

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

## Human Drug Metabolism: Phase I Enzymes

Cat. no. 249955 UPHS-069ZA

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	AANAT	ACSL1	ACSL3	ACSL4	ACSM1	ACSM2B	ACSM3	AGXT	AS3MT	ASMT	BAAT	KYAT1
B	CES1	CES2	CES3	CES5A	CHST7	COMT	DDOST	EPHX1	EPHX2	GALNT1	GALNT4	GAMT
C	GCNT1	GLYAT	GNMT	GSTA1	GSTA3	GSTA4	GSTA5	GSTK1	GSTM2	GSTM3	GSTM4	GSTM5
D	GSTO1	GSTO2	GSTP1	GSTT2	HNMT	INMT	MGAT1	MGAT2	MGST1	MGST2	MGST3	NAA20
E	NAT1	NAT2	NNMT	NQO1	NQO2	PNMT	POMGNT1	PTGES	SAT1	SULT1A1	SULT1A2	SULT1B1
F	SULT1C2	SULT1C3	SULT1C4	SULT1E1	SULT2A1	SULT2B1	SULT4A1	SULT6B1	TPMT	TST	UGCG	UGT1A1
G	UGT1A4	UGT1A9	UGT2A1	UGT2A3	UGT2B10	UGT2B17	UGT2B28	UGT2B4	UGT2B7	UGT3A1	UGT8	XDH
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	UPFH0470317	ENST00000392492.7	AANAT	ENSG00000129673	aralkylamine N-acetyltransferase Source HGNC Symbol Acc HGNC 19
A02	UPFH0223681	ENST00000515030.5	ACSL1	ENSG00000151726	acyl-CoA synthetase long chain family member 1 Source HGNC Symbol Acc HGNC 3569
A03	UPFH1132212	ENST00000357430.8	ACSL3	ENSG00000123983	acyl-CoA synthetase long chain family member 3 Source HGNC Symbol Acc HGNC 3570
A04	UPFH1132213	ENST00000348502.10	ACSL4	ENSG00000068366	acyl-CoA synthetase long chain family member 4 Source HGNC Symbol Acc HGNC 3571
A05	UPFH0269589	ENST00000519745.5	ACSM1	ENSG00000166743	acyl-CoA synthetase medium chain family member 1 Source HGNC Symbol Acc HGNC 18049
A06	UPFH0289097	ENST00000563943.5	ACSM2B	ENSG00000066813	acyl-CoA synthetase medium chain family member 2B Source HGNC Symbol Acc HGNC 30931
A07	UPFH0341480	ENST00000440284.6	ACSM3	ENSG00000005187	acyl-CoA synthetase medium chain family member 3 Source HGNC Symbol Acc HGNC 10522
A08	UPFH0280405	ENST00000476698.1	AGXT	ENSG00000172482	alanine-glyoxylate and serine-pyruvate aminotransferase Source HGNC Symbol Acc HGNC 341
A09	UPFH0021865	ENST00000615257.1	AS3MT	ENSG00000214435	arsenite methyltransferase Source HGNC Symbol Acc HGNC 17452
A10	UPFH0032137	ENST00000432523.6	ASMT	ENSG00000196433	acetylserotonin O-methyltransferase Source HGNC Symbol Acc HGNC 750
A11	UPFH0505979	ENST00000259407.6	BAAT	ENSG00000136881	bile acid-CoA amino acid N-acyltransferase Source HGNC Symbol Acc HGNC 932
A12	UPFH0061780	ENST00000462722.5	KYAT1	ENSG00000171097	kynurenine aminotransferase 1 Source HGNC Symbol Acc HGNC 1564
B01	UPFH0182346	ENST00000360526.7	CES1	ENSG00000198848	carboxylesterase 1 Source HGNC Symbol Acc HGNC 1863
B02	UPFH0600886	ENST00000652667.1	CES2	ENSG00000172831	carboxylesterase 2 Source HGNC Symbol Acc HGNC 1864
