

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

## Mouse DNA Repair

Cat. no. 249955 UPMM-042ZA

For study focus gene expression analysis

### Shipping and storage

QuantiNova LNA Probe PCR Focus Panels are shipped at room temperature. Immediately upon receipt, they should be stored protected from light 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 Probe PCR Focus Panels should be used together with the QuantiNova Reverse Transcription Kit for cDNA synthesis and the QuantiNova Probe PCR Kit (Mastermix) for PCR.

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

For the 384-well (4 × 96) PCR panels, genes are present in a staggered format. Refer to the QuantiNova LNA Probe PCR 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	Apex1	Apex2	Atm	Atr	Atnr3	Bcca1	Bcca2	Brip1	Ccnh	Cno	Cdk7	Ddb1
B	Ddb2	Dmc1	Ercc1	Ercc2	Ercc3	Ercc4	Ercc5	Ercc6	Ercc8	Eco1	Fen1	Lig1
C	Lig3	Lig4	Mgmt	Mlh1	Mlh3	Mms19	Mpg	Mrel1a	Msh2	Msh3	Msh4	Msh5
D	Msh6	Mtyh	Neil1	Neil2	Neil3	Nthl1	Ogg1	Parp1	Parp2	Parp3	Pms1	Pms2
E	Pknp	Polb	Pold3	Poll	Pkdc	Rad18	Rad21	Rad23a	Rad23b	Rad50	Rad51	Rad51c
F	Rad51b	Rad51d	Rad52	Rad54l	Rfc1	Rpa1	Rpa3	Slk	Smug1	Tdg	Top3a	Top3b
G	Trex1	Ung	Xab2	Xpa	Xpc	Xrcc1	Xrcc2	Xrcc3	Xrcc4	Xrcc5	Xrcc6	Atp23
H	Actb	B2m	Gapdh	Gusb	Hsp90ab1	MGDC	QIC	QIC	QIC	PPC	PPC	PPC

