qBiomarker Somatic Mutation PCR Array

Human Head and Neck Cancer

Cat. no. 337021 SMH-037A

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)

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Sample & Assay Technologies

Description

The Human Head and Neck Cancer qBiomarker Somatic Mutation PCR Array is a translational research tool that allows rapid, accurate, and comprehensive profiling of the somatic mutations in human head and neck cancer samples in the following key genes: BRAF, CDKN2A, EGFR, FGFR3, HRAS, KRAS, MET, NRAS, PIK3CA, PTCH1, and P53. These mutations warrant extensive investigation to enhance the understanding of carcinogenesis and identify potential drug targets. The utility of 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 Head and Neck Cancer qBiomarker Somatic Mutation PCR Array, with its comprehensive content coverage, is designed for studying mutations in the context of head and neck cancer and has the potential for discovery and verification of drug target biomarkers for this cancer type and other cancer types in which these mutations have been identified. This array includes 83 DNA sequence mutation assays designed to detect the most frequent, functionally verified, and biologically significant mutations in human head and neck 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 3000 head and neck cancer samples. The simplicity of the product format and operating procedure allows routine somatic mutation profiling in any research laboratory with access to a real-time PCR instrument.

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	CDKN2A	12473	c.172C>T	p.R58*	SMPH002668A
A03	CDKN2A	12475	c.238C>T	p.R80*	SMPH002667A
A04	CDKN2A	12512	c.262G>T	p.E88*	SMPH002697A
A05	CDKN2A	13520	c.322G>C	p.D108H	SMPH002744A
A06	CDKN2A	13489	c.322G>T	p.D108Y	SMPH002662A
A07	CDKN2A	12547	c.330G>A	p.W110*	SMPH002718A
A08	CDKN2A	12476	c.341C>T	p.P114L	SMPH002680A
A09	CDKN2A	12479	c.358G>T	p.E120*	SMPH002706A
A10	EGFR	6223	c.2235_2249del15	p.E746_A750del	SMPH004662A
A11	EGFR	12382	c. 2239_2248TTAAGAGA AG>C	p.L747_A750>P	SMPH004676A
A12	EGFR	6240	c.2369C>T	p.T790M	SMPH004665A
B01	FGFR3	24802	c.2089G>T	p.G697C	SMPH005556A
B02	HRAS	496	c.181C>A	p.Q61K	SMPH006505A
B03	HRAS	499	c.182A>G	p.Q61R	SMPH006502A
B04	HRAS	498	c.182A>T	p.Q61L	SMPH006503A
B05	HRAS	502	c.183G>T	p.Q61H	SMPH006516A
B06	HRAS	33692	c.185A>G	p.E62G	SMPH006509A
B07	HRAS	480	c.34G>A	p.G12S	SMPH006499A
B08	HRAS	482	c.34G>C	p.G12R	SMPH006506A
B09	HRAS	481	c.34G>T	p.G12C	SMPH006500A
B10	HRAS	484	c.35G>A	p.G12D	SMPH006507A
B11	HRAS	483	c.35G>T	p.G12V	SMPH006497A
B12	HRAS	487	c.37G>A	p.G13S	SMPH006515A
C01	HRAS	486	c.37G>C	p.G13R	SMPH006498A
C02	KRAS	517	c.34G>A	p.G12S	SMPH007533A
C03	KRAS	518	c.34G>C	p.G12R	SMPH007534A
C04	KRAS	516	c.34G>T	p.G12C	SMPH007535A
C05	KRAS	521	c.35G>A	p.G12D	SMPH007531A
C06	KRAS	522	c.35G>C	p.G12A	SMPH007536A
C07	KRAS	520	c.35G>T	p.G12V	SMPH007537A
C08	KRAS	528	c.37G>A	p.G13S	SMPH007543A
C09	KRAS	527	c.37G>T	p.G13C	SMPH007541A
C10	KRAS	532	c.38G>A	p.G13D	SMPH007538A
C11	MET	699	c.3743A>G	p.Y1248C	SMPH008303A
C12	MET	700	c.3757T>G	p.Y1253D	SMPH008298A
D01	NRAS	563	c.34G>A	p.G12S	SMPH010075A
D02	PIK3CA	760	c.1624G>A	p.E542K	SMPH010629A
D03	PIK3CA	763	c.1633G>A	p.E545K	SMPH010627A
D04	PIK3CA	764	c.1634A>G	p.E545G	SMPH010633A
D05	PIK3CA	21451	c.3075C>T	p.T1025T	SMPH010651A
D06	PIK3CA	12591	c.3127A>G	p.M1043V	SMPH010649A
D07	PIK3CA	775	c.3140A>G	p.H1047R	SMPH010630A
D08	PTCH1	17471	c.1682T>G	p.M561R	SMPH011431A
D09	TP53	11073	c.1024C>T	p.R342*	SMPH015065A
D10	TP53	10647	c.404G>T	p.C135F	SMPH014911A
D11	TP53	43708	c.422G>A	p.C141Y	SMPH034537A
D12	TP53	10727	c.438G>A	p.W146*	SMPH015140A
E01	TP53	10905	c.451C>T	p.P151S	SMPH015043A
E02	TP53	10790	c.455C>T	p.P152L	SMPH014958A
E03	TP53	11218	c.464C>A	p.T155N	SMPH015142A
E04	TP53	10670	c.469G>T	p.V157F	SMPH014984A
E05	TP53	10648	c.524G>A	p.R175H	SMPH014921A
E06	TP53	10645	c.527G>T	p.C176F	SMPH014960A
E07	TP53	10768	c.535C>T	p.H179Y	SMPH015208A
E08	TP53	10889	c.536A>G	p.H179R	SMPH015072A
E09	TP53	43635	c.536A>T	p.H179L	SMPH034554A
E10	TP53	11066	c.578A>T	p.H193L	SMPH014968A
E11	TP53	10801	c.404G>A	p.C135Y	SMPH015154A
E12	TP53	43947	c.614A>G	p.Y205C	SMPH034421A
F01	TP53	10654	c.637C>T	p.R213*	SMPH014928A
F02	TP53	10667	c.646G>A	p.V216M	SMPH015006A
F03	TP53	10758	c.659A>G	p.Y220C	SMPH014964A
F04	TP53	10834	c.711G>A	p.M237I	SMPH015199A
F05	TP53	10810	c.725G>T	p.C242F	SMPH015002A
F06	TP53	6932	c.733G>A	p.G245S	SMPH014940A
F07	TP53	11081	c.733G>T	p.G245C	SMPH014979A
F08	TP53	43606	c.734G>A	p.G245D	SMPH034441A
F09	TP53	11196	c.734G>T	p.G245V	SMPH014986A
F10	TP53	6815	c.461G>T	p.G154V	SMPH015134A

