

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

## Mouse Hedgehog Signaling Pathway

Cat. no. 249950 SBMM-078ZA

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	Bcl2	Bmp2	Bmp4	Bmp5	Bmp6	Bmp7	Bmp8a	Bmp8b	Boc	Btrc	Cdon	Csnk1a1
B	Csnk1e	Clnnb1	Dhh	Disp1	Disp2	Erb4	Fat4	Fbxw11	Fgf9	Fgf3	Fkbp8	Foxe1
C	Frdm6	Gas1	Gli1	Gli2	Gli3	Grem1	Gsk3b	Hhat	Hhip	Ihh	Kctd11	Lats1
D	Lats2	Lrp2	Mapk1	Mob1b	Mtss1	Nf2	Npc1	Numb	Otx2	Prkaca	Prkacb	Ptch1
E	Ptch2	Disp3	Ptchd3	Rab23	Runx2	Sfrp1	Shh	Shox2	Smo	Slk3	Slk36	Sufu
F	Trp53	Vegfa	Wif1	Wnt1	Wnt10a	Wnt10b	Wnt11	Wnt16	Wnt2	Wnt2b	Wnt3	Wnt3a
G	Wnt4	Wnt5a	Wnt5b	Wnt6	Wnt7a	Wnt7b	Wnt8a	Wnt8b	Wnt9a	Wnt9b	Zic1	Zic2
H	Aclb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	QIC	QIC	QIC	PPC	PPC	PPC