## Gene table: QuantiNova LNA Probe PCR Focus Panel

Position	Assay	Name	Symbol	Ensembl ID	Description
A01	UPFM063954 5	ENSMUST00000 136753.7	Apex1	ENSMUSG00 000035960	apurinic/apyrimidinic endonuclease 1 Source MGI Symbol Acc MGI 88042
A02	UPFM066676 5	ENSMUST00000 112720.7	Apex2	ENSMUSG00 000025269	apurinic/apyrimidinic endonuclease 2 Source MGI Symbol Acc MGI 1924872
A03	UPFM070877 3	ENSMUST00000 150244.1	Atm	ENSMUSG00 000034218	ataxia telangiectasia mutated Source MGI Symbol Acc MGI 107202
A04	UPFM092040 0	ENSMUST00000 185473.6	Atr	ENSMUSG00 000032409	ataxia telangiectasia and Rad3 related Source MGI Symbol Acc MGI 108028
A05	UPFM067972 7	ENSMUST00000 160251.7	Atxn3	ENSMUSG00 000021189	ataxin 3 Source MGI Symbol Acc MGI 1099442
A06	UPFM098990 7	ENSMUST00000 156843.1	Brca1	ENSMUSG00 000017146	breast cancer 1, early onset Source MGI Symbol Acc MGI 104537
A07	UPFM077452 2	ENSMUST00000 201226.1	Brca2	ENSMUSG00 000041147	breast cancer 2, early onset Source MGI Symbol Acc MGI 109337
A08	UPFM100531 4	ENSMUST00000 149748.7	Brip1	ENSMUSG00 000034329	BRCA1 interacting protein C-terminal helicase 1 Source MGI Symbol Acc MGI 2442836
A09	UPFM093965 8	ENSMUST00000 022030.10	Ccnh	ENSMUSG00 000021548	cyclin H Source MGI Symbol Acc MGI 1913921
A10	UPFM066215 0	ENSMUST00000 224100.1	Ccno	ENSMUSG00 000042417	cyclin O Source MGI Symbol Acc MGI 2145534
A11	UPFM089558 8	ENSMUST00000 091299.7	Cdk7	ENSMUSG00 000069089	cyclin-dependent kinase 7 Source MGI Symbol Acc MGI 102956
A12	UPFM074234 4	ENSMUST00000 237337.1	Ddb1	ENSMUSG00 000024740	damage specific DNA binding protein 1 Source MGI Symbol Acc MGI 1202384
B01	UPFM080136 5	ENSMUST00000 152277.7	Ddb2	ENSMUSG00 000002109	damage specific DNA binding protein 2 Source MGI Symbol Acc MGI 1355314
B02	UPFM087318 5	ENSMUST00000 229408.1	Dmc1	ENSMUSG00 000022429	DNA meiotic recombinase 1 Source MGI Symbol Acc MGI 105393
B03	UPFM083835 0	ENSMUST00000 160909.1	Ercc1	ENSMUSG00 000003549	excision repair cross-complementing rodent repair deficiency, complementation group 1 Source MGI Symbol Acc MGI 95412
B04	UPFM092894 1	ENSMUST00000 128167.1	Ercc2	ENSMUSG00 000030400	excision repair cross-complementing rodent repair deficiency, complementation group 2 Source MGI Symbol Acc MGI 95413
B05	UPFM089297 0	ENSMUST00000 129023.1	Ercc3	ENSMUSG00 000024382	excision repair cross-complementing rodent repair deficiency, complementation group 3 Source MGI Symbol Acc MGI 95414
