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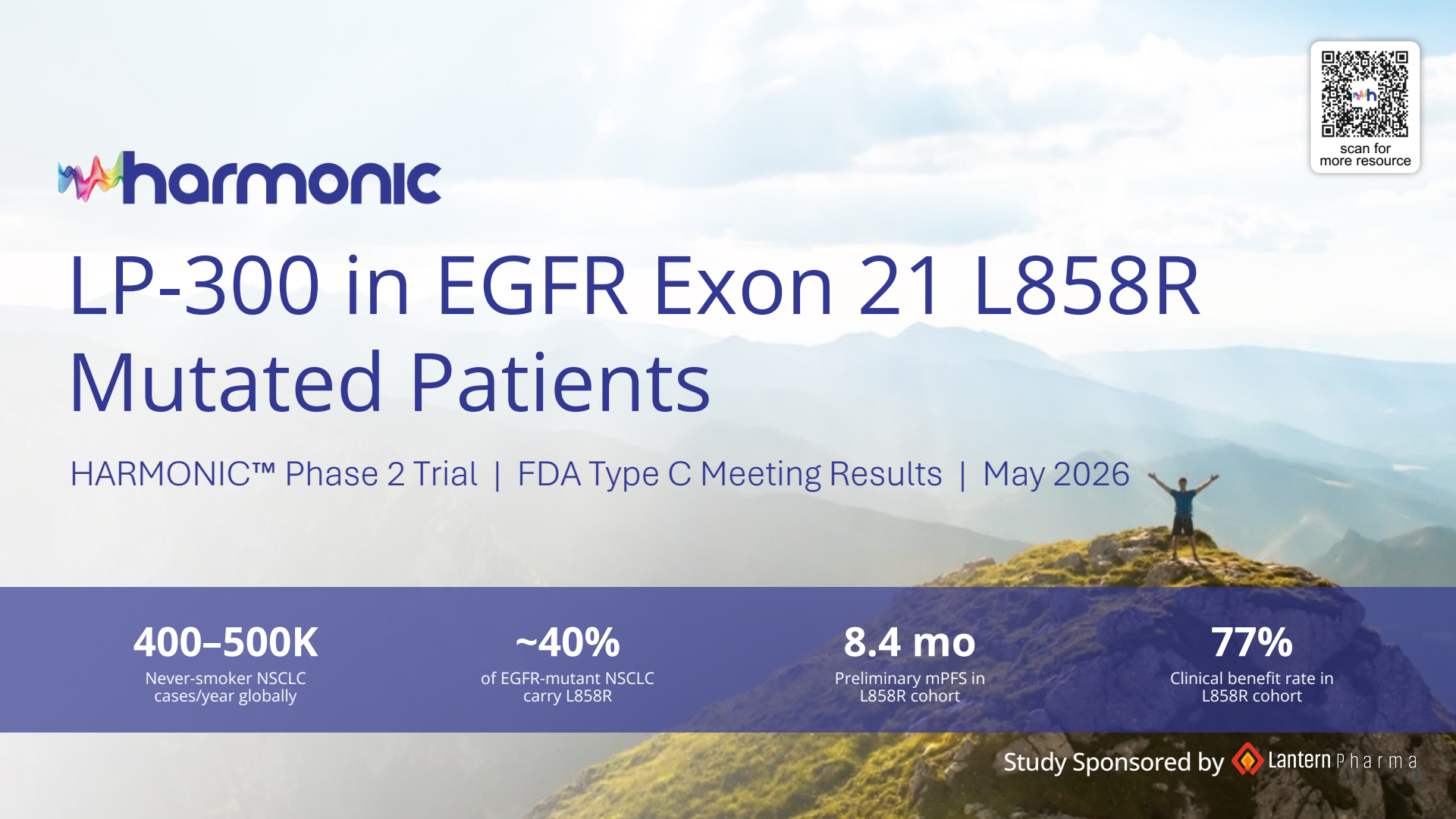
LP-300 in EGFR Exon 21 L858R Mutated Patients