Position	Gene	COSMIC ID	Nucleotide Change	Amino Acid Change	Assay Catalog #
F11	TP53	10656	c.742C>T	p.R248W	SMPH014929A
F12	TP53	10662	c.743G>A	p.R248Q	SMPH014902A
G01	TP53	6549	c.743G>T	p.R248L	SMPH015015A
G02	TP53	10817	c.747G>T	p.R249S	SMPH015066A
G03	TP53	10659	c.817C>T	p.R273C	SMPH014907A
G04	TP53	10660	c.818G>A	p.R273H	SMPH014913A
G05	TP53	43896	c.818G>C	p.R273P	SMPH034456A
G06	TP53	10939	c.832C>T	p.P278S	SMPH014915A
G07	TP53	43714	c.836G>A	p.G279E	SMPH034710A
G08	TP53	10724	c.839G>C	p.R280T	SMPH014901A
G09	TP53	10704	c.844C>T	p.R282W	SMPH014941A
G10	TP53	44017	c.869G>A	p.R290H	SMPH035013A
G11	TP53	10856	c.880G>T	p.E294*	SMPH015028A
G12	BRAF	99000006	copy number	copy number	SMPH017168A
H01	CDKN2A	99000032	copy number	copy number	SMPH017194A
H02	EGFR	99000007	copy number	copy number	SMPH017169A
H03	FGFR3	99000020	copy number	copy number	SMPH017182A
H04	HRAS	99000009	copy number	copy number	SMPH017171A
H05	KRAS	99000008	copy number	copy number	SMPH017170A
H06	MET	99000022	copy number	copy number	SMPH017184A
H07	NRAS	99000010	copy number	copy number	SMPH017172A
H08	PIK3CA	99000012	copy number	copy number	SMPH017174A
H09	PTCH1	99000034	copy number	copy number	SMPH017196A
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	BRAF	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	CDKN2A	EGFR	EGFR	EGFR
B	FGFR3	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS	HRAS
C	HRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	KRAS	MET	MET
D	NRAS	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PIK3CA	PTCH1	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	BRAF
H	CDKN2A	EGFR	FGFR3	HRAS	KRAS	MET	NRAS	PIK3CA	PTCH1	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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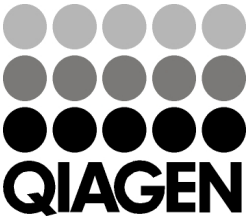

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