

qBiomarker Somatic Mutation PCR Array

Human Melanoma

Cat. no. 337021 SMH-029A

For real-time PCR-based, pathway-focused, somatic mutation profiling

Format	For use with the following real-time cyclers
Format A, with fluorescein	Bio-Rad® models iCycler®, iQ™ 5, MyiQ™, MyiQ2
Format A, with ROX™	Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well blocks); Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®
Format C, with ROX	Applied Biosystems models 7500 (Fast, 96-well block), 7900HT (Fast, 96-well block), StepOnePlus™, ViiA 7 (Fast, 96-well block)
Format D, with ROX	Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000®
Format E, with ROX	Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™
Format F, with ROX	Roche® LightCycler® 480 (96-well block)
Format G, with ROX	Roche LightCycler 480 (384-well block)



Sample & Assay Technologies

Description

The Human Melanoma qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the top somatic mutations in human melanoma in the following genes: BRAF, CDKN2A, CTNNB1/beta-catenin, GNAQ, HRAS, KIT, KRAS, NRAS, PIK3CA, and LKB1/STK11. These mutations warrant extensive investigation to enhance the understanding of carcinogenesis and identify potential drug targets. Numerous research studies have demonstrated the utility of individual and multiple somatic mutation status information in identifying key signaling transduction disruptions. For example, the mutation status of the EGFR and KRAS genes can predict the physiological response to certain drugs targeting these molecules. The Human Melanoma qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for the study of mutations in the context of melanoma and has the potential for discovery and verification of drug target biomarkers for this cancer type and other cancer types in which these mutations have been identified. This array includes 37 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human melanoma. These mutations were chosen from curated, comprehensive somatic mutation databases and peer-reviewed scientific literature, and represent the most frequently recurring somatic mutations compiled from over 5600 melanoma samples. Each 96-well array allows profiling of the mutation status of 2 samples, while each 384-well format array allows mutation profiling of 8 samples. The simplicity of the product format and operating procedure allows routine somatic mutation profiling in any research laboratory with access to real-time PCR instruments.

For further details, consult the *qBiomarker Somatic Mutation PCR Handbook*.

Shipping and storage

qBiomarker Somatic Mutation PCR Arrays are shipped at ambient temperature or on blue ice packs. For long term storage, keep plates at -20°C . Ensure that you have the correct qBiomarker Somatic Mutation PCR Array format for your real-time cycler (see table above). qBiomarker Probe Mastermixes are shipped on blue ice packs. For long term storage, keep qBiomarker Probe Mastermixes at 4°C .

Note: Ensure that you have the correct qBiomarker Probe Mastermix, with the correct reference dye if required, for your instrument.

Note: Open the package and store the products appropriately immediately on receipt.

