

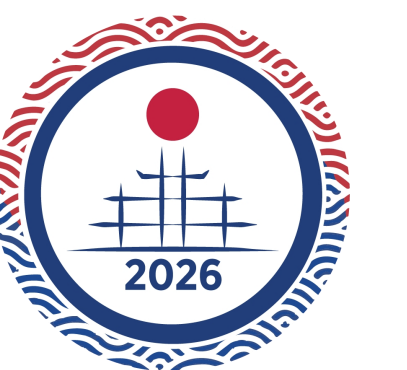


P2.250: Exhaled Breath Analysis via EESI-MS for Real-Time Prediction and Evaluation of Chemo-Immunotherapy Response in Non-Small Cell Lung Cancer

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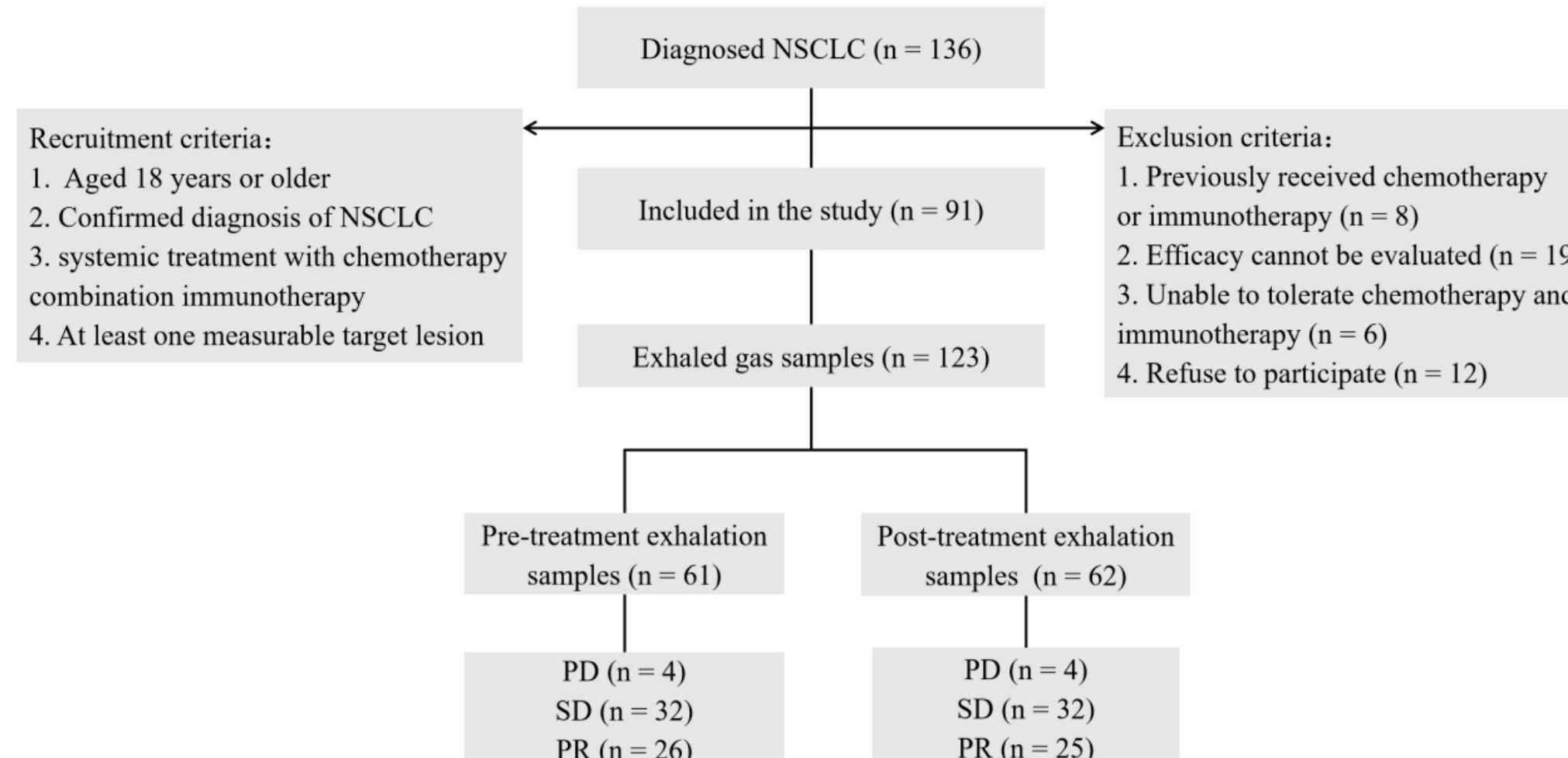
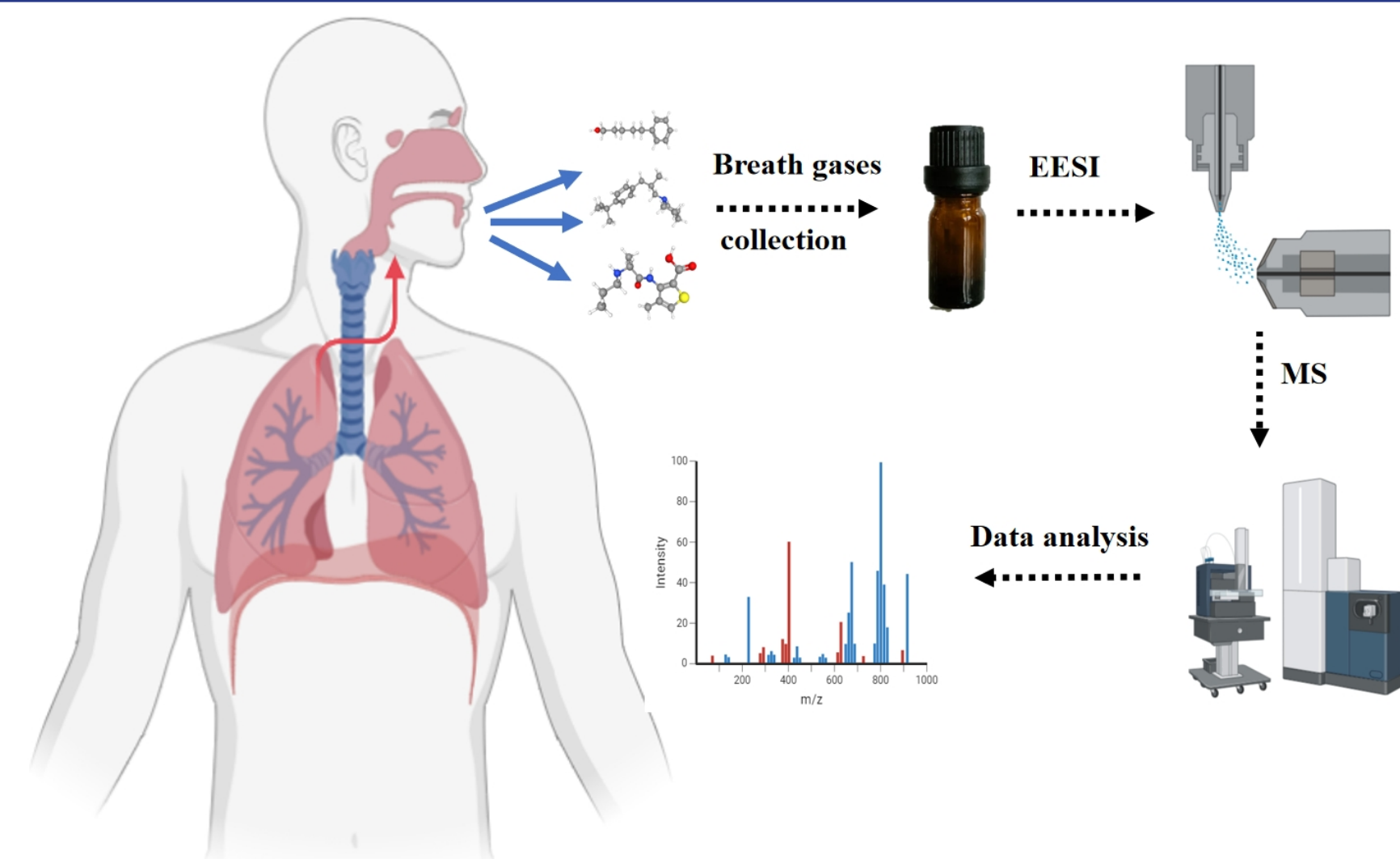
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INTRODUCTION

