qBiomarker Somatic Mutation PCR Array

Human Receptor Tyrosine Kinase (RTK) Pathways (Panel II)

Cat. no. 337021 SMH-009

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)

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Description

The Human Receptor Tyrosine Kinase (RTK) Pathways qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid and accurate profiling of the somatic mutation status for several receptor tyrosine kinase pathways. Components in the RTK pathways are frequently mutated in human cancers, and therefore warrant extensive investigation to enhance the understanding of carcinogenesis. Panel II contains mutation assays for 8 key genes in the shared downstream PI3K and Ras-MAPK pathways: AKT, BRAF, KRAS, HRAS, NRAS, MEK1, PIK3CA, and PTEN. The utility of individual and multiple somatic mutation status information in identifying key signaling transduction disruptions has been demonstrated in numerous research studies. For example, the mutation status of the EGFR and KRAS genes can predict the physiological response to certain drugs targeting these molecules. The RTK Pathways qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of these pathways and downstream effectors. Panel II includes 86 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in the downstream PI3K and Ras-MAPK pathways. These mutations were chosen from curated, comprehensive somatic mutation databases and peer-reviewed scientific literature. 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	450	c.1391G>T	p.G464V	SMPH001927A
A03	BRAF	451	c.1397G>T	p.G466V	SMPH001870A
A04	BRAF	460	c.1406G>C	p.G469A	SMPH001906A
A05	BRAF	461	c.1406G>A	p.G469E	SMPH001868A
A06	BRAF	470	c.1789C>G	p.L597V	SMPH001869A
A07	BRAF	1125	c.1790T>A	p.L597Q	SMPH001855A
A08	BRAF	1130	c.1798G>A	p.V600M	SMPH001846A
A09	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A10	BRAF	18443	c.1799T>C	p.V600A	SMPH001845A
A11	BRAF	6137	c.1799T>G	p.V600G	SMPH001912A
A12	BRAF	478	c.1801A>G	p.K601E	SMPH001863A
B01	PIK3CA	759	c.1616C>G	p.P539R	SMPH010637A
B02	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
B03	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
B04	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
B05	PIK3CA	765	c.1635G>T	p.E545D	SMPH010638A
B06	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
B07	PIK3CA	776	c.3140A>T	p.H1047L	SMPH010632A
B08	PIK3CA	12464	c.3204_3205insA	p.N1068fs*4	SMPH010770A
B09	PIK3CA	766	c.1636C>A	p.Q546K	SMPH010628A
B10	PIK3CA	6147	c.1636C>G	p.Q546E	SMPH010708A
B11	PIK3CA	12459	c.1637A>G	p.Q546R	SMPH010642A
B12	PIK3CA	771	c.3073A>G	p.T1025A	SMPH010686A
C01	PIK3CA	773	c.3129G>T	p.M1043I	SMPH010695A
C02	PIK3CA	12597	c.3145G>C	p.G1049R	SMPH010661A
C03	PIK3CA	754	c.1035T>A	p.N345K	SMPH010733A
C04	PIK3CA	774	c.3139C>T	p.H1047Y	SMPH010696A
C05	PIK3CA	778	c.2102A>C	p.H701P	SMPH010774A
C06	KRAS	552	c.182A>G	p.Q61R	SMPH007553A
C07	KRAS	553	c.182A>T	p.Q61L	SMPH007544A
C08	KRAS	555	c.183A>T	p.Q61H	SMPH007546A
C09	KRAS	517	c.34G>A	p.G12S	SMPH007533A
C10	KRAS	518	c.34G>C	p.G12R	SMPH007534A
C11	KRAS	516	c.34G>T	p.G12C	SMPH007535A
C12	KRAS	521	c.35G>A	p.G12D	SMPH007531A
D01	KRAS	522	c.35G>C	p.G12A	SMPH007536A
D02	KRAS	520	c.35G>T	p.G12V	SMPH007537A
D03	KRAS	528	c.37G>A	p.G13S	SMPH007543A
D04	KRAS	529	c.37G>C	p.G13R	SMPH007549A
