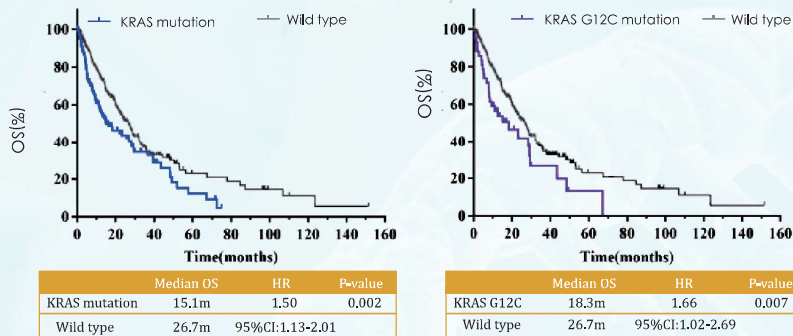


K-ras Gene Mutations Detection Kit (Real-Time PCR assay)

KRAS MUTATIONS IN LUNG CANCER

Kirsten rat sarcoma viral oncogene (K-ras) is the most frequently mutated gene in patients with non-small cell lung cancer (NSCLC) in USA/Europe and the second most frequently mutated gene in patients with NSCLC in East Asian, with a mutation frequency of 9.8%; about 30% of which are G12C mutations [1]. K-ras mutation is associated with poor prognosis (compared to wild type, HR=1.5, P=0.002) [1]. In May 2021, the FDA approved AMGEN's KRAS G12C inhibitor Sotorasib for the treatment of adult patients with KRAS G12C-mutated locally advanced or metastatic NSCLC, who have received at least one prior systemic therapy.



K-ras mutation and prognosis

[1] Biomark Res. 2020 Jun 25;8:22.

KRAS MUTATIONS IN COLORECTAL CANCER

Cetuximab and panitumumab are monoclonal antibody drugs that target epidermal growth factor receptor (EGFR), which can competitively prevent EGFR from binding to its ligand and inhibit its downstream signal transmission. K-ras is located in the MAPK signaling pathway downstream of EGFR. The mutant K-ras protein does not depend on the regulation of EGFR, therefore, patients are resistant to cetuximab and panitumumab. The FDA specifically stated in the product instructions for cetuximab and Panitumumab that these drugs are not recommended for colorectal cancer patients with K-ras mutation.

DETECTED GENES

NO.	Mutation Type	Base Changes	NO.	Mutation Type	Base Changes
1	G12D	c.35G>A	9	Q61L	c.182A>T
2	G12A	c.35G>C		Q61R	c.182A>G
3	G12V	c.35G>T		Q61H	c.183A>C
4	G12S	c.34G>A		Q61H	c.183A>T
5	G12R	c.34G>C	10	A59T	c.175G>A
6	G12C	c.34G>T		Q61K	c.181C>A
7	G13D	c.38G>A	11	A146T	c.436G>A
8	G13C	c.37G>T		A146V	c.437C>T
	G13S	c.37G>A		A146P	c.436G>C
	G13R	c.37G>C			
	K117N	c.351A>C			
	K117N	c.351A>T			



PRODUCT INFORMATION

Product Name	Core Technology	Pack Size	Instruments Validated	Sample Type
K-ras Gene Mutations Detection Kit	PAP-ARMS®	10 Tests/Kit	Stratagene Mx3000P™ ABI7500 etc.	Tumor tissue Peripheral blood Pleural and ascites



DETECTION SIGNIFICANCE

- » Select patients for treatment of locally advanced or metastatic NSCLC with G12C inhibitor based on the presence of KRAS G12C mutation in tumor or plasma specimens.
- » Patients with mutant KRAS gene show poor response to anti-EGFR or anti-HER2 therapies.



FEATURES & ADVANTAGES

Accuracy and Reliability: Use pre-load PCR tube to effectively avoid cross-contamination.

High Sensitivity: Sensitivity can reach as low as 1% in 10 ng DNA.

Ease of Use: Based on technology PAP-ARMS®, one step detection in 90 mins.

Great versatility: Validated on the most common qPCR machines with stable results.

DETECTION PROCESS



Nucleic Acid Extraction



Set up qPCR



Amplification



Data Analysis

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