

qBiomarker Somatic Mutation PCR Array

Human Acute Myeloid Leukemia

Cat. no. 337021 SMH-045A

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 Acute Myeloid Leukemia (AML) qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate and comprehensive profiling of recurrent frequent somatic mutations found in human AML samples. Patients with AML, the most frequent hematological malignancy in adults, have highly variable prognoses and a high mortality rate. Mutations in a number of genes have been implicated in the pathogenesis of AML, including ASXL1, DNMT3A, FLT3, IDH1, IDH2, KIT, NPM1, NRAS, RUNX1, TET2 and WT1. Detection of somatic molecular abnormalities that may cause and maintain AML 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 AML and has the potential for discovering and verifying AML biomarkers. The 83 real-time PCR DNA sequence assays included on the array detect the most frequent, functionally verified, and biologically significant mutations in AML. 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	DNMT3A	53042	c.2644C>T	p.R882C	SMPH022009A
A07	DNMT3A	87007	c.2711C>T	p.P904L	SMPH043782A
A08	FLT3	19737	c. 1803_1804insCAGCTA CAGATGGTACAGGTG ACCGGCTCCTCAGATA ATGAGTACTTCTACGTT GATTTCAAGAGAATATG AATATGATCTC	p.L601_K602ins27	SMPH005704A
A09	FLT3	785	c.2503G>C	p.D835H	SMPH005662A
A10	FLT3	783	c.2503G>T	p.D835Y	SMPH005661A
A11	FLT3	788	c.2505T>G	p.D835E	SMPH005668A
A12	FLT3	19836	c.2508_2510delCAT	p.I836del	SMPH005657A
B01	IDH1	28748	c.394C>A	p.R132S	SMPH006591A
B02	IDH1	28749	c.394C>G	p.R132G	SMPH006592A
B03	IDH1	28747	c.394C>T	p.R132C	SMPH006589A
B04	IDH1	28746	c.395G>A	p.R132H	SMPH006590A
B05	IDH1	28750	c.395G>T	p.R132L	SMPH006593A
B06	IDH2	41877	c.418C>T	p.R140W	SMPH025023A
B07	IDH2	41590	c.419G>A	p.R140Q	SMPH025021A
B08	IDH2	41875	c.419G>T	p.R140L	SMPH025022A
B09	IDH2	34039	c.514A>T	p.R172W	SMPH006598A
B10	IDH2	33733	c.515G>A	p.R172K	SMPH006597A
B11	IDH2	33732	c.515G>T	p.R172M	SMPH006596A
B12	IDH2	34090	c.516G>T	p.R172S	SMPH006599A
C01	KIT	1326	c. 1509_1510insGCCTAT	p.Y503_F504insAY	SMPH007133A
C02	KIT	28026	c.1621A>C	p.M541L	SMPH007208A
C03	KIT	27909	c.1656_1673del18	p.Y553_K558>	SMPH007203A
C04	KIT	1210	c. 1667_1672delAGTGGGA	p.W557_K558del	SMPH007192A
C05	KIT	1332	c.1669_1683del15	p.W557_E561del	SMPH007293A
C06	KIT	1216	c.1669T>A	p.W557R	SMPH007358A
C07	KIT	1219	c.1669T>C	p.W557R	SMPH007164A
C08	KIT	1226	c. 1670_1675delGGAAG G	p.W557_V559>F	SMPH007211A
C09	KIT	1247	c.1675_1677delGTT	p.V559del	SMPH007131A
C10	KIT	1252	c.1676T>A	p.V559D	SMPH007129A
C11	KIT	1255	c.1676T>C	p.V559A	SMPH007246A
C12	KIT	1253	c.1676T>G	p.V559G	SMPH007128A
D01	KIT	1257	c.1679T>A	p.V560D	SMPH007114A
D02	KIT	1285	c.1708_1728del21	p.Y570_L576del	SMPH007220A
D03	KIT	1294	c.1735_1737delGAT	p.D579del	SMPH007195A
D04	KIT	1304	c.1924A>G	p.K642E	SMPH007132A
D05	KIT	12706	c.1961T>C	p.V654A	SMPH007172A
D06	KIT	1311	c.2446G>C	p.D816H	SMPH007137A
D07	KIT	1310	c.2446G>T	p.D816Y	SMPH007144A
D08	KIT	1314	c.2447A>T	p.D816V	SMPH007122A
D09	KIT	1321	c.2466T>A	p.N822K	SMPH007146A