- Despite advances in lung cancer treatment, variability in therapeutic responses remains a major challenge, necessitating non-invasive biomarkers for precision treatment stratification.
- Exhaled VOCs represent a real-time liquid biopsy window reflecting tumor metabolism and immune responses.
- In this study, we developed an EESI-MS based machine learning model to predict and dynamically assess chemo-immunotherapy (CIT) efficacy in NSCLC patients using exhaled VOC signatures.

METHODS



DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Standardized breath sampling provides a rapid, non-invasive window into metabolic changes associated with chemo-immunotherapy response in NSCLC.
- In this prospective cohort, the 19-feature breathomic signatures distinguished responders from non-responders, achieving AUC of 0.94.

Future Direction for Research

- Prospectively validate locked models in larger, multicenter and demographically diverse cohorts using fully independent external test sets.

REFERENCES & ACKNOWLEDGEMENTS

References



Artificial Intelligence (AI) Use Disclaimer

AI was not used in the development of the material.

RESULTS

- A total of 19 characteristic metabolites were identified in CIT responders and non-responders (Figure 1).
- The machine-learning model effectively distinguished responders from non-responders to CIT, achieving an AUC of 0.94 (Figure 2).
- SHAP analysis provided transparent, interpretable biological insights for the CIT prediction model of NSCLC constructed using XGBOOST (Figure 3).

