

qBiomarker Somatic Mutation PCR Array

Human FLT3 Pathway

Cat. no. 337021 SMH-003

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

Normal haematopoietic cells use complex systems to control proliferation, differentiation, and cell death. Proliferation control is in part accomplished through ligand-induced stimulation of receptor tyrosine kinases and their downstream signaling cascades. Mutations in the FMS-like tyrosine receptor kinase 3 (FLT3) gene have been found to be the most common genetic lesion in acute myeloid leukaemia (AML), occurring in approximately 25% of cases. Recent studies have established a link between FLT3 mutation status and response to FLT3 inhibitors that warrants further investigation. The Human FLT3 Pathway qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid and accurate profiling of the somatic mutation status of the FLT3 gene and key downstream signaling components. 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 FLT3 Pathway qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of the FLT3 pathway and downstream effectors. This array covers 85 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically most significant mutations in the FLT3 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	1125	c.1790T>A	p.L597Q	SMPH001855A
A07	BRAF	1130	c.1798G>A	p.V600M	SMPH001846A
A08	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A09	BRAF	18443	c.1799T>C	p.V600A	SMPH001845A
A10	BRAF	6137	c.1799T>G	p.V600G	SMPH001912A
A11	KRAS	552	c.182A>G	p.Q61R	SMPH007553A
A12	KRAS	553	c.182A>T	p.Q61L	SMPH007544A
B01	KRAS	555	c.183A>T	p.Q61H	SMPH007546A
B02	KRAS	517	c.34G>A	p.G12S	SMPH007533A
B03	KRAS	518	c.34G>C	p.G12R	SMPH007534A
B04	KRAS	516	c.34G>T	p.G12C	SMPH007535A
B05	KRAS	521	c.35G>A	p.G12D	SMPH007531A
B06	KRAS	522	c.35G>C	p.G12A	SMPH007536A
B07	KRAS	520	c.35G>T	p.G12V	SMPH007537A
B08	KRAS	528	c.37G>A	p.G13S	SMPH007543A
B09	KRAS	529	c.37G>C	p.G13R	SMPH007549A
B10	KRAS	527	c.37G>T	p.G13C	SMPH007541A
B11	KRAS	532	c.38G>A	p.G13D	SMPH007538A
B12	KRAS	533	c.38G>C	p.G13A	SMPH007542A
C01	KRAS	534	c.38G>T	p.G13V	SMPH007545A
C02	KRAS	12703	c.57G>C	p.L19F	SMPH007583A
C03	HRAS	496	c.181C>A	p.Q61K	SMPH006505A
C04	HRAS	499	c.182A>G	p.Q61R	SMPH006502A
C05	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
C06	HRAS	502	c.183G>T	p.Q61H	SMPH006516A
C07	HRAS	480	c.34G>A	p.G12S	SMPH006499A
C08	HRAS	482	c.34G>C	p.G12R	SMPH006506A
C09	HRAS	481	c.34G>T	p.G12C	SMPH006500A
C10	HRAS	484	c.35G>A	p.G12D	SMPH006507A
C11	HRAS	483	c.35G>T	p.G12V	SMPH006497A
C12	HRAS	486	c.37G>C	p.G13R	SMPH006498A
D01	HRAS	488	c.37G>T	p.G13C	SMPH006511A
D02	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
D03	NRAS	582	c.182A>C	p.Q61P	SMPH010096A
D04	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
D05	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
D06	NRAS	563	c.34G>A	p.G12S	SMPH010075A
D07	NRAS	564	c.35G>A	p.G12D	SMPH010071A
D08	NRAS	565	c.35G>C	p.G12A	SMPH010066A
D09	NRAS	569	c.37G>C	p.G13R	SMPH010074A
D10	NRAS	573	c.38G>A	p.G13D	SMPH010070A
D11	NRAS	575	c.38G>C	p.G13A	SMPH010084A
D12	NRAS	574	c.38G>T	p.G13V	SMPH010082A
E01	NRAS	577	c.52G>A	p.A18T	SMPH010105A
