Taipei Veterans General Hospital

Department of Pathology and Laboratory Medicine
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Sample Information

Patient Name: 朱森堯
Gender: Male
ID No.: A124992382
History No.: 40887318
Age: 42

Ordering Doctor: DOC8716K 李怡緻
Ordering REQ.: 0BNMFRH
Signing in Date: 2021/11/18

Path No.: S110-89554
MP No.: F21096
Assay: Oncomine Focus Assay
Sample Type: FFPE
Block No.: S110-04165C
Percentage of tumor cells: 40%

Reporting Doctor: DOC5466K 葉奕成 (Phone: 8#5466)

Note:

Sample Cancer Type: Gastric Cancer

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Report Highlights

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Relevant Gastric Cancer Variants

Gene	Finding
ERBB2	None detected
NTRK1	None detected
NTRK2	None detected
NTRK3	None detected

Relevant Biomarkers

No relevant biomarkers found in this sample.

Variants (Exclude variant in Taiwan BioBank with >1% allele frequency)

Copy Number Variations

Gene	Locus	Copy Number
FGFR2	chr10:123247505	78.93

Biomarker Descriptions

FGFR2 (fibroblast growth factor receptor 2)

Background: The FGFR2 gene encodes fibroblast growth receptor 2, a member of the fibroblast growth- factor receptor (FGFR) family that also includes FGFR1, 3, and 4. These proteins are single-transmembrane receptors composed of three extracellular immunoglobulin (Ig)-type domains and an intracellular kinase domain. Upon FGF-mediated stimulation, FGFRs activate several oncogenic signaling pathways, including the RAS/RAF/MEK/ERK, PI3K/AKT/MTOR, PLC/PKC, and JAK/STAT pathways influencing cell proliferation, migration, and survival[1,2,3].

Alterations and prevalence: Aberrations most common to the FGFR family are amplifications, followed by mutations and fusions. The majority of these aberrations result in gain of function[4]. Missense mutations are the most prevalent alterations in FGFR2 and are observed in up to 15% of uterine carcinomas[5,6,7]. These mutations are predominantly activating, most often involve substitutions at S252 and P253, and confer sensitivity to pan-FGFR2 inhibitors[5,8]. FGFR2 amplification occurs in up to 4% of gastric carcinoma, and is associated with poor prognosis as well as tumor invasion and metastasis[6,9,10,11]. FGFR2 fusions have also been reported in up to 14% of cholangiocarcinoma and confer sensitivity to select FGFR inhibitors[6,12,13].

Potential relevance: The pan-FGFR inhibitor, infigratinib, has been granted accelerated approval (2021) for previously treated, unresectable locally advanced or metastatic cholangiocarcinoma positive for FGFR2 fusion or other rearrangement[14]. The pan-FGFR inhibitor, erdafitinib[15], received FDA approval (2019) for the treatment of locally advanced or metastatic urothelial cancer that is positive for FGFR2 fusions including, FGFR2-BICC1 and FGFR2-CASP7, FGFR3 fusions, or FGFR3 mutation. Additionally, the Pan-FGFR inhibitor, futibatinib[16], has been granted Breakthrough Therapy Designation(2021) for FGFR2 rearrangement or fusion-positive locally advanced or metastatic cholangiocarcinoma. The FGFR kinase inhibitor, pemigatinib[17], received FDA approval (2020), for previously treated, advanced or unresectable cholangiocarcinoma harboring FGFR2 fusions or other FGFR2 rearrangements. The FDA also granted fast-track designation (2018) to Debio 1347[18] for solid tumors harboring FGFR1, FGFR2, or FGFR3 aberrations. Additional FGFR inhibitors are under clinical evaluation for FGFR2 aberrations. In a phase II study of patients with FGFR2 fusion-positive intrahepatic cholangiocarcinoma, the pan-kinase inhibitor derazantinib, demonstrated an overall response rate (ORR) of 20.7% with progression-free survival (PFS) of 5.7 months[19]. Likewise, results of a phase II trial testing the pan-FGFR inhibitor, infigratinib (BGJ398) demonstrated an ORR of 14.8% (18.8% FGFR2 fusions only), disease control rate (DCR) of 75.4% (83.3% FGFR2 fusions only), and a median PFS of 5.8 months[20].

Clinical Trials in Taiwan region:

Alerts Informed By Public Data Sources

Current FDA Information

Contraindicated Not recommended Resistance Breakthrough Fast Track

FDA information is current as of 2021-08-18. For the most up-to-date information, search www.fda.gov.

FGFR2 amplification

Debio 1347

Cancer type: Solid Tumor **Variant class:** FGFR2 aberration

Supporting Statement:
The FDA has granted Fast Track Designation to the FGFR 1-3 inhibitor, debio 1347, for FGFR1/2/3 alterations in unresectable or metastatic solid tumors.

Reference:

https://www.debiopharm.com/drug-development/press-releases/fda-grants-fast-track-designation-to-debiopharm-internationals-debio-1347-for-the-treatment-of-patients-with-unresectable-or-metastatic-tumors-with-a-specific-fgfr-gene-alteration/

Signatures

Testing Personnel:

2021.11.19
15:50:58 +08'00'

Laboratory Supervisor:

2021.11.19
15:51:14 +08'00'

Pathologist:

2021.11.19
15:51:30 +08'00'

References

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