

qBiomarker Somatic Mutation PCR Array

Human Lung Cancer

Cat. no. 337021 SMH-023A

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 Lung 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 lung cancer samples in the following genes: AKT1, BRAF, CTNNB1/beta-catenin, EGFR, ERBB2, HRAS, KRAS, NRAS, PIK3CA, 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 Lung Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for the study of mutations in the context of lung cancer 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 83 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human lung 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 13000 lung 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	AKT1	33765	c.49G>A	p.E17K	SMPH017162A
A02	BRAF	451	c.1397G>T	p.G466V	SMPH001870A
A03	BRAF	460	c.1406G>C	p.G469A	SMPH001906A
A04	BRAF	470	c.1789C>G	p.L597V	SMPH001869A
A05	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A06	CTNNB1	5679	c.110C>G	p.S37C	SMPH003962A
A07	CTNNB1	5662	c.110C>T	p.S37F	SMPH003946A
A08	EGFR	12988	c.2125G>A	p.E709K	SMPH004670A
A09	EGFR	13427	c.2126A>C	p.E709A	SMPH004764A
A10	EGFR	6252	c.2155G>A	p.G719S	SMPH004671A
A11	EGFR	6253	c.2155G>T	p.G719C	SMPH004672A
A12	EGFR	6239	c.2156G>C	p.G719A	SMPH004704A
B01	EGFR	6223	c.2235_2249del15	p.E746_A750del	SMPH004662A
B02	EGFR	6225	c.2236_2250del15	p.E746_A750del	SMPH004663A
B03	EGFR	12678	c.2237_2251del15	p.E746_T751>A	SMPH004667A
B04	EGFR	12384	c.2237_2255>T	p.E746_S752>V	SMPH004669A
B05	EGFR	6218	c.2239_2247del9	p.L747_E749del	SMPH004664A
B06	EGFR	12382	c. 2239_2248TTAAGAGA AG>C	p.L747_A750>P	SMPH004676A
B07	EGFR	12383	c.2239_2251>C	p.L747_T751>P	SMPH004708A
B08	EGFR	6254	c.2239_2253del15	p.L747_T751del	SMPH004697A
B09	EGFR	6255	c.2239_2256del18	p.L747_S752del	SMPH004694A
B10	EGFR	12369	c.2240_2254del15	p.L747_T751del	SMPH004682A
B11	EGFR	12370	c.2240_2257del18	p.L747_P753>S	SMPH004675A
B12	EGFR	6241	c.2303G>T	p.S768I	SMPH004666A
C01	EGFR	12376	c. 2307_2308insGCCAGC GTG	p.V769_D770insASV	SMPH004736A
C02	EGFR	6240	c.2369C>T	p.T790M	SMPH004665A
C03	EGFR	13424	c.2497T>G	p.L833V	SMPH004751A
C04	EGFR	6224	c.2573T>G	p.L858R	SMPH004661A
C05	EGFR	6213	c.2582T>A	p.L861Q	SMPH004716A
C06	ERBB2	682	c. 2322_2323insGCATAC GTGATG	p.M774_A775insAYVM	SMPH005128A
C07	ERBB2	12558	c. 2325_2326insTACGTG ATGGCT	p.A775_G776insYVMA	SMPH005129A
C08	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
C09	KRAS	552	c.182A>G	p.Q61R	SMPH007553A
C10	KRAS	553	c.182A>T	p.Q61L	SMPH007544A
C11	KRAS	554	c.183A>C	p.Q61H	SMPH007540A
C12	KRAS	555	c.183A>T	p.Q61H	SMPH007546A
D01	KRAS	512	c.34_35GG>TT	p.G12F	SMPH007551A
D02	KRAS	517	c.34G>A	p.G12S	SMPH007533A
D03	KRAS	518	c.34G>C	p.G12R	SMPH007534A
D04	KRAS	516	c.34G>T	p.G12C	SMPH007535A
D05	KRAS	521	c.35G>A	p.G12D	SMPH007531A
D06	KRAS	522	c.35G>C	p.G12A	SMPH007536A
D07	KRAS	520	c.35G>T	p.G12V	SMPH007537A
D08	KRAS	527	c.37G>T	p.G13C	SMPH007541A
