

# QuantiNova® LNA® PCR Focus Panels (96-Well Format and 384-Well [4 x 96] Format)

## Rat MAP Kinase Signaling Pathway

Cat. no. 249950 SBRN-061ZA

For study focus gene expression analysis

### Shipping and storage

QuantiNova LNA PCR Focus Panels are shipped at ambient temperature. Immediately upon receipt, they should be stored at 2–8°C for short term storage or at –30°C to –15°C for long time storage. Under these conditions, all components are stable for at least 12 months.

**Note:** Open the package and store the products appropriately immediately upon receipt.

For optimal performance, QuantiNova LNA PCR Focus Panels should be used together with the QuantiNova Reverse Transcription Kit for cDNA synthesis and the QuantiNova SYBR® Green PCR Kit (Mastermix) for PCR.

### Panel layout (96-well): QuantiNova LNA PCR Focus Panel

For the 384-well (4 × 96) PCR panels, genes are present in a staggered format. Refer to the QuantiNova LNA PCR System Handbook at [www.qiagen.com](http://www.qiagen.com) for further details.

	1	2	3	4	5	6	7	8	9	10	11	12
A	Araf	Aif2	Ccna1	Ccna2	Ccnb1	Dusp1	Ccnd1	Ccnd2	Ccnd3	Ccne1	Cdc42	Cdk2
B	Cdk4	Cdk6	Cdkn1a	Cdkn1b	Cdkn1c	Cdkn2a	Cdkn2b	Cdkn2c	Dusp2	Chuk	Col1a1	Creb1
C	Crebbp	Dlk1	E2f1	Egfr	Egr1	Ets1	Ets2	Fos	Grb2	Hras	Hspa5	Hspb1
D	Jun	Kcnnb8	Kcnn1	Kras	LOC100910771	Map2k1	Lamtor3	Map2k2	Map2k3	Map2k4	Map2k5	Map2k6
E	Map2k7	Map3k1	Map3k2	Map3k3	Map3k4	Map4k1	Mapk1	Mapk10	Mapk11	Mapk12	Mapk13	Mapk14
F	Mapk3	Mapk6	LOC100912585	Mapk8	Mapk8ip1	Mapk8ip2	Mapk8ip3	Mapk9	Mapkapk2	Mapkapk5	Max	Mef2c
G	Mknk1	Mos	Myc	Nfatc4	Nras	Pak1	Rac1	Ref1	Rb1	Sfn	Smad4	Tp53
H	Actb	B2m	Hprt1	Ldha	Rplp1	RGDC	QIC	QIC	QIC	PPC	PPC	PPC

