

Smoking and EGFR Mutation Status Are Associated with PD-L1 Expression in Non-Small Cell Lung Cancer: A Colombian Cohort

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BACKGROUND

PD-L1 is clinically relevant in NSCLC; Colombian real-world data integrating clinical and molecular correlates remain limited.

OBJECTIVE

To describe PD-L1 expression and assess its association with clinical, pathological, and molecular variables in Colombian patients with primary NSCLC.

KEY MESSAGE

Smoking history was independently associated with higher PD-L1 positivity, whereas EGFR-mutated status was independently associated with lower PD-L1 positivity.

Smoking: aPR 2.00 (95% CI, 1.10–3.67)
EGFR-mutated: aPR 0.39 (95% CI, 0.16–0.97)

Study Design and PD-L1 Assessment

Retrospective single-center cohort • Bogotá, Colombia • 2015–2025

STUDY POPULATION

Adults with histopathologically confirmed primary NSCLC and available tumor PD-L1 testing.

FINAL ANALYTIC
COHORT
N = 131

TPS CATEGORIES

TPS <1%

Negative

TPS 1–49%

Low positive

TPS ≥50%

Strong positive

PD-L1 ASSESSMENT

Routine clinical immunohistochemistry
22C3 clone | Dako/Agilent platform
≥100 viable tumor cells
Tumor proportion score (TPS)

PRIMARY ANALYSIS

PRIMARY OUTCOME
PD-L1 positivity: TPS ≥1 %

ADJUSTED ANALYSIS
Multivariable Poisson regression with robust variance

COVARIATES
Smoking status • EGFR status • Age >73 years • Sex

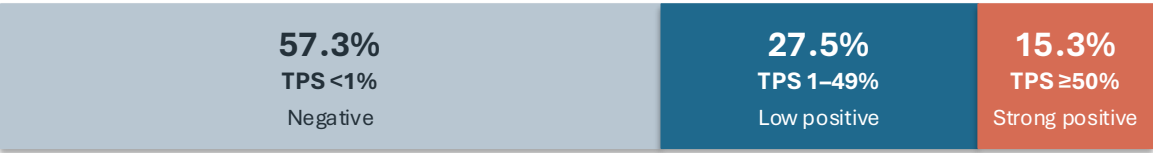
Cohort Characteristics and Biomarker Distribution

COHORT AT A GLANCE



PD-L1 DISTRIBUTION

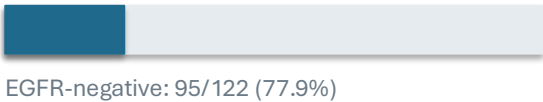
PD-L1 tumor proportion score (TPS)



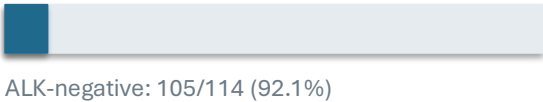
PD-L1 positivity (TPS ≥1%): **42.7% (56/131)**

MOLECULAR PROFILE

EGFR-mutated
22.1% (27/122)



ALK-positive
7.9% (9/114)

