

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

## Human Leukemia

Cat. no. 249955 UPHS-137ZA

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 | ABL1     | AKT1  | ALOX5 | APAF1  | BAALC  | BCL2   | BCR    | BMPR1B | BTG3  | CADM1 | CCL3   | CD34   |
| B | CDC42EP3 | CDH1  | CDH13 | CDKN1A | CDKN1B | CDKN1C | CDKN2B | CEBPB  | CSF3  | CCN2  | CTNNB1 | CXCL10 |
| C | DAPK1    | DKK3  | DLC1  | EGR3   | FGR    | FOXO3  | GAS2L3 | GATA1  | GRB2  | HCK   | HDAC1  | HIC1   |
| D | HSP90AA1 | IFNA1 | IKZF3 | IL10   | IL12A  | IL1R1  | IL4    | IL6    | CXCL8 | JAK2  | JUN    | JUNB   |
| E | LMO1     | LMO2  | LYL1  | MCL1   | MEIS1  | MERTK  | MLH1   | MN1    | MTOR  | NFKB1 | NPM1   | NR4A3  |
| F | PML      | PRKCB | PTEN  | RAC2   | RGS12  | RUNX1  | RUNX2  | RUNX3  | SFRP2 | SFRP4 | SFRP5  | SHC1   |
| G | SMO      | SOCS1 | SPI1  | STAT1  | STAT3  | STAT5A | STAT5B | TAL1   | TLX1  | TLX3  | TP53   | WIF1   |
| 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      | UPFH1132770 | ENST00000318560.6  | ABL1     | ENSG00000097007 | ABL proto-oncogene 1, non-receptor tyrosine kinase Source HGNC Symbol Acc HGNC 76 |
| A02      | UPFH0453992 | ENST00000555528.5  | AKT1     | ENSG00000142208 | AKT serine/threonine kinase 1 Source HGNC Symbol Acc HGNC 391                     |
| A03      | UPFH1132227 | ENST00000612635.4  | ALOX5    | ENSG00000012779 | arachidonate 5-lipoxygenase Source HGNC Symbol Acc HGNC 435                       |
| A04      | UPFH1132235 | ENST00000551964.5  | APAF1    | ENSG00000120868 | apoptotic peptidase activating factor 1 Source HGNC Symbol Acc HGNC 576           |
| A05      | UPFH0538296 | ENST00000297574.6  | BAALC    | ENSG00000164929 | BAALC, MAP3K1 and KLF4 binding Source HGNC Symbol Acc HGNC 14333                  |
| A06      | UPFH1132900 | ENST00000333681.5  | BCL2     | ENSG00000171791 | BCL2, apoptosis regulator Source HGNC Symbol Acc HGNC 990                         |
| A07      | UPFH0079096 | ENST00000487968.5  | BCR      | ENSG00000186716 | BCR, RhoGEF and GTPase activating protein Source HGNC Symbol Acc HGNC 1014        |
| A08      | UPFH0181358 | ENST00000515059.5  | BMPRI1B  | ENSG00000138696 | bone morphogenetic protein receptor type 1B Source HGNC Symbol Acc HGNC 1077      |
| A09      | UPFH0610424 | ENST00000339775.10 | BTG3     | ENSG00000154640 | BTG anti-proliferation factor 3 Source HGNC Symbol Acc HGNC 1132                  |
| A10      | UPFH0428030 | ENST00000537058.5  | CADM1    | ENSG00000182985 | cell adhesion molecule 1 Source HGNC Symbol Acc HGNC 5951                         |
| A11      | UPFH1132784 | ENST00000613922.2  | CCL3     | ENSG00000277632 | C-C motif chemokine ligand 3 Source HGNC Symbol Acc HGNC 10627                    |
| A12      | UPFH0464651 | ENST00000367036.7  | CD34     | ENSG00000174059 | CD34 molecule Source HGNC Symbol Acc HGNC 1662                                    |
| B01      | UPFH0318406 | ENST00000295324.3  | CDC42EP3 | ENSG00000163171 | CDC42 effector protein 3 Source HGNC Symbol Acc HGNC 16943                        |
| B02      | UPFH1132791 | ENST00000261769.10 | CDH1     | ENSG00000039068 | cadherin 1 Source HGNC Symbol Acc HGNC 1748                                       |
| B03      | UPFH0210939 | ENST00000428848.7  | CDH13    | ENSG00000140945 | cadherin 13 Source HGNC Symbol Acc HGNC 1753                                      |
| B04      | UPFH0312181 | ENST00000244741.9  | CDKN1A   | ENSG00000124762 | cyclin dependent kinase inhibitor 1A Source HGNC Symbol Acc HGNC 1784             |
| B05      | UPFH1132964 | ENST00000228872.9  | CDKN1B   | ENSG00000111276 | cyclin dependent kinase inhibitor 1B Source HGNC Symbol Acc HGNC 1785             |
