

Modaplex

K R A S

N R A S

B R A F

M U T A T I O N

T E S T I N G

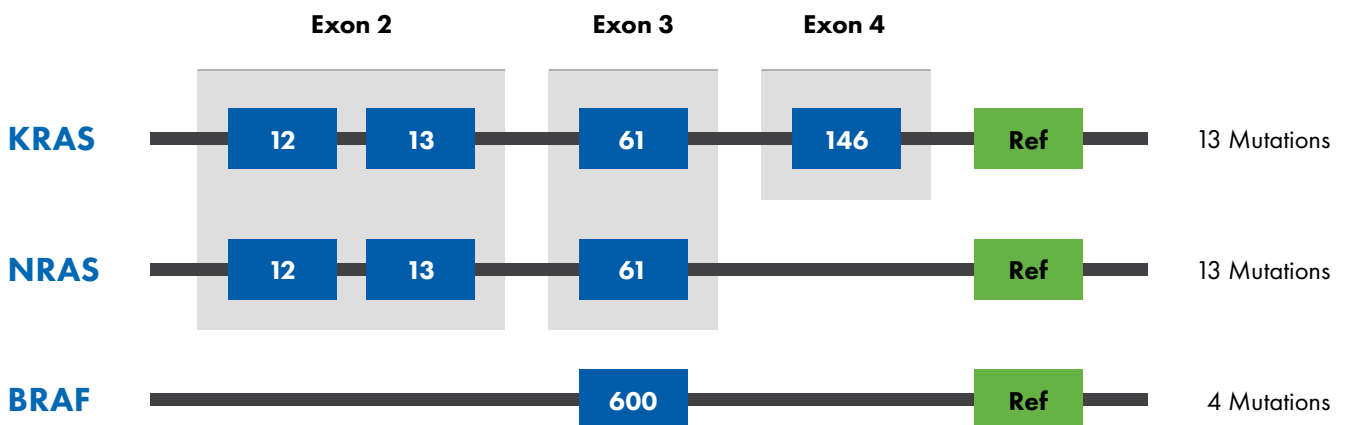
MODAPLEX

KRAS/NRAS/BRAF (KNB)

DETECTION OF RELEVANT KRAS/NRAS/BRAF MUTATIONS ACROSS 3 GENES WITHIN THE RAS/MAPK PATHWAY

KRAS (K-Ras) is an oncogene encoding for a GTPase transductor protein. It is involved in signal transduction by converting GTP to GDP⁽¹⁾. NRAS is an oncogene encoding for the N-Ras protein. It is involved in regulating cell division (by converting GTP to GDP)⁽²⁾. BRAF is a proto-oncogene encoding for a serine/threonine protein kinase B-Raf. It is involved in signal transduction⁽³⁾. All three proteins are part of the RAS/MAPK pathway regulating cell proliferation and differentiation, cellular migration, and apoptosis^(1,2,3).

When either one of KRAS, NRAS, or BRAF is mutated, these mutated form of the protein are implicated in various malignancies. The KRAS/NRAS/BRAF RUO Mutation Assays allows the detection of the most common KRAS/NRAS/BRAF mutations within the RAS/MAPK Pathway. The Modaplex technology enables high multiplex testing. Consequently 30 different mutations in the KRAS, NRAS and BRAF genes can be detected and differentiated in one Modaplex run (3,5 h) using three wells simultaneously.




REFERENCES

- 1 Kim et al., "The impact of KRAS mutations on prognosis in surgically resected colorectal cancer patients with liver and lung metastases: a retrospective analysis", BMC Cancer, vol. 16, no:120, 2016.
- 2 N. Irahara et al., "NRAS Mutations Are Rare in Colorectal Cancer", Diagn Mol Patho, vol. 19, no. 3, pp: 157-163, 2010.
- 3 W.Q. Li et al., "BRAF mutations are associated with distinctive clinical, pathological and molecular features of colorectal cancer independently of microsatellite instability status", Molecular Cancer, vol. 5 no. 2, 2006.


MODAPLEX KNB MUTATION ANALYSIS KITS

30 SOMATIC KNB MUTATIONS CAN BE DETECTED IN ONE MODAPLEX RUN


The most common 30 somatic KNB mutations are listed in the table below. An LOD (in form of percent mutation detection in a wild type background) of 5 – 18 % has been determined for the majority of targets. The LOD was verified using synthetic material spiked into gDNA derived from cell lines and human sample material.

KRAS 

DNA Input 50 ng		
KRAS Mutations	» G12A	5
	» G12C	6
	» G12D	12
	» G12R	9
	» G12S	8
	» G12V	12
	» G13C	3
	» G13D	24
	» Q61HC	18
	» Q61HT	18
	» Q61L	18
	» Q61R	3
	» A146T	45

NRAS 

DNA Input 50 ng		
NRAS Mutations	» G12D	4.5
	» G12S	4.5
	» G13A	3
	» G13C	45
	» G13D	15
	» G13R	4.5
	» G13V	12
	» Q61H1	21
	» Q61H2	3
	» Q61K	3
	» Q61L	12
	» Q61R1	30
	» Q61R2	10

BRAF 

DNA Input 10 ng		
BRAF Mutations	» V600D	15
	» V600E	6
	» V600E-TG/AA	12
	» V600K	12



COMBINE THE KNB TESTS ON THE MODAPLEX PLATFORM IN ONE RUN

- Modaplex KRAS Mutation Analysis Kit
- Modaplex NRAS Mutation Analysis Kit
- Modaplex BRAF Mutation Analysis Kit

ORDER INFORMATION

Product	Size	Cat. no.	Application
Modaplex KRAS Mutation Analysis Kit	50	85-10401-0050	RUO
Modaplex NRAS Mutation Analysis Kit	50	85-10501-0050	RUO
Modaplex BRAF Mutation Analysis Kit	50	85-10601-0050	RUO

sales@biotype.de



BIOTYPE GMBH
Moritzburger Weg 67, D-01109 Dresden
Tel +49 351 8838 400
Mail info@biotype.de
Web www.biotype.de

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