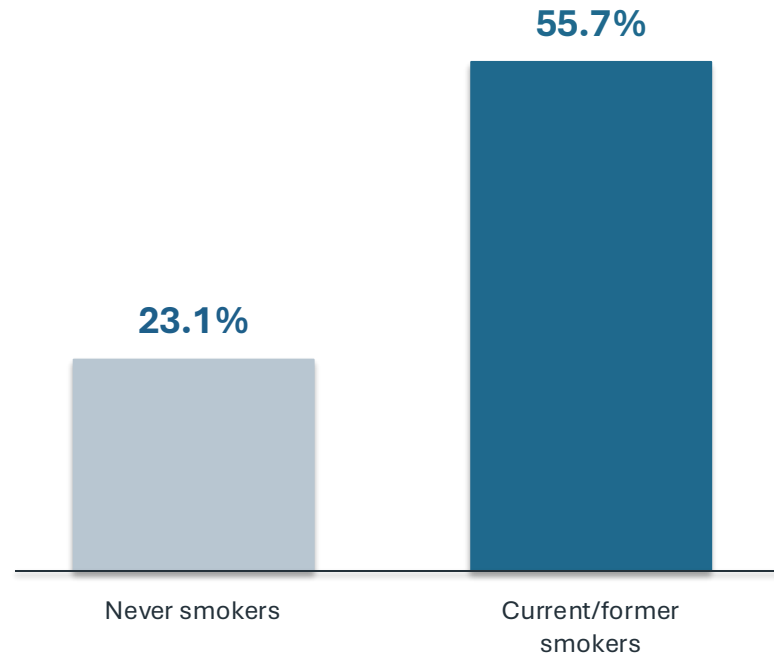


EGFR status available in 122/131 patients (93.1%); ALK status available in 114/131 patients (87.0%).

Smoking and EGFR Status Are Associated with PD-L1 Positivity

PD-L1 positivity defined as tumor proportion score (TPS) $\geq 1\%$

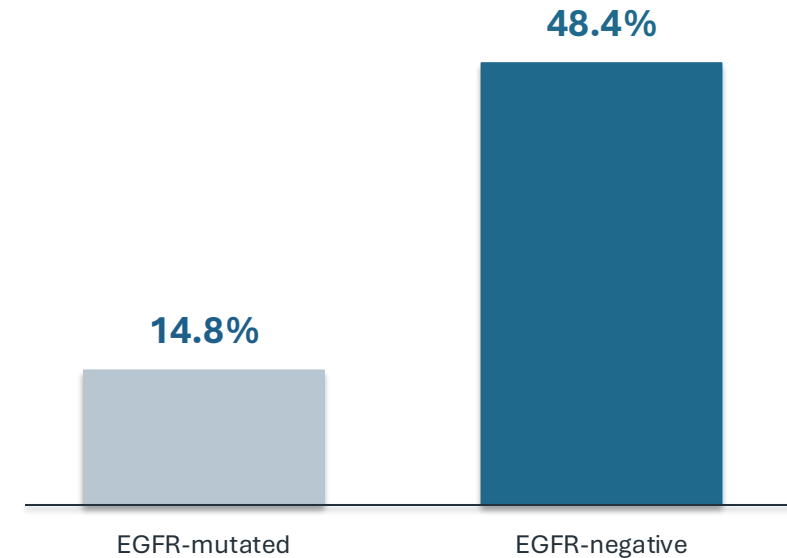
PD-L1 positivity by smoking status



RR 2.41 (95% CI, 1.42–4.12)

Fisher's exact $p < 0.001$

PD-L1 positivity by EGFR status



RR 0.31 (95% CI, 0.12–0.77)

