

GenOnc Gastric Cancer Panel

Introduction

GenOnc Gastric Cancer Panel is a collection of multiplexed PCR primer assays for targeted enrichment of the coding (exonic) regions of the 29 genes most commonly mutated in human gastric cancer samples. Mutations in these oncogenes and tumor suppressor genes are often relevant for tumor classification, and warrant extensive investigation to enhance the understanding of carcinogenesis. Gastric cancer, or stomach cancer, originates in any part of the stomach, but can spread to other organs such as the esophagus, liver, lungs, and lymph nodes. Gastric cancer is not as well-defined molecularly as other cancer types, and the key driver mutations have not yet been identified. However, many genes commonly mutated in gastric cancer have been identified, such as PIK3CA. Therefore, a panel of genes commonly mutated in gastric cancer is an efficient way to research a tumor sample's potential carcinogenic mechanisms. This panel narrows the focus to the most relevant mutated genes in gastric cancer, using a variety of resources such as recent whole genome/exome sequencing studies from scientific networks including the Cancer Genome Atlas. Curated databases such as the Cancer Gene Census and COSMIC (Catalogue of Somatic Mutations in Cancer) are also used.

GenOnc Gastric Cancer Panel Genes

Adenocarcinoma:

APC, BAI3, BRCA2, CDH1, CTNNB1, ERBB2 (HER2), FBXW7, LRP1B, LRRK2, PIK3CA (p110α), SPEG, SSTR1, TP53, TRIO, TRRAP

Adenoma:

APC, CTNNB1, TP53

Carcinoid-Endocrine Tumor:

APC, CTNNB1, TP53

Carcinoma:

MET, MYC, TRIO, TRRAP, WNK2

Adenocarcinoma:

APC, BAI3, CDH1, CTNNB1, DCC, ERBB2 (HER2), FBXW7, FGFR2, GPR78, LPAR2, LRP1B, LRRK2, NOTCH1, PIK3CA (p110α), PRKDC, S1PR2, SPEG, SSTR1, STK11 (LKB1), TNFRSF6B, TP53

Diffuse Adenocarcinoma:

ATP4A, BAI3, CDH1, CTNNB1, PIK3CA (p110α), TP53

Foveolar Adenocarcinoma:

APC

Intestinal Adenocarcinoma:

APC, ATP4A, BAI3, CDH1, CTNNB1, ERBB2 (HER2), LRP1B, PIK3CA (p110α), RET, TP53

Mixed Adenosquamous Carcinoma:

TP53

Mixed Intestinal & Diffuse Adenocarcinoma — Unclassifiable:

CDH1, TP53

Mucinous Adenocarcinoma:

TP53

GenOnc Gastric Panel



Papillary Adenocarcinoma:

TP53

Signet Ring Adenocarcinoma:

APC, CDH1, TP53

Tubular Adenocarcinoma:

TP53

Undifferentiated Adenocarcinoma:

CDH1, TP53

Other Cancer Subtypes:

Dysplasia: APC

Metaplasia: TP53

Not Specified:

CCNE1