

qBiomarker Somatic Mutation PCR Array

Human Myelodysplastic Syndromes

Cat. no. 337021 SMH-046A

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 Myelodysplastic Syndromes (MDS) qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate and comprehensive profiling of recurrent somatic mutations in human MDS samples. MDS and related disorders (myelodysplasia) comprise a group of myeloid neoplasms characterized by deregulated, dysplastic blood cell production. Mutations in a number of genes have been implicated in the pathogenesis of MDS, including ASXL1, CBL, DNMT3A, EZH2, IDH1, IDH2, NRAS, RUNX1, TET2, TP53, and the more recently identified mutations in the RNA splicing machinery components SF3B1, SRSF2 and U2AF35. Detection of somatic molecular abnormalities that may cause and maintain MDS is crucial for patient sample stratification in translational research studies. These mutations also warrant extensive investigation to enhance the understanding of carcinogenesis and identify potential drug targets. With its comprehensive content coverage, this array is designed for studying mutations in the context of MDS and has the potential for discovering and verifying MDS biomarkers. The 83 real-time PCR DNA sequence assays included on the array detect the most frequent, functionally verified, and biologically significant mutations in MDS. 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	ASXL1	36166	c.1772_1773insA	p.Y591fs*1	SMPH001448A
A02	ASXL1	41716	c.1888_1909del22	p.H630fs*66	SMPH018607A
A03	ASXL1	41717	c.2302C>T	p.Q768*	SMPH018610A
A04	ASXL1	52930	c.2324T>G	p.L775*	SMPH018589A
A05	ASXL1	41715	c.3202C>T	p.R1068*	SMPH018603A
A06	CBL	34052	c.1111T>C	p.Y371H	SMPH002304A
A07	CBL	34055	c.1139T>C	p.L380P	SMPH002298A
A08	CBL	34057	c.1150T>C	p.C384R	SMPH002315A
A09	CBL	34077	c.1259G>A	p.R420Q	SMPH002300A
A10	DNMT3A	53042	c.2644C>T	p.R882C	SMPH022009A
A11	DNMT3A	87007	c.2711C>T	p.P904L	SMPH043782A
A12	EZH2	37031	c.1936T>A	p.Y646N	SMPH022879A
B01	EZH2	37029	c.1937A>C	p.Y646S	SMPH022880A
B02	EZH2	37028	c.1937A>T	p.Y646F	SMPH022878A
B03	IDH1	28748	c.394C>A	p.R132S	SMPH006591A
B04	IDH1	28749	c.394C>G	p.R132G	SMPH006592A
B05	IDH1	28747	c.394C>T	p.R132C	SMPH006589A
B06	IDH1	28746	c.395G>A	p.R132H	SMPH006590A
B07	IDH1	28750	c.395G>T	p.R132L	SMPH006593A
B08	IDH2	41877	c.418C>T	p.R140W	SMPH025023A
B09	IDH2	41590	c.419G>A	p.R140Q	SMPH025021A
B10	IDH2	41875	c.419G>T	p.R140L	SMPH025022A
B11	IDH2	34039	c.514A>T	p.R172W	SMPH006598A
B12	IDH2	33733	c.515G>A	p.R172K	SMPH006597A
C01	IDH2	33732	c.515G>T	p.R172M	SMPH006596A
C02	IDH2	34090	c.516G>T	p.R172S	SMPH006599A
C03	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
C04	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
C05	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
C06	NRAS	586	c.183A>C	p.Q61H	SMPH010072A
C07	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
C08	NRAS	563	c.34G>A	p.G12S	SMPH010075A
C09	NRAS	562	c.34G>T	p.G12C	SMPH010078A
C10	NRAS	564	c.35G>A	p.G12D	SMPH010071A
C11	NRAS	565	c.35G>C	p.G12A	SMPH010066A
C12	NRAS	566	c.35G>T	p.G12V	SMPH010067A
D01	NRAS	569	c.37G>C	p.G13R	SMPH010074A
D02	NRAS	570	c.37G>T	p.G13C	SMPH010081A
D03	NRAS	573	c.38G>A	p.G13D	SMPH010070A
D04	NRAS	574	c.38G>T	p.G13V	SMPH010082A
D05	RUNX1	24756	c.167T>C	p.L56S	SMPH013193A