B03	UPFH0053483	ENST00000303334.9	CES3	ENSG00000172828	carboxylesterase 3 Source HGNC Symbol Acc HGNC 1865
B04	UPFH0521955	ENST00000319165.13	CES5A	ENSG00000159398	carboxylesterase 5A Source HGNC Symbol Acc HGNC 26459
B05	UPFH0581874	ENST00000276055.3	CHST7	ENSG00000147119	carbohydrate sulfotransferase 7 Source HGNC Symbol Acc HGNC 13817
B06	UPFH0043531	ENST00000361682.10	COMT	ENSG00000093010	catechol-O-methyltransferase Source HGNC Symbol Acc HGNC 2228
B07	UPFH0243291	ENST00000602624.6	DDOST	ENSG00000244038	dolichyl-diphosphooligosaccharide--protein glycosyltransferase non-catalytic subunit Source HGNC Symbol Acc HGNC 2728
B08	UPFH0110243	ENST00000467015.1	EPHX1	ENSG00000143819	epoxide hydrolase 1 Source HGNC Symbol Acc HGNC 3401
B09	UPFH0039157	ENST00000521400.5	EPHX2	ENSG00000120915	epoxide hydrolase 2 Source HGNC Symbol Acc HGNC 3402
B10	UPFH0106713	ENST00000591924.5	GALNT1	ENSG00000141429	polypeptide N-acetylgalactosaminyltransferase 1 Source HGNC Symbol Acc HGNC 4123
B11	UPFH0499749	ENST00000529983.3	GALNT4	ENSG00000257594	polypeptide N-acetylgalactosaminyltransferase 4 Source HGNC Symbol Acc HGNC 4126
B12	UPFH0563962	ENST00000591788.3	GAMT	ENSG00000130005	guanidinoacetate N-methyltransferase Source HGNC Symbol Acc HGNC 4136
C01	UPFH0445300	ENST00000480311.5	GCNT1	ENSG00000187210	glucosaminyl (N-acetyl) transferase 1 Source HGNC Symbol Acc HGNC 4203
C02	UPFH0471503	ENST00000611865.4	GLYAT	ENSG00000149124	glycine-N-acyltransferase Source HGNC Symbol Acc HGNC 13734
C03	UPFH0590725	ENST00000372808.4	GNMT	ENSG00000124713	glycine N-methyltransferase Source HGNC Symbol Acc HGNC 4415
C04	UPFH0492642	ENST00000493331.5	GSTA1	ENSG00000243955	glutathione S-transferase alpha 1 Source HGNC Symbol Acc HGNC 4626
C05	UPFH0533966	ENST00000370968.5	GSTA3	ENSG00000174156	glutathione S-transferase alpha 3 Source HGNC Symbol Acc HGNC 4628
C06	UPFH0158098	ENST00000486559.5	GSTA4	ENSG00000170899	glutathione S-transferase alpha 4 Source HGNC Symbol Acc HGNC 4629
C07	UPFH0511974	ENST00000370989.6	GSTA5	ENSG00000182793	glutathione S-transferase alpha 5 Source HGNC Symbol Acc HGNC 19662
C08	UPFH0123632	ENST00000443571.6	GSTK1	ENSG00000197448	glutathione S-transferase kappa 1 Source HGNC Symbol Acc HGNC 16906
C09	UPFH0275234	ENST00000369831.6	GSTM2	ENSG00000213366	glutathione S-transferase mu 2 Source HGNC Symbol Acc HGNC 4634
C10	UPFH0581854	ENST00000486823.5	GSTM3	ENSG00000134202	glutathione S-transferase mu 3 Source HGNC Symbol Acc HGNC 4635
		ENST00000478		ENSG000000	