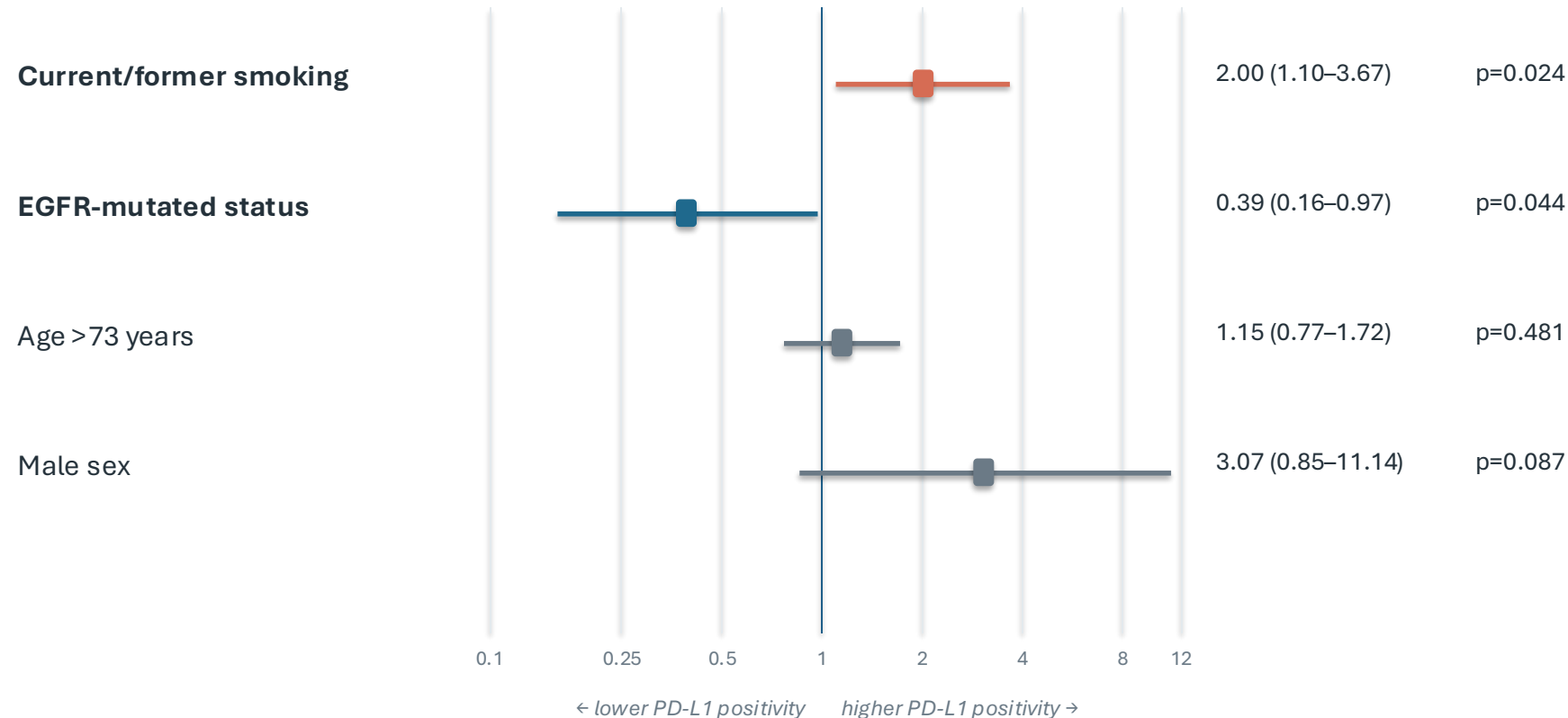
Fisher's exact $p = 0.002$

Bivariate analyses; EGFR status available in 122 patients.

Independent Correlates of PD-L1 Positivity

Multivariable Poisson regression with robust variance; outcome: PD-L1 TPS $\geq 1\%$

Adjusted prevalence ratio (aPR)



**STRONG PD-L1
EXPRESSION**

0/27

EGFR-mutated tumors
with TPS $\geq 50\%$

vs.