| B06      | UPFH0327918 | ENST00000440480.7  | CDKN1C   | ENSG00000129757 | cyclin dependent kinase inhibitor 1C Source HGNC Symbol Acc HGNC 1786             |
| B07      | UPFH0150846 | ENST00000579591.1  | CDKN2B   | ENSG00000147883 | cyclin dependent kinase inhibitor 2B Source HGNC Symbol Acc HGNC 1788             |
| B08      | UPFH0202295 | ENST00000303004.4  | CEBPB    | ENSG00000172216 | CCAAT enhancer binding protein beta Source HGNC Symbol Acc HGNC 1834              |
| B09      | UPFH1132794 | ENST00000225474.6  | CSF3     | ENSG00000108342 | colony stimulating factor 3 Source HGNC Symbol Acc HGNC 2438                      |
| B10      | UPFH1132340 | ENST00000367976.4  | CCN2     | ENSG00000118523 | cellular communication network factor 2 Source HGNC Symbol Acc HGNC 2500          |
| B11      | UPFH0097734 | ENST00000396183.7  | CTNNB1   | ENSG00000168036 | catenin beta 1 Source HGNC Symbol Acc HGNC 2514                                   |
| B12      | UPFH0196315 | ENST00000306602.3  | CXCL10   | ENSG00000169245 | C-X-C motif chemokine ligand 10 Source HGNC Symbol Acc HGNC 10637                 |
| C01      | UPFH1132354 | ENST00000408954.8  | DAPK1    | ENSG00000196730 | death associated protein kinase 1 Source HGNC Symbol Acc HGNC 2674                |
| C02      | UPFH1132869 | ENST00000525493.5  | DKK3     | ENSG00000050165 | dickkopf WNT signaling pathway inhibitor 3 Source HGNC Symbol Acc HGNC 2893       |
| C03      | UPFH0418198 | ENST00000521730.1  | DLC1     | ENSG00000164741 | DLC1 Rho GTPase activating protein Source HGNC Symbol Acc HGNC 2897               |
| C04      | UPFH0445244 | ENST00000522910.1  | EGR3     | ENSG00000179388 | early growth response 3 Source HGNC Symbol Acc HGNC 3240                          |
| C05      | UPFH0429256 | ENST00000399173.5  | FGR      | ENSG00000000938 | FGR proto-oncogene, Src family tyrosine kinase Source HGNC Symbol Acc HGNC 3697   |
| C06      | UPFH0442611 | ENST00000540898.1  | FOXO3    | ENSG00000118689 | forkhead box O3 Source HGNC Symbol Acc HGNC 3821                                  |
| C07      | UPFH0342708 | ENST00000539410.2  | GAS2L3   | ENSG00000139354 | growth arrest specific 2 like 3 Source HGNC Symbol Acc HGNC 27475                 |
| C08      | UPFH0379883 | ENST00000651144.1  | GATA1    | ENSG00000102145 | GATA binding protein 1 Source HGNC Symbol Acc HGNC 4170                           |
| C09      | UPFH1132426 | ENST00000392564.5  | GRB2     | ENSG00000177885 | growth factor receptor bound protein 2 Source HGNC Symbol Acc HGNC 4566           |
| C10      | UPFH0405886 | ENST00000629881.2  | HCK      | ENSG00000101336 | HCK proto-oncogene, Src family tyrosine kinase Source HGNC Symbol Acc HGNC 4840   |
|          |             | ENST00000373       |          | ENSG000000      |   |

| Position | Assay       | Name               | Symbol   | Ensembl ID      | Description   |
|----------|-------------|--------------------|----------|-----------------|---|
| C11      | UPFH1132434 | 548.8              | HDAC1    | 116478          | histone deacetylase 1 Source HGNC Symbol Acc HGNC 4852                                  |
| C12      | UPFH0558457 | ENST00000399849.4  | HIC1     | ENSG00000177374 | HIC ZBTB transcriptional repressor 1 Source HGNC Symbol Acc HGNC 4909                   |
| D01      | UPFH0292880 | ENST00000334701.11 | HSP90AA1 | ENSG00000080824 | heat shock protein 90 alpha family class A member 1 Source HGNC Symbol Acc HGNC 5253    |
| D02      | UPFH0577805 | ENST00000276927.2  | IFNA1    | ENSG00000197919 | interferon alpha 1 Source HGNC Symbol Acc HGNC 5417                                     |
