

qBiomarker Somatic Mutation PCR Array

Human Hematopoietic Neoplasms

Cat. no. 337021 SMH-022A

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 Hematopoietic Neoplasm qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the top somatic mutations in human hematopoietic neoplasms in the following genes: ABL1, CEBPA, CSF1R, FLT3, GATA1, GATA2, IDH1, IDH2, JAK2, KIT, KRAS, MPL, NPM1, NRAS, PTPN11, RUNX1, p53, and WT1. 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 Hematopoietic Neoplasm qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for the study of mutations in the context of hematopoietic neoplasms 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 76 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human hematopoietic neoplasms. 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 41,000 hematopoietic neoplasm 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 cyler (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	ABL1	12578	c.1052T>C	p.M351T	SMPH000066A
A02	ABL1	12576	c.757T>C	p.Y253H	SMPH000062A
A03	ABL1	12573	c.763G>A	p.E255K	SMPH000061A
A04	ABL1	12560	c.944C>T	p.T315I	SMPH000059A
A05	CEBPA	18161	c.247delC	p.Q83fs*77	SMPH003191A
A06	CEBPA	18160	c.63delC	p.S21fs*139	SMPH003264A
A07	CEBPA	18543	c.912_913insTTG	p.K304_Q305insL	SMPH003195A
A08	CEBPA	18466	c.936_937insCAG	p.Q312_K313insQ	SMPH003181A
A09	CEBPA	18447	c.937_938insAGA	p.K313_V314insK	SMPH003266A
A10	CEBPA	18099	c.939_940insAAG	p.K313_V314insK	SMPH003179A
A11	CEBPA	18470	c.949_950insGTC	p.E316_L317insV	SMPH003285A
A12	CSF1R	947	c.2906A>G	p.Y969C	SMPH003862A
B01	FLT3	785	c.2503G>C	p.D835H	SMPH005662A
B02	FLT3	783	c.2503G>T	p.D835Y	SMPH005661A
B03	FLT3	788	c.2505T>G	p.D835E	SMPH005668A
B04	GATA1	13219	c.1_220del220	p.M1fs	SMPH006000A
B05	GATA1	13211	c.49C>T	p.Q17*	SMPH005985A
B06	GATA1	13225	c.90_91delAG	p.S30fs*9	SMPH005946A
B07	GATA2	41611	c.1075T>G	p.L359V	SMPH023872A
B08	IDH1	28748	c.394C>A	p.R132S	SMPH006591A
B09	IDH1	28749	c.394C>G	p.R132G	SMPH006592A
B10	IDH1	28747	c.394C>T	p.R132C	SMPH006589A
B11	IDH1	28746	c.395G>A	p.R132H	SMPH006590A
B12	IDH2	41590	c.419G>A	p.R140Q	SMPH025021A
C01	IDH2	33733	c.515G>A	p.R172K	SMPH006597A
C02	JAK2	27147	c.1620_1629CAGAAATG AA>GAAA	p.I540_E543>MK	SMPH006853A
C03	JAK2	26735	c.1622_1627delGAAATG	p.R541_E543>K	SMPH006845A
C04	JAK2	12600	c.1849G>T	p.V617F	SMPH006837A
C05	KIT	1311	c.2446G>C	p.D816H	SMPH007137A
C06	KIT	1310	c.2446G>T	p.D816Y	SMPH007144A
C07	KIT	1314	c.2447A>T	p.D816V	SMPH007122A
C08	KRAS	517	c.34G>A	p.G12S	SMPH007533A
C09	KRAS	521	c.35G>A	p.G12D	SMPH007531A
C10	KRAS	522	c.35G>C	p.G12A	SMPH007536A
C11	KRAS	520	c.35G>T	p.G12V	SMPH007537A
C12	KRAS	532	c.38G>A	p.G13D	SMPH007538A
D01	MPL	27286	c.1514G>A	p.S505N	SMPH008531A
D02	MPL	19193	c.1543_1544TG>AA	p.W515K	SMPH008528A
D03	MPL	18918	c.1544G>T	p.W515L	SMPH008530A
D04	NPM1	17571	c.863_864insCATG	p.W288fs*12	SMPH009953A
D05	NPM1	20806	c.863_864insCCGG	p.W288fs*12	SMPH009956A
D06	NPM1	17573	c.863_864insCCTG	p.W288fs*12	SMPH009954A
D07	NPM1	20815	c.863_864insTATG	p.W288fs*12	SMPH009964A
D08	NPM1	17559	c.863_864insTCTG	p.W288fs*12	SMPH009952A
D09	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
