

qBiomarker Somatic Mutation PCR Array

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

Cat. no. 337021 SMH-008

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 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 the following receptor tyrosine kinase pathways: EGFR, ERBB2, PDGFR, FLT3, KIT, c-MET, FGFR2, and FGFR3. Panel I contains mutation assays for the receptor tyrosine kinases (RTKs). Components in the RTK pathways are frequently mutated in human cancers, and therefore warrant extensive investigation to enhance the understanding of carcinogenesis. 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 I includes 86 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in the RTKs. 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	EGFR	6252	c.2155G>A	p.G719S	SMPH004671A
A02	EGFR	6253	c.2155G>T	p.G719C	SMPH004672A
A03	EGFR	6239	c.2156G>C	p.G719A	SMPH004704A
A04	EGFR	6223	c.2235_2249del15	p.E746_A750del	SMPH004662A
A05	EGFR	6225	c.2236_2250del15	p.E746_A750del	SMPH004663A
A06	EGFR	12678	c.2237_2251del15	p.E746_T751>A	SMPH004667A
A07	EGFR	12422	c.2238_2248>GC	p.L747_A750>P	SMPH004768A
A08	EGFR	6220	c.2238_2255del18	p.E746_S752>D	SMPH004905A
A09	EGFR	6218	c.2239_2247del9	p.L747_E749del	SMPH004664A
A10	EGFR	6255	c.2239_2256del18	p.L747_S752del	SMPH004694A
A11	EGFR	12369	c.2240_2254del15	p.L747_T751del	SMPH004682A
A12	EGFR	6241	c.2303G>T	p.S768I	SMPH004666A
B01	EGFR	12376	c. 2307_2308insGCCAGC GTG	p.V769_D770insASV	SMPH004736A
B02	EGFR	6240	c.2369C>T	p.T790M	SMPH004665A
B03	EGFR	6224	c.2573T>G	p.L858R	SMPH004661A
B04	EGFR	6213	c.2582T>A	p.L861Q	SMPH004716A
B05	EGFR	12988	c.2125G>A	p.E709K	SMPH004670A
B06	EGFR	13427	c.2126A>C	p.E709A	SMPH004764A
B07	EGFR	21687	c.866C>T	p.A289V	SMPH004846A
B08	EGFR	21683	c.323G>A	p.R108K	SMPH004967A
B09	EGFR	21690	c.1793G>T	p.G598V	SMPH004847A
B10	ERBB2	13170	c.2305G>C	p.D769H	SMPH005135A
B11	ERBB2	682	c. 2322_2323insGCATAC GTGATG	p.M774_A775insAYVM	SMPH005128A
B12	ERBB2	12553	c.2326_2327insTGT	p.G776>VC	SMPH005156A
C01	ERBB2	14062	c.2329G>T	p.V777L	SMPH005130A
C02	PDGFRA	739	c.1682T>A	p.V561D	SMPH010452A
C03	PDGFRA	742	c.1696_1713>CGC	p.S566_E571>R	SMPH010473A
C04	PDGFRA	12417	c.1697_1711del15	p.S566_E571>K	SMPH010472A
C05	PDGFRA	12418	c.1698_1712del15	p.S566_E571>R	SMPH010471A
C06	PDGFRA	22416	c.1975A>T	p.N659Y	SMPH010460A
C07	PDGFRA	743	c.2021C>T	p.T674I	SMPH010461A
C08	PDGFRA	737	c.2524_2535del12	p.D842_H845del	SMPH010476A
C09	PDGFRA	12396	c.2524G>T	p.D842Y	SMPH010481A
C10	PDGFRA	736	c.2525A>T	p.D842V	SMPH010453A
C11	PDGFRA	12400	c.2527_2538del12	p.I843_D846del	SMPH010484A
C12	PDGFRA	12407	c.2528_2539del12	p.I843_S847>T	SMPH010488A
D01	PDGFRA	12401	c.2524_2532del9	p.D842_M844del	SMPH010485A
D02	FLT3	19737	c. 1803_1804insCAGCTA CAGATGGTACAGGTG ACCGGCTCCTCAGATA ATGAGTACTTCTACGTT GATTTTCAGAGAATATG AATATGATCTC	p.L601_K602ins27	SMPH005704A
D03	FLT3	783	c.2503G>T	p.D835Y	SMPH005661A
D04	FLT3	788	c.2505T>G	p.D835E	SMPH005668A
D05	FLT3	19836	c.2508_2510delCAT	p.I836del	SMPH005657A
D06	KIT	1326	c. 1509_1510insGCCTAT	p.Y503_F504insAY	SMPH007133A
D07	KIT	1146	c.154G>A	p.D52N	SMPH007360A
D08	KIT	28026	c.1621A>C	p.M541L	SMPH007208A