HARMONIC™ Phase 2 Trial | FDA Type C Meeting Results | May 2026



400–500K
Never-smoker NSCLC cases/year globally

~40%
of EGFR-mutant NSCLC carry L858R

8.4 mo
Preliminary mPFS in L858R cohort

77%
Clinical benefit rate in L858R cohort

Study Sponsored by Lantern Pharma

Forward-Looking Statements

This presentation contains forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. These forward-looking statements include, among other things, statements relating to: future events or our future financial performance; plans, objectives and expectations regarding the HARMONIC™ clinical trial; LP-300's potential clinical activity and tolerability profile; our clinical development plans; expectations and estimates regarding clinical trial timing and patient enrollment; estimates regarding patient populations, potential markets and potential market sizes; and our plans to discover and develop drug candidates and to maximize their commercial potential by advancing such drug candidates ourselves or in collaboration with others.. Any statements that are not statements of historical fact (including, without limitation, statements that use words such as "anticipate," "believe," "contemplate," "could," "estimate," "expect," "intend," "seek," "may," "might," "plan," "potential," "predict," "project," "target," "model," "objective," "aim," "upcoming," "should," "will," "would," or the negative of these words or other similar expressions) should be considered forward-looking statements. There are a number of important factors that could cause our actual results to differ materially from those indicated by the forward-looking statements, such as (i) the risk that we may not be able to secure sufficient future funding when needed and as required to advance and support our existing and planned clinical trials and operations, (ii) the risk that observations in preclinical studies and emerging or preliminary observations in clinical studies do not ensure that later observations, studies and development will be consistent or successful, (iii) the risk that any clinical benefit observed to date relating to LP-300 may not be reproduced in the completed HARMONIC™ trial or in larger or confirmatory studies, (iv) the risk that clinical data referenced in this presentation relating to the HARMONIC™ clinical trial are exploratory and preliminary, based on small patient cohorts, and may not be representative of outcomes in broader populations, (v) the risk that cross-trial comparisons are provided for context only and should not be interpreted as direct evidence of comparative safety or efficacy, (vi) the risk that our research and the research of our collaborators may not be successful, (vii) the risk that we may not be successful in licensing our product candidates or in completing potential partnerships and collaborations, (viii) the risk that none of our product candidates has received FDA marketing approval, and we may not be able to successfully initiate, conduct, or conclude clinical testing for or obtain marketing approval for our product candidates, (ix) the risk that no drug product based on our proprietary AI platforms has received FDA marketing approval or otherwise been incorporated into a commercial product, and (x) those other factors set forth in the Risk Factors section in our Annual Report on Form 10-K for the year ended December 31, 2025, filed with the Securities and Exchange Commission on March 30, 2026. You may access our Annual Report on Form 10-K for the year ended December 31, 2025 under the investor SEC filings tab of our website at www.lanternpharma.com or on the SEC's website at www.sec.gov. Given these risks and uncertainties, we can give no assurances that our forward-looking statements will prove to be accurate, or that any other results or events projected or contemplated by our forward-looking statements will in fact occur, and we caution investors not to place undue reliance on these statements. All forward-looking statements in this presentation represent our judgment as of the date hereof, and, except as otherwise required by law, we disclaim any obligation to update any forward-looking statements to conform the statement to actual results or changes in our expectations.

A Focused Trial for **LP-300 in EGFR Exon 21 L858R**

harmonic

NCT05456256

High-Need Defined Population

EGFR exon 21 L858R mutation - **found in ~40% of all EGFR-mutant NSCLC** cases across **diverse and global patient populations** - is associated with inferior outcomes on current 3rd-gen TKI therapy vs. exon 19 deletions. No therapy is specifically labeled for this subgroup

Compelling Early Signal

Preliminary HARMONIC™ data (n=31, data cutoff May 2026) show an **8.4-month mPFS and durable responses > 2 years** in select L858R-mutant patients. Cox regression confirms L858R as an independent PFS predictor.

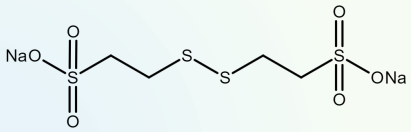
FDA Type C Meeting Success

FDA raised **no objections** to three key protocol amendments: (1) enrich enrollment for L858R; (2) extend LP-300 dosing to 8 cycles; (3) transition to single-arm design. A meaningful de-risking milestone.

