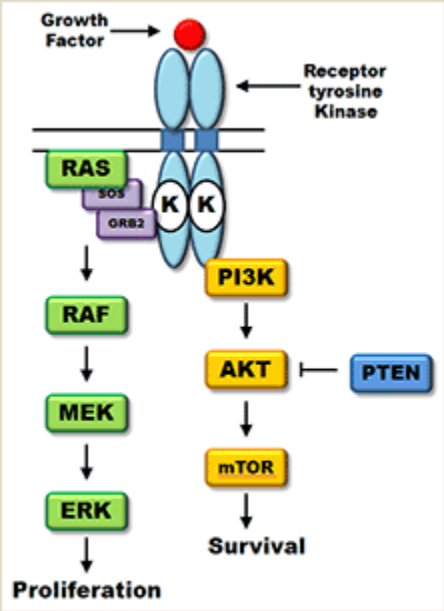
KRAS Mutation Analysis Panel



Clinical use

- Determine the *KRAS* mutation status of a tumor

Clinical Background

The *KRAS* gene belongs to a class of genes known as oncogenes. When mutated, oncogenes have the potential to cause normal cells to become cancerous. The *KRAS* gene is in the Ras family of oncogenes, which also includes two other genes: *HRAS* and *NRAS*. The proteins produced from these three genes are GTPases. These proteins play important roles in cell division, cell differentiation, and the self-destruction of cells (apoptosis).

RAS has been implicated in the pathogenesis of several cancers. Activating mutations within the RAS gene result in constitutive activation of the RAS GTPase, even in the absence of growth factor signaling. The result is a sustained proliferation signal within the cell.

Specific RAS genes are recurrently mutated in different malignancies. KRAS mutations are particularly common in colon cancer, lung cancer, and pancreatic cancer.

Specimen type

- Room temperature Formalin-fixed paraffin embedded tissue

Method

- Real-time Polymerase Chain Reaction amplification (real-time PCR)

Interpretation

- Wild Type (No Mutation Detected) – Reference range

- Gly12Arg Mutation (Mutation Detected)
- Gly12Cys Mutation (Mutation Detected)
- Gly12Ser Mutation (Mutation Detected)
- Gly12Val Mutation (Mutation Detected)
- Gly12Ala Mutation (Mutation Detected)
- Gly12Asp Mutation (Mutation Detected)
- Gly13Asp Mutation (Mutation Detected)

References

- Castagnola P, Giaretti W. Mutant KRAS, chromosomal instability and prognosis in colorectal cancer. Biochim Biophys Acta. 2005 Nov 25;1756(2):115-25. Epub 2005 Jul 13. Review.
- Lovly, C., L. Horn, W. Pao. 2014. KRAS. *My Cancer Genome*http://www.mycancergenome.org/content/disease/colorectal-cancer/kras/?tab=0 (Updated August 6).