

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

## Mouse Tumor Metastasis

Cat. no. 249950 SBMM-028ZR

For study focus gene expression analysis

### Shipping and storage

QuantiNova LNA PCR Focus Panels are shipped at ambient temperature. Immediately upon receipt, they should be stored 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 PCR Focus Panels should be used together with the QuantiNova Reverse Transcription Kit for cDNA synthesis and the QuantiNova SYBR® Green PCR Kit (Mastermix) for PCR.

### Panel layout (Rotor-Gene): QuantiNova LNA 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 PCR System 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 | Apc   | Brms1 | Ccl7   | Cd44  | Cd82     | Cdh1   | Cdh11 | Cdh6  | Cdh8     | Cdkn2a | Chd4     | Col4a2 |
| B | Csf1  | Ctbp1 | Ctnna1 | Ctsk  | Ctsl     | Cxcl12 | Cxcr2 | Cxcr4 | Denr     | Elane  | Ephb2    | Etv4   |
| C | Evsr1 | Fat1  | Fgfr4  | Flt4  | Fn1      | Fxyd5  | Gpnmb | Hgf   | Hpse     | Hras   | Httatip2 | Igf1   |
| D | Il18  | Il1b  | Itga7  | Itgb3 | Kiss1    | Kiss1r | Kras  | Lpar6 | Mcam     | Mdm2   | Met      | Mmp10  |
| E | Mmp11 | Mmp13 | Mmp2   | Mmp3  | Mmp7     | Mmp9   | Mta1  | Mts1  | Myc      | Mycl   | Nf2      | Nme1   |
| F | Nme2  | Nme4  | Nr4a3  | Plaur | Pnn      | Plen   | Rb1   | Rorb  | Rpsa     | Set    | Smad2    | Smad4  |
| G | Src   | Sstr2 | Syk    | Tcf20 | Tgfb1    | Timp2  | Timp3 | Timp4 | Tnfrsf10 | Trp53  | Tshr     | Vegfa  |
| H | Actb  | B2m   | Gapdh  | Gusb  | Hsp90ab1 | MGDC   | QIC   | QIC   | QIC      | PPC    | PPC      | PPC    |

