

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

## Human Glycosylation

Cat. no. 249955 UPHS-046ZA

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	A4GNT	AGA	B3GLCT	B3GNT2	B3GNT3	B3GNT4	B3GNT8	B4GALT1	B4GALT2	B4GALT3	B4GALT5	C1GALT1
B	C1GALT1C1	EDEM1	EDEM2	EDEM3	FUCA1	FUCA2	FUT11	FUT8	GALNT1	GALNT10	GALNT11	GALNT12
C	GALNT13	GALNT14	GALNT2	GALNT3	GALNT4	GALNT6	GALNT7	GALNT8	GALNT9	GALNT16	GALNTL5	GALNTL6
D	GANAB	GCNT1	GCNT3	GCNT4	GLB1	GNPTAB	GNPTG	HEXA	HEXB	MAN1A1	MAN1A2	MAN1B1
E	MAN1C1	MAN2A1	MAN2A2	MAN2B1	MANBA	MGAT1	MGAT2	MGAT3	MGAT4A	MGAT4B	MGAT4C	MGAT5
F	MGAT5B	MOGS	NAGPA	NEU1	NEU2	NEU3	NEU4	OGT	POFUT1	POFUT2	POMGNT1	POMT1
G	POMT2	PRKCSH	ST3GAL1	ST3GAL2	ST6GAL1	ST6GALNAC1	ST8SIA2	ST8SIA3	ST8SIA4	ST8SIA6	UGGT1	UGGT2
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	QIC	QIC	QIC	PPC	PPC	PPC

