

P2.124: Molecular Pathology Testing in Clinical Practice in Stage IV NSCLC: Insights From the Swedish National Lung Cancer Register

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INTRODUCTION

- Molecular pathology testing has assumed a central role in the diagnosis and treatment selection in lung cancer.
- Over the past decade, Sweden has demonstrated a high and increasing testing coverage, along with a rapid implementation of new biomarkers.
- Initially, testing was primarily recommended for patients with NSCLC, but reflex testing is now widely applied in clinical practice.
- The aim of this study is to describe test patterns and their results based on data from the National Lung Cancer Registry (NLCR)

METHODS

- The NLCR is a clinical population-based registry where 98% of all patients diagnosed with lung cancer in Sweden are registered.
- The NLCR includes detailed information on the demographical and clinical characteristics, biomarkers, treatments and outcomes such as progression-free and overall survival.
- During a substantial part of the study period, many laboratories applied a sequential testing approach. Analyses were included from their respective dates of implementation in the register:
 - EGFR (from 2014), ALK (from 2016), ROS1 and PD-L1 (from 2018), BRAF (from 2019), and RET (from 2022).
 - Additional biomarkers were introduced from 2023, including NTRK, MET exon 14, KRAS G12C, HER2 hotspot mutations, HER2 amplification, and EGFR exon 20 insertions.

DISCUSSION AND CONCLUSION

- The observed biomarker distribution, together with the high number of performed analyses, indicates that a large proportion of the patient population undergoes molecular testing.
- The Swedish National Lung Cancer Register thus provides a robust foundation for future studies on biomarker prevalence, treatment patterns, and clinical outcomes in a real-world setting.
- These findings reflect a rapid and comprehensive national implementation of molecular diagnostics in advanced NSCLC.

REFERENCES & ACKNOWLEDGEMENTS

Learn more about the Swedish National Lung Cancer Registry, please use the QR codes:



Emails



Registry

Acknowledgements

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Artificial Intelligence (AI) Use Disclaimer

OpenAI ChatGPT (GPT-5.6) was used as a supportive tool in the development of this presentation, including assistance with language refinement, structuring of content, and preparation of draft text.

All scientific and statistical content, interpretations, conclusions, and references were independently reviewed and verified by the authors. AI was not used as a substitute for scientific or clinical judgment.

RESULTS

- This study includes 19,915 patients with a registered diagnosis of stage IV NSCLC (WHO performance status 0-4) between January 1, 2014, and December 31, 2025.
- A high proportion of patients underwent molecular testing across biomarkers, with testing rates ranging from 46% for HER2 amplification to 81% for PD-L1 throughout the test period (**Figure 1a**).

