

TECHNICAL SHEET IDYLLA™ BRAF MUTATION TEST



The **Idylla™ BRAF Mutation Test**, performed on the Biocartis Idylla™ System, is an *in vitro* diagnostic Test for the qualitative detection of **V600E/E2/D** and **V600K/R/M** mutations in **codon 600** of the *BRAF* gene. The Idylla™ BRAF Mutation Test, from **sample-to-result**, starts with formalin-fixed paraffin-embedded (FFPE) human tissue from metastatic melanoma to liberate DNA for subsequent real-time PCR amplification and detection.

FEATURES

BRAF mutation detection		
Codon 600	BRAF V600E	(c.1799T>A)
	BRAF V600E2	(c.1799_1800delinsAA)
	BRAF V600D	(c.1799_1800delinsAT; c.1799_1800delinsAC)
	BRAF V600K	(c.1798_1799delinsAA)
	BRAF V600R	(c.1798_1799delinsAG)
	BRAF V600M	(c.1798G>A)
	BRAF Wild Type	(c.1799T)
RNaseP (acting as Sample Processing Control)		
Specimen requirements		
Sample Type	FFPE tissue sections (5 to 10 µm)	
Neoplastic cells	≥50%, if less macrodissection is required	
Tissue area	50-600 mm ² (5 µm) 25-300 mm ² (10 µm)	
Performance		
Analytical Sensitivity	1% mutant in wild type background	
Between Laboratory Reproducibility (240 results at 3 sites)	100% agreement for 3.5% BRAF V600E 100% agreement for 5% BRAF V600K	
Between Lot Reproducibility (120 results on 3 lots)	98.3% agreement for 3.5% BRAF V600E 100% agreement for 5% BRAF V600K	
Total turnaround time		
Time	90 minutes	

ACCURACY – CLINICAL PERFORMANCE EVALUATION

97.9% overall percent agreement was obtained during the clinical performance evaluation comparing Idylla™ with Pyrosequencing.

97.9% overall concordance		Pyrosequencing				
		BRAF V600E/E2/D	BRAF V600 K/R/M	Other mutation	No mutation	Total
Idylla™ BRAF Mutation Test	BRAF V600E/E2/D	89	0	0	4**	93
	BRAF V600 K/R/M	0	17	0	1**	18
	No mutation	0	0	1*	124	125
	Total	89	17	1	129	236

* Idylla™ BRAF Mutation Test is not designed for the detection of V600G mutation

** 4/5 mutations called by Idylla™ are confirmed by NGS



Discordant analysis by NGS

99.6% overall concordance		Pyrosequencing and further analysis by NGS				
		BRAF V600E/E2/D	BRAF V600 K/R/M	Other mutation	No mutation	Total
Idylla™ BRAF Mutation Test	BRAF V600E/E2/D	93	0	0	0	93
	BRAF V600 K/R/M	0	17	0	1	18
	No mutation	0	0	1*	124	125
	Total	93	17	1	125	236

* Idylla™ BRAF Mutation Test is not designed for the detection of V600G mutation

MULTI-CENTER EVALUATION OF THE NOVEL FULLY-AUTOMATED PCR-BASED IDYLLA™ BRAF MUTATION TEST ON FORMALIN-FIXED PARAFFIN-EMBEDDED TISSUE OF MALIGNANT MELANOMA.

Melchior L. et al. Experimental and Molecular Pathology 2015.

94.9% overall concordance**		Routine reference methods*			
		BRAF V600E/ E2/D	BRAF V600 K/R/M	No mutation	Total
Idylla™ BRAF Mutation Test	BRAF V600E/ E2/D	68	1	1	70
	BRAF V600 K/R/M	2	10	6	18
	No mutation	0	0	50	50
	Total	70	11	57	138

*Different routine reference methods were used: cobas® 4800 BRAF V600 Mutation Test (Roche), BRAF RGQ PCR Kit (Qiagen), BRAF StripAssay® V600E (Viennalab), Sanger sequencing, and several in-house BRAF tests (based on high-resolution melting, allele specific and wild-type blocking real-time PCR)

** Insufficient DNA input not taken into account.



Discordant analysis by ddPCR or Sanger

100% overall concordance**		Routine reference methods, including further analysis by ddPCR or Sanger*			
		BRAF V600E/ E2/D	BRAF V600 K/R/M	No mutation	Total
Idylla™ BRAF Mutation Test	BRAF V600E/ E2/D	70	0	0	70
	BRAF V600 K/R/M	2	16	0	18
	No mutation	0	0	50	50
	Total	72	16	50	138

*Including routine reference tests and confirmation tests, different methods were used: cobas® 4800 BRAF V600 Mutation Test (Roche), BRAF RGQ PCR Kit (Qiagen), BRAF StripAssay® V600E (Viennalab), Sanger sequencing, digital droplet PCR, and several inhouse BRAF tests (based on high-resolution melting, allele-specific and wild-type blocking real-time PCR).