Best-in-Tolerability Potential

LP-300 + chemo (through data cutoff) shows markedly cleaner safety vs. amivantamab + chemo (MARIPOSA-2): 3% vs. 23% serious TRAEs; 7% vs. 58% infusion reactions; 0% vs. 36% paronychia.

Overview of the LP-300 Molecule



LP-300 (Dimesna)

Small molecule | Phase 2

- **Receptor tyrosine kinase inhibition**
  Covalently inhibits EGFR, ALK, MET, ROS1 via cysteine adducts
- **Thioredoxin/Glutaredoxin modulation**
  Shifts redox balance → restores apoptosis sensitivity to chemotherapy
- **Chemo-sensitizing properties**
  Resets cancer cell sensitivity; inhibits angiogenesis & cell growth
- **DNA damage repair modulation**
  Inhibits new DNA synthesis; inactivates transcription factors

Established Safety Track Record

10+
Phase 1, 2 & 3 clinical trials

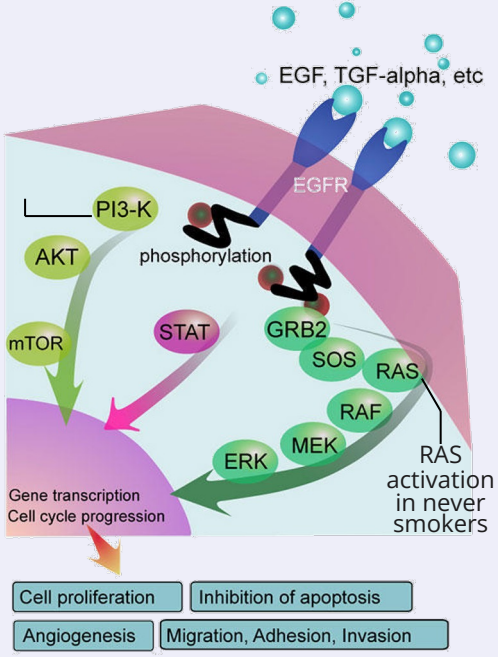
1,000+
individuals previously dosed

125%
increase in 2-yr survival (never-smokers, retrospective)*

91%
increase in median OS (never-smokers, retrospective)*

**Source: Phase 3 trial DMS32212R (BioNumerik Pharmaceuticals) — retrospective subgroup analysis, never-smoker NSCLC adenocarcinoma*

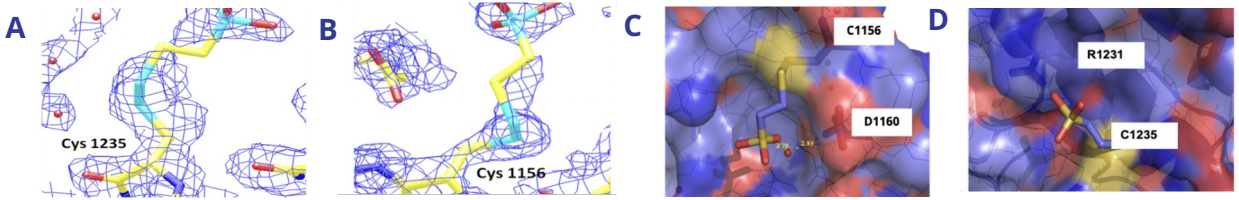
Relevant Receptor Signaling Pathways in Never Smokers



Source: www.cancer.gov

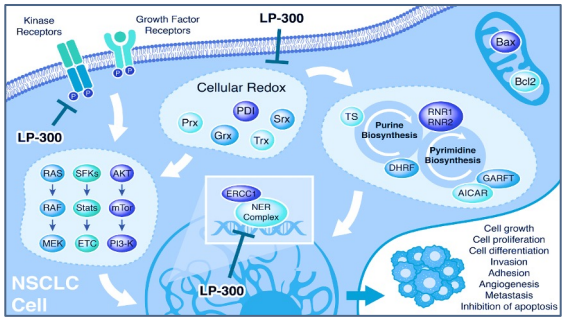
LP-300's multimodal MoA resensitizes NSCLC to chemo

1 LP-300 Directly Engages with TKI Receptors via Cysteine Modification



A-B. LP-300 adduct at **Cys1235 Cys1156** **C.** Molecular surface of ALK with the LP-300-derived adduct at **Cys1156** *(yellow highlight)* **D.** Binding site of the LP-300-derived adduct at **Cys 1235** *(yellow highlight)*

