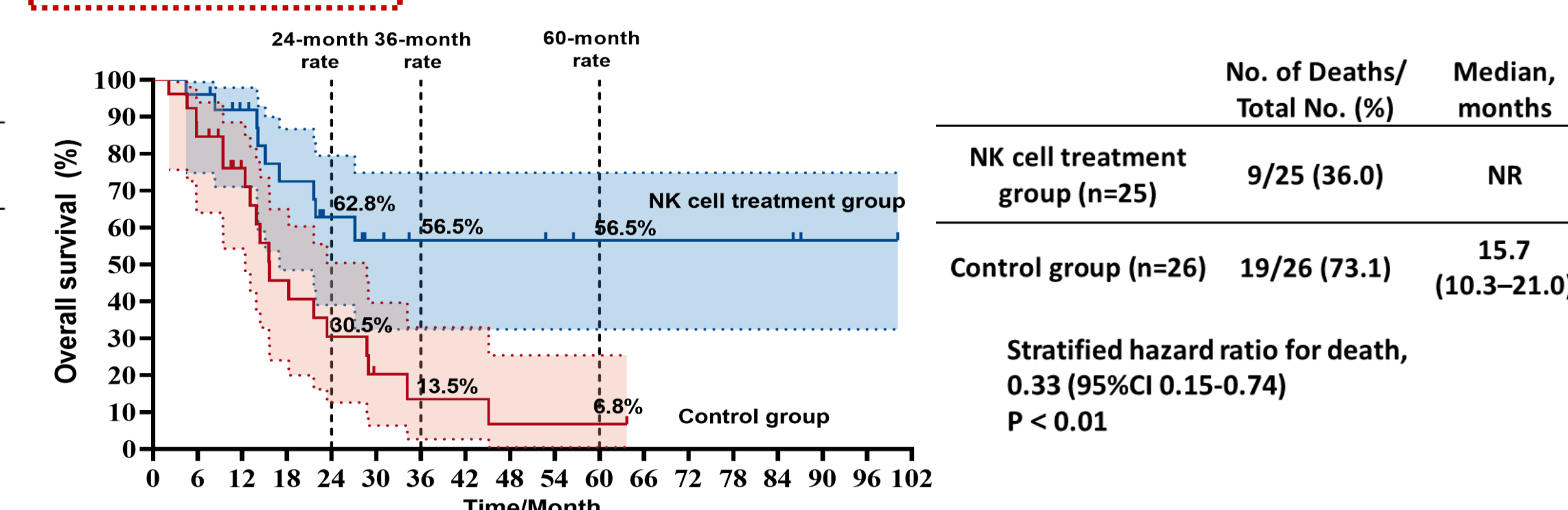
RESULTS

- **Survival:** Compared to the control group, the NK cell consolidation group achieved significantly longer PFS (median, 13.8 vs. 6.6 months; HR, 0.45; $p = 0.02$) and OS (median, not reached [NR] vs. 15.7 months; HR, 0.33; $p < 0.01$). A particularly pronounced PFS benefit was observed when calculated from the end of chemoradiotherapy (median, 15.6 vs. 8.1 months; HR, 0.45; 95% CI, 0.23–0.89; $p = 0.02$).