B06	UPFM077748 1	ENSMUST00000 023206.13	Ercc4	ENSMUSG00 000022545	excision repair cross-complementing rodent repair deficiency, complementation group 4 Source MGI Symbol Acc MGI 1354163
B07	UPFM099803 1	ENSMUST00000 139510.7	Ercc5	ENSMUSG00 000026048	excision repair cross-complementing rodent repair deficiency, complementation group 5 Source MGI Symbol Acc MGI 103582
B08	UPFM075607 5	ENSMUST00000 066807.7	Ercc6	ENSMUSG00 000054051	excision repair cross-complementing rodent repair deficiency, complementation group 6 Source MGI Symbol Acc MGI 1100494
B09	UPFM100509 0	ENSMUST00000 123182.7	Ercc8	ENSMUSG00 000021694	excision repair cross-complementing rodent repair deficiency, complementation group 8 Source MGI Symbol Acc MGI 1919241
B10	UPFM082014 4	ENSMUST00000 193822.5	Exo1	ENSMUSG00 000039748	exonuclease 1 Source MGI Symbol Acc MGI 1349427
B11	UPFM066992 2	ENSMUST00000 116542.8	Fen1	ENSMUSG00 000024742	flap structure specific endonuclease 1 Source MGI Symbol Acc MGI 102779
B12	UPFM080408 2	ENSMUST00000 148471.8	Lig1	ENSMUSG00 000056394	ligase I, DNA, ATP-dependent Source MGI Symbol Acc MGI 101789
C01	UPFM085617 3	ENSMUST00000 080461.11	Lig3	ENSMUSG00 000020697	ligase III, DNA, ATP-dependent Source MGI Symbol Acc MGI 109152
C02	UPFM089884 4	ENSMUST00000 095476.5	Lig4	ENSMUSG00 000049717	ligase IV, DNA, ATP-dependent Source MGI Symbol Acc MGI 1335098
C03	UPFM071101 1	ENSMUST00000 081510.3	Mgmt	ENSMUSG00 000054612	O-6-methylguanine-DNA methyltransferase Source MGI Symbol Acc MGI 96977
C04	UPFM084504 4	ENSMUST00000 135695.1	Mlh1	ENSMUSG00 000032498	mutL homolog 1 Source MGI Symbol Acc MGI 101938
C05	UPFM062169 6	ENSMUST00000 223230.1	Mlh3	ENSMUSG00 000021245	mutL homolog 3 Source MGI Symbol Acc MGI 1353455
C06	UPFM095154 3	ENSMUST00000 167927.7	Mms19	ENSMUSG00 000025159	MMS19 cytosolic iron-sulfur assembly component Source MGI Symbol Acc MGI 1919449
C07	UPFM070779 7	ENSMUST00000 142964.7	Mpg	ENSMUSG00 000020287	N-methylpurine-DNA glycosylase Source MGI Symbol Acc MGI 97073
C08	UPFM112631 8	ENSMUST00000 215820.1	Mre11a	ENSMUSG00 000031928	MRE11A homolog A, double strand break repair nuclease Source MGI Symbol Acc MGI 1100512
C09	UPFM098287 7	ENSMUST00000 173097.7	Msh2	ENSMUSG00 000024151	mutS homolog 2 Source MGI Symbol Acc MGI 101816
C10	UPFM090784 2	ENSMUST00000 191509.6	Msh3	ENSMUSG00 000014850	mutS homolog 3 Source MGI Symbol Acc MGI 109519
	UPFM068931	ENSMUST00000		ENSMUSG00	