D09	KRAS	532	c.38G>A	p.G13D	SMPH007538A
D10	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
D11	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
D12	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
E01	STK11	21360	c.1062C>G	p.F354L	SMPH014253A
E02	STK11	12925	c.109C>T	p.Q37*	SMPH014255A
E03	TP53	6815	c.461G>T	p.G154V	SMPH015134A
E04	TP53	10670	c.469G>T	p.V157F	SMPH014984A
E05	TP53	10714	c.473G>T	p.R158L	SMPH015138A
E06	TP53	10808	c.488A>G	p.Y163C	SMPH014931A
E07	TP53	43559	c.517G>T	p.V173L	SMPH034455A
E08	TP53	10648	c.524G>A	p.R175H	SMPH014921A
E09	TP53	10687	c.527G>A	p.C176Y	SMPH015119A
E10	TP53	10645	c.527G>T	p.C176F	SMPH014960A
E11	TP53	10889	c.536A>G	p.H179R	SMPH015072A
E12	TP53	10733	c.574C>T	p.Q192*	SMPH015161A
F01	TP53	10742	c.578A>G	p.H193R	SMPH014975A
F02	TP53	43947	c.614A>G	p.Y205C	SMPH034421A
F03	TP53	10654	c.637C>T	p.R213*	SMPH014928A
F04	TP53	43687	c.641A>G	p.H214R	SMPH034420A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F05	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
F06	TP53	10725	c.701A>G	p.Y234C	SMPH014944A
F07	TP53	11063	c.711G>T	p.M237I	SMPH014988A
F08	TP53	43778	c.713G>T	p.C238F	SMPH034467A
F09	TP53	10810	c.725G>T	p.C242F	SMPH015002A
F10	TP53	11081	c.733G>T	p.G245C	SMPH014979A
F11	TP53	11196	c.734G>T	p.G245V	SMPH014986A
F12	TP53	10656	c.742C>T	p.R248W	SMPH014929A
G01	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
G02	TP53	6549	c.743G>T	p.R248L	SMPH015015A
G03	TP53	43629	c.745A>T	p.R249W	SMPH034698A
G04	TP53	43871	c.746G>T	p.R249M	SMPH034767A
G05	TP53	10817	c.747G>T	p.R249S	SMPH015066A
G06	TP53	10659	c.817C>T	p.R273C	SMPH014907A
G07	TP53	10660	c.818G>A	p.R273H	SMPH014913A
G08	TP53	10779	c.818G>T	p.R273L	SMPH015005A
G09	TP53	10704	c.844C>T	p.R282W	SMPH014941A
G10	TP53	10726	c.856G>A	p.E286K	SMPH015084A
G11	TP53	10710	c.892G>T	p.E298*	SMPH015116A
G12	AKT1	99000005	copy number	copy number	SMPH017167A
H01	BRAF	99000006	copy number	copy number	SMPH017168A
H02	CTNNB1	99000042	copy number	copy number	SMPH017204A
H03	EGFR	99000007	copy number	copy number	SMPH017169A
H04	ERBB2	99000016	copy number	copy number	SMPH017178A
H05	HRAS	99000009	copy number	copy number	SMPH017171A
H06	KRAS	99000008	copy number	copy number	SMPH017170A
H07	NRAS	99000010	copy number	copy number	SMPH017172A
H08	PIK3CA	99000012	copy number	copy number	SMPH017174A
H09	STK11	99000038	copy number	copy number	SMPH017200A
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	AKT1	BRAF	BRAF	BRAF	BRAF	CTNNB1	CTNNB1	EGFR	EGFR	EGFR	EGFR	EGFR
B	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR
C	EGFR	EGFR	EGFR	EGFR	EGFR	ERBB2	ERBB2	HRAS	KRAS	KRAS	KRAS	KRAS
D	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	NRAS	PIK3CA	PIK3CA
E	STK11	STK11	TP53	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	AKT1
H	BRAF	CTNNB1	EGFR	ERBB2	HRAS	KRAS	NRAS	PIK3CA	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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