## Gene table: QuantiNova LNA PCR Focus Panel

Position	Assay	Name	Symbol	Ensembl ID	Description
A01	SBR1213100	ENSRNOT00000039911.3	Araf	ENSRNOG0000010838	A-Raf proto-oncogene, serine/threonine kinase Source RGD Symbol Acc 2148
A02	SBR1207469	ENSRNOT00000002174.7	Ahf2	ENSRNOG0000001597	activating transcription factor 2 Source RGD Symbol Acc 621862
A03	SBR1129309	ENSRNOT00000040002.4	Ccna1	ENSRNOG0000014052	cyclin A1 Source RGD Symbol Acc 1310639
A04	SBR1106408	ENSRNOT00000021156.6	Ccna2	ENSRNOG0000015423	cyclin A2 Source RGD Symbol Acc 621059
A05	SBR1142548	ENSRNOT00000082846.1	Ccnb1	ENSRNOG0000058539	cyclin B1 Source RGD Symbol Acc 2291
A06	SBR1102337	ENSRNOT00000005383.5	Dusp1	ENSRNOG0000003977	dual specificity phosphatase 1 Source RGD Symbol Acc 620897
A07	SBR1211432	ENSRNOT00000028411.3	Ccnd1	ENSRNOG0000020918	cyclin D1 Source RGD Symbol Acc 68384
A08	SBR1095869	ENSRNOT00000086440.1	Ccnd2	ENSRNOG0000057710	cyclin D2 Source RGD Symbol Acc 621083
A09	SBR1162864	ENSRNOT00000074217.1	Ccnd3	ENSRNOG0000050258	cyclin D3 Source RGD Symbol Acc 2293
A10	SBR1171340	ENSRNOT00000020014.4	Ccne1	ENSRNOG0000014786	cyclin E1 Source RGD Symbol Acc 2294
A11	SBR1159831	ENSRNOT00000029025.5	Cdc42	ENSRNOG0000013536	cell division cycle 42 Source RGD Symbol Acc 71043
A12	SBR1144473	ENSRNOT00000031963.3	Cdk2	ENSRNOG0000006469	cyclin dependent kinase 2 Source RGD Symbol Acc 70486
B01	SBR1175190	ENSRNOT00000031796.4	Cdk4	ENSRNOG0000025602	cyclin-dependent kinase 4 Source RGD Symbol Acc 621120
B02	SBR1193058	ENSRNOT00000012597.6	Cdk6	ENSRNOG0000009258	cyclin-dependent kinase 6 Source RGD Symbol Acc 621121
B03	SBR1145142	ENSRNOT00000091731.1	Cdkn1a	ENSRNOG0000000521	cyclin-dependent kinase inhibitor 1A Source RGD Symbol Acc 69328
B04	SBR1124365	ENSRNOT00000049848.1	Cdkn1b	ENSRNOG0000007249	cyclin-dependent kinase inhibitor 1B Source RGD Symbol Acc 69062
B05	SBR1184599	ENSRNOT00000078944.1	Cdkn1c	ENSRNOG0000059500	cyclin-dependent kinase inhibitor 1C Source RGD Symbol Acc 727892
B06	SBR1138605	ENSRNOT00000084293.1	Cdkn2a	ENSRNOG0000059837	cyclin-dependent kinase inhibitor 2A Source RGD Symbol Acc 2323
B07	SBR1182649	ENSRNOT00000092196.1	Cdkn2b	ENSRNOG0000006735	cyclin-dependent kinase inhibitor 2B Source RGD Symbol Acc 2324
B08	SBR1141755	ENSRNOT00000012088.7	Cdkn2c	ENSRNOG0000008956	cyclin-dependent kinase inhibitor 2C Source RGD Symbol Acc 2325
B09	SBR1165437	ENSRNOT00000018549.5	Dusp2	ENSRNOG0000013862	dual specificity phosphatase 2 Source RGD Symbol Acc 1305804
B10	SBR1132111	ENSRNOT00000030782.4	Chuk	ENSRNOG0000022485	conserved helix-loop-helix ubiquitous kinase Source RGD Symbol Acc 1306661
B11	SBR1113220	ENSRNOT00000005311.6	Col1a1	ENSRNOG0000003897	collagen type I alpha 1 chain Source RGD Symbol Acc 61817
B12	SBR1179341	ENSRNOT00000049654.4	Creb1	ENSRNOG0000013412	cAMP responsive element binding protein 1 Source RGD Symbol Acc 620218
C01	SBR1115515	ENSRNOT00000007079.5	Crebbp	ENSRNOG0000005330	CREB binding protein Source RGD Symbol Acc 2401
C02	SBR1102845	ENSRNOT00000006339.6	Dlk1	ENSRNOG0000019584	delta like non-canonical Notch ligand 1 Source RGD Symbol Acc 619931
C03	SBR1191846	ENSRNOT00000022428.6	E2f1	ENSRNOG0000016708	N-terminal EF-hand calcium binding protein 3 Source RGD Symbol Acc 1310124
C04	SBR1196436	ENSRNOT00000006087.2	Egfr	ENSRNOG0000004332	epidermal growth factor receptor Source RGD Symbol Acc 2543
C05	SBR1216566	ENSRNOT00000026303.4	Egr1	ENSRNOG0000019422	early growth response 1 Source RGD Symbol Acc 2544
C06	SBR1138162	ENSRNOT00000011925.4	Ets1	ENSRNOG0000008941	ETS proto-oncogene 1, transcription factor Source RGD Symbol Acc 2583
C07	SBR1209269	ENSRNOT00000002247.6	Ets2	ENSRNOG0000001647	ETS proto-oncogene 2, transcription factor Source RGD Symbol Acc 1584977
C08	SBR1110295	ENSRNOT00000010712.3	Fos	ENSRNOG0000008015	Fos proto-oncogene, AP-1 transcription factor subunit Source RGD Symbol Acc 2626
C09	SBR1181692	ENSRNOT00000005347.5	Grb2	ENSRNOG0000003990	growth factor receptor bound protein 2 Source RGD Symbol Acc 619758
C10	SBR1204952	ENSRNOT00000079464.1	Hras	ENSRNOG0000016611	HRas proto-oncogene, GTPase Source RGD Symbol Acc 2827
		ENSRNOT000000		ENSRNOG00	

