

# QuantiNova® LNA® Probe PCR Focus Panels (Rotor-Gene® Format)

## Human Glucose Metabolism

Cat. no. 249955 UPHS-006ZR

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 (Rotor-Gene): QuantiNova LNA Probe PCR Focus Panel

The 96 real-time assays in the Rotor-Gene format are located in wells 1–96 of the Rotor-Disc® (plate A1–A12=Rotor-Disc 1–12, plate B1–B12=Rotor-Disc 13–24, etc.). To maintain data analysis compatibility, wells 97–100 do not contain real-time assays but will contain master mix to account for weight balance. 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 | ACLY  | ACO1  | ACO2  | AGL   | ALDOA | ALDOB  | ALDOC   | BPGM   | CS     | DLAT | DLD   | DLST  |
| B | ENO1  | ENO2  | ENO3  | FBP1  | FBP2  | FH     | G6PC    | G6PC3  | G6PD   | GALM | GBE1  | GCK   |
| C | GPI   | GSK3A | GSK3B | GYS1  | GYS2  | H6PD   | HK2     | HK3    | IDH1   | IDH2 | IDH3A | IDH3B |
| D | IDH3G | MDH1  | MDH1B | MDH2  | OGDH  | PC     | PCK1    | PCK2   | PDHA1  | PDHB | PDK1  | PDK2  |
| E | PDK3  | PDK4  | PDP2  | PDPR  | PFKL  | PGAM2  | PGK1    | PGK2   | PGLS   | PGM1 | PGM2  | PGM3  |
| F | PHKA1 | PHKB  | PHKG1 | PHKG2 | PKLR  | PRPS1  | PRPS1L1 | PRPS2  | PYGL   | PYGM | RBKS  | RPE   |
| G | RPIA  | SDHA  | SDHB  | SDHC  | SDHD  | SUCLA2 | SUCLG1  | SUCLG2 | TALDO1 | TKT  | TP11  | UGP2  |
| 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      | UPFH1132862 | ENST00000537919.5  | ACLY   | ENSG00000131473 | ATP citrate lyase Source HGNC Symbol Acc HGNC 115   |
| A02      | UPFH0112064 | ENST00000379923.5  | ACO1   | ENSG00000122729 | aconitase 1 Source HGNC Symbol Acc HGNC 117   |
| A03      | UPFH1132211 | ENST00000216254.9  | ACO2   | ENSG00000100412 | aconitase 2 Source HGNC Symbol Acc HGNC 118   |
| A04      | UPFH0155164 | ENST00000361302.7  | AGL    | ENSG00000162688 | amylase-1, 6-glycosidase, 4-alpha-glucanotransferase Source HGNC Symbol Acc HGNC 321      |
| A05      | UPFH0184034 | ENST00000564688.1  | ALDOA  | ENSG00000149925 | aldolase, fructose-bisphosphate A Source HGNC Symbol Acc HGNC 414                         |
| A06      | UPFH0119434 | ENST00000374855.8  | ALDOB  | ENSG00000136872 | aldolase, fructose-bisphosphate B Source HGNC Symbol Acc HGNC 417                         |
| A07      | UPFH1132225 | ENST00000395321.6  | ALDOC  | ENSG00000109107 | aldolase, fructose-bisphosphate C Source HGNC Symbol Acc HGNC 418                         |
| A08      | UPFH1132278 | ENST00000344924.8  | BPGM   | ENSG00000172331 | bisphosphoglycerate mutase Source HGNC Symbol Acc HGNC 1093                               |
| A09      | UPFH1132337 | ENST00000549221.5  | CS     | ENSG00000062485 | citrate synthase Source HGNC Symbol Acc HGNC 2422   |
| A10      | UPFH0331967 | ENST00000280346.10 | DLAT   | ENSG00000150768 | dihydrolipoamide S-acetyltransferase Source HGNC Symbol Acc HGNC 2896                     |
| A11      | UPFH1132362 | ENST00000205402.10 | DLD    | ENSG00000091140 | dihydrolipoamide dehydrogenase Source HGNC Symbol Acc HGNC 2898                           |