D09	KIT	1169	c.1651_1665del15	p.P551_V555del	SMPH007432A
D10	KIT	27909	c.1656_1673del18	p.Y553_K558>	SMPH007203A
D11	KIT	1210	c. 1667_1672delAGTGGA	p.W557_K558del	SMPH007192A
D12	KIT	1332	c.1669_1683del15	p.W557_E561del	SMPH007293A
E01	KIT	1216	c.1669T>A	p.W557R	SMPH007358A
E02	KIT	1219	c.1669T>C	p.W557R	SMPH007164A
E03	KIT	1221	c.1669T>G	p.W557G	SMPH007170A
E04	KIT	1247	c.1675_1677delGTT	p.V559del	SMPH007131A
E05	KIT	1252	c.1676T>A	p.V559D	SMPH007129A
E06	KIT	1253	c.1676T>G	p.V559G	SMPH007128A
E07	KIT	1257	c.1679T>A	p.V560D	SMPH007114A
E08	KIT	1290	c.1727T>C	p.L576P	SMPH007118A
E09	KIT	1294	c.1735_1737delGAT	p.D579del	SMPH007195A
E10	KIT	1304	c.1924A>G	p.K642E	SMPH007132A
E11	KIT	12706	c.1961T>C	p.V654A	SMPH007172A
E12	KIT	12708	c.2009C>T	p.T670I	SMPH007253A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F01	KIT	1306	c.2143_2145delAGC	p.S715del	SMPH007455A
F02	KIT	1311	c.2446G>C	p.D816H	SMPH007137A
F03	KIT	1310	c.2446G>T	p.D816Y	SMPH007144A
F04	KIT	1314	c.2447A>T	p.D816V	SMPH007122A
F05	KIT	1321	c.2466T>A	p.N822K	SMPH007146A
F06	KIT	1322	c.2466T>G	p.N822K	SMPH007260A
F07	KIT	18681	c.2467T>G	p.Y823D	SMPH007206A
F08	KIT	1323	c.2474T>C	p.V825A	SMPH007117A
F09	MET	29632	c.2942_3082del141	p.L982_D1028del	SMPH008291A
F10	MET	705	c.2962C>T	p.R988C	SMPH008317A
F11	MET	707	c.3029C>T	p.T1010I	SMPH008297A
F12	MET	699	c.3743A>G	p.Y1248C	SMPH008303A
G01	MET	700	c.3757T>G	p.Y1253D	SMPH008298A
G02	MET	691	c.3803T>C	p.M1268T	SMPH008293A
G03	FGFR3	716	c.1108G>T	p.G370C	SMPH005551A
G04	FGFR3	17461	c.1111A>T	p.S371C	SMPH005553A
G05	FGFR3	718	c.1118A>G	p.Y373C	SMPH005550A
G06	FGFR3	24842	c.1138G>A	p.G380R	SMPH005554A
G07	FGFR3	726	c.1948A>C	p.K650Q	SMPH005555A
G08	FGFR3	719	c.1948A>G	p.K650E	SMPH005557A
G09	FGFR3	731	c.1949A>C	p.K650T	SMPH005562A
G10	FGFR3	720	c.1949A>T	p.K650M	SMPH005558A
G11	FGFR3	24802	c.2089G>T	p.G697C	SMPH005556A
G12	FGFR3	714	c.742C>T	p.R248C	SMPH005552A
H01	FGFR2	36902	c.1647T>G	p.N549K	SMPH005506A
H02	FGFR2	36903	c.755C>G	p.S252W	SMPH005503A
H03	EGFR	99000007	copy number	copy number	SMPH017169A
H04	ERBB2	99000016	copy number	copy number	SMPH017178A
H05	PDGFRA	99000014	copy number	copy number	SMPH017176A
H06	FLT3	99000015	copy number	copy number	SMPH017177A
H07	KIT	99000021	copy number	copy number	SMPH017183A
H08	MET	99000022	copy number	copy number	SMPH017184A
H09	FGFR3	99000020	copy number	copy number	SMPH017182A
H10	FGFR2	99000019	copy number	copy number	SMPH017181A
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	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR
B	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	EGFR	ERBB2	ERBB2	ERBB2
C	ERBB2	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA	PDGFRA
D	PDGFRA	FLT3	FLT3	FLT3	FLT3	KIT	KIT	KIT	KIT	KIT	KIT	KIT
E	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT
F	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	MET	MET	MET	MET
G	MET	MET	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3
H	FGFR2	FGFR2	EGFR	ERBB2	PDGFRA	FLT3	KIT	MET	FGFR3	FGFR2	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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