

EGFR-Mutant Non-Small Cell Lung Cancer Linked to TP53 R337H in Brazil: Clinicopathological and Molecular Features

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INTRODUCTION

- The *TP53* R337H founder variant is relatively common in Brazil, affecting up to 0.1% of newborns, and is associated with reduced penetrance of Li-Fraumeni syndrome¹.
- Prior studies have reported a 1.2% prevalence of *TP53* R337H in NSCLC, with enrichment of *EGFR* alterations²; however, its clinical impact remains incompletely characterized.
- We hypothesized that *EGFR*-mutant NSCLC harboring *TP53* R337H represents a distinct subgroup with less aggressive features compared with tumors harboring other somatic *TP53* co-mutations.

METHODS

Study design and population

Retrospective study of patients with NSCLC who underwent somatic NGS at a centralized molecular laboratory of Oncoclínicas Medicina de Precisão (OCPM) in Brazil between January 2021 and January 2026.

TP53 R337H cohort

Patients harboring *TP53* R337H were identified, and available clinical, pathological, and molecular characteristics were collected. Results of reflex germline testing were assessed.

Survival analysis

Among patients with *EGFR*-mutant NSCLC treated with 3rd generation EGFR tyrosine kinase inhibitors (TKIs), time to treatment discontinuation (TTD) and overall survival (OS) was compared according to *TP53* status across three groups: *TP53* wild-type, *TP53* R337H, and other *TP53* co-mutations.

DISCUSSION AND CONCLUSION

KEY TAKE-AWAY MESSAGE

- TP53* R337H is found in 1.4% of tumor NGS samples from NSCLC in Brazil.
 - ✓ Confirmed germline origin in all samples tested;
 - ✓ *EGFR*-mutant in 89%;
 - ✓ Predominant indolent pathological features;
 - ✓ Numerically higher survival estimates if treated with 3rd gen EGFR TKI.

CLINICAL IMPLICATIONS & FUTURE DIRECTIONS

- The high germline confirmation rate among tested patients highlights the importance of appropriate genetic counseling, germline evaluation, and screening strategies.
- Larger cohorts and longer follow-up are needed to clarify the prognostic significance of *TP53* R337H in *EGFR*-mutant NSCLC.

REFERENCES & ACKNOWLEDGEMENTS

References:

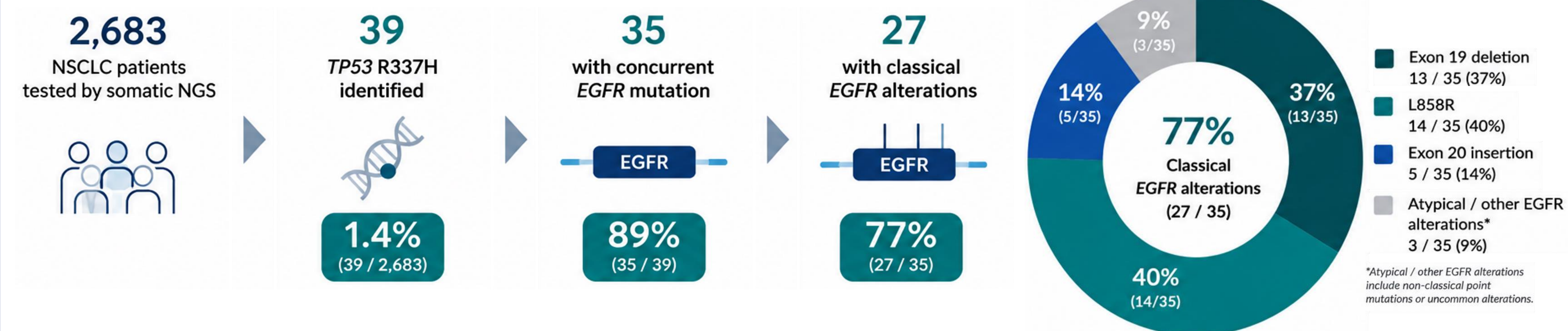
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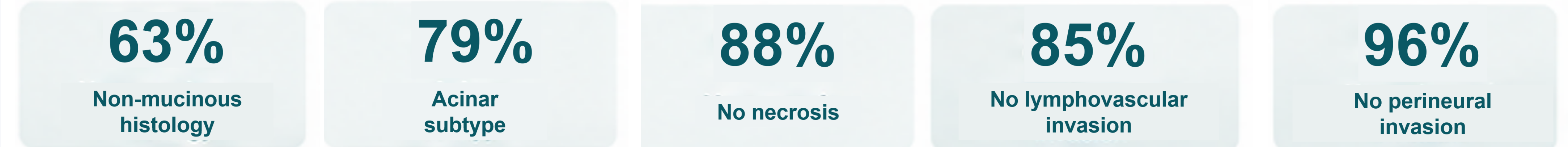