| A12      | UPFH1132363 | ENST00000334220.9  | DLST   | ENSG00000119689 | dihydrolipoamide S-succinyltransferase Source HGNC Symbol Acc HGNC 2911                   |
| B01      | UPFH0404044 | ENST00000234590.10 | ENO1   | ENSG00000074800 | enolase 1 Source HGNC Symbol Acc HGNC 3350  |
| B02      | UPFH1132384 | ENST00000541477.5  | ENO2   | ENSG00000111674 | enolase 2 Source HGNC Symbol Acc HGNC 3353  |
| B03      | UPFH1132385 | ENST00000518175.1  | ENO3   | ENSG00000108515 | enolase 3 Source HGNC Symbol Acc HGNC 3354  |
| B04      | UPFH1132397 | ENST00000415431.5  | FBP1   | ENSG00000165140 | fructose-bisphosphatase 1 Source HGNC Symbol Acc HGNC 3606                                |
| B05      | UPFH0501719 | ENST00000375337.4  | FBP2   | ENSG00000130957 | fructose-bisphosphatase 2 Source HGNC Symbol Acc HGNC 3607                                |
| B06      | UPFH0506940 | ENST00000366560.3  | FH     | ENSG00000091483 | fumarate hydratase Source HGNC Symbol Acc HGNC 3700                                       |
| B07      | UPFH0468561 | ENST00000253801.6  | G6PC   | ENSG00000131482 | glucose-6-phosphatase catalytic subunit Source HGNC Symbol Acc HGNC 4056                  |
| B08      | UPFH0259256 | ENST00000269097.8  | G6PC3  | ENSG00000141349 | glucose-6-phosphatase catalytic subunit 3 Source HGNC Symbol Acc HGNC 24861               |
| B09      | UPFH0397211 | ENST00000621232.5  | G6PD   | ENSG00000160211 | glucose-6-phosphate dehydrogenase Source HGNC Symbol Acc HGNC 4057                        |
| B10      | UPFH1132907 | ENST00000434934.1  | GALM   | ENSG00000143891 | galactose mutarotase Source HGNC Symbol Acc HGNC 24063                                    |
| B11      | UPFH1132417 | ENST00000489715.1  | GBE1   | ENSG00000114480 | 1,4-alpha-glucan branching enzyme 1 Source HGNC Symbol Acc HGNC 4180                      |
| B12      | UPFH0335565 | ENST00000395796.7  | GCK    | ENSG00000106633 | glucokinase Source HGNC Symbol Acc HGNC 4195  |
| C01      | UPFH0554980 | ENST00000644934.1  | GPI    | ENSG00000105220 | glucose-6-phosphate isomerase Source HGNC Symbol Acc HGNC 4458                            |
| C02      | UPFH1132428 | ENST00000398249.8  | GSK3A  | ENSG00000105723 | glycogen synthase kinase 3 alpha Source HGNC Symbol Acc HGNC 4616                         |
| C03      | UPFH0470775 | ENST00000316626.5  | GSK3B  | ENSG00000082701 | glycogen synthase kinase 3 beta Source HGNC Symbol Acc HGNC 4617                          |
| C04      | UPFH1132433 | ENST00000323798.8  | GYS1   | ENSG00000104812 | glycogen synthase 1 Source HGNC Symbol Acc HGNC 4706                                      |
| C05      | UPFH0433307 | ENST00000261195.2  | GYS2   | ENSG00000111713 | glycogen synthase 2 Source HGNC Symbol Acc HGNC 4707                                      |
| C06      | UPFH1132909 | ENST00000377403.6  | H6PD   | ENSG00000049239 | hexose-6-phosphate dehydrogenase/glucose 1-dehydrogenase Source HGNC Symbol Acc HGNC 4795 |
| C07      | UPFH1132910 | ENST00000409174.1  | HK2    | ENSG00000159399 | hexokinase 2 Source HGNC Symbol Acc HGNC 4923   |