## Gene table: QuantiNova LNA PCR Focus Panel

Position	Assay	Name	Symbol	Ensembl ID	Description
A01	SBM0876340	ENSMUST00000189999.1	Bcl2	ENSMUSG0000057329	B cell leukemia/lymphoma 2 Source MGI Symbol Acc MGI 88138
A02	SBM0831820	ENSMUST00000028836.6	Bmp2	ENSMUSG00000027358	bone morphogenetic protein 2 Source MGI Symbol Acc MGI 88177
A03	SBM0845886	ENSMUST00000100676.2	Bmp4	ENSMUSG00000021835	bone morphogenetic protein 4 Source MGI Symbol Acc MGI 88180
A04	SBM0922578	ENSMUST00000137213.1	Bmp5	ENSMUSG00000032179	bone morphogenetic protein 5 Source MGI Symbol Acc MGI 88181
A05	SBM0892506	ENSMUST00000171970.2	Bmp6	ENSMUSG00000039004	bone morphogenetic protein 6 Source MGI Symbol Acc MGI 88182
A06	SBM1004016	ENSMUST00000137247.1	Bmp7	ENSMUSG0000008999	bone morphogenetic protein 7 Source MGI Symbol Acc MGI 103302
A07	SBM1032433	ENSMUST00000040496.5	Bmp8a	ENSMUSG00000032726	bone morphogenetic protein 8a Source MGI Symbol Acc MGI 104515
A08	SBM0765448	ENSMUST00000002457.1	Bmp8b	ENSMUSG00000002384	bone morphogenetic protein 8b Source MGI Symbol Acc MGI 107335
A09	SBM1043643	ENSMUST00000114634.2	Boc	ENSMUSG00000022687	biregional cell adhesion molecule-related/down-regulated by oncogenes (Cdon) binding protein Source MGI Symbol Acc MGI 2151153
A10	SBM0704070	ENSMUST00000225662.1	Btrc	ENSMUSG00000025217	beta-transducin repeat containing protein Source MGI Symbol Acc MGI 1338871
A11	SBM0749096	ENSMUST00000127264.1	Cdon	ENSMUSG00000038119	cell adhesion molecule-related/down-regulated by oncogenes Source MGI Symbol Acc MGI 1926387
A12	SBM1007934	ENSMUST00000165123.7	Csnk1a1	ENSMUSG00000024576	casein kinase 1, alpha 1 Source MGI Symbol Acc MGI 1934950
B01	SBM0886870	ENSMUST00000136003.1	Csnk1e	ENSMUSG00000022433	casein kinase 1, epsilon Source MGI Symbol Acc MGI 1351660
B02	SBM1021462	ENSMUST00000007130.14	Ctnnb1	ENSMUSG00000006932	catenin (cadherin associated protein), beta 1 Source MGI Symbol Acc MGI 88276
B03	SBM0741461	ENSMUST00000229775.1	Dhh	ENSMUSG00000023000	desert hedgehog Source MGI Symbol Acc MGI 94891
B04	SBM0997933	ENSMUST00000195372.1	Disp1	ENSMUSG00000030768	dispatched RND transporter family member 1 Source MGI Symbol Acc MGI 1916147
B05	SBM0901613	ENSMUST00000110846.7	Disp2	ENSMUSG00000040035	dispatched RND transporter family member 2 Source MGI Symbol Acc MGI 2388733
B06	SBM0680240	ENSMUST00000121473.7	ErbB4	ENSMUSG00000062209	erb-b2 receptor tyrosine kinase 4 Source MGI Symbol Acc MGI 104771
B07	SBM0871626	ENSMUST00000129182.1	Fat4	ENSMUSG00000046743	FAT atypical cadherin 4 Source MGI Symbol Acc MGI 3045256
B08	SBM1077549	ENSMUST00000109366.7	Fbxw11	ENSMUSG00000020271	F-box and WD-40 domain protein 11 Source MGI Symbol Acc MGI 2144023
B09	SBM0984598	ENSMUST00000022545.13	Fgf9	ENSMUSG00000021974	fibroblast growth factor 9 Source MGI Symbol Acc MGI 104723
B10	SBM0713841	ENSMUST00000169212.8	Fgfr3	ENSMUSG00000054252	fibroblast growth factor receptor 3 Source MGI Symbol Acc MGI 95524
B11	SBM0768948	ENSMUST00000119698.7	Fkbp8	ENSMUSG00000019428	FK506 binding protein 8 Source MGI Symbol Acc MGI 1341070
B12	SBM0930899	ENSMUST00000095097.2	Foxe1	ENSMUSG00000070990	forkhead box E1 Source MGI Symbol Acc MGI 1353500
C01	SBM0795732	ENSMUST00000220515.1	FrmD6	ENSMUSG00000048285	FERM domain containing 6 Source MGI Symbol Acc MGI 2442579
C02	SBM0840663	ENSMUST00000223933.1	Gas1	ENSMUSG00000052957	growth arrest specific 1 Source MGI Symbol Acc MGI 95655
C03	SBM0738831	ENSMUST00000219671.1	Gli1	ENSMUSG00000025407	GLI-Kruppel family member GLI1 Source MGI Symbol Acc MGI 95727
C04	SBM0716475	ENSMUST00000161301.7	Gli2	ENSMUSG00000048402	GLI-Kruppel family member GLI2 Source MGI Symbol Acc MGI 95728
C05	SBM0853730	ENSMUST00000110510.3	Gli3	ENSMUSG00000021318	GLI-Kruppel family member GLI3 Source MGI Symbol Acc MGI 95729
C06	SBM0680205	ENSMUST00000099575.3	Grem1	ENSMUSG00000074934	gremlin 1, DAN family BMP antagonist Source MGI Symbol Acc MGI 1344337
C07	SBM0862470	ENSMUST00000132057.1	Gsk3b	ENSMUSG00000022812	glycogen synthase kinase 3 beta Source MGI Symbol Acc MGI 1861437
C08	SBM0718466	ENSMUST00000128619.7	Hhat	ENSMUSG00000037375	hedgehog acyltransferase Source MGI Symbol Acc MGI 2444681
C09	SBM0886965	ENSMUST00000155850.2	Hhip	ENSMUSG00000064325	Hedgehog-interacting protein Source MGI Symbol Acc MGI 1341847
C10	SBM0820771	ENSMUST00000189364.1	lh	ENSMUSG00000006538	Indian hedgehog Source MGI Symbol Acc MGI 96533
		ENSMUST00000		ENSMUSG00	potassium channel tetramerisation domain containing 11 Source MGI Symbol