| D03      | UPFH0372991 | ENST00000377944.7  | IKZF3    | ENSG00000161405 | IKAROS family zinc finger 3 Source HGNC Symbol Acc HGNC 13178                           |
| D04      | UPFH0028177 | ENST00000423557.1  | IL10     | ENSG00000136634 | interleukin 10 Source HGNC Symbol Acc HGNC 5962   |
| D05      | UPFH1132478 | ENST00000466512.1  | IL12A    | ENSG00000168811 | interleukin 12A Source HGNC Symbol Acc HGNC 5969  |
| D06      | UPFH1132482 | ENST00000442590.5  | IL1R1    | ENSG00000115594 | interleukin 1 receptor type 1 Source HGNC Symbol Acc HGNC 5993                          |
| D07      | UPFH0226437 | ENST00000231449.7  | IL4      | ENSG00000113520 | interleukin 4 Source HGNC Symbol Acc HGNC 6014  |
| D08      | UPFH1172910 | ENST00000258743.10 | IL6      | ENSG00000136244 | interleukin 6 Source HGNC Symbol Acc HGNC 6018  |
| D09      | UPFH0120553 | ENST00000307407.8  | CXCL8    | ENSG00000169429 | C-X-C motif chemokine ligand 8 Source HGNC Symbol Acc HGNC 6025                         |
| D10      | UPFH1132818 | ENST00000381652.3  | JAK2     | ENSG00000096968 | Janus kinase 2 Source HGNC Symbol Acc HGNC 6192   |
| D11      | UPFH0569765 | ENST00000371222.3  | JUN      | ENSG00000177606 | Jun proto-oncogene, AP-1 transcription factor subunit Source HGNC Symbol Acc HGNC 6204  |
| D12      | UPFH1132504 | ENST00000302754.6  | JUNB     | ENSG00000171223 | JunB proto-oncogene, AP-1 transcription factor subunit Source HGNC Symbol Acc HGNC 6205 |
| E01      | UPFH0545132 | ENST00000524379.1  | LMO1     | ENSG00000166407 | LIM domain only 1 Source HGNC Symbol Acc HGNC 6641                                      |
| E02      | UPFH0607748 | ENST00000257818.3  | LMO2     | ENSG00000135363 | LIM domain only 2 Source HGNC Symbol Acc HGNC 6642                                      |
| E03      | UPFH0448258 | ENST00000590974.1  | LYL1     | ENSG00000104903 | LYL1, basic helix-loop-helix family member Source HGNC Symbol Acc HGNC 6734             |
| E04      | UPFH1132538 | ENST00000369026.3  | MCL1     | ENSG00000143384 | MCL1, BCL2 family apoptosis regulator Source HGNC Symbol Acc HGNC 6943                  |
| E05      | UPFH0550156 | ENST00000488550.5  | MEIS1    | ENSG00000143995 | Meis homeobox 1 Source HGNC Symbol Acc HGNC 7000  |
| E06      | UPFH0056872 | ENST00000295408.8  | MERTK    | ENSG00000153208 | MER proto-oncogene, tyrosine kinase Source HGNC Symbol Acc HGNC 7027                    |
| E07      | UPFH0346001 | ENST00000231790.6  | MLH1     | ENSG00000076242 | mutL homolog 1 Source HGNC Symbol Acc HGNC 7127   |
| E08      | UPFH0329024 | ENST00000424656.1  | MN1      | ENSG00000169184 | MN1 proto-oncogene, transcriptional regulator Source HGNC Symbol Acc HGNC 7180          |
| E09      | UPFH1132560 | ENST00000361445.8  | MTOR     | ENSG00000198793 | mechanistic target of rapamycin kinase Source HGNC Symbol Acc HGNC 3942                 |
| E10      | UPFH1132828 | ENST00000226574.9  | NFKB1    | ENSG00000109320 | nuclear factor kappa B subunit 1 Source HGNC Symbol Acc HGNC 7794                       |
| E11      | UPFH0360898 | ENST00000296930.9  | NPM1     | ENSG00000181163 | nucleophosmin 1 Source HGNC Symbol Acc HGNC 7910  |
| E12      | UPFH0009540 | ENST00000618101.4  | NR4A3    | ENSG00000119508 | nuclear receptor subfamily 4 group A member 3 Source HGNC Symbol Acc HGNC 7982          |
| F01      | UPFH1125311 | ENST00000268058.7  | PML      | ENSG00000140464 | promyelocytic leukemia Source HGNC Symbol Acc HGNC 9113                                 |
| F02      | UPFH0529104 | ENST00000646168.1  | PRKCB    | ENSG00000166501 | protein kinase C beta Source HGNC Symbol Acc HGNC 9395                                  |