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	SBR1166340	025067.6	Hspa5	000018294	heat shock protein family A member 5 Source RGD Symbol Acc 2843
C12	SBR1195680	ENSRNOT00000031555.5	Hspb1	ENSRNOG0000023546	heat shock protein family B (small) member 1 Source RGD Symbol Acc 61306
D01	SBR1133226	ENSRNOT00000011731.3	Jun	ENSRNOG00000026293	Jun proto-oncogene, AP-1 transcription factor subunit Source RGD Symbol Acc 2943
D02	SBR1149643	ENSRNOT00000087331.1	Kcnh8	ENSRNOG0000058626	potassium voltage-gated channel subfamily H member 8 Source RGD Symbol Acc 2549
D03	SBR1179334	ENSRNOT00000044291.3	Kcnn1	ENSRNOG00000029264	potassium calcium-activated channel subfamily N member 1 Source RGD Symbol Acc 2962
D04	SBR1196578	ENSRNOT00000012588.4	Kras	ENSRNOG0000009338	KRAS proto-oncogene, GTPase Source RGD Symbol Acc 2981
D05	SBR1093683	ENSRNOT00000007654.5	LOC100910771	ENSRNOG0000005724	mitogen-activated protein kinase kinase 7-like Source RGD Symbol Acc 6496502
D06	SBR1111011	ENSRNOT00000013933.6	Map2k1	ENSRNOG0000010176	mitogen activated protein kinase kinase 1 Source RGD Symbol Acc 70495
D07	SBR1166304	ENSRNOT00000014027.5	Lamtor3	ENSRNOG0000010552	late endosomal/lysosomal adaptor, MAPK and MTOR activator 3 Source RGD Symbol Acc 1307133
D08	SBR1144525	ENSRNOT00000027272.5	Map2k2	ENSRNOG00000020005	mitogen activated protein kinase kinase 2 Source RGD Symbol Acc 61888
D09	SBR1124771	ENSRNOT00000073792.2	Map2k3	ENSRNOG0000049132	mitogen activated protein kinase kinase 3 Source RGD Symbol Acc 1306620
D10	SBR1195777	ENSRNOT00000005293.7	Map2k4	ENSRNOG0000003834	mitogen activated protein kinase kinase 4 Source RGD Symbol Acc 1307040
D11	SBR1150347	ENSRNOT00000051558.4	Map2k5	ENSRNOG0000007926	mitogen activated protein kinase kinase 5 Source RGD Symbol Acc 61890
D12	SBR1094365	ENSRNOT00000006217.6	Map2k6	ENSRNOG0000004437	mitogen-activated protein kinase kinase 6 Source RGD Symbol Acc 620666
E01	SBR1157341	ENSRNOT00000084460.1	Map2k7	ENSRNOG0000001047	mitogen activated protein kinase kinase 7 Source RGD Symbol Acc 1560043
E02	SBR1134748	ENSRNOT00000017968.3	Map3k1	ENSRNOG0000013177	mitogen-activated protein kinase kinase kinase 1 Source RGD Symbol Acc 620966
E03	SBR1190201	ENSRNOT00000060996.3	Map3k2	ENSRNOG0000014089	mitogen activated protein kinase kinase kinase 2 Source RGD Symbol Acc 620967
E04	SBR1115729	ENSRNOT00000088656.1	Map3k3	ENSRNOG0000061424	mitogen activated protein kinase kinase kinase 3 Source RGD Symbol Acc 1304575
E05	SBR1113809	ENSRNOT00000084317.1	Map3k4	ENSRNOG0000017419	mitogen activated protein kinase kinase kinase 4 Source RGD Symbol Acc 1311192
E06	SBR1186656	ENSRNOT00000027837.6	Map4k1	ENSRNOG0000020505	mitogen activated protein kinase kinase kinase kinase 1 Source RGD Symbol Acc 1305463
E07	SBR1202944	ENSRNOT00000002533.7	Mapk1	ENSRNOG0000001849	mitogen activated protein kinase 1 Source RGD Symbol Acc 70500
E08	SBR1165034	ENSRNOT00000092395.1	Mapk10	ENSRNOG0000002079	mitogen activated protein kinase 10 Source RGD Symbol Acc 3663
E09	SBR1171477	ENSRNOT00000079777.1	Mapk11	ENSRNOG0000006984	mitogen-activated protein kinase 11 Source RGD Symbol Acc 1309340
E10	SBR1166019	ENSRNOT00000044376.4	Mapk12	ENSRNOG0000031233	mitogen-activated protein kinase 12 Source RGD Symbol Acc 70975
E11	SBR1146992	ENSRNOT00000000621.6	Mapk13	ENSRNOG0000000515	mitogen activated protein kinase 13 Source RGD Symbol Acc 3045
E12	SBR1149566	ENSRNOT00000000618.6	Mapk14	ENSRNOG0000000513	mitogen activated protein kinase 14 Source RGD Symbol Acc 70496
F01	SBR1209281	ENSRNOT00000087625.1	Mapk3	ENSRNOG0000053583	mitogen activated protein kinase 3 Source RGD Symbol Acc 3046
F02	SBR1187297	ENSRNOT00000013053.6	Mapk6	ENSRNOG0000009381	mitogen-activated protein kinase 6 Source RGD Symbol Acc 62087
F03	SBR1125971	ENSRNOT00000057864.5	LOC100912585	ENSRNOG0000002412	mitogen-activated protein kinase 7-like Source RGD Symbol Acc 6486357
F04	SBR1144517	ENSRNOT00000065216.3	Mapk8	ENSRNOG0000020155	mitogen-activated protein kinase 8 Source RGD Symbol Acc 621506
F05	SBR1117844	ENSRNOT00000079746.1	Mapk8ip1	ENSRNOG0000058478	mitogen-activated protein kinase 8 interacting protein 1 Source RGD Symbol Acc 70937
F06	SBR1168854	ENSRNOT00000055792.2	Mapk8ip2	ENSRNOG0000032828	mitogen-activated protein kinase 8 interacting protein 2 Source RGD Symbol Acc 1309727
F07	SBR1213591	ENSRNOT00000042066.3	Mapk8ip3	ENSRNOG0000033568	mitogen-activated protein kinase 8 interacting protein 3 Source RGD Symbol Acc 1563691
F08	SBR1169613	ENSRNOT00000004010.4	Mapk9	ENSRNOG00000002823	mitogen-activated protein kinase 9 Source RGD Symbol Acc 628847
F09	SBR1174234	ENSRNOT00000061070.4	Mapkapk2	ENSRNOG0000004726	mitogen-activated protein kinase-activated protein kinase 2 Source RGD Symbol Acc 631362
F10	SBR1207577	ENSRNOT00000001817.7	Mapkapk5	ENSRNOG0000001345	mitogen-activated protein kinase-activated protein kinase 5 Source RGD Symbol Acc 1564113

