

qBiomarker Somatic Mutation PCR Array

Human Skin Cancers

Cat. no. 337021 SMH-024A

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 Skin Cancer qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate and comprehensive profiling of the top somatic mutations in human skin cancer samples in the following genes: BRAF, CDKN2A, CTNNB1/beta-catenin, FGFR3, GNAQ, HRAS, KIT, KRAS, NRAS, PIK3CA, PTCH1, PTEN, RB1, SMO, LKB1/STK11, and P53. 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 Skin Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for the study of mutations in the context of skin cancer and has the potential for discovery and verification of drug target biomarkers for skin cancer types and other cancer types in which these mutations have been identified. This array includes 78 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human skin cancers. 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 7100 skin cancer 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	5671	c.101G>A	p.G34E	SMPH003960A
B04	CTNNB1	5666	c.110C>A	p.S37Y	SMPH003961A
B05	CTNNB1	5679	c.110C>G	p.S37C	SMPH003962A
B06	CTNNB1	5662	c.110C>T	p.S37F	SMPH003946A
B07	CTNNB1	5676	c.122C>T	p.T41I	SMPH003952A
B08	CTNNB1	5667	c.134C>T	p.S45F	SMPH003953A
B09	CTNNB1	5661	c.94G>T	p.D32Y	SMPH003956A
B10	CTNNB1	5669	c.98C>T	p.S33F	SMPH003964A
B11	FGFR3	716	c.1108G>T	p.G370C	SMPH005551A
B12	FGFR3	17461	c.1111A>T	p.S371C	SMPH005553A
C01	FGFR3	718	c.1118A>G	p.Y373C	SMPH005550A
C02	FGFR3	719	c.1948A>G	p.K650E	SMPH005557A
C03	FGFR3	720	c.1949A>T	p.K650M	SMPH005558A
C04	FGFR3	714	c.742C>T	p.R248C	SMPH005552A
C05	GNAQ	28759	c.625_626CA>TT	p.Q209L	SMPH006152A
C06	GNAQ	28758	c.626A>C	p.Q209P	SMPH006151A
C07	GNAQ	28757	c.626A>T	p.Q209L	SMPH006150A
C08	HRAS	496	c.181C>A	p.Q61K	SMPH006505A
C09	HRAS	499	c.182A>G	p.Q61R	SMPH006502A
C10	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
C11	HRAS	502	c.183G>T	p.Q61H	SMPH006516A
C12	HRAS	480	c.34G>A	p.G12S	SMPH006499A
D01	HRAS	481	c.34G>T	p.G12C	SMPH006500A
D02	HRAS	484	c.35G>A	p.G12D	SMPH006507A
D03	HRAS	483	c.35G>T	p.G12V	SMPH006497A
D04	KIT	1290	c.1727T>C	p.L576P	SMPH007118A
D05	KIT	1304	c.1924A>G	p.K642E	SMPH007132A
D06	KRAS	553	c.182A>T	p.Q61L	SMPH007544A
D07	KRAS	521	c.35G>A	p.G12D	SMPH007531A
D08	KRAS	520	c.35G>T	p.G12V	SMPH007537A
D09	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
D10	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
D11	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
D12	NRAS	586	c.183A>C	p.Q61H	SMPH010072A
E01	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
E02	NRAS	563	c.34G>A	p.G12S	SMPH010075A
E03	NRAS	564	c.35G>A	p.G12D	SMPH010071A
E04	NRAS	569	c.37G>C	p.G13R	SMPH010074A
E05	NRAS	573	c.38G>A	p.G13D	SMPH010070A
E06	NRAS	574	c.38G>T	p.G13V	SMPH010082A
E07	NRAS	577	c.52G>A	p.A18T	SMPH010105A
E08	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
E09	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
E10	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
E11	PTCH1	14440	c.1093C>T	p.Q365*	SMPH011301A
E12	PTCH1	17472	c.1249C>T	p.Q417*	SMPH011228A
F01	PTCH1	26363	c.2446C>T	p.Q816*	SMPH011232A
F02	PTEN	5294	c.416T>G	p.L139*	SMPH011794A
F03	RB1	895	c.1363C>T	p.R455*	SMPH012679A
F04	SMO	13146	c.1604G>T	p.W535L	SMPH013985A
F05	STK11	20943	c.508C>T	p.Q170*	SMPH014238A
F06	TP53	10768	c.535C>T	p.H179Y	SMPH015208A
F07	TP53	10733	c.574C>T	p.Q192*	SMPH015161A
F08	TP53	10654	c.637C>T	p.R213*	SMPH014928A
F09	TP53	6932	c.733G>A	p.G245S	SMPH014940A
F10	TP53	10656	c.742C>T	p.R248W	SMPH014929A
F11	TP53	10988	c.772G>A	p.E258K	SMPH015102A
F12	TP53	10867	c.797G>A	p.G266E	SMPH015003A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	TP53	10939	c.832C>T	p.P278S	SMPH014915A
G02	TP53	10863	c.833C>T	p.P278L	SMPH015086A
G03	TP53	10728	c.839G>A	p.R280K	SMPH015091A
G04	TP53	43585	c.843_844CC>TT	p.R282W	SMPH034842A
G05	TP53	10704	c.844C>T	p.R282W	SMPH014941A
G06	TP53	10726	c.856G>A	p.E286K	SMPH015084A
G07	BRAF	99000006	copy number	copy number	SMPH017168A
G08	CDKN2A	99000032	copy number	copy number	SMPH017194A
G09	CTNNB1	99000042	copy number	copy number	SMPH017204A
G10	FGFR3	99000020	copy number	copy number	SMPH017182A
G11	GNAQ	99000044	copy number	copy number	SMPH017206A
G12	HRAS	99000009	copy number	copy number	SMPH017171A
H01	KIT	99000021	copy number	copy number	SMPH017183A
H02	KRAS	99000008	copy number	copy number	SMPH017170A
H03	NRAS	99000010	copy number	copy number	SMPH017172A
H04	PIK3CA	99000012	copy number	copy number	SMPH017174A
H05	PTCH1	99000034	copy number	copy number	SMPH017196A
H06	PTEN	99000013	copy number	copy number	SMPH017175A
H07	RB1	99000036	copy number	copy number	SMPH017198A
H08	SMO	99000055	copy number	copy number	SMPH017217A
H09	STK11	99000038	copy number	copy number	SMPH017200A
H10	TP53	99000041	copy number	copy number	SMPH017203A
H11	SMPK	99000017	positive PCR control	positive PCR control	SMPH017179A
H12	SMPK	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	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	FGFR3	FGFR3
C	FGFR3	FGFR3	FGFR3	FGFR3	GNAQ	GNAQ	GNAQ	HRAS	HRAS	HRAS	HRAS	HRAS
D	HRAS	HRAS	HRAS	KIT	KIT	KRAS	KRAS	KRAS	NRAS	NRAS	NRAS	NRAS
E	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	PIK3CA	PIK3CA	PIK3CA	PTCH1	PTCH1
F	PTCH1	PTEN	RB1	SMO	STK11	TP53	TP53	TP53	TP53	TP53	TP53	TP53
G	TP53	TP53	TP53	TP53	TP53	TP53	BRAF	CDKN2A	CTNNB1	FGFR3	GNAQ	HRAS
H	KIT	KRAS	NRAS	PIK3CA	PTCH1	PTEN	RB1	SMO	STK11	TP53	SMPC	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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