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	SBM0857346	05055.4	Kctd11	000046731	Acc MGI 2448712
C12	SBM1025787	ENSMUST00000217931.1	Lats1	ENSMUSG0000040021	large tumor suppressor Source MGI Symbol Acc MGI 1333883
D01	SBM0751191	ENSMUST00000038381.13	Lats2	ENSMUSG00000021959	large tumor suppressor 2 Source MGI Symbol Acc MGI 1354386
D02	SBM1042339	ENSMUST00000100051.8	Lrp2	ENSMUSG00000027070	low density lipoprotein receptor-related protein 2 Source MGI Symbol Acc MGI 95794
D03	SBM0800614	ENSMUST00000231821.1	Mapk1	ENSMUSG00000063358	mitogen-activated protein kinase 1 Source MGI Symbol Acc MGI 1346858
D04	SBM0737763	ENSMUST00000006424.7	Mob1b	ENSMUSG00000006262	MOB kinase activator 1B Source MGI Symbol Acc MGI 1915723
D05	SBM0876077	ENSMUST00000080371.7	Mtss1	ENSMUSG00000022353	metastasis suppressor 1 Source MGI Symbol Acc MGI 2384818
D06	SBM0877965	ENSMUST00000124878.2	Nf2	ENSMUSG00000009073	neurofibromin 2 Source MGI Symbol Acc MGI 97307
D07	SBM1080908	ENSMUST00000144435.1	Npc1	ENSMUSG00000024413	NPC intracellular cholesterol transporter 1 Source MGI Symbol Acc MGI 1097712
D08	SBM0789482	ENSMUST00000155112.7	Numb	ENSMUSG00000021224	NUMB endocytic adaptor protein Source MGI Symbol Acc MGI 107423
D09	SBM0756130	ENSMUST00000119739.1	Otx2	ENSMUSG00000021848	orthodenticle homeobox 2 Source MGI Symbol Acc MGI 97451
D10	SBM0941812	ENSMUST00000211558.1	Prkaca	ENSMUSG00000005469	protein kinase, cAMP dependent, catalytic, alpha Source MGI Symbol Acc MGI 97592
D11	SBM0782290	ENSMUST00000102515.9	Prkacb	ENSMUSG00000005034	protein kinase, cAMP dependent, catalytic, beta Source MGI Symbol Acc MGI 97594
D12	SBM0724304	ENSMUST00000194663.5	Ptch1	ENSMUSG00000021466	patched 1 Source MGI Symbol Acc MGI 105373
E01	SBM1080167	ENSMUST00000030443.11	Ptch2	ENSMUSG00000028681	patched 2 Source MGI Symbol Acc MGI 1095405
E02	SBM1068533	ENSMUST00000047720.8	Disp3	ENSMUSG00000041544	dispatched RND transporter family member 3 Source MGI Symbol Acc MGI 2444403
E03	SBM0995301	ENSMUST00000125199.1	Ptchd3	ENSMUSG00000039198	patched domain containing 3 Source MGI Symbol Acc MGI 1921925
E04	SBM0911806	ENSMUST00000138024.7	Rab23	ENSMUSG0000004768	RAB23, member RAS oncogene family Source MGI Symbol Acc MGI 99833
E05	SBM0865204	ENSMUST00000113571.9	Runx2	ENSMUSG00000039153	runt related transcription factor 2 Source MGI Symbol Acc MGI 99829
E06	SBM0742478	ENSMUST00000033952.7	Sfrp1	ENSMUSG00000031548	secreted frizzled-related protein 1 Source MGI Symbol Acc MGI 892014
E07	SBM0959314	ENSMUST00000002708.4	Shh	ENSMUSG0000002633	sonic hedgehog Source MGI Symbol Acc MGI 98297
E08	SBM0771810	ENSMUST00000162098.8	Shox2	ENSMUSG00000027833	short stature homeobox 2 Source MGI Symbol Acc MGI 1201673
E09	SBM0921550	ENSMUST00000001812.4	Smo	ENSMUSG0000001761	smoothened, frizzled class receptor Source MGI Symbol Acc MGI 108075
E10	SBM0718915	ENSMUST00000067033.7	Stk3	ENSMUSG0000002329	serine/threonine kinase 3 Source MGI Symbol Acc MGI 1928487
E11	SBM0901456	ENSMUST00000145673.7	Stk36	ENSMUSG0000003276	serine/threonine kinase 36 Source MGI Symbol Acc MGI 1920831
E12	SBM0679226	ENSMUST00000039922.12	Sufu	ENSMUSG00000025231	SUFU negative regulator of hedgehog signaling Source MGI Symbol Acc MGI 1345643
F01	SBM0841427	ENSMUST00000108657.3	Trp53	ENSMUSG00000059552	transformation related protein 53 Source MGI Symbol Acc MGI 98834
F02	SBM1079198	ENSMUST00000217017.1	Vegfa	ENSMUSG00000023951	vascular endothelial growth factor A Source MGI Symbol Acc MGI 103178
F03	SBM0873592	ENSMUST00000020439.10	Wif1	ENSMUSG00000020218	Wnt inhibitory factor 1 Source MGI Symbol Acc MGI 1344332
F04	SBM0828761	ENSMUST00000023734.7	Wnt1	ENSMUSG00000022997	wingless-type MMTV integration site family, member 1 Source MGI Symbol Acc MGI 98953
F05	SBM0830314	ENSMUST00000006718.14	Wnt10a	ENSMUSG00000026167	wingless-type MMTV integration site family, member 10A Source MGI Symbol Acc MGI 108071
F06	SBM0964186	ENSMUST00000228546.1	Wnt10b	ENSMUSG00000022996	wingless-type MMTV integration site family, member 10B Source MGI Symbol Acc MGI 108061
F07	SBM0972544	ENSMUST00000067495.8	Wnt11	ENSMUSG00000015957	wingless-type MMTV integration site family, member 11 Source MGI Symbol Acc MGI 101948
F08	SBM1035075	ENSMUST00000031681.9	Wnt16	ENSMUSG00000029671	wingless-type MMTV integration site family, member 16 Source MGI Symbol Acc MGI 2136018
F09	SBM0774504	ENSMUST00000010941.5	Wnt2	ENSMUSG00000010797	wingless-type MMTV integration site family, member 2 Source MGI Symbol Acc MGI 98954
F10	SBM1017184	ENSMUST00000029429.5	Wnt2b	ENSMUSG00000027840	wingless-type MMTV integration site family, member 2B Source MGI Symbol Acc MGI 1261834