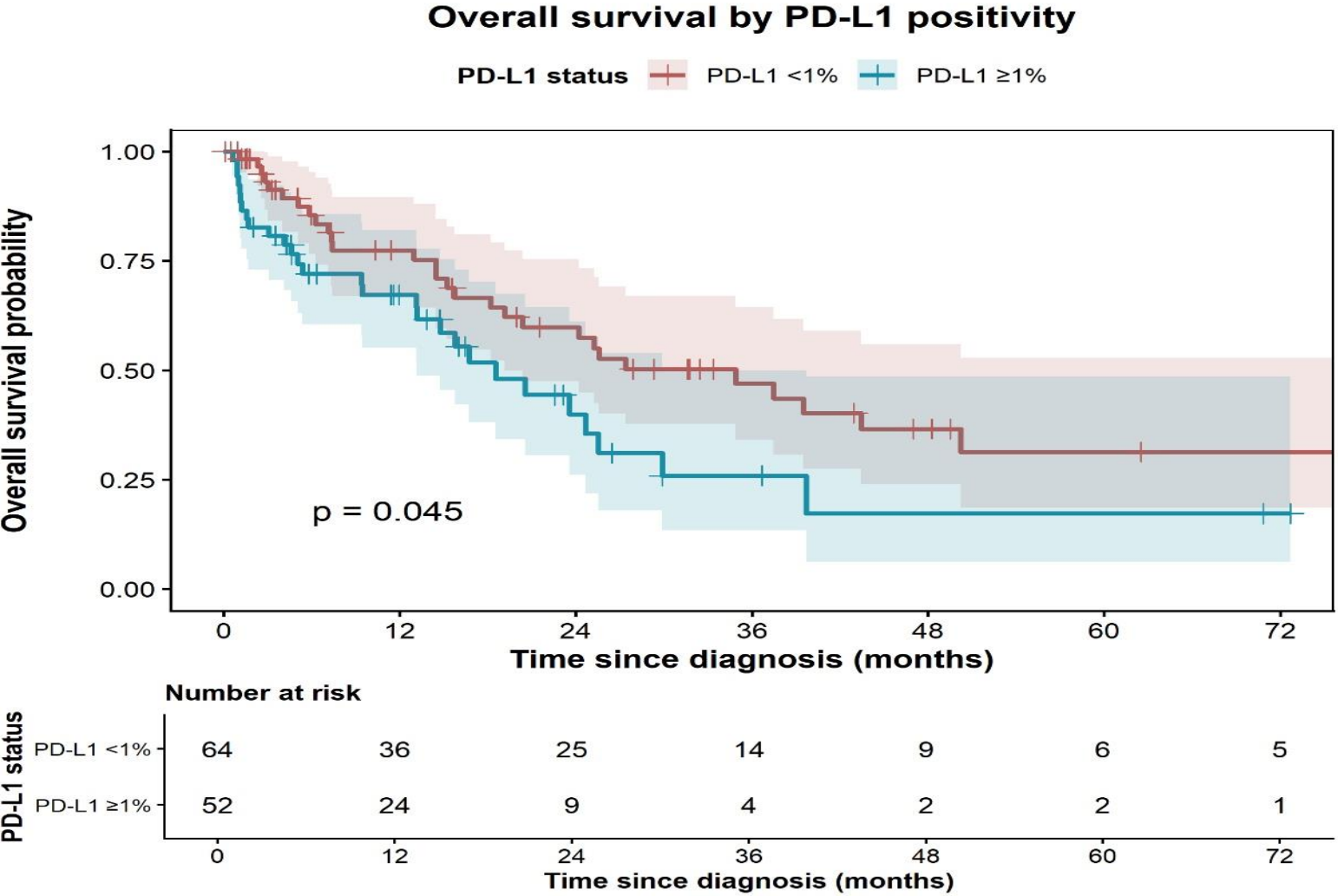
17/95 (17.9%)

EGFR-negative tumors
with TPS $\geq 50\%$

Fisher's exact p=0.013

Smoking independently increased the prevalence of PD-L1 positivity, whereas EGFR mutation independently decreased it.

Exploratory Overall Survival Analysis by PD-L1 Status



KEY FINDING

PD-L1 positivity (TPS ≥1%) was associated with lower overall survival in unadjusted Kaplan–Meier analysis.

Log-rank $p = 0.045$

INTERPRET WITH CAUTION

Exploratory, unadjusted analysis. Treatment exposure, stage, performance status, comorbidities, and molecular status were not fully accounted for.

This analysis does not establish the prognostic or predictive value of PD-L1.

Overall survival was calculated from histopathological diagnosis to death from any cause or last available follow-up.

Conclusions, Limitations, and Disclosure

01

PD-L1 positivity (TPS $\geq 1\%$) was observed in 42.7% of patients; strong expression (TPS $\geq 50\%$) in 15.3%.

02

Current or former smoking was independently associated with higher PD-L1 positivity (aPR 2.00; 95% CI, 1.10–3.67).

03

EGFR-mutated status was independently associated with lower PD-L1 positivity (aPR 0.39; 95% CI, 0.16–0.97); no EGFR-mutated tumor showed TPS $\geq 50\%$.

CLINICAL IMPLICATION

PD-L1 expression should be interpreted alongside smoking history and actionable genomic alterations—not as an isolated biomarker—in real-world NSCLC practice.

LIMITATIONS

Retrospective, single-center design
Small molecular subgroups
Incomplete treatment-exposure data
Exploratory, unadjusted survival analysis

Presenter Disclosure

I have no financial relationships or conflicts of interest relevant to this presentation.

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Study title

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