2 LP-300 Modulates Cellular Redox in Key Signaling Pathways in NSCLC



- Restoring apoptosis sensitivity
- Oxidative stress modulation
- Anti-angiogenesis
- Reduced DNA synthesis and gene expression
- Reduce glutathione/thioredoxin mediated tumor resistance to therapy
- Nephrotoxicity protection against chemotherapy

Never & Non-Smoker NSCLC: A Distinct & Underserved Disease

400–500K
new never-smoker NSCLC cases per year globally

Top 10
cancer worldwide if classified as a standalone disease

40%
of NSCLC EGFR mutations occur in Exon 21 - L858R

0
therapies specifically developed or labeled for this population

Why Never-Smokers Are Different

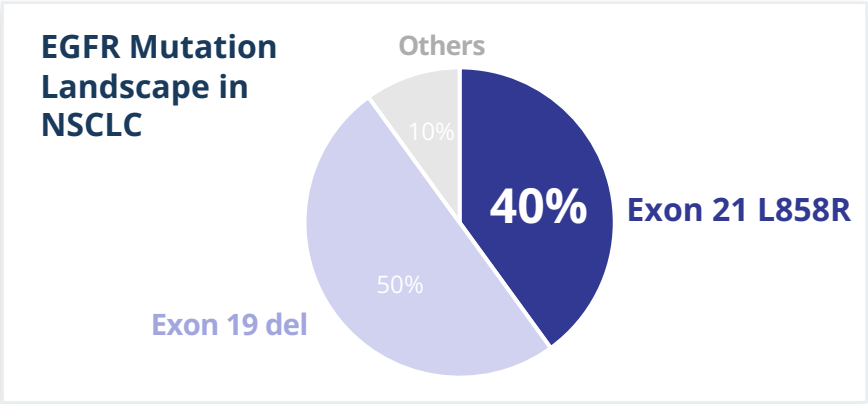
- Predominantly adenocarcinoma histology (85–90%)
- EGFR & ALK are dominant driver mutations (not KRAS)
- Low PD-L1 expression → poor response to immunotherapy
- Low tumor mutation burden (TMB) — distinct from smokers
- More commonly female; younger age at diagnosis
- 62% diagnosed at Stage IV vs. 49% in smokers

Why Immunotherapy Fails in Never-Smokers

~0%	benefit from PD-1 inhibitors vs. chemotherapy alone (Li et al. 2018 meta-analysis, 1,981 pts)
Low	PD-L1 expression in never-smokers with EGFR/ALK mutations
Key	EGFR/ALK-mutant tumors are primary driver — not immune-responsive

This population needs a dedicated, well-tolerated therapy
→ **LP-300 is positioned to fill this gap.**

EGFR Exon 21 L858R: The Target



Why L858R is a High-Unmet-Need Subgroup

- Point mutation in kinase domain → lower TKI binding affinity
- Inferior outcomes on osimertinib vs. exon 19 deletions in multiple trials
- Shorter recurrence-free survival post-surgery (14.7 vs. 28.4 mo, p=0.001)
- Accounts for ~40% globally; up to 50% in Asian populations
- Independent predictor of PFS benefit with LP-300 (multivariate Cox regression)

Post-Osimertinib Resistance Landscape

On-Target

- C797X mutations: 7–15%
- EGFR amplification: 4–12%
- Other EGFR mutations: 3–4%

Off-Target

- MET amplification: 7–17%
- HER2 mutations/amplification: 4–12%
- Histological transformation: 5–14%