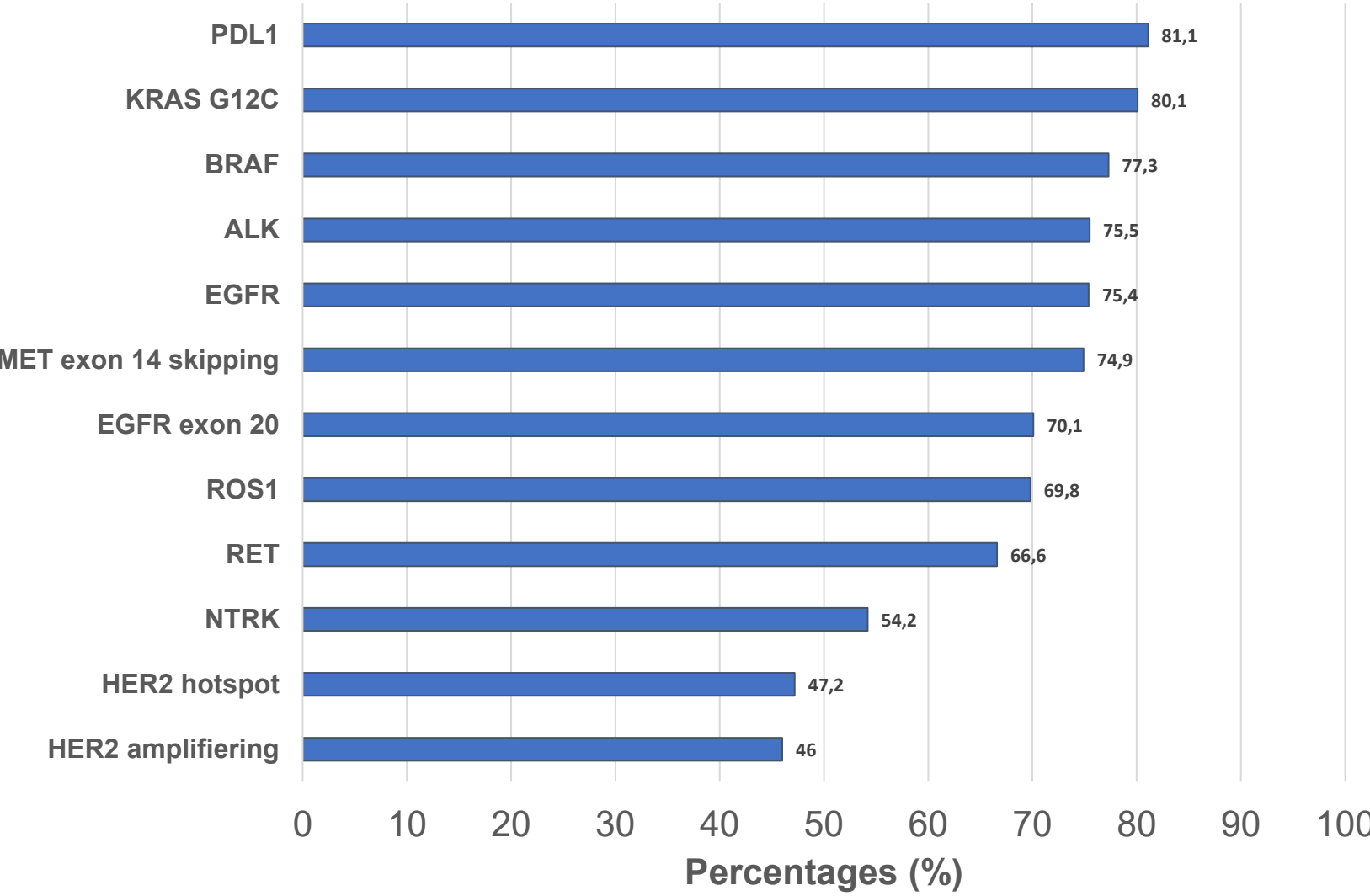


Figure 1a. Proportion of patients undergoing biomarker testing

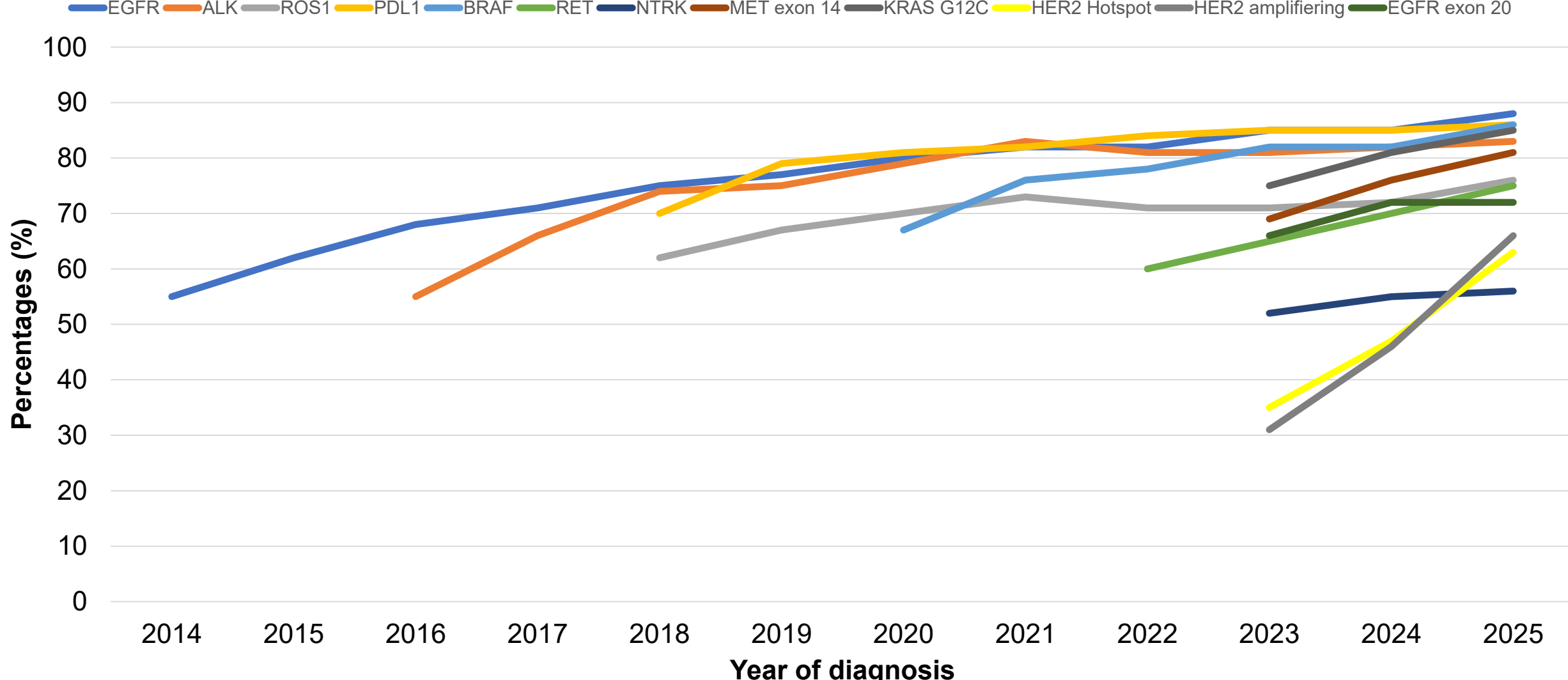


Figure 1b. Proportion of patients undergoing biomarker testing over time

- In recent years, following the introduction of reflex testing, the proportion of patients tested for relevant biomarkers has increased substantially, with current testing rates reaching 80–90% (**Figure 1b**)