Progression-free Survival



Overall Survival

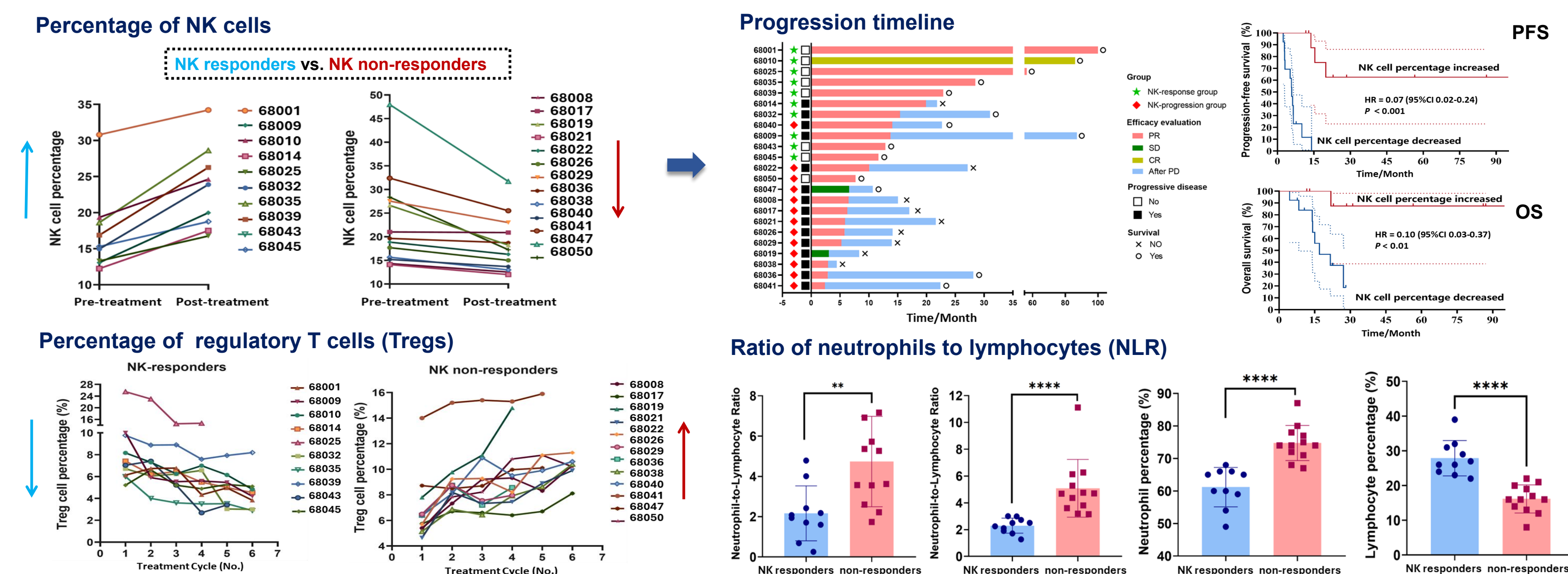


- **Safety:** The incidence of all-cause adverse events (AEs) in the safety analysis set was 56.0% (14/25) in the observation group and 56.5% (13/23) in the treatment group, with most being grade 1–2 and considered unrelated to the NK cell infusion.

- **Quality of Life assessment:** ANCOVA-adjusted QoL outcomes favored NK cell consolidation, with a significant improvement in GHS at 6 courses versus observation (+8.48, $p = 0.02$) and a consistent trend toward LC13 reduction, suggesting no compromise and possible modest enhancement of quality of life.

