

qBiomarker Somatic Mutation PCR Array

Human Brain Cancers

Cat. no. 337021 SMH-025A

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 Brain (Glioblastoma Multiforme (GBM)/ Central Nervous System (CNS)) Cancer qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the top somatic mutations in human GBM/CNS cancer in the following genes: BRAF, CTNNB1/beta-catenin, EGFR, IDH1, IDH2, KRAS, NF2, NRAS, PIK3CA, and PTEN. 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 GBM/CNS Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for the study of mutations in the context of GBM/CNS cancers and has the potential for discovery and verification of drug target biomarkers for these cancer types and other cancer types in which these mutations have been identified. This array includes 37 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human GBM/CNS cancers. 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 7800 CNS cancer samples (including 6850 glioma samples). Each 96-well array allows profiling of the mutation status of 2 samples, while each 384-well format array allows mutation profiling of 8 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 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	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
A02	CTNNB1	5671	c.101G>A	p.G34E	SMPH003960A
A03	CTNNB1	5679	c.110C>G	p.S37C	SMPH003962A
A04	CTNNB1	5661	c.94G>T	p.D32Y	SMPH003956A
A05	CTNNB1	5677	c.98C>G	p.S33C	SMPH003963A
A06	CTNNB1	5669	c.98C>T	p.S33F	SMPH003964A
A07	EGFR	21690	c.1793G>T	p.G598V	SMPH004847A
A08	EGFR	21683	c.323G>A	p.R108K	SMPH004967A
A09	EGFR	21684	c.787A>C	p.T263P	SMPH004966A
A10	EGFR	21687	c.866C>T	p.A289V	SMPH004846A
A11	IDH1	28748	c.394C>A	p.R132S	SMPH006591A
A12	IDH1	28749	c.394C>G	p.R132G	SMPH006592A
B01	IDH1	28747	c.394C>T	p.R132C	SMPH006589A
B02	IDH1	28746	c.395G>A	p.R132H	SMPH006590A
B03	IDH1	28750	c.395G>T	p.R132L	SMPH006593A
B04	IDH2	34039	c.514A>T	p.R172W	SMPH006598A
B05	IDH2	33733	c.515G>A	p.R172K	SMPH006597A
B06	IDH2	33732	c.515G>T	p.R172M	SMPH006596A
B07	KRAS	550	c.181C>G	p.Q61E	SMPH007606A
B08	KRAS	522	c.35G>C	p.G12A	SMPH007536A
B09	NF2	23667	c.1396C>T	p.R466*	SMPH009308A
B10	NRAS	564	c.35G>A	p.G12D	SMPH010071A
B11	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
B12	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
C01	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
C02	PTEN	5269	c.125T>G	p.L42R	SMPH012012A
C03	PTEN	5109	c.302T>C	p.I101T	SMPH011988A
C04	PTEN	5266	c.314G>T	p.C105F	SMPH011654A
C05	PTEN	5092	c.385G>A	p.G129R	SMPH011491A
C06	PTEN	5152	c.388C>T	p.R130*	SMPH011473A
C07	PTEN	5089	c.517C>T	p.R173C	SMPH011475A
C08	PTEN	5039	c.518G>A	p.R173H	SMPH011472A
C09	PTEN	5295	c.686C>G	p.S229*	SMPH011679A
C10	PTEN	5154	c.697C>T	p.R233*	SMPH011506A
C11	PTEN	5888	c.723_724insTT	p.E242fs*15	SMPH011734A
C12	PTEN	4986	c.741_742insA	p.P248fs*5	SMPH011468A
D01	PTEN	4958	c.955_958delACTT	p.T319fs*1	SMPH011550A
D02	BRAF	99000006	copy number	copy number	SMPH017168A
D03	CTNNB1	99000042	copy number	copy number	SMPH017204A
D04	EGFR	99000007	copy number	copy number	SMPH017169A
D05	IDH1	99000056	copy number	copy number	SMPH017218A
D06	IDH2	99000045	copy number	copy number	SMPH017207A
D07	KRAS	99000008	copy number	copy number	SMPH017170A
D08	NF2	99000035	copy number	copy number	SMPH017197A
D09	NRAS	99000010	copy number	copy number	SMPH017172A
D10	PIK3CA	99000012	copy number	copy number	SMPH017174A
D11	PTEN	99000013	copy number	copy number	SMPH017175A
D12	SMPC	99000017	positive PCR control	positive PCR control	SMPH017179A
E01	BRAF	476	c.1799T>A	p.V600E	SMPH001828A
E02	CTNNB1	5671	c.101G>A	p.G34E	SMPH003960A
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G07	PTEN	5089	c.517C>T	p.R173C	SMPH011475A
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G10	PTEN	5154	c.697C>T	p.R233*	SMPH011506A
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H04	EGFR	99000007	copy number	copy number	SMPH017169A
H05	IDH1	99000056	copy number	copy number	SMPH017218A
H06	IDH2	99000045	copy number	copy number	SMPH017207A
H07	KRAS	99000008	copy number	copy number	SMPH017170A
H08	NF2	99000035	copy number	copy number	SMPH017197A
H09	NRAS	99000010	copy number	copy number	SMPH017172A
H10	PIK3CA	99000012	copy number	copy number	SMPH017174A
H11	PTEN	99000013	copy number	copy number	SMPH017175A
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	BRAF	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	EGFR	EGFR	EGFR	EGFR	IDH1	IDH1
B	IDH1	IDH1	IDH1	IDH2	IDH2	IDH2	KRAS	KRAS	NF2	NRAS	PIK3CA	PIK3CA
C	PIK3CA	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN
D	PTEN	BRAF	CTNNB1	EGFR	IDH1	IDH2	KRAS	NF2	NRAS	PIK3CA	PTEN	SMPC
E	BRAF	CTNNB1	CTNNB1	CTNNB1	CTNNB1	CTNNB1	EGFR	EGFR	EGFR	EGFR	IDH1	IDH1
F	IDH1	IDH1	IDH1	IDH2	IDH2	IDH2	KRAS	KRAS	NF2	NRAS	PIK3CA	PIK3CA
G	PIK3CA	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN	PTEN
H	PTEN	BRAF	CTNNB1	EGFR	IDH1	IDH2	KRAS	NF2	NRAS	PIK3CA	PTEN	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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