Unknown

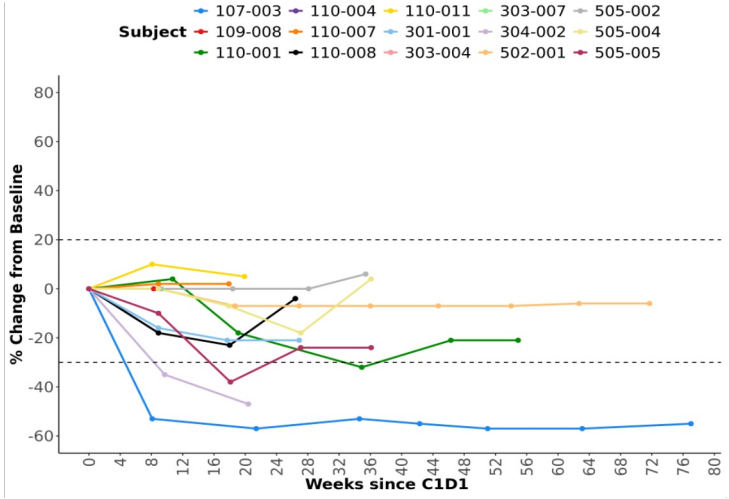
- No identified molecular driver: 15–30%

→ **LP-300 mechanism-agnostic benefit**

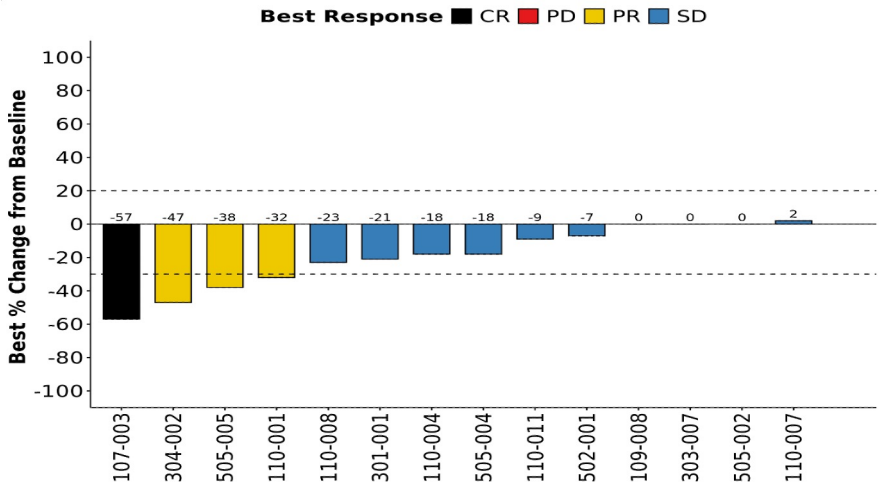
Source: Zhou et al., Lancet Reg Health Western Pacific 2024; Isaka et al., BMC Cancer 2018

Target Lesion Decreased in Over 70% of Evaluable L858R Patients

Percent change in cancer lesion size over time



Percent change in cancer lesion size by patient



★ Emerging Signal in **EGFR Exon 21 L858R** Cohort (n=15)

8.4 months
Median PFS
in L858R patients

8.9 months
Median PFS in patients who received up to 6 cycles

2+ years
Durable responses sustained in select L858R patients

Independent Predictor
L858R confirmed as independent PFS predictor by multivariate Cox regression (controlling for race, gender, TP53)

The HARMONIC™ Trial — Study Design

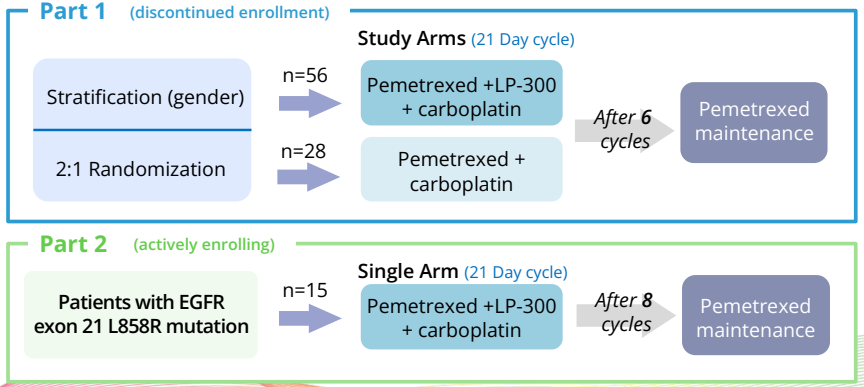
Investigating LP-300 in combination with pemetrexed and carboplatin in never smoker patients with advanced adenocarcinoma of the lung that progressed after prior TKI therapy

NCT05456256

n=6 (3+3 design)