E02	MEK1	99000002	167A>C	Q56P	SMPH017164A
E03	MEK1	99000004	171G>T	K57N	SMPH017166A
E04	MEK1	99000001	199G>A	D67N	SMPH017163A
E05	MEK1	99000003	371C>T	P124L	SMPH017165A
E06	PIK3CA	759	c.1616C>G	p.P539R	SMPH010637A
E07	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
E08	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
E09	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
E10	PIK3CA	765	c.1635G>T	p.E545D	SMPH010638A
E11	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
E12	PIK3CA	776	c.3140A>T	p.H1047L	SMPH010632A
F01	PTEN	5033	c.389G>A	p.R130Q	SMPH011486A
F02	PTEN	5219	c.388C>G	p.R130G	SMPH011480A
F03	PTEN	5152	c.388C>T	p.R130*	SMPH011473A
F04	PTEN	5089	c.517C>T	p.R173C	SMPH011475A
F05	PTEN	5039	c.518G>A	p.R173H	SMPH011472A
F06	PTEN	5154	c.697C>T	p.R233*	SMPH011506A
F07	FLT3	28042	c.1352C>T	p.S451F	SMPH005679A
F08	FLT3	19522	c.1775T>C	p.V592A	SMPH005716A
F09	FLT3	27979	c. 1788_1789insTTTGATA ATGATTACTTCTACGTT GATTTCAGAGAA	p.E596_Y597ins12	SMPH005672A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F10	FLT3	27906	c.1796A>T	p.Y599F	SMPH005783A
F11	FLT3	28921	c. 1798_1799insCAGATA ATGAGTACTTCTACGTT GATTTTCAGAGAATATG AATATG	p.Y599_D600ins15	SMPH005687A
F12	FLT3	19737	c. 1803_1804insCAGCTA CAGATGGTACAGGTG ACCGGCTCCTCAGATA ATGAGTACTTCTACGTT GATTTTCAGAGAATATG AATATGATCTC	p.L601_K602ins27	SMPH005704A
G01	FLT3	19790	c. 1807_1808insATGAATA TGATCTCAAAT	p.K602_W603insYEYDLK	SMPH005709A
G02	FLT3	28771	c. 1811_1812insCCGAGA ATATGAATATGATCTCA AATGGGA	p.W603_E604insDREYEDLKW	SMPH005686A
G03	FLT3	786	c.2039C>T	p.A680V	SMPH005705A
G04	FLT3	25248	c.2492G>A	p.G831E	SMPH005684A
G05	FLT3	28047	c.2501G>A	p.R834Q	SMPH005685A
G06	FLT3	796	c.2503_2505delGAT	p.D835del	SMPH005777A
G07	FLT3	783	c.2503G>T	p.D835Y	SMPH005661A
G08	FLT3	787	c.2505T>A	p.D835E	SMPH005690A
G09	FLT3	788	c.2505T>G	p.D835E	SMPH005668A
G10	FLT3	19836	c.2508_2510delCAT	p.I836del	SMPH005657A
G11	FLT3	24531	c.2509_2510AT>CC	p.M837P	SMPH005659A
G12	FLT3	850	c. 2520_2521insGGATCC	p.S840_N841insGS	SMPH005778A
H01	FLT3	19692	c.2525A>G	p.Y842C	SMPH005703A
H02	AKT1	99000005	copy number	copy number	SMPH017167A
H03	BRAF	99000006	copy number	copy number	SMPH017168A
H04	KRAS	99000008	copy number	copy number	SMPH017170A
H05	HRAS	99000009	copy number	copy number	SMPH017171A
H06	NRAS	99000010	copy number	copy number	SMPH017172A
H07	MEK1	99000011	copy number	copy number	SMPH017173A
H08	PIK3CA	99000012	copy number	copy number	SMPH017174A
H09	PTEN	99000013	copy number	copy number	SMPH017175A
H10	FLT3	99000015	copy number	copy number	SMPH017177A
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	KRAS	KRAS
B	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS
C	KRAS	KRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS
D	HRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS
E	NRAS	MEK1	MEK1	MEK1	MEK1	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA
F	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3
G	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3	FLT3
H	FLT3	AKT1	BRAF	KRAS	HRAS	NRAS	MEK1	PIK3CA	PTEN	FLT3	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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