| C08      | UPFH0384616 | ENST00000506834.5  | HK3    | ENSG00000160883 | hexokinase 3 Source HGNC Symbol Acc HGNC 4925   |
| C09      | UPFH0085503 | ENST00000345146.6  | IDH1   | ENSG00000138413 | isocitrate dehydrogenase (NADP(+)) 1, cytosolic Source HGNC Symbol Acc HGNC 5382          |
| C10      | UPFH1132465 | ENST00000559482.5  | IDH2   | ENSG00000182054 | isocitrate dehydrogenase (NADP(+)) 2, mitochondrial Source HGNC Symbol Acc HGNC 5383      |
|          |             | ENST00000559       |        | ENSG000000      | isocitrate dehydrogenase 3 (NAD(+)) alpha Source HGNC Symbol Acc HGNC                     |

| Position | Assay       | Name               | Symbol  | Ensembl ID      | Description  |
|----------|-------------|--------------------|---------|-----------------|--|
| C11      | UPFH1132872 | 881.5              | IDH3A   | 166411          | 5384   |
| C12      | UPFH1132466 | ENST00000380851.9  | IDH3B   | ENSG00000101365 | isocitrate dehydrogenase 3 (NAD(+)) beta Source HGNC Symbol Acc HGNC 5385                |
| D01      | UPFH0528361 | ENST00000307092.7  | IDH3G   | ENSG00000067829 | isocitrate dehydrogenase 3 (NAD(+)) gamma Source HGNC Symbol Acc HGNC 5386               |
| D02      | UPFH1132543 | ENST00000432309.5  | MDH1    | ENSG00000014641 | malate dehydrogenase 1 Source HGNC Symbol Acc HGNC 6970                                  |
| D03      | UPFH1132544 | ENST00000454776.6  | MDH1B   | ENSG00000013840 | malate dehydrogenase 1B Source HGNC Symbol Acc HGNC 17836                                |
| D04      | UPFH1132545 | ENST00000432020.2  | MDH2    | ENSG00000014670 | malate dehydrogenase 2 Source HGNC Symbol Acc HGNC 6971                                  |
| D05      | UPFH0111093 | ENST00000419661.5  | OGDH    | ENSG00000010595 | oxoglutarate dehydrogenase Source HGNC Symbol Acc HGNC 8124                              |
| D06      | UPFH1132605 | ENST00000393958.7  | PC      | ENSG00000017359 | pyruvate carboxylase Source HGNC Symbol Acc HGNC 8636                                    |
| D07      | UPFH1132606 | ENST00000319441.6  | PCK1    | ENSG00000012425 | phosphoenolpyruvate carboxykinase 1 Source HGNC Symbol Acc HGNC 8724                     |
| D08      | UPFH0165951 | ENST00000216780.8  | PCK2    | ENSG00000010088 | phosphoenolpyruvate carboxykinase 2, mitochondrial Source HGNC Symbol Acc HGNC 8725      |
| D09      | UPFH0194717 | ENST00000481733.1  | PDHA1   | ENSG00000013182 | pyruvate dehydrogenase E1 alpha 1 subunit Source HGNC Symbol Acc HGNC 8806               |
| D10      | UPFH1132882 | ENST00000383714.8  | PDHB    | ENSG00000016829 | pyruvate dehydrogenase E1 beta subunit Source HGNC Symbol Acc HGNC 8808                  |
| D11      | UPFH0435270 | ENST00000410055.5  | PDK1    | ENSG00000015225 | pyruvate dehydrogenase kinase 1 Source HGNC Symbol Acc HGNC 8809                         |
| D12      | UPFH0118282 | ENST00000503176.5  | PDK2    | ENSG00000000588 | pyruvate dehydrogenase kinase 2 Source HGNC Symbol Acc HGNC 8810                         |
