

# RAS Mutation Analysis Kit

# ONCOLOGY

## RAS Mutations and Cancer

KRAS and NRAS are members of the RAS family of GTPases that play a central role in the MAPK signaling pathway. Activating mutations in exon 2 (codon 12/13), exon 3 (codon 59/61), and exon 4 (codon 117/146) have been found in various cancers, including metastatic colorectal cancer. Recent clinical studies using anti-EGFR targeted therapies of patients diagnosed with colorectal cancer have demonstrated that tumors possessing KRAS and NRAS mutations are less likely to respond to such therapies than those without mutations (*Clin Cancer Res* 2013;19:1902-1912).

## Kit Features

The RAS Mutation Analysis Kit detects somatic mutations found in exons 2, 3, and 4 of KRAS and NRAS genes. Below is a list of mutations detected by this kit.

Gene	Mutation	Group
KRAS	G12A, G12D, G12R, G12V, G13D	1
	G12C, G12S	2
	Q61H, Q61L, Q61R, A59E, A59G, A59T	3
	K117N, K117R, K117E	4
	A146T, A146P, A146V	5
NRAS	G12D, G12C, G12S, G13R, G13V, K117R	6
	Q61H, Q61L, Q61K, Q61R	7
	A59D, A59T, A146T	8

The RAS Mutation Analysis Kit is a polymerase chain reaction (PCR)-based assay that uses allele-specific primers in a multiplex reaction to identify the presence of the mutations in a total of 8 reactions per sample. The test does not distinguish between mutations within each group.

The testing procedure involves three (3) simple steps:

- Isolation of DNA from tumor biopsies, paraffin-embedded sections (FFPE), or fresh frozen tumors
- Amplification of regions of the *RAS* gene using allele-specific primers.
- Detection of amplification product on a Real-Time PCR instrument.

This test can be completed in approximately 2 hours from isolation of DNA to test result.

## Equipment and Materials

The RAS Mutation Analysis Kit requires a real-time PCR instrument capable of detecting FAM and VIC fluorescent probes.

This test includes reagents required for PCR amplification/detection, as well as validated reaction controls. Columns and reagents for DNA isolation are not included.

## Intended Use

The RAS Mutation Analysis Kit is for Research Use Only (RUO) in the United States and for In Vitro Diagnostic use (CE-IVD) in Europe.

## Ordering Information

Product Name	Cat. No.
RAS Mutation Analysis Kit	RAS-RT50