Safety-lead in with LP-300 + chemotherapy

21-day safety window



Study Endpoints

Primary: Progression-free survival (PFS) and overall survival (OS)

Secondary: Objective response rate (ORR), duration of response (DOR), and clinical benefit rate (CBR)

Exploratory: Explore association between efficacy endpoints and biomarkers (ctDNA and genomic characteristics of the tumor), evaluate quality of life in all patients, evaluate performance of patients based on the type, duration, and number of TKIs received

FDA-Supported Protocol Amendments (May 2026)

1. **Focus enrollment**
   EGFR Exon 21 L858R patients
2. **Amend design**
   Discontinue enrollment into pemetrexed+carboplatin Arm
3. **Extend treatment**
   Increase maximum LP-300 cycles from 6 to 8

FDA Type C Meeting Outcome — A Key De-Risking Milestone

What is an FDA Type C Meeting?

A written guidance interaction allowing sponsors to request formal FDA feedback on ongoing clinical programs — specifically on protocol design, endpoints, and regulatory strategy. FDA responses carry significant weight in demonstrating regulatory alignment to investors and partners.

Outcome: May 2026

"FDA raised no objections"

to three key proposed protocol amendments - providing a clearer regulatory and partnering pathway for LP-300

The Three FDA-Supported Amendments — Strategic Rationale

1 Enrich Enrollment - EGFR Exon 21 L858R

Preliminary signal confirmed: 8.4 month mPFS and durable responses in this cohort. Cox regression confirms L858R as independent PFS predictor. Sharper patient selection → higher probability of registrational success.

2 Extend LP-300 Dosing up to 8 Cycles

Historical safety data across >1,000 patients shows 8 cycles do not alter established safety profile. Emerging HARMONIC™ data suggest improved outcomes with longer treatment duration.

3 Transition to Single-Arm Design

Evolving post-TKI landscape makes control arm randomization operationally challenging. Single-arm enables comparison to historical/real-world benchmarks and accelerates enrollment timeline.

Safety Profile — LP-300 vs. Current Post-TKI Standard of Care

LP-300 is positioned as a potential best-in-tolerability option in post-TKI L858R NSCLC.

It adds no clinically meaningful toxicity beyond the carboplatin/pemetrexed backbone - a critical advantage in heavily pretreated patients where tolerability drives real-world outcomes.

Adverse Event (any grade unless noted)	LP-300 + Chemo (N=31)	Amivantamab + Chemo (N=130)[1]
Treatment-related serious adverse event	**3%**	23%
TEAE leading to dose delay (any study drug)	**19%**	65%
TEAE leading to drug discontinuation	**6%**	18%
Infusion-related reaction (TRAE)	**7%**	58%
Rash (TRAE)	**7%**	43%
Paronychia (TRAE)	**0%**	36%
Stomatitis (TRAE)	**0%**	31%

[1] *Cross-trial comparison; not a head-to-head study. Amivantamab + chemotherapy data from Passaro A, et al. Annals of Oncology 2024;35(1):77-90 (MARIPOSA-2). LP-300 + chemotherapy data are preliminary, HARMONIC™ trial Data Cutoff: May 11, 2026.*

Competitive Landscape — Post-TKI EGFR-Mutant NSCLC

Regimen	ORR	mPFS	Key Toxicity Concern
LP-300 + Carboplatin + Pemetrexed (HARMONIC™ — L858R enriched) NCT05456256	**43%***	**8.4 mo* (6.2-NE) 8.9 mo****	**Grade 1-2 only; no new added toxicities to that of chemotherapies; 3% serious TRAEs**
Amivantamab + Chemo (MARIPOSA-2) [FDA-approved post-osimertinib] (L858R Patients)	~36%	9.7mo (5.9-11.3)	23% serious TRAEs; 58% infusion reactions; 36% paronychia
Carboplatin + Pemetrexed alone (Historical standard of care)	27–36%	4.2–5.5 mo	Standard chemo toxicities

*Preliminary data. ORR from initial safety lead-in (n=7); Harmonic mPFS from L858R-enriched cohort (n=15, May 11, 2026 cutoff). All comparisons cross-trial; not head-to-head.
** Patients who received up to 6 cycles

