

Simple, rapid, highly sensitive diagnostics at hand

KRAS



Idylla™

KRAS Mutation Test

KRAS

About 45% of all metastatic colorectal tumors harbor mutations in exons 2, 3 and 4 of the KRAS oncogene¹. Idylla™, Biocartis' fully automated, real-time PCR, offers fast and easy access to high quality biomarker data. The **Idylla™ KRAS Mutation Test** allows detection of KRAS mutations directly from formalin-fixed paraffin-embedded (FFPE) tissue sections in approx. 2 hours with less than 2 minutes hands-on time. The Idylla™ KRAS Mutation Test is capable of detecting 21 relevant KRAS mutations: 7 mutations in codons 12 and 13 (exon 2), 9 mutations in codons 59 and 61 (exon 3) and 5 mutations in codons 117 and 146 (exon 4). The game-changing real-time PCR based technology uses a unique combination of PlexPrime™ and PlexZyme™, which allows high sensitivity and specificity combined with high multiplexing capability.*

“ Idylla allows very quick results with little hands-on time”

Beatriz Bellosillo
Laboratori de Biologia Molecular,
Hospital del Mar, Barcelona

Outstanding ease of use

-  Less than 2 minutes hands-on time
-  Approx. 2 hours total turnaround time
-  Directly from FFPE tissue sections



① Scan sample and cartridge



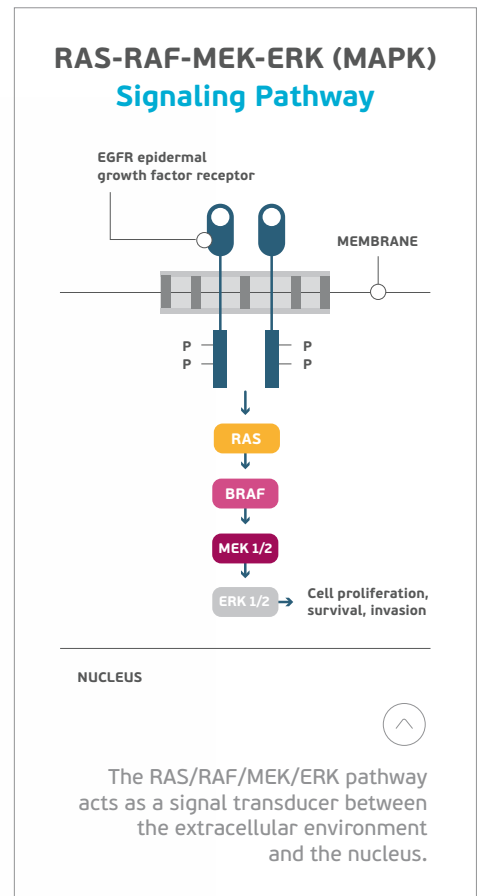
② Load sample into the cartridge



③ Insert the cartridge into the Idylla™ system

About KRAS

- Recently it was shown that, in addition to the previously established codon 12, 13, and 61 mutations, also KRAS mutations at codon positions 59, 117 and 146 ('extended KRAS') independently activate the MAPK/ERK pathway. Extended KRAS and NRAS ('Extended RAS') testing of colorectal cancer tumors is now mandatory according to ESMO², NCCN³, and the recently issued CAP/AMP/ASCO draft guidelines⁴. The latter guideline will also recommend that molecular tests should have a limit of detection (LOD) of 5%.
- Tumor mutation status is usually assessed starting from FFPE tumor tissue material. Currently the process from sample to result is labor-intensive, requiring multiple steps. Most laboratories do not perform these tests in-house, but send them out to specialized centers, where samples are batched in order to optimize costs. This leads to long turnaround times from FFPE samples to results.



Highly
sensitive and
standardized

The **Idylla™ KRAS Mutation Test**, performed on the Biocartis Idylla™ system, is an in vitro diagnostic test for the qualitative detection of 21 mutations in codons 12, 13, 59, 61, 117, 146 of the KRAS oncogene. The Idylla™ KRAS Mutation Test directly liberates DNA from FFPE tissue of human colorectal cancers for subsequent real-time PCR amplification and detection⁵.

