



EP12.52: Pemigatinib in Pulmonary Enteric Adenocarcinoma Harboring an Unreported FSHR-FGFR1 Fusion: A Case Report

IASLC



Qian-Lin Huang^{1,2}, Li-Bo Tang^{2,3}, Lv Wu², Yu Deng², Zhi-Hong Chen², Chong-Rui Xu², Qing Zhou², Yi-Chen Zhang²

¹ Guangdong Cardiovascular Institute, Guangdong Provincial People's Hospital (Guangdong Academy of Medical Sciences), Southern Medical University, Guangzhou, China; ² Guangdong Lung Cancer Institute, Guangdong Provincial People's Hospital (Guangdong Academy of Medical Sciences), Southern Medical University, Guangzhou, Guangdong 510080, China; ³ School of Medicine, South China University of Technology, Guangzhou Higher Education Mega Centre, Guangzhou, China.

BACKGROUND

- Fibroblast growth factor receptors (FGFRs) are a family of transmembrane receptor tyrosine kinases that function as proto-oncogenes, playing critical roles in cell proliferation, differentiation, migration, angiogenesis, and survival.
- Pemigatinib, a selective inhibitor of FGFR1-3, is approved by the FDA for previously treated unresectable or metastatic cholangiocarcinoma harboring FGFR2 fusions.
- Here, we describe an unreported FGFR1 fusion in advanced NSCLC and the outcome of pemigatinib.

METHODS

- Diagnostic Workup:** PET/CT imaging → Tumor Resection → Histopathological diagnosis → Next-Generation Sequencing (NGS).
- Treatment Intervention:** Surgery → Pemigatinib (first-line therapy).
- Response Assessment:** RECIST 1.1 criteria.
- Common Terminology Criteria for Adverse Events:** CTCAE 5.0.

RESULTS

• **PET/CT:** Hypermetabolic 24×11 mm RLL nodule (SUVmax=7.2); high-density left lower lobe lesion; left pleural metastases; and right seventh rib osteolytic metastasis.

• **Surgery and pathology:** Video-assisted thoracoscopic left lower lung wedge resection and partial parietal pleurectomy. Histopathology confirmed **pulmonary enteric adenocarcinoma**; PD-L1 TPS <1%.

• **NGS:** FSHR-FGFR1(F2;F11), FGFR1-FSHR(F4;F3), TP53.

• **Tumor response to pemigatinib:** At 4 weeks, CT showed reduction of the RLL anterior basal nodule without significant change in the left pleural or rib metastatic lesions: **stable disease (SD, -28.9%)** per RECIST 1.1.

• **Safety:** Grade 1 hyperphosphatemia. Grade 1 fatigue. No dose-limiting toxicity.

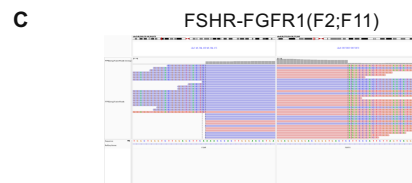
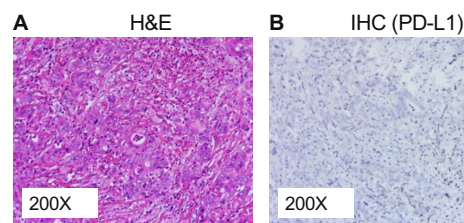


Table 1. Tumor-specific mutations detected by NGS			
Gene	Variation type	Mutation site	Mutation allele frequency
FGFR1	Fusion mutation	FGFR1: exon 11*FSHR: exon2	2.47%
ARID1A	Frameshift mutation	c.4534delC p.Q1512Rfs*15	2.14%
PBRM1	Nonsense mutation	c.2761C>T p.R921*	2.35%
TP53	Frameshift mutation	c.1023_1024delinsT p.R342Efs*3	1.57%
FGFR1	Fusion mutation	FGFR1: exon 4*FSHR: exon3	4.6%
INPP4B	Missense mutation	c.1423A>G p.T475A	2.33%
TERT	Missense mutation	c.3374C>T p.S1125L	2.29%

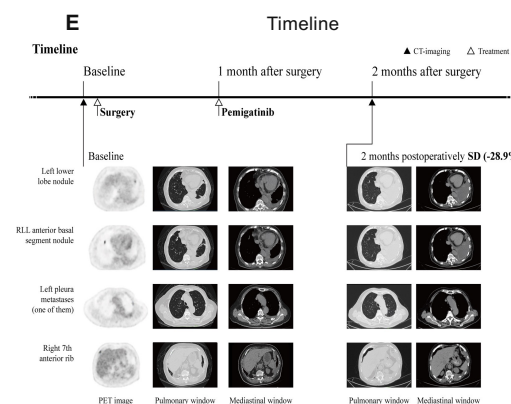
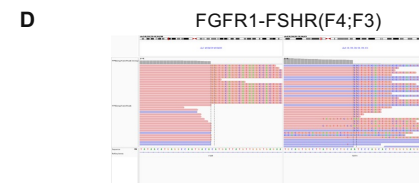


Figure 1. Comprehensive pathological and molecular profiling and imaging results. (A) H&E suggested enteric-type adenocarcinoma differentiation. (B) PD-L1 TPS <1%. (C-D) NGS revealed FSHR-FGFR1 and FGFR1-FSHR fusion. (E) Treatment timeline and imaging; SD, stable disease.

CONCLUSIONS

- **Novel Discovery:** First reported case of FSHR-FGFR1 fusion in NSCLC or any solid tumor.
- **Clinical Imperative:** Broad molecular profiling is critical to detect rare oncogenic fusions.
- **Precision Therapy:** Pemigatinib may represent a precision therapeutic strategy for NSCLC with FGFR1 alterations.

REFERENCES & CONTACT

- Katoh M, et al. FGFR-targeted therapeutics: clinical activity, mechanisms of resistance and new directions. Nat Rev Clin Oncol. 2024;21:312-329. doi:10.1038/s41571-024-00869-z
 - Gao M, et al. The Efficacy of Pemigatinib in Advanced NSCLC With FGFR Aberration: Case Report. Clin Lung Cancer. 2024;25(1):e62-e66. doi:10.1016/j.clcc.2023.10.005
- Contact: wongsinlamhailey@163.com