## Gene table: QuantiNova LNA Probe PCR Focus Panel

Position	Assay	Name	Symbol	Ensembl ID	Description
A01	UPFH0462222	ENST00000236709.3	A4GNT	ENSG00000118017	alpha-1,4-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 17968
A02	UPFH0550107	ENST00000502310.5	AGA	ENSG00000038002	aspartylglucosaminidase Source HGNC Symbol Acc HGNC 318
A03	UPFH0460560	ENST00000461652.2	B3GLCT	ENSG00000187676	beta 3-glucosyltransferase Source HGNC Symbol Acc HGNC 20207
A04	UPFH0008163	ENST00000301998.5	B3GNT2	ENSG00000170340	UDP-GlcNAc betaGal beta-1,3-N-acetylglucosaminyltransferase 2 Source HGNC Symbol Acc HGNC 15629
A05	UPFH0531930	ENST00000595387.1	B3GNT3	ENSG00000179913	UDP-GlcNAc betaGal beta-1,3-N-acetylglucosaminyltransferase 3 Source HGNC Symbol Acc HGNC 13528
A06	UPFH0398586	ENST00000535274.1	B3GNT4	ENSG00000176383	UDP-GlcNAc betaGal beta-1,3-N-acetylglucosaminyltransferase 4 Source HGNC Symbol Acc HGNC 15683
A07	UPFH0021161	ENST00000321702.2	B3GNT8	ENSG00000177191	UDP-GlcNAc betaGal beta-1,3-N-acetylglucosaminyltransferase 8 Source HGNC Symbol Acc HGNC 24139
A08	UPFH0348080	ENST00000379731.4	B4GALT1	ENSG00000086062	beta-1,4-galactosyltransferase 1 Source HGNC Symbol Acc HGNC 924
A09	UPFH0350510	ENST00000372324.5	B4GALT2	ENSG00000117411	beta-1,4-galactosyltransferase 2 Source HGNC Symbol Acc HGNC 925
A10	UPFH0026708	ENST00000466504.5	B4GALT3	ENSG00000158850	beta-1,4-galactosyltransferase 3 Source HGNC Symbol Acc HGNC 926
A11	UPFH0219809	ENST00000371711.4	B4GALT5	ENSG00000158470	beta-1,4-galactosyltransferase 5 Source HGNC Symbol Acc HGNC 928
A12	UPFH0477219	ENST00000429911.5	C1GALT1	ENSG00000106392	core 1 synthase, glycoprotein-N-acetylgalactosamine 3-beta-galactosyltransferase 1 Source HGNC Symbol Acc HGNC 24337
B01	UPFH0307766	ENST00000304661.6	C1GALT1C1	ENSG00000171155	C1GALT1 specific chaperone 1 Source HGNC Symbol Acc HGNC 24338
B02	UPFH0169288	ENST00000465369.5	EDEM1	ENSG00000134109	ER degradation enhancing alpha-mannosidase like protein 1 Source HGNC Symbol Acc HGNC 18967
B03	UPFH0119066	ENST00000374492.8	EDEM2	ENSG00000088298	ER degradation enhancing alpha-mannosidase like protein 2 Source HGNC Symbol Acc HGNC 15877
B04	UPFH0579202	ENST00000466606.1	EDEM3	ENSG00000116406	ER degradation enhancing alpha-mannosidase like protein 3 Source HGNC Symbol Acc HGNC 16787
B05	UPFH0236383	ENST00000374479.3	FUCA1	ENSG00000179163	alpha-L-fucosidase 1 Source HGNC Symbol Acc HGNC 4006
B06	UPFH0356906	ENST00000451668.1	FUCA2	ENSG00000001036	alpha-L-fucosidase 2 Source HGNC Symbol Acc HGNC 4008
B07	UPFH0281936	ENST00000372841.8	FUT11	ENSG00000196968	fucosyltransferase 11 Source HGNC Symbol Acc HGNC 19233
B08	UPFH0164809	ENST00000358307.6	FUT8	ENSG00000033170	fucosyltransferase 8 Source HGNC Symbol Acc HGNC 4019
B09	UPFH0106713	ENST00000591924.5	GALNT1	ENSG00000141429	polypeptide N-acetylgalactosaminyltransferase 1 Source HGNC Symbol Acc HGNC 4123
B10	UPFH0062573	ENST00000521781.5	GALNT10	ENSG00000164574	polypeptide N-acetylgalactosaminyltransferase 10 Source HGNC Symbol Acc HGNC 19873
B11	UPFH0320300	ENST00000447778.5	GALNT11	ENSG00000178234	polypeptide N-acetylgalactosaminyltransferase 11 Source HGNC Symbol Acc HGNC 19875
B12	UPFH0005646	ENST00000375011.4	GALNT12	ENSG00000119514	polypeptide N-acetylgalactosaminyltransferase 12 Source HGNC Symbol Acc HGNC 19877
C01	UPFH0050719	ENST00000431076.5	GALNT13	ENSG00000144278	polypeptide N-acetylgalactosaminyltransferase 13 Source HGNC Symbol Acc HGNC 23242
C02	UPFH0189924	ENST00000324589.9	GALNT14	ENSG00000158089	polypeptide N-acetylgalactosaminyltransferase 14 Source HGNC Symbol Acc HGNC 22946
C03	UPFH0588150	ENST00000366672.5	GALNT2	ENSG00000143641	polypeptide N-acetylgalactosaminyltransferase 2 Source HGNC Symbol Acc HGNC 4124
C04	UPFH0406916	ENST00000392701.7	GALNT3	ENSG00000115339	polypeptide N-acetylgalactosaminyltransferase 3 Source HGNC Symbol Acc HGNC 4125
C05	UPFH0499749	ENST00000529983.3	GALNT4	ENSG00000257594	polypeptide N-acetylgalactosaminyltransferase 4 Source HGNC Symbol Acc HGNC 4126
C06	UPFH0388535	ENST00000605138.5	GALNT6	ENSG00000139629	polypeptide N-acetylgalactosaminyltransferase 6 Source HGNC Symbol Acc HGNC 4128
C07	UPFH0233784	ENST00000265000.9	GALNT7	ENSG00000109586	polypeptide N-acetylgalactosaminyltransferase 7 Source HGNC Symbol Acc HGNC 4129
C08	UPFH0475575	ENST00000252318.6	GALNT8	ENSG00000130035	polypeptide N-acetylgalactosaminyltransferase 8 Source HGNC Symbol Acc HGNC 4130
C09	UPFH0453050	ENST00000424720.6	GALNT9	ENSG00000182870	polypeptide N-acetylgalactosaminyltransferase 9 Source HGNC Symbol Acc HGNC 4131
C10	UPFH0237129	ENST00000553669.1	GALNT16	ENSG00000100626	polypeptide N-acetylgalactosaminyltransferase 16 Source HGNC Symbol Acc HGNC 23233
		ENST00000416		ENSG000000	polypeptide N-acetylgalactosaminyltransferase like 5 Source HGNC Symbol Acc