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	SBR1118916	ENSRNOT00000010954.5	Max	ENSRNOG0000008049	MYC associated factor X Source RGD Symbol Acc 621101
F12	SBR1120063	ENSRNOT00000076710.2	Mef2c	ENSRNOG00000033134	myocyte enhancer factor 2C Source RGD Symbol Acc 1563119
G01	SBR1200345	ENSRNOT00000091543.1	Mknk1	ENSRNOG0000010381	MAP kinase-interacting serine/threonine kinase 1 Source RGD Symbol Acc 1559603
G02	SBR1197590	ENSRNOT00000011602.5	Mos	ENSRNOG0000008567	MOS proto-oncogene, serine/threonine kinase Source RGD Symbol Acc 3103
G03	SBR1106364	ENSRNOT00000006188.5	Myc	ENSRNOG0000004500	MYC proto-oncogene, bHLH transcription factor Source RGD Symbol Acc 3130
G04	SBR1194678	ENSRNOT00000089584.1	Nfatc4	ENSRNOG0000020482	nuclear factor of activated T-cells 4 Source RGD Symbol Acc 1310749
G05	SBR1160671	ENSRNOT00000039572.3	Nras	ENSRNOG0000023079	NRAS proto-oncogene, GTPase Source RGD Symbol Acc 3205
G06	SBR1158213	ENSRNOT00000091952.1	Pak1	ENSRNOG0000029784	p21 (RAC1) activated kinase 1 Source RGD Symbol Acc 3250
G07	SBR1123146	ENSRNOT00000001417.5	Rac1	ENSRNOG0000001068	Rac family small GTPase 1 Source RGD Symbol Acc 619755
G08	SBR1111289	ENSRNOT00000013831.6	Raf1	ENSRNOG0000010153	Raf-1 proto-oncogene, serine/threonine kinase Source RGD Symbol Acc 3531
G09	SBR1123205	ENSRNOT00000021752.5	Rb1	ENSRNOG0000016029	RB transcriptional corepressor 1 Source RGD Symbol Acc 3540
G10	SBR1202515	ENSRNOT00000043959.4	Sfn	ENSRNOG00000033153	stratifin Source RGD Symbol Acc 1304729
G11	SBR1183988	ENSRNOT00000090198.1	Smad4	ENSRNOG00000051965	SMAD family member 4 Source RGD Symbol Acc 3033
G12	SBR1172374	ENSRNOT00000046490.3	Tp53	ENSRNOG0000010756	tumor protein p53 Source RGD Symbol Acc 3889
H01	SBR1220567	ENSRNOT00000042459.4	Actb	ENSRNOG00000034254	actin, beta Source RGD Symbol Acc 628837
H02	SBR1220568	ENSRNOT00000023017.5	B2m	ENSRNOG0000017123	beta-2 microglobulin Source RGD Symbol Acc 2189
H03	SBR1225377	ENSRNOT00000065935.3	Hprt1	ENSRNOG0000048561	hypoxanthine phosphoribosyltransferase 1 Source RGD Symbol Acc 2826
H04	SBR1122313	ENSRNOT00000017468.2	Ldha	ENSRNOG0000013009	lactate dehydrogenase A Source RGD Symbol Acc 2996
H05	SBR1220572	ENSRNOT00000018820.5	Rplp1	ENSRNOG0000013874	ribosomal protein lateral stalk subunit P1 Source RGD Symbol Acc 621774
H06	SBR1218555	Sybr_RGDC	RGDC	Sybr_RGDC	Rat Genomic DNA Contamination
H07	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H08	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H09	SBH1218551	Sybr_QIC	QIC	Sybr_QIC	QuantiNova Internal Control
H10	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control
H11	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control
H12	SBH1218550	Sybr_PPC	PPC	Sybr_PPC	Positive PCR Control