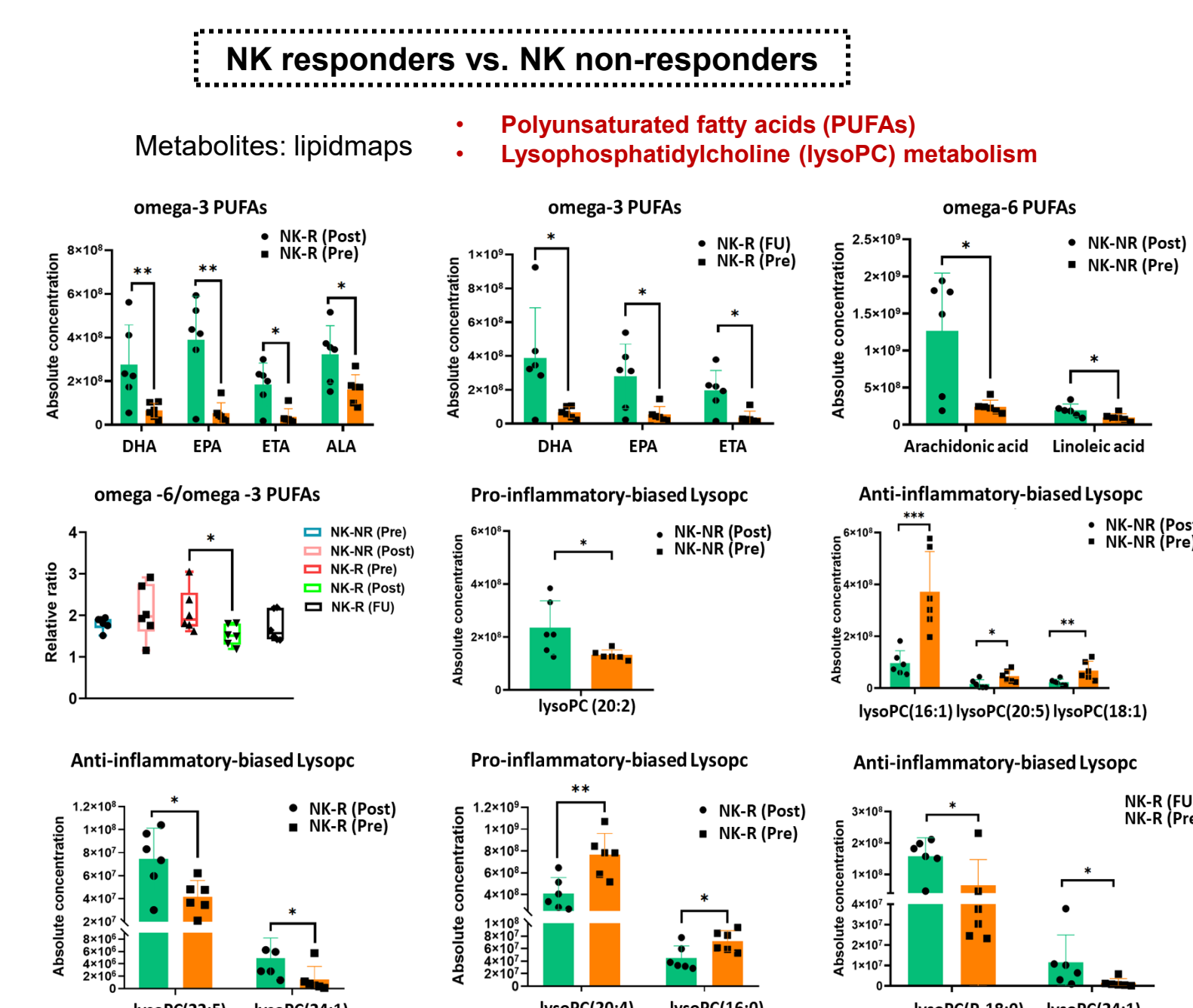
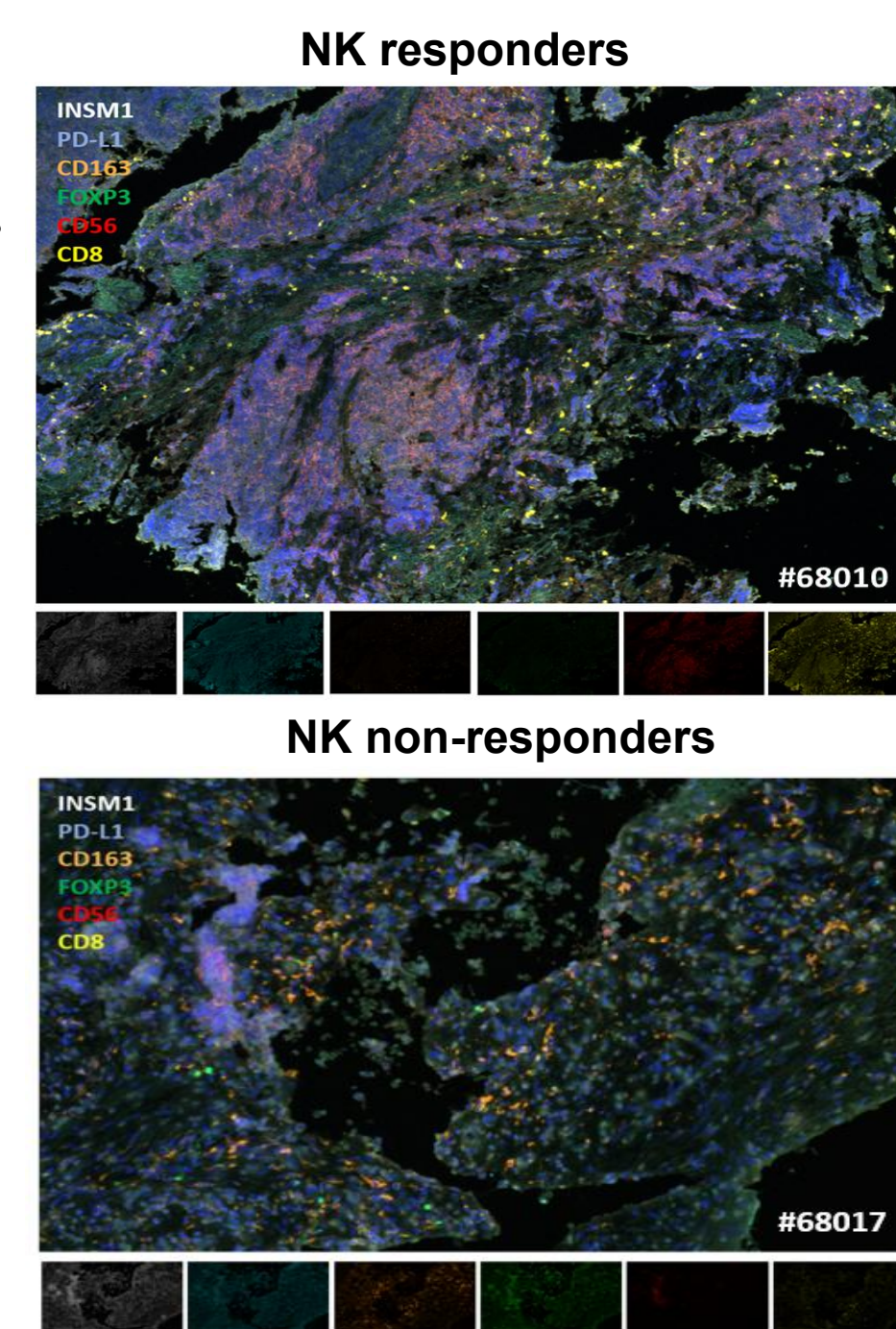
Dynamic Biomarker Signatures

- Among patients receiving NK cells, responders and non-responders exhibited distinct longitudinal profiles in circulating immune cells, metabolites, and the TME. Significant differences were observed in circulating NK cells, Tregs, and the NLR.



Multiplex immunofluorescence assays (INSM1, CD8, CD56, CD163, FOXP3, PD-L1, and DAPI)

- NK cell
- CD8+T cell
- Tregs
- TAM
- PD-L1+ NK cells



- Metabolomic profiling highlighted the role of PUFA and lysoPCs metabolites in regulating the balance between tumor inflammation and anti-tumor immunity. Multiplex immunofluorescence revealed notably heterogeneous TME landscapes between response and progression groups, underscoring the complex interplay between systemic metabolism and local tumor immunity.