| F03      | UPFH1132982 | ENST00000371953.8  | PTEN     | ENSG00000171862 | phosphatase and tensin homolog Source HGNC Symbol Acc HGNC 9588                         |
| F04      | UPFH0283088 | ENST00000249071.11 | RAC2     | ENSG00000128340 | Rac family small GTPase 2 Source HGNC Symbol Acc HGNC 9802                              |
| F05      | UPFH0518801 | ENST00000513784.7  | RGS12    | ENSG00000159788 | regulator of G protein signaling 12 Source HGNC Symbol Acc HGNC 9994                    |
| F06      | UPFH0023287 | ENST00000437180.5  | RUNX1    | ENSG00000159216 | runt related transcription factor 1 Source HGNC Symbol Acc HGNC 10471                   |
| F07      | UPFH0537167 | ENST00000371436.10 | RUNX2    | ENSG00000124813 | runt related transcription factor 2 Source HGNC Symbol Acc HGNC 10472                   |
| F08      | UPFH0389770 | ENST00000496967.1  | RUNX3    | ENSG00000020633 | runt related transcription factor 3 Source HGNC Symbol Acc HGNC 10473                   |
| F09      | UPFH0335317 | ENST00000274063.5  | SFRP2    | ENSG00000145423 | secreted frizzled related protein 2 Source HGNC Symbol Acc HGNC 10777                   |
| F10      | UPFH1132677 | ENST00000436072.7  | SFRP4    | ENSG00000106483 | secreted frizzled related protein 4 Source HGNC Symbol Acc HGNC 10778                   |

| Position | Assay       | Name               | Symbol | Ensembl ID      | Description   |
|----------|-------------|--------------------|--------|-----------------|---|
| F11      | UPFH0464418 | ENST00000266066.4  | SFRP5  | ENSG00000120057 | secreted frizzled related protein 5 Source HGNC Symbol Acc HGNC 10779                               |
| F12      | UPFH0141239 | ENST00000368449.8  | SHC1   | ENSG00000160691 | SHC adaptor protein 1 Source HGNC Symbol Acc HGNC 10840   |
| G01      | UPFH0104215 | ENST00000462420.2  | SMO    | ENSG00000128602 | smoothened, frizzled class receptor Source HGNC Symbol Acc HGNC 11119                               |
| G02      | UPFH1132887 | ENST00000644787.1  | SOCS1  | ENSG00000185338 | suppressor of cytokine signaling 1 Source HGNC Symbol Acc HGNC 19383                                |
| G03      | UPFH0097223 | ENST00000227163.8  | SPI1   | ENSG00000066336 | Spi-1 proto-oncogene Source HGNC Symbol Acc HGNC 11241  |
| G04      | UPFH1132696 | ENST00000392323.6  | STAT1  | ENSG00000115415 | signal transducer and activator of transcription 1 Source HGNC Symbol Acc HGNC 11362                |
| G05      | UPFH0531262 | ENST00000404395.3  | STAT3  | ENSG00000168610 | signal transducer and activator of transcription 3 Source HGNC Symbol Acc HGNC 11364                |
| G06      | UPFH0458805 | ENST00000591556.1  | STAT5A | ENSG00000126561 | signal transducer and activator of transcription 5A Source HGNC Symbol Acc HGNC 11366               |
| G07      | UPFH0498337 | ENST00000415845.1  | STAT5B | ENSG00000173757 | signal transducer and activator of transcription 5B Source HGNC Symbol Acc HGNC 11367               |
| G08      | UPFH0064880 | ENST00000371884.6  | TAL1   | ENSG00000162367 | TAL bHLH transcription factor 1, erythroid differentiation factor Source HGNC Symbol Acc HGNC 11556 |
| G09      | UPFH0342615 | ENST00000467928.2  | TLX1   | ENSG00000107807 | T cell leukemia homeobox 1 Source HGNC Symbol Acc HGNC 5056   |
| G10      | UPFH1125582 | ENST00000296921.6  | TLX3   | ENSG00000164438 | T cell leukemia homeobox 3 Source HGNC Symbol Acc HGNC 13532  |
| G11      | UPFH0565795 | ENST00000269305.8  | TP53   | ENSG00000141510 | tumor protein p53 Source HGNC Symbol Acc HGNC 11998   |
| G12      | UPFH1132759 | ENST00000286574.9  | WIF1   | ENSG00000156076 | WNT inhibitory factor 1 Source HGNC Symbol Acc HGNC 18081   |
| 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.