Assay table

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
A01	BRAF	1125	c.1790T>A	p.L597Q	SMPH001855A
A02	BRAF	473	c.1798_1799GT>AA	p.V600K	SMPH001831A
A03	BRAF	474	c.1798_1799GT>AG	p.V600R	SMPH001833A
A04	BRAF	475	c.1799_1800TG>AA	p.V600E	SMPH001832A
A05	BRAF	477	c.1799_1800TG>AT	p.V600D	SMPH001940A
A06	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A07	BRAF	478	c.1801A>G	p.K601E	SMPH001863A
A08	CDKN2A	12743	c.143C>T	p.P48L	SMPH002676A
A09	CDKN2A	12473	c.172C>T	p.R58*	SMPH002668A
A10	CDKN2A	13524	c.237_238CC>TT	p.R80*	SMPH003024A
A11	CDKN2A	12475	c.238C>T	p.R80*	SMPH002667A
A12	CDKN2A	13224	c.242C>T	p.P81L	SMPH002745A
B01	CDKN2A	12547	c.330G>A	p.W110*	SMPH002718A
B02	CDKN2A	12476	c.341C>T	p.P114L	SMPH002680A
B03	CTNNB1	5662	c.110C>T	p.S37F	SMPH003946A
B04	CTNNB1	5667	c.134C>T	p.S45F	SMPH003953A
B05	GNAQ	28758	c.626A>C	p.Q209P	SMPH006151A
B06	GNAQ	28757	c.626A>T	p.Q209L	SMPH006150A
B07	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
B08	KIT	1290	c.1727T>C	p.L576P	SMPH007118A
B09	KIT	1304	c.1924A>G	p.K642E	SMPH007132A
B10	KRAS	553	c.182A>T	p.Q61L	SMPH007544A
B11	KRAS	521	c.35G>A	p.G12D	SMPH007531A
B12	KRAS	520	c.35G>T	p.G12V	SMPH007537A
C01	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
C02	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
C03	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
C04	NRAS	586	c.183A>C	p.Q61H	SMPH010072A
C05	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
C06	NRAS	563	c.34G>A	p.G12S	SMPH010075A
C07	NRAS	564	c.35G>A	p.G12D	SMPH010071A
C08	NRAS	569	c.37G>C	p.G13R	SMPH010074A
C09	NRAS	573	c.38G>A	p.G13D	SMPH010070A
C10	NRAS	574	c.38G>T	p.G13V	SMPH010082A
C11	NRAS	577	c.52G>A	p.A18T	SMPH010105A
C12	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
D01	STK11	20943	c.508C>T	p.Q170*	SMPH014238A
D02	BRAF	99000006	copy number	copy number	SMPH017168A
D03	CDKN2A	99000032	copy number	copy number	SMPH017194A
D04	CTNNB1	99000042	copy number	copy number	SMPH017204A
D05	GNAQ	99000044	copy number	copy number	SMPH017206A
D06	HRAS	99000009	copy number	copy number	SMPH017171A
D07	KIT	99000021	copy number	copy number	SMPH017183A
D08	KRAS	99000008	copy number	copy number	SMPH017170A
D09	NRAS	99000010	copy number	copy number	SMPH017172A
D10	PIK3CA	99000012	copy number	copy number	SMPH017174A
D11	STK11	99000038	copy number	copy number	SMPH017200A
D12	SMPC	99000017	positive PCR control	positive PCR control	SMPH017179A
E01	BRAF	1125	c.1790T>A	p.L597Q	SMPH001855A
E02	BRAF	473	c.1798_1799GT>AA	p.V600K	SMPH001831A
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G05	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
G06	NRAS	563	c.34G>A	p.G12S	SMPH010075A
G07	NRAS	564	c.35G>A	p.G12D	SMPH010071A
G08	NRAS	569	c.37G>C	p.G13R	SMPH010074A
G09	NRAS	573	c.38G>A	p.G13D	SMPH010070A
G10	NRAS	574	c.38G>T	p.G13V	SMPH010082A
G11	NRAS	577	c.52G>A	p.A18T	SMPH010105A
G12	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
H01	STK11	20943	c.508C>T	p.Q170*	SMPH014238A
H02	BRAF	99000006	copy number	copy number	SMPH017168A
H03	CDKN2A	99000032	copy number	copy number	SMPH017194A
H04	CTNNB1	99000042	copy number	copy number	SMPH017204A
H05	GNAQ	99000044	copy number	copy number	SMPH017206A
H06	HRAS	99000009	copy number	copy number	SMPH017171A
H07	KIT	99000021	copy number	copy number	SMPH017183A
H08	KRAS	99000008	copy number	copy number	SMPH017170A
H09	NRAS	99000010	copy number	copy number	SMPH017172A
H10	PIK3CA	99000012	copy number	copy number	SMPH017174A
H11	STK11	99000038	copy number	copy number	SMPH017200A
H12	SMPC	99000017	positive PCR control	positive PCR control	SMPH017179A

Array layout

	1	2	3	4	5	6	7	8	9	10	11	12
A	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A
B	CDKN2A	CDKN2A	CTNNB1	CTNNB1	GNAQ	GNAQ	HRAS	KIT	KIT	KRAS	KRAS	KRAS
C	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	PIK3CA
D	STK11	BRAF	CDKN2A	CTNNB1	GNAQ	HRAS	KIT	KRAS	NRAS	PIK3CA	STK11	SMPC
E	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A
F	CDKN2A	CDKN2A	CTNNB1	CTNNB1	GNAQ	GNAQ	HRAS	KIT	KIT	KRAS	KRAS	KRAS
G	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	PIK3CA
H	STK11	BRAF	CDKN2A	CTNNB1	GNAQ	HRAS	KIT	KRAS	NRAS	PIK3CA	STK11	SMPC

qBiomarker Somatic Mutation PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

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