Position	Assay	Name	Symbol	Ensembl ID	Description
C11	UPFH0048498	397.5	GSTM4	168765	glutathione S-transferase mu 4 Source HGNC Symbol Acc HGNC 4636
C12	UPFH0336373	ENST00000369 812.6	GSTM5	ENSG00000 134201	glutathione S-transferase mu 5 Source HGNC Symbol Acc HGNC 4637
D01	UPFH0401917	ENST00000369 710.8	GSTO1	ENSG00000 148834	glutathione S-transferase omega 1 Source HGNC Symbol Acc HGNC 13312
D02	UPFH0326529	ENST00000450 629.6	GSTO2	ENSG00000 065621	glutathione S-transferase omega 2 Source HGNC Symbol Acc HGNC 23064
D03	UPFH0262059	ENST00000398 606.8	GSTP1	ENSG00000 084207	glutathione S-transferase pi 1 Source HGNC Symbol Acc HGNC 4638
D04	UPFH0000357	ENST00000621 118.4	GSTT2	ENSG00000 099984	glutathione S-transferase theta 2 (gene/pseudogene) Source HGNC Symbol Acc HGNC 4642
D05	UPFH0091478	ENST00000485 653.1	HNMT	ENSG00000 150540	histamine N-methyltransferase Source HGNC Symbol Acc HGNC 5028
D06	UPFH0085873	ENST00000013 222.5	INMT	ENSG00000 241644	indolethylamine N-methyltransferase Source HGNC Symbol Acc HGNC 6069
D07	UPFH0608706	ENST00000508 090.1	MGAT1	ENSG00000 131446	mannosyl (alpha-1,3-)-glycoprotein beta-1,2-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7044
D08	UPFH0582092	ENST00000305 386.3	MGAT2	ENSG00000 168282	mannosyl (alpha-1,6-)-glycoprotein beta-1,2-N-acetylglucosaminyltransferase Source HGNC Symbol Acc HGNC 7045
D09	UPFH0176450	ENST00000535 309.5	MGST1	ENSG00000 008394	microsomal glutathione S-transferase 1 Source HGNC Symbol Acc HGNC 7061
D10	UPFH0608787	ENST00000515 067.1	MGST2	ENSG00000 085871	microsomal glutathione S-transferase 2 Source HGNC Symbol Acc HGNC 7063
D11	UPFH1132547	ENST00000367 884.6	MGST3	ENSG00000 143198	microsomal glutathione S-transferase 3 Source HGNC Symbol Acc HGNC 7064
D12	UPFH0021166	ENST00000310 450.8	NAA20	ENSG00000 173418	N(alpha)-acetyltransferase 20, NatB catalytic subunit Source HGNC Symbol Acc HGNC 15908
E01	UPFH0223409	ENST00000517 492.5	NAT1	ENSG00000 171428	N-acetyltransferase 1 Source HGNC Symbol Acc HGNC 7645
E02	UPFH0611246	ENST00000520 116.1	NAT2	ENSG00000 156006	N-acetyltransferase 2 Source HGNC Symbol Acc HGNC 7646
E03	UPFH0600851	ENST00000299 964.3	NNMT	ENSG00000 166741	nicotinamide N-methyltransferase Source HGNC Symbol Acc HGNC 7861
E04	UPFH1132829	ENST00000320 623.10	NQO1	ENSG00000 181019	NAD(P)H quinone dehydrogenase 1 Source HGNC Symbol Acc HGNC 2874
E05	UPFH0192654	ENST00000380 430.5	NQO2	ENSG00000 124588	N-ribosyl-dihydro-nicotinamide quinone reductase 2 Source HGNC Symbol Acc HGNC 7856
E06	UPFH0207197	ENST00000394 246.1	PNMT	ENSG00000 141744	phenylethanolamine N-methyltransferase Source HGNC Symbol Acc HGNC 9160
E07	UPFH0251900	ENST00000489 985.1	POMGNT1	ENSG00000 085998	protein O-linked mannose N-acetylglucosaminyltransferase 1 (beta 1,2-) Source HGNC Symbol Acc HGNC 19139
E08	UPFH0437621	ENST00000481 476.1	PTGES	ENSG00000 148344	prostaglandin E synthase Source HGNC Symbol Acc HGNC 9599
E09	UPFH0275147	ENST00000489 394.5	SAT1	ENSG00000 130066	spermidine/spermine N1-acetyltransferase 1 Source HGNC Symbol Acc HGNC 10540
E10	UPFH0065753	ENST00000567 512.1	SULT1A1	ENSG00000 196502	sulfotransferase family 1A member 1 Source HGNC Symbol Acc HGNC 11453
E11	UPFH0348932	ENST00000335 715.9	SULT1A2	ENSG00000 197165	sulfotransferase family 1A member 2 Source HGNC Symbol Acc HGNC 11454
E12	UPFH0324933	ENST00000510 821.1	SULT1B1	ENSG00000 173597	sulfotransferase family 1B member 1 Source HGNC Symbol Acc HGNC 17845
F01	UPFH0215354	ENST00000326 853.9	SULT1C2	ENSG00000 198203	sulfotransferase family 1C member 2 Source HGNC Symbol Acc HGNC 11456
F02	UPFH0387953	ENST00000329 106.2	SULT1C3	ENSG00000 196228	sulfotransferase family 1C member 3 Source HGNC Symbol Acc HGNC 33543
F03	UPFH0402294	ENST00000272 452.7	SULT1C4	ENSG00000 198075	sulfotransferase family 1C member 4 Source HGNC Symbol Acc HGNC 11457
F04	UPFH0113085	ENST00000226 444.4	SULT1E1	ENSG00000 109193	sulfotransferase family 1E member 1 Source HGNC Symbol Acc HGNC 11377
F05	UPFH0521586	ENST00000222 002.4	SULT2A1	ENSG00000 105398	sulfotransferase family 2A member 1 Source HGNC Symbol Acc HGNC 11458
F06	UPFH0194365	ENST00000594 274.1	SULT2B1	ENSG00000 088002	sulfotransferase family 2B member 1 Source HGNC Symbol Acc HGNC 11459
F07	UPFH0323228	ENST00000475 131.1	SULT4A1	ENSG00000 130540	sulfotransferase family 4A member 1 Source HGNC Symbol Acc HGNC 14903
F08	UPFH0353285	ENST00000407 963.1	SULT6B1	ENSG00000 138068	sulfotransferase family 6B member 1 Source HGNC Symbol Acc HGNC 33433
F09	UPFH0035825	ENST00000309 983.5	TPMT	ENSG00000 137364	thiopurine S-methyltransferase Source HGNC Symbol Acc HGNC 12014
F10	UPFH0402085	ENST00000249 042.8	TST	ENSG00000 128311	thiosulfate sulfurtransferase Source HGNC Symbol Acc HGNC 12388