| E01      | UPFH0149880 | ENST00000379162.8  | PDK3    | ENSG00000006799 | pyruvate dehydrogenase kinase 3 Source HGNC Symbol Acc HGNC 8811                         |
| E02      | UPFH1132611 | ENST00000005178.6  | PDK4    | ENSG00000000479 | pyruvate dehydrogenase kinase 4 Source HGNC Symbol Acc HGNC 8812                         |
| E03      | UPFH0272063 | ENST00000311765.3  | PDP2    | ENSG00000017284 | pyruvate dehydrogenase phosphatase catalytic subunit 2 Source HGNC Symbol Acc HGNC 30263 |
| E04      | UPFH0159737 | ENST00000288050.8  | PDPR    | ENSG00000009085 | pyruvate dehydrogenase phosphatase regulatory subunit Source HGNC Symbol Acc HGNC 30264  |
| E05      | UPFH1132615 | ENST00000349048.9  | PFKL    | ENSG00000014195 | phosphofructokinase, liver type Source HGNC Symbol Acc HGNC 8876                         |
| E06      | UPFH0051057 | ENST00000297283.4  | PGAM2   | ENSG00000016470 | phosphoglycerate mutase 2 Source HGNC Symbol Acc HGNC 8889                               |
| E07      | UPFH1132617 | ENST00000373316.5  | PGK1    | ENSG00000010214 | phosphoglycerate kinase 1 Source HGNC Symbol Acc HGNC 8896                               |
| E08      | UPFH1172912 | ENST00000304801.5  | PGK2    | ENSG00000017095 | phosphoglycerate kinase 2 Source HGNC Symbol Acc HGNC 8898                               |
| E09      | UPFH1132618 | ENST00000252603.7  | PGLS    | ENSG00000013031 | 6-phosphogluconolactonase Source NCBI gene Acc 25796                                     |
| E10      | UPFH0278593 | ENST00000650546.1  | PGM1    | ENSG00000007973 | phosphoglucomutase 1 Source HGNC Symbol Acc HGNC 8905                                    |
| E11      | UPFH1132619 | ENST00000381967.9  | PGM2    | ENSG00000016929 | phosphoglucomutase 2 Source HGNC Symbol Acc HGNC 8906                                    |
| E12      | UPFH1132620 | ENST00000616566.5  | PGM3    | ENSG00000001337 | phosphoglucomutase 3 Source HGNC Symbol Acc HGNC 8907                                    |
| F01      | UPFH0506036 | ENST00000373539.3  | PHKA1   | ENSG00000006717 | phosphorylase kinase regulatory subunit alpha 1 Source HGNC Symbol Acc HGNC 8925         |
| F02      | UPFH1132621 | ENST00000299167.12 | PHKB    | ENSG00000010289 | phosphorylase kinase regulatory subunit beta Source HGNC Symbol Acc HGNC 8927            |
| F03      | UPFH0184468 | ENST00000297373.6  | PHKG1   | ENSG00000016477 | phosphorylase kinase catalytic subunit gamma 1 Source HGNC Symbol Acc HGNC 8930          |
| F04      | UPFH1132622 | ENST00000328273.11 | PHKG2   | ENSG00000015687 | phosphorylase kinase catalytic subunit gamma 2 Source HGNC Symbol Acc HGNC 8931          |
| F05      | UPFH1132919 | ENST00000392414.7  | PKLR    | ENSG00000014362 | pyruvate kinase L/R Source HGNC Symbol Acc HGNC 9020                                     |
| F06      | UPFH1132921 | ENST00000372435.9  | PRPS1   | ENSG00000014722 | phosphoribosyl pyrophosphate synthetase 1 Source HGNC Symbol Acc HGNC 9462               |