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	9	190449.1	Msh4	000005493	mutS homolog 4 Source MGI Symbol Acc MGI 1860077
C12	UPFM095492 0	ENSMUST00000 173685.7	Msh5	ENSMUSG00 000007035	mutS homolog 5 Source MGI Symbol Acc MGI 1329021
D01	UPFM094977 6	ENSMUST00000 005503.4	Msh6	ENSMUSG00 000005370	mutS homolog 6 Source MGI Symbol Acc MGI 1343961
D02	UPFM087977 2	ENSMUST00000 124857.7	Mutyh	ENSMUSG00 000028687	mutY DNA glycosylase Source MGI Symbol Acc MGI 1917853
D03	UPFM062410 6	ENSMUST00000 034842.4	Neil1	ENSMUSG00 000032298	nei endonuclease VIII-like 1 (E. coli) Source MGI Symbol Acc MGI 1920024
D04	UPFM086252 1	ENSMUST00000 225841.1	Neil2	ENSMUSG00 000035121	nei like 2 (E. coli) Source MGI Symbol Acc MGI 2686058
D05	UPFM065387 1	ENSMUST00000 149053.7	Neil3	ENSMUSG00 000039396	nei like 3 (E. coli) Source MGI Symbol Acc MGI 2384588
D06	UPFM076269 0	ENSMUST00000 234308.1	Nth1	ENSMUSG00 000041429	nth (endonuclease III)-like 1 (E.coli) Source MGI Symbol Acc MGI 1313275
D07	UPFM073419 4	ENSMUST00000 129871.1	Ogg1	ENSMUSG00 000030271	8-oxoguanine DNA-glycosylase 1 Source MGI Symbol Acc MGI 1097693
D08	UPFM093642 0	ENSMUST00000 193238.1	Parp1	ENSMUSG00 000026496	poly (ADP-ribose) polymerase family, member 1 Source MGI Symbol Acc MGI 1340806
D09	UPFM087358 4	ENSMUST00000 036126.6	Parp2	ENSMUSG00 000036023	poly (ADP-ribose) polymerase family, member 2 Source MGI Symbol Acc MGI 1341112
D10	UPFM099436 8	ENSMUST00000 140029.1	Parp3	ENSMUSG00 000023249	poly (ADP-ribose) polymerase family, member 3 Source MGI Symbol Acc MGI 1891258
D11	UPFM084665 3	ENSMUST00000 133358.1	Pms1	ENSMUSG00 000026098	PMS1 homolog 1, mismatch repair system component Source MGI Symbol Acc MGI 1202302
D12	UPFM089834 5	ENSMUST00000 110710.9	Pms2	ENSMUSG00 000079109	PMS1 homolog2, mismatch repair system component Source MGI Symbol Acc MGI 104288
E01	UPFM081878 0	ENSMUST00000 107876.7	Pnkp	ENSMUSG00 000002963	polynucleotide kinase 3 - phosphatase Source MGI Symbol Acc MGI 1891698
E02	UPFM080561 1	ENSMUST00000 033938.6	Polb	ENSMUSG00 000031536	polymerase (DNA directed), beta Source MGI Symbol Acc MGI 97740
E03	UPFM084582 8	ENSMUST00000 130413.7	Pold3	ENSMUSG00 000030726	polymerase (DNA-directed), delta 3, accessory subunit Source MGI Symbol Acc MGI 1915217
E04	UPFM096917 5	ENSMUST00000 026239.6	Poll	ENSMUSG00 000025218	polymerase (DNA directed), lambda Source MGI Symbol Acc MGI 1889000
E05	UPFM072596 0	ENSMUST00000 182134.1	Prkdc	ENSMUSG00 000022672	protein kinase, DNA activated, catalytic polypeptide Source MGI Symbol Acc MGI 104779
E06	UPFM091573 8	ENSMUST00000 068487.11	Rad18	ENSMUSG00 000030254	RAD18 E3 ubiquitin protein ligase Source MGI Symbol Acc MGI 1890476
E07	UPFM089310 8	ENSMUST00000 022927.10	Rad21	ENSMUSG00 000022314	RAD21 cohesin complex component Source MGI Symbol Acc MGI 108016
E08	UPFM075908 8	ENSMUST00000 109761.8	Rad23a	ENSMUSG00 000003813	RAD23 homolog A, nucleotide excision repair protein Source MGI Symbol Acc MGI 105126
E09	UPFM087252 7	ENSMUST00000 030134.8	Rad23b	ENSMUSG00 000028426	RAD23 homolog B, nucleotide excision repair protein Source MGI Symbol Acc MGI 105128
E10	UPFM083632 9	ENSMUST00000 128483.7	Rad50	ENSMUSG00 000020380	RAD50 double strand break repair protein Source MGI Symbol Acc MGI 109292
E11	UPFM093244 8	ENSMUST00000 110828.1	Rad51	ENSMUSG00 000027323	RAD51 recombinase Source MGI Symbol Acc MGI 97890
E12	UPFM083059 1	ENSMUST00000 129400.1	Rad51c	ENSMUSG00 000007646	RAD51 paralog C Source MGI Symbol Acc MGI 2150020
F01	UPFM100252 4	ENSMUST00000 171210.2	Rad51b	ENSMUSG00 000059060	RAD51 paralog B Source MGI Symbol Acc MGI 1099436
F02	UPFM064040 4	ENSMUST00000 146053.7	Rad51d	ENSMUSG00 000018841	RAD51 paralog D Source MGI Symbol Acc MGI 1261809
F03	UPFM087390 8	ENSMUST00000 032269.11	Rad52	ENSMUSG00 000030166	RAD52 homolog, DNA repair protein Source MGI Symbol Acc MGI 101949
F04	UPFM096737 0	ENSMUST00000 102705.9	Rad54l	ENSMUSG00 000028702	RAD54 like (S. cerevisiae) Source MGI Symbol Acc MGI 894697
F05	UPFM070890 6	ENSMUST00000 204965.2	Rfc1	ENSMUSG00 000029191	replication factor C (activator 1) 1 Source MGI Symbol Acc MGI 97891
F06	UPFM090455 1	ENSMUST00000 135770.7	Rpa1	ENSMUSG00 000000751	replication protein A1 Source MGI Symbol Acc MGI 1915525
F07	UPFM064713 0	ENSMUST00000 012627.4	Rpa3	ENSMUSG00 000012483	replication protein A3 Source MGI Symbol Acc MGI 1915490
F08	UPFM081236 3	ENSMUST00000 026043.11	Slk	ENSMUSG00 000025060	STE20-like kinase Source MGI Symbol Acc MGI 103241
F09	UPFM088785 1	ENSMUST00000 231198.1	Smug1	ENSMUSG00 000036061	single-strand selective monofunctional uracil DNA glycosylase Source MGI Symbol Acc MGI 1918976
F10	UPFM093879 6	ENSMUST00000 145370.7	Tdg	ENSMUSG00 000034674	thymine DNA glycosylase Source MGI Symbol Acc MGI 108247