Global Trial Footprint — Strategic Geography

United States

Enrolling

15-20%

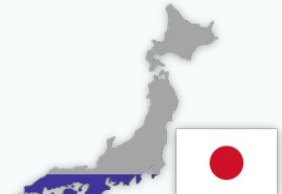
of NSCLC in never-smokers

Clinical Sites

- Fairfax, VA
- Fountain Valley, CA
- Dallas, TX
- Philadelphia, PA
- Los Angeles, CA
- Beverly Hills, CA

Japan

Enrollment Complete



32.8%

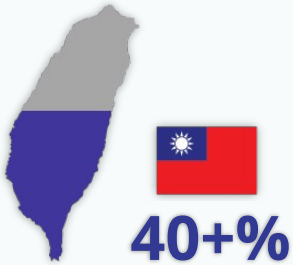
of NSCLC in never-smokers

Clinical Sites

- National Cancer Center Hospital
- Okayama University Hospital
- Kanagawa Cancer Center Hospital
- Hokkaido Cancer Center
- Tohoku University Hospital

Taiwan

Enrolling



40+%

of NSCLC in never-smokers

Clinical Sites

- National Defense Medical Center
- Taipei Veterans General Hospital
- National Taiwan University Hospital
- National Cheng Kung University Hospital
- Chi Mei Medical Center

Path Forward — LP-300 in EGFR Exon 21 L858R NSCLC

Now	2026*	2027+*
FDA Type C successful outcome	Additional clinical data update expected	Mature dataset from enriched L858R cohort
Enrollment enrichment for L858R initiated	Expanded L858R cohort data disclosed	Regulatory strategy defined for registration
Single-arm design transition underway	Partnering discussions ongoing	Potential Phase 3 or conditional approval

** Timeline estimates are based on current expectations and are subject to change*

Partnership & Collaboration Opportunities

- Global and regional licensing for LP-300 in never-smoker NSCLC
- Co-development for registration-oriented Phase 3 strategy
- Asia-Pacific partnerships — Taiwan, Japan, Korea, Greater China
- Biomarker collaboration leveraging RADR® platform

Investment Highlights

LP-300 in EGFR Exon 21 L858R NSCLC

01 Large, Defined Market

400–500K patients/year globally with no dedicated therapy. L858R subgroup: ~40% of EGFR-mutant NSCLC. FDA-recognized, molecularly defined patient population.

02 Regulatory Clarity

Successful FDA Type C response — no objections to enriched L858R design, extended dosing, or single-arm structure. Clear path toward registration-enabling dataset.

03 Compelling Early Data

8.4-month mPFS in L858R cohort; 6+ month durable responses; 77% CBR in initial cohort. L858R independently confirmed as PFS predictor by multivariate analysis.

04 Safety Leadership

Markedly cleaner tolerability than amivantamab + chemo: 3% vs. 23% serious TRAEs. No new safety signals across >1,000 previously dosed patients.

05 AI-Driven Precision

RADR® platform integration guides patient selection and biomarker validation — reducing clinical risk and trial cost while increasing probability of success.

06 Strategic Flexibility

Global and regional partnering opportunities — especially in Asia-Pacific where L858R incidence reaches 50%. Multiple paths to value creation and commercialization.

Data Disclaimers

- HARMONIC™ data cutoff: May 11, 2026 (n=31). All data preliminary and subject to change.
- Cross-trial comparisons with MARIPOSA-2 (amivantamab) are not head-to-head studies and should be interpreted with caution.
- Retrospective analyses from Phase 3 trial DMS32212R (BioNumerik Pharmaceuticals) are exploratory subgroup analyses.
- LP-300 has not received FDA marketing approval for any indication.

Key References

1. Passaro A, et al. Amivantamab plus chemotherapy with and without lazertinib in EGFR-mutant advanced NSCLC after disease progression on osimertinib. Ann Oncol 2024;35(1):77-90. (MARIPOSA-2)
2. Zhou et al. Third-generation EGFR-TKI resistance mechanisms. Lancet Reg Health Western Pacific 2024.
3. Isaka M, et al. L858R recurrence-free survival vs. exon 19 deletion. BMC Cancer 2018.
4. Li et al. PD-1 inhibitor response by smoking status. Onco Targets Ther. 2018;11:3691-3696.
5. HARMONIC™ trial: NCT05456256 (ClinicalTrials.gov)