

qBiomarker Somatic Mutation PCR Array

Human Bladder Cancer

Cat. no. 337021 SMH-030A

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)



Description

The Human Bladder Cancer qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the somatic mutations in human bladder cancer samples in the following key genes: AKT1, CDKN2A, CTNNB1/beta-catenin, FGFR3, HRAS, KRAS, NRAS, PIK3CA, and P53. 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 Bladder Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of bladder cancer and has the potential for discovery and development of effective biomarkers for this cancer type and other cancer types in which these mutations were identified. This array includes 85 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human bladder cancer. 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 3200 bladder cancer samples. The simplicity of the product format and operating procedure enables 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	CDKN2A	12473	c.172C>T	p.R58*	SMPH002668A
A03	CDKN2A	12504	c.247C>T	p.H83Y	SMPH002658A
A04	CDKN2A	13520	c.322G>C	p.D108H	SMPH002744A
A05	CDKN2A	13489	c.322G>T	p.D108Y	SMPH002662A
A06	CDKN2A	12476	c.341C>T	p.P114L	SMPH002680A
A07	CTNNB1	5679	c.110C>G	p.S37C	SMPH003962A
A08	FGFR3	722	c.1107G>T	p.A369A	SMPH005559A
A09	FGFR3	716	c.1108G>T	p.G370C	SMPH005551A
A10	FGFR3	17461	c.1111A>T	p.S371C	SMPH005553A
A11	FGFR3	718	c.1118A>G	p.Y373C	SMPH005550A
A12	FGFR3	24842	c.1138G>A	p.G380R	SMPH005554A
B01	FGFR3	721	c.1172C>A	p.A391E	SMPH005549A
B02	FGFR3	29438	c.1921G>A	p.D641N	SMPH005574A
B03	FGFR3	726	c.1948A>C	p.K650Q	SMPH005555A
B04	FGFR3	719	c.1948A>G	p.K650E	SMPH005557A
B05	FGFR3	731	c.1949A>C	p.K650T	SMPH005562A
B06	FGFR3	720	c.1949A>T	p.K650M	SMPH005558A
B07	FGFR3	714	c.742C>T	p.R248C	SMPH005552A
B08	HRAS	496	c.181C>A	p.Q61K	SMPH006505A
B09	HRAS	499	c.182A>G	p.Q61R	SMPH006502A
B10	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
B11	HRAS	480	c.34G>A	p.G12S	SMPH006499A
B12	HRAS	481	c.34G>T	p.G12C	SMPH006500A
C01	HRAS	484	c.35G>A	p.G12D	SMPH006507A
C02	HRAS	483	c.35G>T	p.G12V	SMPH006497A
C03	HRAS	486	c.37G>C	p.G13R	SMPH006498A
C04	HRAS	488	c.37G>T	p.G13C	SMPH006511A
C05	KRAS	517	c.34G>A	p.G12S	SMPH007533A
C06	KRAS	518	c.34G>C	p.G12R	SMPH007534A
C07	KRAS	516	c.34G>T	p.G12C	SMPH007535A
C08	KRAS	521	c.35G>A	p.G12D	SMPH007531A
C09	KRAS	522	c.35G>C	p.G12A	SMPH007536A
C10	KRAS	520	c.35G>T	p.G12V	SMPH007537A
C11	NRAS	584	c.182A>G	p.Q61R	SMPH010069A
C12	NRAS	583	c.182A>T	p.Q61L	SMPH010076A
D01	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
D02	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
D03	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
D04	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
D05	PIK3CA	776	c.3140A>T	p.H1047L	SMPH010632A
D06	TP53	43963	c.396G>C	p.K132N	SMPH035134A
D07	TP53	10801	c.404G>A	p.C135Y	SMPH015154A
D08	TP53	43708	c.422G>A	p.C141Y	SMPH034537A
D09	TP53	10727	c.438G>A	p.W146*	SMPH015140A
D10	TP53	10790	c.455C>T	p.P152L	SMPH014958A
D11	TP53	10760	c.467G>C	p.R156P	SMPH015042A
D12	TP53	10670	c.469G>T	p.V157F	SMPH014984A
E01	TP53	10690	c.473G>A	p.R158H	SMPH014957A
E02	TP53	10739	c.481G>A	p.A161T	SMPH015187A
E03	TP53	10808	c.488A>G	p.Y163C	SMPH014931A
E04	TP53	10648	c.524G>A	p.R175H	SMPH014921A
E05	TP53	10645	c.527G>T	p.C176F	SMPH014960A
E06	TP53	10768	c.535C>T	p.H179Y	SMPH015208A
E07	TP53	10889	c.536A>G	p.H179R	SMPH015072A
E08	TP53	10733	c.574C>T	p.Q192*	SMPH015161A
E09	TP53	10742	c.578A>G	p.H193R	SMPH014975A
E10	TP53	10705	c.586C>T	p.R196*	SMPH014949A
E11	TP53	10654	c.637C>T	p.R213*	SMPH014928A
E12	TP53	43687	c.641A>G	p.H214R	SMPH034420A
F01	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
F02	TP53	10725	c.701A>G	p.Y234C	SMPH014944A
F03	TP53	10731	c.707A>G	p.Y236C	SMPH015023A
F04	TP53	10777	c.715A>G	p.N239D	SMPH015188A
F05	TP53	10709	c.722C>G	p.S241C	SMPH014933A
F06	TP53	10812	c.722C>T	p.S241F	SMPH014924A
F07	TP53	10646	c.725G>A	p.C242Y	SMPH015220A
F08	TP53	11524	c.730G>T	p.G244C	SMPH015087A
F09	TP53	6932	c.733G>A	p.G245S	SMPH014940A
F10	TP53	10656	c.742C>T	p.R248W	SMPH014929A
F11	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
F12	TP53	10988	c.772G>A	p.E258K	SMPH015102A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
G01	TP53	44951	c.790C>T	p.L264L	SMPH036118A
G02	TP53	10794	c.796G>A	p.G266R	SMPH015215A
G03	TP53	10719	c.811G>A	p.E271K	SMPH015048A
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	10728	c.839G>A	p.R280K	SMPH015091A
G08	TP53	10724	c.839G>C	p.R280T	SMPH014901A
G09	TP53	10992	c.844C>G	p.R282G	SMPH015139A
G10	TP53	10704	c.844C>T	p.R282W	SMPH014941A
G11	TP53	10722	c.853G>A	p.E285K	SMPH014937A
G12	TP53	10726	c.856G>A	p.E286K	SMPH015084A
H01	TP53	10710	c.892G>T	p.E298*	SMPH015116A
H02	AKT1	99000005	copy number	copy number	SMPH017167A
H03	CDKN2A	99000032	copy number	copy number	SMPH017194A
H04	CTNNB1	99000042	copy number	copy number	SMPH017204A
H05	FGFR3	99000020	copy number	copy number	SMPH017182A
H06	HRAS	99000009	copy number	copy number	SMPH017171A
H07	KRAS	99000008	copy number	copy number	SMPH017170A
H08	NRAS	99000010	copy number	copy number	SMPH017172A
H09	PIK3CA	99000012	copy number	copy number	SMPH017174A
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	AKT1	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CTNNB1	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3
B	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	FGFR3	HRAS	HRAS	HRAS	HRAS	HRAS
C	HRAS	HRAS	HRAS	HRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	NRAS	NRAS
D	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	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	AKT1	CDKN2A	CTNNB1	FGFR3	HRAS	KRAS	NRAS	PIK3CA	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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