| F07      | UPFH1132639 | ENST00000638645.1  | PRPS1L1 | ENSG00000022993 | phosphoribosyl pyrophosphate synthetase 1-like 1 Source HGNC Symbol Acc HGNC 9463        |
| F08      | UPFH0235383 | ENST00000380668.9  | PRPS2   | ENSG00000010191 | phosphoribosyl pyrophosphate synthetase 2 Source HGNC Symbol Acc HGNC 9465               |
| F09      | UPFH1132646 | ENST00000544180.6  | PYGL    | ENSG00000010050 | glycogen phosphorylase L Source HGNC Symbol Acc HGNC 9725                                |
| F10      | UPFH1132647 | ENST00000164139.4  | PYGM    | ENSG00000006897 | glycogen phosphorylase, muscle associated Source HGNC Symbol Acc HGNC 9726               |

| Position | Assay       | Name               | Symbol | Ensembl ID      | Description  |
|----------|-------------|--------------------|--------|-----------------|--|
| F11      | UPFH1132653 | ENST00000302188.8  | RBKS   | ENSG00000171174 | ribokinase Source HGNC Symbol Acc HGNC 30325   |
| F12      | UPFH1132663 | ENST00000436630.6  | RPE    | ENSG00000197713 | ribulose-5-phosphate-3-epimerase Source HGNC Symbol Acc HGNC 10293                       |
| G01      | UPFH1132664 | ENST00000283646.5  | RPIA   | ENSG00000153574 | ribose 5-phosphate isomerase A Source HGNC Symbol Acc HGNC 10297                         |
| G02      | UPFH1132667 | ENST00000504309.5  | SDHA   | ENSG00000073578 | succinate dehydrogenase complex flavoprotein subunit A Source HGNC Symbol Acc HGNC 10680 |
| G03      | UPFH0440600 | ENST00000375499.7  | SDHB   | ENSG00000117118 | succinate dehydrogenase complex iron sulfur subunit B Source HGNC Symbol Acc HGNC 10681  |
| G04      | UPFH0461332 | ENST00000367975.6  | SDHC   | ENSG00000143252 | succinate dehydrogenase complex subunit C Source HGNC Symbol Acc HGNC 10682              |
| G05      | UPFH1132668 | ENST00000528048.5  | SDHD   | ENSG00000204370 | succinate dehydrogenase complex subunit D Source HGNC Symbol Acc HGNC 10683              |
| G06      | UPFH0017629 | ENST00000378654.8  | SUCLA2 | ENSG00000136143 | succinate-CoA ligase ADP-forming beta subunit Source HGNC Symbol Acc HGNC 11448          |
| G07      | UPFH1132701 | ENST00000393868.7  | SUCLG1 | ENSG00000163541 | succinate-CoA ligase alpha subunit Source HGNC Symbol Acc HGNC 11449                     |
| G08      | UPFH0118402 | ENST00000307227.9  | SUCLG2 | ENSG00000172340 | succinate-CoA ligase GDP-forming beta subunit Source HGNC Symbol Acc HGNC 11450          |
| G09      | UPFH1132704 | ENST00000319006.8  | TALDO1 | ENSG00000177156 | transaldolase 1 Source HGNC Symbol Acc HGNC 11559  |
| G10      | UPFH1132726 | ENST00000423525.6  | TKT    | ENSG00000163931 | transketolase Source HGNC Symbol Acc HGNC 11834  |
| G11      | UPFH1132737 | ENST00000229270.8  | TPI1   | ENSG00000111669 | triosephosphate isomerase 1 Source HGNC Symbol Acc HGNC 12009                            |
| G12      | UPFH0283246 | ENST00000472047.5  | UGP2   | ENSG00000169764 | UDP-glucose pyrophosphorylase 2 Source HGNC Symbol Acc HGNC 12527                        |
| 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.

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