RESULTS

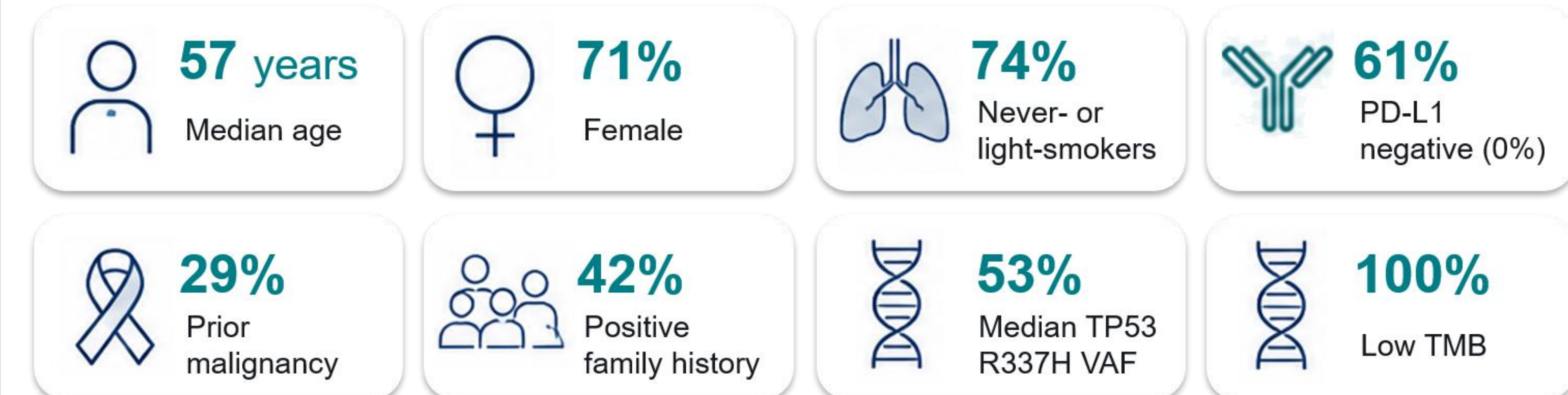
COHORT OVERVIEW



PATHOLOGICAL FEATURES

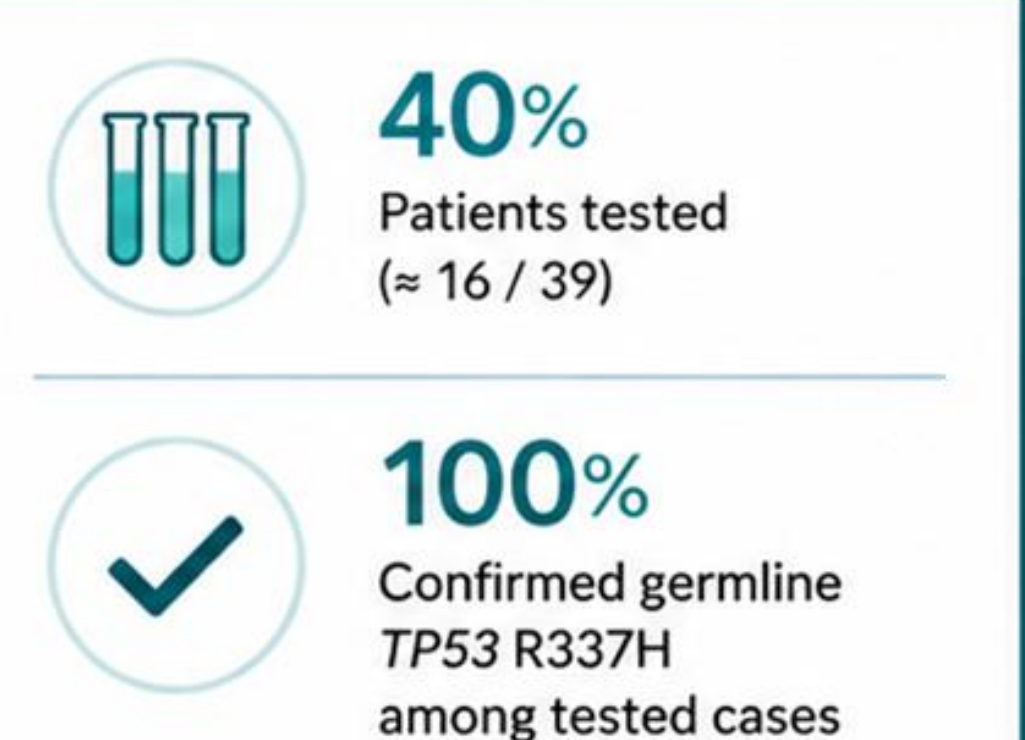


CLINICAL AND MOLECULAR PHENOTYPE OF *TP53* R337H COHORT



*Clinical data available for 31 patients

REFLEX GERMLINE TESTING



CLINICAL OUTCOMES IN *EGFR*-MUTANT COHORT

