

qBiomarker Somatic Mutation PCR Array

Human p53/Rb Pathway

Cat. no. 337021 SMH-011A

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 p53/Rb Pathway qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the somatic mutation status for key genes in the p53 and Rb pathways: ATM, CDKN2A, Rb, and TP53. Components in these tumor suppressor pathways are frequently mutated in human cancers, are associated with resistance to multiple chemo-therapeutic drugs, and frequently predict prognosis. Mutations in these pathways therefore warrant extensive investigation to enhance the understanding of carcinogenesis and identify potential drug targets. 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 Human p53/Rb Pathway qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of the p53/Rb pathways and provides the potential to discover and verify drug target biomarkers for a variety of human cancers involving the p53/Rb tumor suppressor pathways and downstream effectors. This array includes 90 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in the p53/Rb pathways. 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 a summary of the functional annotations of the mutation assays included and references supporting this array design, please refer to the appropriate Web page.

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	ATM	21826	c.2572T>C	p.F858L	SMPH001498A
A02	ATM	12951	c.7325A>C	p.Q2442P	SMPH001601A
A03	ATM	20404	c.7328G>A	p.R2443Q	SMPH001538A
A04	ATM	21642	c.9022C>T	p.R3008C	SMPH001484A
A05	ATM	21626	c.9023G>A	p.R3008H	SMPH001470A
A06	ATM	21624	c.9139C>T	p.R3047*	SMPH001468A
A07	CDKN2A	13653	c.128G>T	p.S43I	SMPH002892A
A08	CDKN2A	12743	c.143C>T	p.P48L	SMPH002676A
A09	CDKN2A	12484	c.322G>A	p.D108N	SMPH002965A
A10	CDKN2A	13520	c.322G>C	p.D108H	SMPH002744A
A11	CDKN2A	13489	c.322G>T	p.D108Y	SMPH002662A
A12	CDKN2A	12481	c.329G>A	p.W110*	SMPH002702A
B01	CDKN2A	12547	c.330G>A	p.W110*	SMPH002718A
B02	CDKN2A	12476	c.341C>T	p.P114L	SMPH002680A
B03	CDKN2A	12479	c.358G>T	p.E120*	SMPH002706A
B04	RB1	887	c.1654C>T	p.R552*	SMPH012681A
B05	RB1	888	c.1666C>T	p.R556*	SMPH012648A
B06	RB1	861	c.1981C>T	p.R661W	SMPH012676A
B07	TP53	11073	c.1024C>T	p.R342*	SMPH015065A
B08	TP53	11582	c.395A>G	p.K132R	SMPH015094A
B09	TP53	10801	c.404G>A	p.C135Y	SMPH015154A
B10	TP53	10647	c.404G>T	p.C135F	SMPH014911A
B11	TP53	43708	c.422G>A	p.C141Y	SMPH034537A
B12	TP53	43609	c.437G>A	p.W146*	SMPH034567A
C01	TP53	10727	c.438G>A	p.W146*	SMPH015140A
C02	TP53	10905	c.451C>T	p.P151S	SMPH015043A
C03	TP53	10790	c.455C>T	p.P152L	SMPH014958A
C04	TP53	6815	c.461G>T	p.G154V	SMPH015134A
C05	TP53	10670	c.469G>T	p.V157F	SMPH014984A
C06	TP53	10690	c.473G>A	p.R158H	SMPH014957A
C07	TP53	10714	c.473G>T	p.R158L	SMPH015138A
C08	TP53	11148	c.476C>T	p.A159V	SMPH014972A
C09	TP53	10739	c.481G>A	p.A161T	SMPH015187A
C10	TP53	10808	c.488A>G	p.Y163C	SMPH014931A
C11	TP53	11084	c.517G>A	p.V173M	SMPH015105A
C12	TP53	43559	c.517G>T	p.V173L	SMPH034455A
D01	TP53	10648	c.524G>A	p.R175H	SMPH014921A
D02	TP53	10687	c.527G>A	p.C176Y	SMPH015119A
D03	TP53	10645	c.527G>T	p.C176F	SMPH014960A
D04	TP53	10768	c.535C>T	p.H179Y	SMPH015208A