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	UPFM077560 1	ENSMUST00000 002891.10	Top3a	ENSMUSG00 000002814	topoisomerase (DNA) III alpha Source MGI Symbol Acc MGI 1197527
F12	UPFM092341 5	ENSMUST00000 023465.15	Top3b	ENSMUSG00 000022779	topoisomerase (DNA) III beta Source MGI Symbol Acc MGI 1333803
G01	UPFM093356 1	ENSMUST00000 112053.1	Trex1	ENSMUSG00 000049734	three prime repair exonuclease 1 Source MGI Symbol Acc MGI 1328317
G02	UPFM097963 6	ENSMUST00000 112275.7	Ung	ENSMUSG00 000029591	uracil DNA glycosylase Source MGI Symbol Acc MGI 109352
G03	UPFM078907 3	ENSMUST00000 159235.1	Xab2	ENSMUSG00 000019470	XPA binding protein 2 Source MGI Symbol Acc MGI 1914689
G04	UPFM087790 3	ENSMUST00000 142380.1	Xpa	ENSMUSG00 000028329	xeroderma pigmentosum, complementation group A Source MGI Symbol Acc MGI 99135
G05	UPFM063746 9	ENSMUST00000 150279.2	Xpc	ENSMUSG00 000030094	xeroderma pigmentosum, complementation group C Source MGI Symbol Acc MGI 103557
G06	UPFM098782 3	ENSMUST00000 205573.1	Xrcc1	ENSMUSG00 000051768	X-ray repair complementing defective repair in Chinese hamster cells 1 Source MGI Symbol Acc MGI 99137
G07	UPFM079167 6	ENSMUST00000 134972.2	Xrcc2	ENSMUSG00 000028933	X-ray repair complementing defective repair in Chinese hamster cells 2 Source MGI Symbol Acc MGI 1927345
G08	UPFM092237 7	ENSMUST00000 124064.7	Xrcc3	ENSMUSG00 000021287	X-ray repair complementing defective repair in Chinese hamster cells 3 Source MGI Symbol Acc MGI 1921585
G09	UPFM094070 4	ENSMUST00000 159199.7	Xrcc4	ENSMUSG00 000021615	X-ray repair complementing defective repair in Chinese hamster cells 4 Source MGI Symbol Acc MGI 1333799
G10	UPFM083469 4	ENSMUST00000 027379.8	Xrcc5	ENSMUSG00 000026187	X-ray repair complementing defective repair in Chinese hamster cells 5 Source MGI Symbol Acc MGI 104517
G11	UPFM063467 1	ENSMUST00000 069530.12	Xrcc6	ENSMUSG00 000022471	X-ray repair complementing defective repair in Chinese hamster cells 6 Source MGI Symbol Acc MGI 95606
G12	UPFM066803 0	ENSMUST00000 220051.1	Atp23	ENSMUSG00 000025436	ATP23 metalloproteinase and ATP synthase assembly factor homolog Source MGI Symbol Acc MGI 1916984
H01	UPFM113294 6	ENSMUST00000 163829.1	Actb	ENSMUSG00 000029580	actin, beta Source MGI Symbol Acc MGI 87904
H02	UPFM113294 7	ENSMUST00000 102476.4	B2m	ENSMUSG00 000060802	beta-2 microglobulin Source MGI Symbol Acc MGI 88127
H03	UPFM113294 8	ENSMUST00000 117757.8	Gapdh	ENSMUSG00 000057666	glyceraldehyde-3-phosphate dehydrogenase Source MGI Symbol Acc MGI 95640
H04	UPFM113294 9	ENSMUST00000 026613.13	Gusb	ENSMUSG00 000025534	glucuronidase, beta Source MGI Symbol Acc MGI 95872
H05	UPFM113295 0	ENSMUST00000 166469.7	Hsp90ab1	ENSMUSG00 000023944	heat shock protein 90 alpha (cytosolic), class B member 1 Source MGI Symbol Acc MGI 96247
H06	UPFM112660 9	UPL_MGDC	MGDC	UPL_MGDC	Mouse Genomic DNA Contamination
H07	UPFH1126606	UPL_QIC	QIC	UPL_QIC	QuantiNova Internal Control
H08	UPFH1126606	UPL_QIC	QIC	UPL_QIC	QuantiNova Internal Control
H09	UPFH1126606	UPL_QIC	QIC	UPL_QIC	QuantiNova Internal Control
H10	UPFH1126605	UPL_PPC	PPC	UPL_PPC	Positive PCR Control
H11	UPFH1126605	UPL_PPC	PPC	UPL_PPC	Positive PCR Control
H12	UPFH1126605	UPL_PPC	PPC	UPL_PPC	Positive PCR Control



## Related products

Product	Contents	Cat. no.
QuantiNova LNA Probe PCR QC Panel	These panels are designed to assess the quality of RNA samples before characterization using QuantiNova LNA Probe PCR Focus Panels; available in 96-well, 384-well, and Rotor-Disc 100 formats	249945
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 Probe RT-PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml QuantiNova Probe RT-PCR Master Mix, 20 $\mu$ l QuantiNova Probe 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	208352
QuantiNova Probe PCR Kit (100)*	For 100 x 20 $\mu$ l reactions: 1 ml 2x QuantiNova Probe PCR Master Mix, 500 $\mu$ l QuantiNova Yellow Template Dilution Buffer, 250 $\mu$ l QN ROX Reference Dye, 1.9 ml Water	208252

\*Larger kit sizes available.

The QuantiNova LNA Probe 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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