- Among tested patients, KRAS G12C was the most common actionable alteration (18.0%), followed by EGFR (13.1%), MET exon 14 skipping (4.4%), BRAF (3.7%), and ALK (3.6%). Other actionable alterations were less common (**Figure 2**).

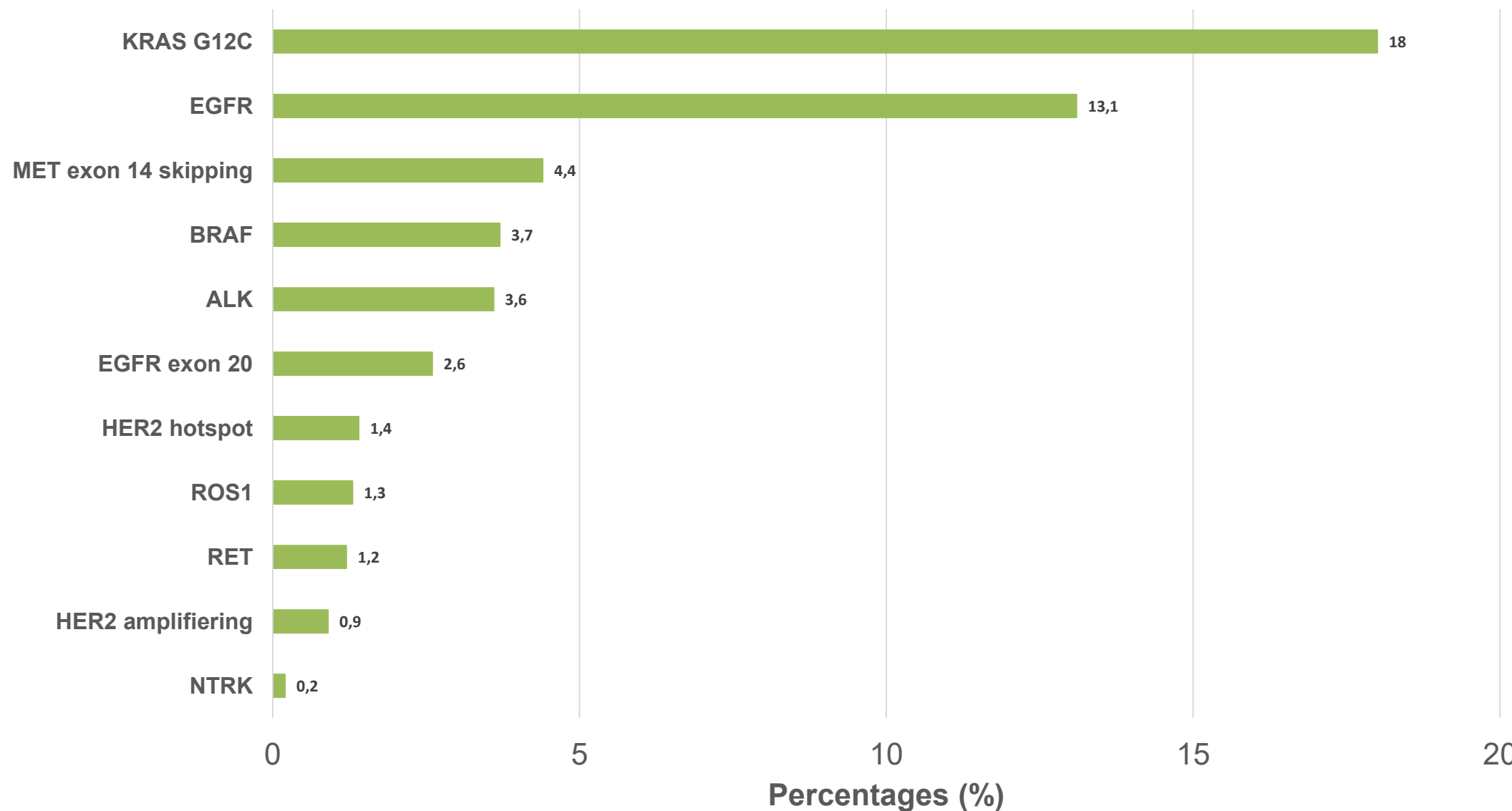


Figure 2. Proportion of positive biomarker results among tested patients

- PD-L1 expression was positive in 58.4% of tested patients, with an approximately equal distribution between PD-L1 1–49% (50.8%) and ≥50% (49.2%).