

qBiomarker Somatic Mutation PCR Array

Human Liver Cancer

Cat. no. 337021 SMH-034A

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 Liver Cancer qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the somatic mutations in human liver cancer samples in the following key genes: BRAF, CTNNB1, ERBB2, FBXW7, HNF1A, KRAS, NRAS, PIK3CA, 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 Liver Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of liver cancer and has the potential for discovery and development of effective biomarkers for this cancer type and other cancer types in which these mutations were identified. This array includes 85 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human liver cancer. 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 2700 liver cancer samples. The simplicity of the product format and operating procedure enables 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	477	c.1799_1800T>AT	p.V600D	SMPH001940A
A02	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A03	CTNNB1	5686	c.100G>A	p.G34R	SMPH003974A
A04	CTNNB1	5684	c.100G>C	p.G34R	SMPH003983A
A05	CTNNB1	5671	c.101G>A	p.G34E	SMPH003960A
A06	CTNNB1	5670	c.101G>T	p.G34V	SMPH003948A
A07	CTNNB1	5674	c.104T>G	p.I35S	SMPH003993A
A08	CTNNB1	5678	c.107A>C	p.H36P	SMPH003951A
A09	CTNNB1	5675	c.109T>G	p.S37A	SMPH003985A
A10	CTNNB1	5666	c.110C>A	p.S37Y	SMPH003961A
A11	CTNNB1	5679	c.110C>G	p.S37C	SMPH003962A
A12	CTNNB1	5662	c.110C>T	p.S37F	SMPH003946A
B01	CTNNB1	5664	c.121A>G	p.T41A	SMPH003950A
B02	CTNNB1	5676	c.122C>T	p.T41I	SMPH003952A
B03	CTNNB1	5663	c.133T>C	p.S45P	SMPH003970A
B04	CTNNB1	5685	c.133T>G	p.S45A	SMPH003966A
B05	CTNNB1	5692	c.134C>A	p.S45Y	SMPH003995A
B06	CTNNB1	5667	c.134C>T	p.S45F	SMPH003953A
B07	CTNNB1	5996	c.14_241del228	p.A5_A80>D	SMPH004010A
B08	CTNNB1	6035	c.14_430del417	p.A5_Q143del	SMPH004103A
B09	CTNNB1	6064	c.74_97del24	p.W25_D32del	SMPH004099A
B10	CTNNB1	5672	c.94G>A	p.D32N	SMPH003957A
B11	CTNNB1	5661	c.94G>T	p.D32Y	SMPH003956A
B12	CTNNB1	5690	c.95A>C	p.D32A	SMPH003965A
C01	CTNNB1	5681	c.95A>G	p.D32G	SMPH003973A
C02	CTNNB1	5691	c.95A>T	p.D32V	SMPH003958A
C03	CTNNB1	6098	c.97_98TC>CT	p.S33L	SMPH003994A
C04	CTNNB1	5682	c.97T>C	p.S33P	SMPH003969A
C05	CTNNB1	5673	c.98C>A	p.S33Y	SMPH003959A
C06	CTNNB1	5677	c.98C>G	p.S33C	SMPH003963A
C07	CTNNB1	5669	c.98C>T	p.S33F	SMPH003964A
C08	ERBB2	21985	c.2632C>T	p.H878Y	SMPH005133A
C09	FBXW7	22932	c.1393C>T	p.R465C	SMPH005382A
C10	HNF1A	21471	c.617G>T	p.W206L	SMPH006413A
C11	HNF1A	21478	c.618G>T	p.W206C	SMPH006420A
C12	KRAS	555	c.183A>T	p.Q61H	SMPH007546A
D01	KRAS	517	c.34G>A	p.G12S	SMPH007533A
D02	KRAS	518	c.34G>C	p.G12R	SMPH007534A
D03	KRAS	516	c.34G>T	p.G12C	SMPH007535A
D04	KRAS	521	c.35G>A	p.G12D	SMPH007531A
D05	KRAS	522	c.35G>C	p.G12A	SMPH007536A
D06	KRAS	520	c.35G>T	p.G12V	SMPH007537A
D07	KRAS	528	c.37G>A	p.G13S	SMPH007543A
D08	KRAS	529	c.37G>C	p.G13R	SMPH007549A
D09	KRAS	527	c.37G>T	p.G13C	SMPH007541A
D10	KRAS	531	c.38_39GC>AT	p.G13D	SMPH007589A
D11	KRAS	532	c.38G>A	p.G13D	SMPH007538A