D10	KIT	1322	c.2466T>G	p.N822K	SMPH007260A
D11	KIT	18681	c.2467T>G	p.Y823D	SMPH007206A
D12	KIT	1323	c.2474T>C	p.V825A	SMPH007117A
E01	NPM1	17571	c.863_864insCATG	p.W288fs*12	SMPH009953A
E02	NPM1	20806	c.863_864insCCGG	p.W288fs*12	SMPH009956A
E03	NPM1	17573	c.863_864insCCTG	p.W288fs*12	SMPH009954A
E04	NPM1	20815	c.863_864insTATG	p.W288fs*12	SMPH009964A
E05	NPM1	17559	c.863_864insTCTG	p.W288fs*12	SMPH009952A
E06	NRAS	580	c.181C>A	p.Q61K	SMPH010073A
E07	NRAS	582	c.182A>C	p.Q61P	SMPH010096A
E08	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
E09	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
E10	NRAS	586	c.183A>C	p.Q61H	SMPH010072A
E11	NRAS	585	c.183A>T	p.Q61H	SMPH010068A
E12	NRAS	563	c.34G>A	p.G12S	SMPH010075A
F01	NRAS	562	c.34G>T	p.G12C	SMPH010078A
F02	NRAS	564	c.35G>A	p.G12D	SMPH010071A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F03	NRAS	565	c.35G>C	p.G12A	SMPH010066A
F04	NRAS	566	c.35G>T	p.G12V	SMPH010067A
F05	NRAS	569	c.37G>C	p.G13R	SMPH010074A
F06	NRAS	570	c.37G>T	p.G13C	SMPH010081A
F07	NRAS	573	c.38G>A	p.G13D	SMPH010070A
F08	NRAS	575	c.38G>C	p.G13A	SMPH010084A
F09	NRAS	574	c.38G>T	p.G13V	SMPH010082A
F10	NRAS	577	c.52G>A	p.A18T	SMPH010105A
F11	RUNX1	24756	c.167T>C	p.L56S	SMPH013193A
F12	RUNX1	24736	c.319C>T	p.R107C	SMPH013163A
G01	RUNX1	24769	c.496C>T	p.R166*	SMPH013201A
G02	RUNX1	24721	c.592G>A	p.D198N	SMPH013176A
G03	RUNX1	24799	c.593A>G	p.D198G	SMPH013200A
G04	RUNX1	24805	c.602G>A	p.R201Q	SMPH013202A
G05	RUNX1	24731	c.611G>A	p.R204Q	SMPH013182A
G06	TET2	41644	c.1648C>T	p.R550*	SMPH033769A
G07	TET2	43417	c.2746C>T	p.Q916*	SMPH033714A
G08	WT1	21397	c.1168C>T	p.R390*	SMPH016744A
G09	WT1	21418	c.906_907insT	p.V303fs*14	SMPH016762A
G10	WT1	27307	c.938C>A	p.S313*	SMPH016803A
G11	WT1	21392	c.940_941insTCGG	p.A314fs*4	SMPH016740A
G12	ASXL1	99000028	copy number	copy number	SMPH017190A
H01	DNMT3A	99000100	copy_number	copy_number	SMPH038638A
H02	FLT3	99000015	copy number	copy number	SMPH017177A
H03	IDH1	99000056	copy number	copy number	SMPH017218A
H04	IDH2	99000045	copy number	copy number	SMPH017207A
H05	KIT	99000021	copy number	copy number	SMPH017183A
H06	NPM1	99000070	copy number	copy number	SMPH017232A
H07	NRAS	99000010	copy number	copy number	SMPH017172A
H08	RUNX1	99000026	copy number	copy number	SMPH017188A
H09	TET2	99000069	copy number	copy number	SMPH017231A
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	ASXL1	ASXL1	ASXL1	ASXL1	ASXL1	DNMT3A	DNMT3A	FLT3	FLT3	FLT3	FLT3	FLT3
B	IDH1	IDH1	IDH1	IDH1	IDH1	IDH2	IDH2	IDH2	IDH2	IDH2	IDH2	IDH2
C	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT
D	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT	KIT
E	NPM1	NPM1	NPM1	NPM1	NPM1	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS
F	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	NRAS	RUNX1	RUNX1
G	RUNX1	RUNX1	RUNX1	RUNX1	RUNX1	TET2	TET2	WT1	WT1	WT1	WT1	ASXL1
H	DNMT3A	FLT3	IDH1	IDH2	KIT	NPM1	NRAS	RUNX1	TET2	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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