D10	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
D11	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
D12	NRAS	586	c.183A>C	p.Q61H	SMPH010072A
E01	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
E02	NRAS	563	c.34G>A	p.G12S	SMPH010075A
E03	NRAS	562	c.34G>T	p.G12C	SMPH010078A
E04	NRAS	564	c.35G>A	p.G12D	SMPH010071A
E05	NRAS	565	c.35G>C	p.G12A	SMPH010066A
E06	NRAS	566	c.35G>T	p.G12V	SMPH010067A
E07	NRAS	569	c.37G>C	p.G13R	SMPH010074A
E08	NRAS	570	c.37G>T	p.G13C	SMPH010081A
E09	NRAS	573	c.38G>A	p.G13D	SMPH010070A
E10	NRAS	575	c.38G>C	p.G13A	SMPH010084A
E11	NRAS	574	c.38G>T	p.G13V	SMPH010082A
E12	PTPN11	13027	c.1508G>C	p.G503A	SMPH012401A
F01	PTPN11	13028	c.179G>T	p.G60V	SMPH012377A
F02	PTPN11	13011	c.181G>T	p.D61Y	SMPH012376A
F03	PTPN11	13022	c.182A>T	p.D61V	SMPH012385A
F04	PTPN11	13013	c.205G>A	p.E69K	SMPH012378A
F05	PTPN11	13014	c.214G>A	p.A72T	SMPH012384A
F06	PTPN11	13015	c.215C>T	p.A72V	SMPH012390A
F07	PTPN11	13000	c.226G>A	p.E76K	SMPH012382A
F08	PTPN11	13016	c.226G>C	p.E76Q	SMPH012388A
F09	PTPN11	13026	c.227A>C	p.E76A	SMPH012392A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F10	PTPN11	13017	c.227A>G	p.E76G	SMPH012387A
F11	RUNX1	24736	c.319C>T	p.R107C	SMPH013163A
F12	RUNX1	24721	c.592G>A	p.D198N	SMPH013176A
G01	TP53	10648	c.524G>A	p.R175H	SMPH014921A
G02	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
G03	WT1	27307	c.938C>A	p.S313*	SMPH016803A
G04	WT1	21392	c.940_941insTCGG	p.A314fs*4	SMPH016740A
G05	ABL1	99000065	copy number	copy number	SMPH017227A
G06	CEBPA	99000049	copy number	copy number	SMPH017211A
G07	CSF1R	99000051	copy number	copy number	SMPH017213A
G08	FLT3	99000015	copy number	copy number	SMPH017177A
G09	GATA1	99000043	copy number	copy number	SMPH017205A
G10	GATA2	99000068	copy number	copy number	SMPH017230A
G11	IDH1	99000056	copy number	copy number	SMPH017218A
G12	IDH2	99000045	copy number	copy number	SMPH017207A
H01	JAK2	99000025	copy number	copy number	SMPH017187A
H02	KIT	99000021	copy number	copy number	SMPH017183A
H03	KRAS	99000008	copy number	copy number	SMPH017170A
H04	MPL	99000053	copy number	copy number	SMPH017215A
H05	NPM1	99000070	copy number	copy number	SMPH017232A
H06	NRAS	99000010	copy number	copy number	SMPH017172A
H07	PTPN11	99000023	copy number	copy number	SMPH017185A
H08	RUNX1	99000026	copy number	copy number	SMPH017188A
H09	TP53	99000041	copy number	copy number	SMPH017203A
H10	WT1	99000062	copy number	copy number	SMPH017224A
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	ABL1	ABL1	ABL1	ABL1	CEBPA	CEBPA	CEBPA	CEBPA	CEBPA	CEBPA	CEBPA	CSF1R
B	FLT3	FLT3	FLT3	GATA1	GATA1	GATA1	GATA2	IDH1	IDH1	IDH1	IDH1	IDH2
C	IDH2	JAK2	JAK2	JAK2	KIT	KIT	KIT	KRAS	KRAS	KRAS	KRAS	KRAS
D	MPL	MPL	MPL	NPM1	NPM1	NPM1	NPM1	NPM1	NRAS	NRAS	NRAS	NRAS
E	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	PTPN11
F	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	PTPN11	RUNX1	RUNX1
G	TP53	TP53	WT1	WT1	ABL1	CEBPA	CSF1R	FLT3	GATA1	GATA2	IDH1	IDH2
H	JAK2	KIT	KRAS	MPL	NPM1	NRAS	PTPN11	RUNX1	TP53	WT1	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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