## Related products

Product	Contents	Cat. no.
QuantiNova LNA PCR QC Panel	These panels are designed to assess the quality of RNA samples before characterization using QuantiNova LNA PCR Focus Panels; available in 96-well, 384-well, and Rotor-Disc 100 formats	249940
QuantiNova Reverse Transcription Kit (10)*	For 10 x 20 $\mu$ l reactions: 20 $\mu$ l 8x gDNA Removal Mix, 10 $\mu$ l Reverse Transcription Enzyme, 40 $\mu$ l Reverse Transcription Mix (containing RT primers), 20 $\mu$ l Internal Control RNA, 1.9 ml RNase-Free Water	205410
QuantiNova SYBR Green RT-PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml QuantiNova SYBR Green RT-PCR Master Mix, 20 $\mu$ l QuantiNova SYBR Green RT Mix, 20 $\mu$ l Internal Control RNA, 500 $\mu$ l Yellow Template Dilution Buffer, 250 $\mu$ l ROX Reference Dye, 1.9 $\mu$ l RNase-Free Water	208152
QuantiNova SYBR Green PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml 2x QuantiNova SYBR Green PCR Master Mix, 500 $\mu$ l QuantiNova Yellow Template Dilution Buffer, 250 $\mu$ l QN ROX Reference Dye, 1.9 ml Water	208052

\*Larger kit sizes available.

The QuantiNova LNA PCR Focus Panels are intended for molecular biology applications. These products are not intended for the diagnosis, prevention or treatment of a disease.

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