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	UPFH0203958	269.6	GALNTL5	106648	HGNC 21725
C12	UPFH0460891	ENST0000016459.1	GALNTL6	ENSG00000174473	polypeptide N-acetylgalactosaminyltransferase like 6 Source HGNC Symbol Acc HGNC 33844
D01	UPFH0275097	ENST00000534422.5	GANAB	ENSG00000089597	glucosidase II alpha subunit Source HGNC Symbol Acc HGNC 4138
D02	UPFH0445300	ENST00000480311.5	GCNT1	ENSG00000187210	glucosaminyl (N-acetyl) transferase 1 Source HGNC Symbol Acc HGNC 4203
D03	UPFH0166135	ENST00000559189.5	GCNT3	ENSG00000140297	glucosaminyl (N-acetyl) transferase 3, mucin type Source HGNC Symbol Acc HGNC 4205
D04	UPFH0590750	ENST00000652361.1	GCNT4	ENSG00000176928	glucosaminyl (N-acetyl) transferase 4 Source HGNC Symbol Acc HGNC 17973
D05	UPFH0411488	ENST00000473477.1	GLB1	ENSG00000170266	galactosidase beta 1 Source HGNC Symbol Acc HGNC 4298
D06	UPFH0405791	ENST00000550352.1	GNPTAB	ENSG00000111670	N-acetylglucosamine-1-phosphate transferase subunits alpha and beta Source HGNC Symbol Acc HGNC 29670
D07	UPFH0520498	ENST00000529957.5	GNPTG	ENSG00000090581	N-acetylglucosamine-1-phosphate transferase subunit gamma Source HGNC Symbol Acc HGNC 23026
D08	UPFH0003170	ENST00000563762.5	HEXA	ENSG00000213614	hexosaminidase subunit alpha Source HGNC Symbol Acc HGNC 4878
D09	UPFH0285373	ENST00000511181.5	HEXB	ENSG00000049860	hexosaminidase subunit beta Source HGNC Symbol Acc HGNC 4879
D10	UPFH0617043	ENST00000368468.4	MAN1A1	ENSG00000111885	mannosidase alpha class 1A member 1 Source HGNC Symbol Acc HGNC 6821
D11	UPFH0324787	ENST00000421535.5	MAN1A2	ENSG00000198162	mannosidase alpha class 1A member 2 Source HGNC Symbol Acc HGNC 6822
D12	UPFH0181282	ENST00000545096.1	MAN1B1	ENSG00000177239	mannosidase alpha class 1B member 1 Source HGNC Symbol Acc HGNC 6823
E01	UPFH0399106	ENST00000611903.4	MAN1C1	ENSG00000117643	mannosidase alpha class 1C member 1 Source HGNC Symbol Acc HGNC 19080
E02	UPFH0133344	ENST00000505313.1	MAN2A1	ENSG00000112893	mannosidase alpha class 2A member 1 Source HGNC Symbol Acc HGNC 6824
E03	UPFH0294466	ENST00000561448.5	MAN2A2	ENSG00000196547	mannosidase alpha class 2A member 2 Source HGNC Symbol Acc HGNC 6825
E04	UPFH0326990	ENST00000221363.8	MAN2B1	ENSG00000104774	mannosidase alpha class 2B member 1 Source HGNC Symbol Acc HGNC 6826
E05	UPFH0436768	ENST00000644545.1	MANBA	ENSG00000109323	mannosidase beta Source HGNC Symbol Acc HGNC 6831
E06	UPFH0608706	ENST00000508090.1	MGAT1	ENSG00000131446	mannosyl (alpha-1,3-)-glycoprotein beta-1,2-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7044
E07	UPFH0582092	ENST00000305386.3	MGAT2	ENSG00000168282	mannosyl (alpha-1,6-)-glycoprotein beta-1,2-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7045
E08	UPFH0137101	ENST00000429402.1	MGAT3	ENSG00000128268	mannosyl (beta-1,4-)-glycoprotein beta-1,4-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7046
E09	UPFH0205404	ENST00000461884.1	MGAT4A	ENSG00000071073	alpha-1,3-mannosyl-glycoprotein 4-beta-N-acetylglucosaminyltransferase A Source HGNC Symbol Acc HGNC 7047
E10	UPFH0534651	ENST00000519965.1	MGAT4B	ENSG00000161013	alpha-1,3-mannosyl-glycoprotein 4-beta-N-acetylglucosaminyltransferase B Source HGNC Symbol Acc HGNC 7048
E11	UPFH0350613	ENST00000548651.5	MGAT4C	ENSG00000182050	MGAT4 family member C Source HGNC Symbol Acc HGNC 30871
E12	UPFH0367863	ENST00000281923.4	MGAT5	ENSG00000152127	alpha-1,6-mannosylglycoprotein 6-beta-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7049
F01	UPFH0133453	ENST00000569840.6	MGAT5B	ENSG00000167889	alpha-1,6-mannosylglycoprotein 6-beta-N-acetylglucosaminyltransferase B Source HGNC Symbol Acc HGNC 24140
F02	UPFH0365457	ENST00000233616.8	MOGS	ENSG00000115275	mannosyl-oligosaccharide glucosidase Source HGNC Symbol Acc HGNC 24862
F03	UPFH0171208	ENST00000569296.5	NAGPA	ENSG00000103174	N-acetylglucosamine-1-phosphodiester alpha-N-acetylglucosaminidase Source HGNC Symbol Acc HGNC 17378
F04	UPFH1125994	ENST00000480384.1	NEU1	ENSG00000204386	neuraminidase 1 Source HGNC Symbol Acc HGNC 7758
F05	UPFH0406989	ENST00000233840.3	NEU2	ENSG00000115488	neuraminidase 2 Source HGNC Symbol Acc HGNC 7759
F06	UPFH0250960	ENST00000531509.5	NEU3	ENSG00000162139	neuraminidase 3 Source HGNC Symbol Acc HGNC 7760
F07	UPFH0375157	ENST00000618597.1	NEU4	ENSG00000204099	neuraminidase 4 Source HGNC Symbol Acc HGNC 21328
F08	UPFH0266902	ENST00000455587.3	OGT	ENSG00000147162	O-linked N-acetylglucosamine (GlcNAc) transferase Source HGNC Symbol Acc HGNC 8127
F09	UPFH0531763	ENST00000375730.3	POFUT1	ENSG00000101346	protein O-fucosyltransferase 1 Source HGNC Symbol Acc HGNC 14988
F10	UPFH0003782	ENST00000468360.5	POFUT2	ENSG00000186866	protein O-fucosyltransferase 2 Source HGNC Symbol Acc HGNC 14683