** Insufficient DNA input not taken into account.

IDYLLA™ BRAF POSTERS & PUBLICATIONS

- Devogelaere B. et al. BRAF V600 mutation testing on FFPE samples using a novel fully integrated molecular diagnostics platform. Poster AACR 2013.
- Janku F. et al. BRAF Mutation Testing with a Novel, Rapid, Fully-Automated Molecular Diagnostics Prototype Platform. Poster AACR 2013.
- Claes B. et al. A novel fully integrated molecular diagnostics platform with broad sample prep capabilities. Poster Sample Prep 2013.
- Vandenbroucke I. et al. Innovative, rapid and easy to use diagnostic multiplex platforms that enable individualized care. Poster CONPO 2013.
- Vandenbroucke I. et al. A rapid and fully automated multiplex assay for KRAS-BRAF mutations with high mutation sensitivity using novel selective amplification and detection technologies. Poster AACR 2014.
- Dietel M. et al. A multicenter validation study of the Idylla™ BRAF Mutation Test on FFPE tissue of malignant melanoma. Poster AACC 2014. Poster AMP 2014.
- Devogelaere B. et al. BRAF V600 mutation testing on FFPE samples using a novel fully integrated molecular diagnostics platform. Poster AACR 2013.
- Janku F. et al. BRAF Mutation Testing with a Novel, Rapid, Fully-Automated Molecular Diagnostics Prototype Platform. Poster AACR 2013.
- Claes B. et al. A novel fully integrated molecular diagnostics platform with broad sample prep capabilities. Poster Sample Prep 2013.
- Vandenbroucke I. et al. Innovative, rapid and easy to use diagnostic multiplex platforms that enable individualized care. Poster CONPO 2013.
- Vandenbroucke I. et al. A rapid and fully automated multiplex assay for KRAS-BRAF mutations with high mutation sensitivity using novel selective amplification and detection technologies. Poster AACR 2014.
- Dietel M. et al. A multicenter validation study of the Idylla™ BRAF Mutation Test on FFPE tissue of malignant melanoma. Poster AACC 2014. Poster AMP 2014.
- Van der Auwera M. et al. Evaluation of a rapid, sensitive and fully automated Idylla™ BRAF Mutation Test starting directly from FFPE samples. Poster BWP 2014.
- Micalessi I. et al. Evaluation of the Idylla™ BRAF Mutation Test performance using the novel fully-automated Idylla™ System. Poster BWP 2014.
- Janku F. et al. BRAF mutation testing with a rapid, fully integrated molecular. Oncotarget 2015.
- Melchior L. et al. Multi-center evaluation of the novel fully-automated PCR-based Idylla™ BRAF Mutation Test on FFPE tissue of malignant melanoma. J Exp Mol Path 2015.
- Micalessi I. et al. Evaluation of the Idylla™ BRAF Mutation Test performance using the novel fully-automated Idylla™ System on FFPE melanoma samples. Poster EMMD 2015.
- Schiefer A-I. et al. Multicenter Evaluation of a Novel Automated Rapid Detection System of BRAF Status in Formalin-Fixed, Paraffin-Embedded Tissues. J of Molecular Diagnostics 2016
- Alexandre H. et al. Detection of BRAF Mutations Using a Fully Automated Platform and Comparison with High Resolution Melting, Real-Time Allele Specific Amplification, Immunohistochemistry and Next Generation Sequencing Assays, for Patients with Metastatic Melanoma. PLOS ONE 2016.
- Riveiro-Falkenbach E. et al. BRAF V600 mutation detection in tricky melanoma samples using the new Idylla™ BRAF Mutation Test. Poster ESP 2016-

RESEARCH APPLICATIONS

- Schiefer A-I. et al. Evaluation of a novel fully automated PCR-based technique for detection of BRAF-status in FFPE tissues. Poster AMP 2014.
- Colling R. et al. Automated PCR detection of BRAF mutations in colorectal adenocarcinoma. J Clin Path 2015.
- Micalessi I. et al. Evaluation of the Idylla™ BRAF Mutation Test performance using the novel fully-automated Idylla™ System on FFPE colorectal cancer samples. Poster EMMD 2015.
- Yeo MK. et al. The usefulness of a novel fully automated PCR-based Idylla test for detection of the BRAF V600E mutation in thyroid tissue: comparison with PNA-clamping PCR, real-time PCR and pyrosequencing. J Clin Pathol 2016.



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