D05	KRAS	527	c.37G>T	p.G13C	SMPH007541A
D06	KRAS	532	c.38G>A	p.G13D	SMPH007538A
D07	KRAS	533	c.38G>C	p.G13A	SMPH007542A
D08	KRAS	534	c.38G>T	p.G13V	SMPH007545A
D09	KRAS	543	c.64C>A	p.Q22K	SMPH007565A
D10	HRAS	496	c.181C>A	p.Q61K	SMPH006505A
D11	HRAS	499	c.182A>G	p.Q61R	SMPH006502A
D12	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
E01	HRAS	503	c.183G>C	p.Q61H	SMPH006519A
E02	HRAS	502	c.183G>T	p.Q61H	SMPH006516A
E03	HRAS	480	c.34G>A	p.G12S	SMPH006499A
E04	HRAS	482	c.34G>C	p.G12R	SMPH006506A
E05	HRAS	481	c.34G>T	p.G12C	SMPH006500A
E06	HRAS	484	c.35G>A	p.G12D	SMPH006507A
E07	HRAS	483	c.35G>T	p.G12V	SMPH006497A
E08	HRAS	487	c.37G>A	p.G13S	SMPH006515A
E09	HRAS	486	c.37G>C	p.G13R	SMPH006498A
E10	HRAS	488	c.37G>T	p.G13C	SMPH006511A
E11	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
E12	NRAS	582	c.182A>C	p.Q61P	SMPH010096A
F01	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
F02	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
F03	NRAS	563	c.34G>A	p.G12S	SMPH010075A
F04	NRAS	564	c.35G>A	p.G12D	SMPH010071A
F05	NRAS	565	c.35G>C	p.G12A	SMPH010066A
F06	NRAS	569	c.37G>C	p.G13R	SMPH010074A
F07	NRAS	573	c.38G>A	p.G13D	SMPH010070A
F08	NRAS	575	c.38G>C	p.G13A	SMPH010084A
F09	NRAS	574	c.38G>T	p.G13V	SMPH010082A
F10	NRAS	577	c.52G>A	p.A18T	SMPH010105A
F11	NRAS	562	c.34G>T	p.G12C	SMPH010078A
F12	MEK1	99000002	167A>C	Q56P	SMPH017164A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	MEK1	99000004	171G>T	K57N	SMPH017166A
G02	MEK1	99000001	199G>A	D67N	SMPH017163A
G03	MEK1	99000003	371C>T	P124L	SMPH017165A
G04	PTEN	5817	c.389delG	p.R130fs*4	SMPH011514A
G05	PTEN	5033	c.389G>A	p.R130Q	SMPH011486A
G06	PTEN	5219	c.388C>G	p.R130G	SMPH011480A
G07	PTEN	5152	c.388C>T	p.R130*	SMPH011473A
G08	PTEN	5089	c.517C>T	p.R173C	SMPH011475A
G09	PTEN	5039	c.518G>A	p.R173H	SMPH011472A
G10	PTEN	5154	c.697C>T	p.R233*	SMPH011506A
G11	PTEN	4929	c.17_18delAA	p.K6fs*4	SMPH011501A
G12	PTEN	4986	c.741_742insA	p.P248fs*5	SMPH011468A
H01	PTEN	4898	c.950_953delTACT	p.V317fs*3	SMPH011511A
H02	PTEN	4894	c.952_955delCTTA	p.L318fs*2	SMPH011686A
H03	AKT1	99000005	copy number	copy number	SMPH017167A
H04	BRAF	99000006	copy number	copy number	SMPH017168A
H05	PIK3CA	99000012	copy number	copy number	SMPH017174A
H06	KRAS	99000008	copy number	copy number	SMPH017170A
H07	HRAS	99000009	copy number	copy number	SMPH017171A
H08	NRAS	99000010	copy number	copy number	SMPH017172A
H09	MEK1	99000011	copy number	copy number	SMPH017173A
H10	PTEN	99000013	copy number	copy number	SMPH017175A
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	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF	BRAF
B	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA
C	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS
D	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	HRAS	HRAS	HRAS
E	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	NRAS	NRAS
F	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	MEK1
G	MEK1	MEK1	MEK1	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN
H	PTEN	PTEN	AKT1	BRAF	PIK3CA	KRAS	HRAS	NRAS	MEK1	PTEN	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.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

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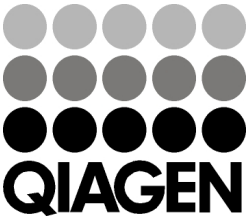

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