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	UPFH0251900	ENST00000489985.1	POMGNT1	ENSG00000085998	protein O-linked mannose N-acetylglucosaminyltransferase 1 (beta 1,2-) Source HGNC Symbol Acc HGNC 19139
F12	UPFH0449053	ENST00000467848.1	POMT1	ENSG00000130714	protein O-mannosyltransferase 1 Source HGNC Symbol Acc HGNC 9202
G01	UPFH0363249	ENST00000452340.7	POMT2	ENSG00000009830	protein O-mannosyltransferase 2 Source HGNC Symbol Acc HGNC 19743
G02	UPFH0613378	ENST00000589126.5	PRKCSH	ENSG00000130175	protein kinase C substrate 80K-H Source HGNC Symbol Acc HGNC 9411
G03	UPFH1123765	ENST00000520020.5	ST3GAL1	ENSG00000008513	ST3 beta-galactoside alpha-2,3-sialyltransferase 1 Source HGNC Symbol Acc HGNC 10862
G04	UPFH0451973	ENST00000567822.1	ST3GAL2	ENSG00000157350	ST3 beta-galactoside alpha-2,3-sialyltransferase 2 Source HGNC Symbol Acc HGNC 10863
G05	UPFH0136754	ENST00000438590.5	ST6GAL1	ENSG00000073849	ST6 beta-galactoside alpha-2,6-sialyltransferase 1 Source HGNC Symbol Acc HGNC 10860
G06	UPFH0574957	ENST00000359088.9	ST6GALNA C1	ENSG00000070526	ST6 N-acetylgalactosaminide alpha-2,6-sialyltransferase 1 Source HGNC Symbol Acc HGNC 23614
G07	UPFH0176822	ENST00000556382.1	ST8SIA2	ENSG00000140557	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 2 Source HGNC Symbol Acc HGNC 10870
G08	UPFH0315475	ENST00000324000.4	ST8SIA3	ENSG00000177511	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 3 Source HGNC Symbol Acc HGNC 14269
G09	UPFH0328424	ENST00000451528.2	ST8SIA4	ENSG00000113532	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 4 Source HGNC Symbol Acc HGNC 10871
G10	UPFH0228766	ENST00000648997.1	ST8SIA6	ENSG00000148488	ST8 alpha-N-acetyl-neuraminide alpha-2,8-sialyltransferase 6 Source HGNC Symbol Acc HGNC 23317
G11	UPFH0373200	ENST00000376723.7	UGGT1	ENSG00000136731	UDP-glucose glycoprotein glucosyltransferase 1 Source HGNC Symbol Acc HGNC 15663
G12	UPFH0528654	ENST00000376714.7	UGGT2	ENSG00000102595	UDP-glucose glycoprotein glucosyltransferase 2 Source HGNC Symbol Acc HGNC 15664
H01	UPFH1132936	ENST00000646664.1	ACTB	ENSG00000075624	actin beta Source HGNC Symbol Acc HGNC 132
H02	UPFH1132937	ENST00000544417.5	B2M	ENSG00000166710	beta-2-microglobulin Source HGNC Symbol Acc HGNC 914
H03	UPFH1132938	ENST00000229239.10	GAPDH	ENSG00000111640	glyceraldehyde-3-phosphate dehydrogenase Source HGNC Symbol Acc HGNC 4141
H04	UPFH1132939	ENST00000298556.8	HPRT1	ENSG00000165704	hypoxanthine phosphoribosyltransferase 1 Source HGNC Symbol Acc HGNC 5157
H05	UPFH1132941	ENST00000392514.9	RPLP0	ENSG00000089157	ribosomal protein lateral stalk subunit P0 Source HGNC Symbol Acc HGNC 10371
H06	UPFH1126608	UPL_HGDC	HGDC	UPL_HGDC	Human 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.

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.