

CONTENTS

Chronicling KRAS

When mutated genes cause normal cells to grow out of control and become cancerous, they are called oncogenes. Currently, more than 100 oncogenes have been recognized, including KRAS, the first molecular marker to predict which colorectal cancer patients will respond to EGFR inhibitors.

1964 RAS research can be traced back to Jennifer Harvey's research showing that a rat leukemia virus induces sarcomas in newborn rodents.

1967 Kirsten Rat Sarcoma (KRAS) is identified in the rat sarcoma virus.

1975 Oncogenes are found to play a role in the development of cancer.

1976 Michael Bishop and Harold Varmus discover the first oncogene found in cells, named src—the same gene carried by the oncogenic virus described by Peyton Rous in 1916.

1982 Mutant KRAS is identified in human cancers, and research shows mutated KRAS genes permanently activate KRAS proteins.

1984 The EGFR pathway is found to involve KRAS activation.

1987 KRAS gene mutations are identified in colorectal tumors.

1994 KRAS proteins are found to activate other proteins associated with proliferation of cancer cells.

1997 KRAS is shown to be essential for the development of tumors. Two years later, research confirms the function of KRAS in maintaining tumors.

2006-2007 Research findings demonstrate the impact of KRAS status on the effectiveness of anti-EGFR drugs for colorectal cancer.

2008 Data presented at the American Society of Clinical Oncology's annual meeting validate KRAS as the first molecular marker to determine targeted treatment in metastatic colorectal cancer. Patients with colorectal tumors expressing the wild-type (normal) gene respond better to Erbitux plus chemotherapy than patients with certain mutant forms of KRAS. Similar results were found for Vectibix, another anti-EGFR inhibitor approved for colorectal cancer.