Position	Assay	Name	Symbol	Ensembl ID	Description
F11	UPFH0215092	ENST00000490110.5	UGCG	ENSG00000148154	UDP-glucose ceramide glucosyltransferase Source HGNC Symbol Acc HGNC 12524
F12	UPFH0074998	ENST00000360418.4	UGT1A1	ENSG00000241635	UDP glucuronosyltransferase family 1 member A1 Source HGNC Symbol Acc HGNC 12530
G01	UPFH0031859	ENST00000373409.7	UGT1A4	ENSG00000244474	UDP glucuronosyltransferase family 1 member A4 Source HGNC Symbol Acc HGNC 12536
G02	UPFH0487164	ENST00000354728.5	UGT1A9	ENSG00000241119	UDP glucuronosyltransferase family 1 member A9 Source HGNC Symbol Acc HGNC 12541
G03	UPFH0391761	ENST00000503640.5	UGT2A1	ENSG00000173610	UDP glucuronosyltransferase family 2 member A1 complex locus Source HGNC Symbol Acc HGNC 12542
G04	UPFH0146584	ENST00000503012.1	UGT2A3	ENSG00000135220	UDP glucuronosyltransferase family 2 member A3 Source HGNC Symbol Acc HGNC 28528
G05	UPFH0492992	ENST00000458688.2	UGT2B10	ENSG00000109181	UDP glucuronosyltransferase family 2 member B10 Source HGNC Symbol Acc HGNC 12544
G06	UPFH0445090	ENST00000317746.2	UGT2B17	ENSG00000197888	UDP glucuronosyltransferase family 2 member B17 Source HGNC Symbol Acc HGNC 12547
G07	UPFH0532865	ENST00000511240.1	UGT2B28	ENSG00000135226	UDP glucuronosyltransferase family 2 member B28 Source HGNC Symbol Acc HGNC 13479
G08	UPFH0342518	ENST00000305107.7	UGT2B4	ENSG00000156096	UDP glucuronosyltransferase family 2 member B4 Source HGNC Symbol Acc HGNC 12553
G09	UPFH0074514	ENST00000508661.5	UGT2B7	ENSG00000171234	UDP glucuronosyltransferase family 2 member B7 Source HGNC Symbol Acc HGNC 12554
G10	UPFH0335760	ENST00000274278.7	UGT3A1	ENSG00000145626	UDP glycosyltransferase family 3 member A1 Source HGNC Symbol Acc HGNC 26625
G11	UPFH0471216	ENST00000394511.3	UGT8	ENSG00000174607	UDP glycosyltransferase 8 Source HGNC Symbol Acc HGNC 12555
G12	UPFH0207114	ENST00000379416.4	XDH	ENSG00000158125	xanthine dehydrogenase Source HGNC Symbol Acc HGNC 12805
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.

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