D12	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
E01	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
E02	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
E03	PIK3CA	12464	c.3204_3205insA	p.N1068fs*4	SMPH010770A
E04	TP53	11073	c.1024C>T	p.R342*	SMPH015065A
E05	TP53	43708	c.422G>A	p.C141Y	SMPH034537A
E06	TP53	6815	c.461G>T	p.G154V	SMPH015134A
E07	TP53	10670	c.469G>T	p.V157F	SMPH014984A
E08	TP53	10690	c.473G>A	p.R158H	SMPH014957A
E09	TP53	10739	c.481G>A	p.A161T	SMPH015187A
E10	TP53	10808	c.488A>G	p.Y163C	SMPH014931A
E11	TP53	10648	c.524G>A	p.R175H	SMPH014921A
E12	TP53	10687	c.527G>A	p.C176Y	SMPH015119A
F01	TP53	43635	c.536A>T	p.H179L	SMPH034554A
F02	TP53	10733	c.574C>T	p.Q192*	SMPH015161A
F03	TP53	43947	c.614A>G	p.Y205C	SMPH034421A
F04	TP53	10654	c.637C>T	p.R213*	SMPH014928A
F05	TP53	43650	c.638G>T	p.R213L	SMPH034475A
F06	TP53	43687	c.641A>G	p.H214R	SMPH034420A
F07	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
F08	TP53	10812	c.722C>T	p.S241F	SMPH014924A
F09	TP53	10646	c.725G>A	p.C242Y	SMPH015220A
F10	TP53	10810	c.725G>T	p.C242F	SMPH015002A
F11	TP53	11524	c.730G>T	p.G244C	SMPH015087A
F12	TP53	10883	c.731G>A	p.G244D	SMPH015004A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	TP53	6932	c.733G>A	p.G245S	SMPH014940A
G02	TP53	43606	c.734G>A	p.G245D	SMPH034441A
G03	TP53	43555	c.736A>G	p.M246V	SMPH034425A
G04	TP53	10656	c.742C>T	p.R248W	SMPH014929A
G05	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
G06	TP53	6549	c.743G>T	p.R248L	SMPH015015A
G07	TP53	43871	c.746G>T	p.R249M	SMPH034767A
G08	TP53	10817	c.747G>T	p.R249S	SMPH015066A
G09	TP53	10659	c.817C>T	p.R273C	SMPH014907A
G10	TP53	10660	c.818G>A	p.R273H	SMPH014913A
G11	TP53	10779	c.818G>T	p.R273L	SMPH015005A
G12	TP53	10704	c.844C>T	p.R282W	SMPH014941A
H01	TP53	10722	c.853G>A	p.E285K	SMPH014937A
H02	BRAF	99000006	copy number	copy number	SMPH017168A
H03	CTNNB1	99000042	copy number	copy number	SMPH017204A
H04	ERBB2	99000016	copy number	copy number	SMPH017178A
H05	FBXW7	99000063	copy number	copy number	SMPH017225A
H06	HNF1A	99000040	copy number	copy number	SMPH017202A
H07	KRAS	99000008	copy number	copy number	SMPH017170A
H08	NRAS	99000010	copy number	copy number	SMPH017172A
H09	PIK3CA	99000012	copy number	copy number	SMPH017174A
H10	TP53	99000041	copy number	copy number	SMPH017203A
H11	SMPC	99000017	positive PCR control	positive PCR control	SMPH017179A
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	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1
B	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1
C	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	ERBB2	FBXW7	HNFI1A	HNFI1A	KRAS
D	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	NRAS
E	NRAS	PIK3CA	PIK3CA	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
F	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
G	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
H	TP53	BRAF	CTNNB1	ERBB2	FBXW7	HNFI1A	KRAS	NRAS	PIK3CA	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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