D06	RUNX1	24736	c.319C>T	p.R107C	SMPH013163A
D07	RUNX1	24769	c.496C>T	p.R166*	SMPH013201A
D08	RUNX1	24721	c.592G>A	p.D198N	SMPH013176A
D09	RUNX1	24799	c.593A>G	p.D198G	SMPH013200A
D10	RUNX1	24805	c.602G>A	p.R201Q	SMPH013202A
D11	RUNX1	24731	c.611G>A	p.R204Q	SMPH013182A
D12	SF3B1	110693	c.1866G>T	p.E622D	SMPH058036A
E01	SF3B1	110695	c.1874G>T	p.R625L	SMPH058038A
E02	SF3B1	131560	c.1984C>G	p.H662D	SMPH058034A
E03	SF3B1	130416	c.1986C>A	p.H662Q	SMPH058043A
E04	SF3B1	110692	c.1986C>G	p.H662Q	SMPH058035A
E05	SF3B1	110694	c.1996A>G	p.K666E	SMPH058033A
E06	SRSF2	98000028	c.284C>A	P95H	SMPH038669A
E07	SRSF2	98000029	c.284C>T	P95L	SMPH038670A
E08	SRSF2	98000030	c.284C>G	P95R	SMPH038671A
E09	TET2	41644	c.1648C>T	p.R550*	SMPH033769A
E10	TET2	43417	c.2746C>T	p.Q916*	SMPH033714A
E11	TP53	10648	c.524G>A	p.R175H	SMPH014921A
E12	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
F01	TP53	10660	c.818G>A	p.R273H	SMPH014913A
F02	TP53	10656	c.742C>T	p.R248W	SMPH014929A
F03	TP53	10659	c.817C>T	p.R273C	SMPH014907A
F04	TP53	10704	c.844C>T	p.R282W	SMPH014941A
F05	TP53	10817	c.747G>T	p.R249S	SMPH015066A
F06	TP53	6932	c.733G>A	p.G245S	SMPH014940A
F07	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
F08	TP53	10654	c.637C>T	p.R213*	SMPH014928A
F09	TP53	10670	c.469G>T	p.V157F	SMPH014984A
F10	TP53	10705	c.586C>T	p.R196*	SMPH014949A
F11	TP53	10645	c.527G>T	p.C176F	SMPH014960A
F12	TP53	10889	c.536A>G	p.H179R	SMPH015072A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	TP53	10808	c.488A>G	p.Y163C	SMPH014931A
G02	TP53	10722	c.853G>A	p.E285K	SMPH014937A
G03	TP53	43606	c.734G>A	p.G245D	SMPH034441A
G04	TP53	10779	c.818G>T	p.R273L	SMPH015005A
G05	TP53	10725	c.701A>G	p.Y234C	SMPH014944A
G06	U2AF35	98000031	c.470A>C	Q157P	SMPH038672A
G07	U2AF35	98000032	c.470A>G	Q157R	SMPH038673A
G08	U2AF35	98000033	c.101C>T	S34F	SMPH038674A
G09	U2AF35	98000034	c.101C>A	S34Y	SMPH038675A
G10	ASXL1	99000028	copy number	copy number	SMPH017190A
G11	CBL	99000050	copy number	copy number	SMPH017212A
G12	DNMT3A	99000100	copy number	copy number	SMPH038638A
H01	EZH2	99000067	copy number	copy number	SMPH017229A
H02	IDH1	99000056	copy number	copy number	SMPH017218A
H03	IDH2	99000045	copy number	copy number	SMPH017207A
H04	NRAS	99000010	copy number	copy number	SMPH017172A
H05	RUNX1	99000026	copy number	copy number	SMPH017188A
H06	SF3B1	99000106	copy number	copy number	SMPH038681A
H07	SRSF2	99000107	copy number	copy number	SMPH038682A
H08	TET2	99000069	copy number	copy number	SMPH017231A
H09	TP53	99000041	copy number	copy number	SMPH017203A
H10	U2AF35	99000108	copy number	copy number	SMPH038683A
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	ASXL1	ASXL1	ASXL1	ASXL1	ASXL1	CBL	CBL	CBL	CBL	DNMT3A	DNMT3A	EZH2
B	EZH2	EZH2	IDH1	IDH1	IDH1	IDH1	IDH1	IDH2	IDH2	IDH2	IDH2	IDH2
C	IDH2	IDH2	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS
D	NRAS	NRAS	NRAS	NRAS	RUNX1	RUNX1	RUNX1	RUNX1	RUNX1	RUNX1	RUNX1	SF3B1
E	SF3B1	SF3B1	SF3B1	SF3B1	SF3B1	SRSF2	SRSF2	SRSF2	TET2	TET2	TP53	TP53
F	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
G	TP53	TP53	TP53	TP53	TP53	U2AF35	U2AF35	U2AF35	U2AF35	ASXL1	CBL	DNMT3A
H	EZH2	IDH1	IDH2	NRAS	RUNX1	SF3B1	SRSF2	TET2	TP53	U2AF35	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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