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	SBM1011082	ENSMUST0000000127.5	Wnt3	ENSMUSG0000000125	wingless-type MMTV integration site family, member 3 Source MGI Symbol Acc MGI 98955
F12	SBM0757599	ENSMUST00000010044.7	Wnt3a	ENSMUSG0000009900	wingless-type MMTV integration site family, member 3A Source MGI Symbol Acc MGI 98956
G01	SBM0985316	ENSMUST00000045747.4	Wnt4	ENSMUSG0000036856	wingless-type MMTV integration site family, member 4 Source MGI Symbol Acc MGI 98957
G02	SBM0893772	ENSMUST000000112272.1	Wnt5a	ENSMUSG0000021994	wingless-type MMTV integration site family, member 5A Source MGI Symbol Acc MGI 98958
G03	SBM0831789	ENSMUST000000118120.7	Wnt5b	ENSMUSG0000030170	wingless-type MMTV integration site family, member 5B Source MGI Symbol Acc MGI 98959
G04	SBM0965462	ENSMUST000000189544.1	Wnt6	ENSMUSG0000003227	wingless-type MMTV integration site family, member 6 Source MGI Symbol Acc MGI 98960
G05	SBM0915677	ENSMUST000000133092.2	Wnt7a	ENSMUSG0000030093	wingless-type MMTV integration site family, member 7A Source MGI Symbol Acc MGI 98961
G06	SBM1050831	ENSMUST000000167968.8	Wnt7b	ENSMUSG0000022382	wingless-type MMTV integration site family, member 7B Source MGI Symbol Acc MGI 98962
G07	SBM1020947	ENSMUST000000012426.2	Wnt8a	ENSMUSG0000012282	wingless-type MMTV integration site family, member 8A Source MGI Symbol Acc MGI 107924
G08	SBM1089911	ENSMUST000000041163.4	Wnt8b	ENSMUSG0000036961	wingless-type MMTV integration site family, member 8B Source MGI Symbol Acc MGI 109485
G09	SBM0692791	ENSMUST000000108783.3	Wnt9a	ENSMUSG0000000126	wingless-type MMTV integration site family, member 9A Source MGI Symbol Acc MGI 2446084
G10	SBM0905516	ENSMUST000000018630.2	Wnt9b	ENSMUSG0000018486	wingless-type MMTV integration site family, member 9B Source MGI Symbol Acc MGI 1197020
G11	SBM0852459	ENSMUST000000173121.1	Zic1	ENSMUSG0000032368	zinc finger protein of the cerebellum 1 Source MGI Symbol Acc MGI 106683
G12	SBM1015964	ENSMUST000000075888.5	Zic2	ENSMUSG0000061524	zinc finger protein of the cerebellum 2 Source MGI Symbol Acc MGI 106679
H01	SBM1220560	ENSMUST000000100497.10	Actb	ENSMUSG0000029580	actin, beta Source MGI Symbol Acc MGI 87904
H02	SBM0675336	ENSMUST000000102476.4	B2m	ENSMUSG0000060802	beta-2 microglobulin Source MGI Symbol Acc MGI 88127
H03	SBM1220562	ENSMUST000000117757.8	Gapdh	ENSMUSG0000057666	glyceraldehyde-3-phosphate dehydrogenase Source MGI Symbol Acc MGI 95640
H04	SBM1220563	ENSMUST000000026613.13	Gusb	ENSMUSG0000025534	glucuronidase, beta Source MGI Symbol Acc MGI 95872
H05	SBM1220564	ENSMUST000000166469.7	Hsp90ab1	ENSMUSG0000023944	heat shock protein 90 alpha (cytosolic), class B member 1 Source MGI Symbol Acc MGI 96247
H06	SBM1218554	Sybr_MGDC	MGDC	Sybr_MGDC	Mouse 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.

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at [www.qiagen.com](http://www.qiagen.com) or can be requested from QIAGEN Technical Services or your local distributor.

Trademarks: QIAGEN®, LNA®, QuantiNova®, Sample to Insight® (QIAGEN Group); SYBR® (Life Technologies Corp.). Registered names, trademarks, etc. used in this document, even when not specifically marked as such, are not to be considered unprotected by law.

09/2019 © 2019 QIAGEN, all rights reserved.