Allele detection	Codon 12 (exon 2)	G12C (c.34G>T)
		G12R (c.34G>C)
		G12S (c.34G>A)
		G12A (c.35G>C)
		G12D (c.35G>A)
		G12V (c.35G>T)
	Codon 13 (exon 2)	G13D (c.38G>A)
	Codon 59 (exon 3)	A59E (c.176C>A)
		A59G (c.176C>G)
		A59T (c.175G>A)
Codon 61 (exon 3)	Q61K (c.181C>A; c.180_181TC>AA)	
	Q61L (c.182A>T)	
	Q61R (c.182A>G)	
	Q61H (c.183A>C; c.183A>T)	
Codon 117 (exon 4)	K117N (c.351A>C; c.351A>T)	
Codon 146 (exon 4)	A146P (c.436G>C)	
	A146T (c.436G>A)	
	A146V (c.437C>T)	
	KRAS Total (acting as Sample Processing Control)	
Sample type	FFPE tissue sections (5 µm to 10 µm glass-mounted FFPE slides or FFPE slices)	
Analytical sensitivity	LOD of ≤5% for the vast majority of KRAS mutations. G12A, G13D and A146P/T/V show provisional LOD's of 9%, 10% and 16%, respectively.	
Between-laboratory reproducibility (480 results at 3 sites)	KRAS G12D low positive (5%)	100% agreement
	KRAS G13D high positive (50%)	100% agreement
	KRAS G12V low positive (5%)	100% agreement
	KRAS G12S low positive (5%)	100% agreement
Total turnaround time	approx. 2 hours	

The clinical validation study⁵ comparing the Idylla™ KRAS Mutation Test with a real-time PCR based reference method showed an agreement of 96.7% (95% CI 93.0% - 98.5%) for codons 12 and 13. Idylla™ and the Reference test detected mutations in 96/194 (50%) and 82/196 (42%) of the samples, respectively (see Table below).

KRAS samples (n = 194)	Reference test								No mutation detected	Totals
	G12A	G12C	G12D	G12R	G12S	G12V	G13D			
G12A	6									6
G12C		6								6
G12D			25							25
G12R				3				1		4
G12S					6					6
G12V					1	15		1		17
G13D					1		16	3		20
No mutation detected	1							97		98
A59E/P/V								1		1
Q61H/H2								3		3
Q61K/K2										0
Q61L/R										0
K117N1/N2		1						2		3
A146T/V/P						1		4		5
Totals	7	7	25	3	8	16	16	112		194

Note: the Reference test used is not designed to pick up mutations in codon 59, 61, 117 and 146

References

- Jean-Yves Douillard, M.D., Ph.D., Kelly S. Oliner, Ph.D., Salvatore Siena, M.D., et al. Panitumumab-FOLFFOX4 Treatment and RAS Mutations in Colorectal Cancer. N Engl J Med 2013;369:1023-34.
- E. Van Cutsem, B. Nordlinger & A. Cervantes. On behalf of the ESMO Guidelines Working Group. Advanced colorectal cancer: ESMO clinical practice guidelines for treatment. Annals of Oncology 21 (Supplement 5): v93-v97, 2010
- NCCN Clinical Practice Guidelines Colon Cancer; vs. 2, 2015
- http://www.amp.org/committees/clinical_practice/documents/20150327CRCMMDraftRecommendationsforOCP-UPDATEDfinaldraft_001.pdf
- Idylla™ KRAS Mutation Test. Instructions for use.
- Peeters M. et al., Prevalence of RAS mutations and individual variation patterns among patients with metastatic colorectal cancer: A pooled analysis of randomized controlled trials, Eur J Cancer (2015).

About Idylla™

Biocartis' fully automated, real-time PCR-based molecular system offers fast and easy access to high-quality biomarker data.

- FFPE tissue 'sample to result' in approx. 2 hours
- Less than 2 minutes hands-on time
- All reagents integrated within the cartridge
- Contamination-controlled design
- No manual deparaffinization required
- Sample processing controls in all PCR chambers
- High specificity and sensitivity



Order information

Idylla™ KRAS Mutation Test CE-IVD	6 cartridges/box	Catalog# A0020/6
Idylla™ BRAF Mutation Test CE-IVD	6 cartridges/box	Catalog# A0010/6
Idylla™ Instrument CE-IVD	1 unit	Catalog# P0010
Idylla™ Console CE-IVD	1 unit	Catalog# P1010

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