D05	TP53	10889	c.536A>G	p.H179R	SMPH015072A
D06	TP53	43635	c.536A>T	p.H179L	SMPH034554A
D07	TP53	10733	c.574C>T	p.Q192*	SMPH015161A
D08	TP53	10742	c.578A>G	p.H193R	SMPH014975A
D09	TP53	11066	c.578A>T	p.H193L	SMPH014968A
D10	TP53	11089	c.584T>C	p.I195T	SMPH015069A
D11	TP53	10705	c.586C>T	p.R196*	SMPH014949A
D12	TP53	43947	c.614A>G	p.Y205C	SMPH034421A
E01	TP53	10654	c.637C>T	p.R213*	SMPH014928A
E02	TP53	43687	c.641A>G	p.H214R	SMPH034420A
E03	TP53	10667	c.646G>A	p.V216M	SMPH015006A
E04	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
E05	TP53	10725	c.701A>G	p.Y234C	SMPH014944A
E06	TP53	10731	c.707A>G	p.Y236C	SMPH015023A
E07	TP53	10834	c.711G>A	p.M237I	SMPH015199A
E08	TP53	11059	c.713G>A	p.C238Y	SMPH015089A
E09	TP53	10777	c.715A>G	p.N239D	SMPH015188A
E10	TP53	10812	c.722C>T	p.S241F	SMPH014924A
E11	TP53	10646	c.725G>A	p.C242Y	SMPH015220A
E12	TP53	10810	c.725G>T	p.C242F	SMPH015002A
F01	TP53	10941	c.730G>A	p.G244S	SMPH015100A
F02	TP53	11524	c.730G>T	p.G244C	SMPH015087A
F03	TP53	10883	c.731G>A	p.G244D	SMPH015004A
F04	TP53	6932	c.733G>A	p.G245S	SMPH014940A
F05	TP53	11081	c.733G>T	p.G245C	SMPH014979A
F06	TP53	43606	c.734G>A	p.G245D	SMPH034441A
F07	TP53	11196	c.734G>T	p.G245V	SMPH014986A
F08	TP53	10656	c.742C>T	p.R248W	SMPH014929A
F09	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
F10	TP53	6549	c.743G>T	p.R248L	SMPH015015A
F11	TP53	10817	c.747G>T	p.R249S	SMPH015066A
F12	TP53	10771	c.749C>T	p.P250L	SMPH015046A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	TP53	10988	c.772G>A	p.E258K	SMPH015102A
G02	TP53	10867	c.797G>A	p.G266E	SMPH015003A
G03	TP53	10891	c.814G>A	p.V272M	SMPH014987A
G04	TP53	10659	c.817C>T	p.R273C	SMPH014907A
G05	TP53	10660	c.818G>A	p.R273H	SMPH014913A
G06	TP53	10779	c.818G>T	p.R273L	SMPH015005A
G07	TP53	10893	c.824G>A	p.C275Y	SMPH015022A
G08	TP53	10701	c.824G>T	p.C275F	SMPH014991A
G09	TP53	10939	c.832C>T	p.P278S	SMPH014915A
G10	TP53	10863	c.833C>T	p.P278L	SMPH015086A
G11	TP53	43714	c.836G>A	p.G279E	SMPH034710A
G12	TP53	10728	c.839G>A	p.R280K	SMPH015091A
H01	TP53	10724	c.839G>C	p.R280T	SMPH014901A
H02	TP53	10704	c.844C>T	p.R282W	SMPH014941A
H03	TP53	10722	c.853G>A	p.E285K	SMPH014937A
H04	TP53	10726	c.856G>A	p.E286K	SMPH015084A
H05	TP53	10856	c.880G>T	p.E294*	SMPH015028A
H06	TP53	10710	c.892G>T	p.E298*	SMPH015116A
H07	ATM	99000031	copy number	copy number	SMPH017193A
H08	CDKN2A	99000032	copy number	copy number	SMPH017194A
H09	RB1	99000036	copy number	copy number	SMPH017198A
H10	TP53	99000041	copy number	copy number	SMPH017203A
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	ATM	ATM	ATM	ATM	ATM	ATM	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A
B	CDKN2A	CDKN2A	CDKN2A	RB1	RB1	RB1	TP53	TP53	TP53	TP53	TP53	TP53
C	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
D	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
E	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
F	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
G	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53	TP53
H	TP53	TP53	TP53	TP53	TP53	TP53	ATM	CDKN2A	RB1	TP53	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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