

qBiomarker Somatic Mutation PCR Array

Human EGFR Pathway

Cat. no. 337021 SMH-001

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 EGFR Pathway qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid and accurate profiling of the somatic mutation status for the epidermal growth factor receptor gene (EGFR; alias ErbB-1; HER1 in human) and 8 additional key genes in the EGFR pathway: AKT, BRAF, KRAS, HRAS, NRAS, MEK1, PIK3CA, and PTEN. Components in this pathway are frequently mutated in human cancers such as lung cancer, colorectal cancer, and glioblastoma multiforme, and therefore warrant extensive investigation to enhance the understanding of carcinogenesis and identify potential drug targets. 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 EGFR Pathway qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of the EGFR pathway and downstream effectors. This array includes 85 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in the EGFR pathway. 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	470	c.1789C>G	p.L597V	SMPH001869A
A06	BRAF	1130	c.1798G>A	p.V600M	SMPH001846A
A07	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A08	BRAF	18443	c.1799T>C	p.V600A	SMPH001845A
A09	BRAF	6137	c.1799T>G	p.V600G	SMPH001912A
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	12728	c.2236_2253del18	p.E746_T751del	SMPH004907A
B04	EGFR	12678	c.2237_2251del15	p.E746_T751>A	SMPH004667A
B05	EGFR	12422	c.2238_2248>GC	p.L747_A750>P	SMPH004768A
B06	EGFR	6220	c.2238_2255del18	p.E746_S752>D	SMPH004905A
B07	EGFR	6218	c.2239_2247del9	p.L747_E749del	SMPH004664A
B08	EGFR	6255	c.2239_2256del18	p.L747_S752del	SMPH004694A
B09	EGFR	12369	c.2240_2254del15	p.L747_T751del	SMPH004682A
B10	EGFR	6241	c.2303G>T	p.S768I	SMPH004666A
B11	EGFR	12376	c. 2307_2308insGCCAGC GTG	p.V769_D770insASV	SMPH004736A
B12	EGFR	12378	c.2310_2311insGGT	p.D770_N771insG	SMPH004900A
C01	EGFR	12377	c.2319_2320insCAC	p.H773_V774insH	SMPH004899A
C02	EGFR	6240	c.2369C>T	p.T790M	SMPH004665A
C03	EGFR	12366	c.2572C>A	p.L858M	SMPH004880A
C04	EGFR	6224	c.2573T>G	p.L858R	SMPH004661A
C05	EGFR	6213	c.2582T>A	p.L861Q	SMPH004716A
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	502	c.183G>T	p.Q61H	SMPH006516A
E02	HRAS	480	c.34G>A	p.G12S	SMPH006499A
E03	HRAS	482	c.34G>C	p.G12R	SMPH006506A
E04	HRAS	481	c.34G>T	p.G12C	SMPH006500A
E05	HRAS	484	c.35G>A	p.G12D	SMPH006507A
E06	HRAS	483	c.35G>T	p.G12V	SMPH006497A
E07	HRAS	486	c.37G>C	p.G13R	SMPH006498A
E08	HRAS	488	c.37G>T	p.G13C	SMPH006511A
E09	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
E10	NRAS	582	c.182A>C	p.Q61P	SMPH010096A
E11	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
E12	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
F01	NRAS	563	c.34G>A	p.G12S	SMPH010075A
F02	NRAS	564	c.35G>A	p.G12D	SMPH010071A
F03	NRAS	565	c.35G>C	p.G12A	SMPH010066A
F04	NRAS	569	c.37G>C	p.G13R	SMPH010074A
F05	NRAS	573	c.38G>A	p.G13D	SMPH010070A
F06	NRAS	575	c.38G>C	p.G13A	SMPH010084A
F07	NRAS	574	c.38G>T	p.G13V	SMPH010082A
F08	NRAS	577	c.52G>A	p.A18T	SMPH010105A
F09	MEK1	99000002	167A>C	Q56P	SMPH017164A
F10	MEK1	99000004	171G>T	K57N	SMPH017166A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F11	MEK1	99000001	199G>A	D67N	SMPH017163A
F12	MEK1	99000003	371C>T	P124L	SMPH017165A
G01	PIK3CA	759	c.1616C>G	p.P539R	SMPH010637A
G02	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
G03	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
G04	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
G05	PIK3CA	765	c.1635G>T	p.E545D	SMPH010638A
G06	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
G07	PIK3CA	776	c.3140A>T	p.H1047L	SMPH010632A
G08	PTEN	5033	c.389G>A	p.R130Q	SMPH011486A
G09	PTEN	5219	c.388C>G	p.R130G	SMPH011480A
G10	PTEN	5152	c.388C>T	p.R130*	SMPH011473A
G11	PTEN	5089	c.517C>T	p.R173C	SMPH011475A
G12	PTEN	5039	c.518G>A	p.R173H	SMPH011472A
H01	PTEN	5154	c.697C>T	p.R233*	SMPH011506A
H02	AKT1	99000005	copy number	copy number	SMPH017167A
H03	BRAF	99000006	copy number	copy number	SMPH017168A
H04	EGFR	99000007	copy number	copy number	SMPH017169A
H05	KRAS	99000008	copy number	copy number	SMPH017170A
H06	HRAS	99000009	copy number	copy number	SMPH017171A
H07	NRAS	99000010	copy number	copy number	SMPH017172A
H08	MEK1	99000011	copy number	copy number	SMPH017173A
H09	PIK3CA	99000012	copy number	copy number	SMPH017174A
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	EGFR	EGFR	EGFR
B	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR
C	EGFR	EGFR	EGFR	EGFR	EGFR	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	NRAS	NRAS	NRAS	NRAS
F	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	MEK1	MEK1	MEK1	MEK1
G	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PTEN	PTEN	PTEN	PTEN	PTEN
H	PTEN	AKT1	BRAF	EGFR	KRAS	HRAS	NRAS	MEK1	PIK3CA	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.

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