## Gene table: QuantiNova LNA PCR Focus Panel

| Position | Assay      | Name                  | Symbol | Ensembl ID         | Description                                                                        |
|----------|------------|-----------------------|--------|--------------------|------------------------------------------------------------------------------------|
| A01      | SBM0782035 | ENSMUST00000079362.12 | Apc    | ENSMUSG0000005871  | APC, WNT signaling pathway regulator Source MGI Symbol Acc MGI 88039               |
| A02      | SBM0809854 | ENSMUST00000237117.1  | Brms1  | ENSMUSG0000080268  | breast cancer metastasis-suppressor 1 Source MGI Symbol Acc MGI 2388804            |
| A03      | SBM0998844 | ENSMUST0000021011.2   | Ccl7   | ENSMUSG0000035373  | chemokine (C-C motif) ligand 7 Source MGI Symbol Acc MGI 99512                     |
| A04      | SBM0860996 | ENSMUST00000111194.7  | Cd44   | ENSMUSG0000005087  | CD44 antigen Source MGI Symbol Acc MGI 88338                                       |
| A05      | SBM0792997 | ENSMUST00000116457.8  | Cd82   | ENSMUSG0000027215  | CD82 antigen Source MGI Symbol Acc MGI 104651                                      |
| A06      | SBM0815100 | ENSMUST00000136580.1  | Cdh1   | ENSMUSG0000000303  | cadherin 1 Source MGI Symbol Acc MGI 88354                                         |
| A07      | SBM0832324 | ENSMUST00000210425.1  | Cdh11  | ENSMUSG00000031673 | cadherin 11 Source MGI Symbol Acc MGI 99217                                        |
| A08      | SBM0916393 | ENSMUST00000036439.5  | Cdh6   | ENSMUSG0000039385  | cadherin 6 Source MGI Symbol Acc MGI 107435                                        |
| A09      | SBM1036019 | ENSMUST00000093249.10 | Cdh8   | ENSMUSG0000036510  | cadherin 8 Source MGI Symbol Acc MGI 107434                                        |
| A10      | SBM0998051 | ENSMUST00000060501.4  | Cdkn2a | ENSMUSG0000044303  | cyclin dependent kinase inhibitor 2A Source MGI Symbol Acc MGI 104738              |
| A11      | SBM0848966 | ENSMUST00000155261.1  | Chd4   | ENSMUSG0000063870  | chromodomain helicase DNA binding protein 4 Source MGI Symbol Acc MGI 1344380      |
| A12      | SBM0756779 | ENSMUST00000033899.13 | Col4a2 | ENSMUSG00000031503 | collagen, type IV, alpha 2 Source MGI Symbol Acc MGI 88455                         |
| B01      | SBM0903322 | ENSMUST00000155557.1  | Csf1   | ENSMUSG0000014599  | colony stimulating factor 1 (macrophage) Source MGI Symbol Acc MGI 1339753         |
| B02      | SBM1023677 | ENSMUST00000201372.2  | Ctbp1  | ENSMUSG00000037373 | C-terminal binding protein 1 Source MGI Symbol Acc MGI 1201685                     |
| B03      | SBM0712952 | ENSMUST00000236571.1  | Ctnna1 | ENSMUSG00000037815 | catenin (cadherin associated protein), alpha 1 Source MGI Symbol Acc MGI 88274     |
| B04      | SBM0898879 | ENSMUST00000015664.4  | Ctsk   | ENSMUSG0000028111  | cathepsin K Source MGI Symbol Acc MGI 107823                                       |
| B05      | SBM1071990 | ENSMUST00000222462.1  | Ctsl   | ENSMUSG0000021477  | cathepsin L Source MGI Symbol Acc MGI 88564                                        |
| B06      | SBM0703161 | ENSMUST00000134244.1  | Cxcl12 | ENSMUSG0000061353  | chemokine (C-X-C motif) ligand 12 Source MGI Symbol Acc MGI 103556                 |
| B07      | SBM0963144 | ENSMUST00000106899.3  | Cxcr2  | ENSMUSG0000026180  | chemokine (C-X-C motif) receptor 2 Source MGI Symbol Acc MGI 105303                |
| B08      | SBM0923037 | ENSMUST00000052172.6  | Cxcr4  | ENSMUSG0000045382  | chemokine (C-X-C motif) receptor 4 Source MGI Symbol Acc MGI 109563                |
| B09      | SBM0956446 | ENSMUST00000023869.14 | Denr   | ENSMUSG0000023106  | density-regulated protein Source MGI Symbol Acc MGI 1915434                        |
| B10      | SBM0811159 | ENSMUST00000046091.6  | Elane  | ENSMUSG0000020125  | elastase, neutrophil expressed Source MGI Symbol Acc MGI 2679229                   |
| B11      | SBM0735322 | ENSMUST00000156558.1  | Ephb2  | ENSMUSG0000028664  | Eph receptor B2 Source MGI Symbol Acc MGI 99611                                    |
| B12      | SBM0743574 | ENSMUST00000129995.7  | Etv4   | ENSMUSG0000017724  | ets variant 4 Source MGI Symbol Acc MGI 99423                                      |
| C01      | SBM0811931 | ENSMUST00000151847.1  | Ewsr1  | ENSMUSG0000009079  | Ewing sarcoma breakpoint region 1 Source MGI Symbol Acc MGI 99960                  |
| C02      | SBM1009954 | ENSMUST00000098796.9  | Fat1   | ENSMUSG0000070047  | FAT atypical cadherin 1 Source MGI Symbol Acc MGI 109168                           |
| C03      | SBM1072151 | ENSMUST00000162967.1  | Fgfr4  | ENSMUSG0000005320  | fibroblast growth factor receptor 4 Source MGI Symbol Acc MGI 95525                |
| C04      | SBM0847026 | ENSMUST00000020617.2  | Fli4   | ENSMUSG0000020357  | FMS-like tyrosine kinase 4 Source MGI Symbol Acc MGI 95561                         |
| C05      | SBM0934692 | ENSMUST00000185408.6  | Fn1    | ENSMUSG0000026193  | fibronectin 1 Source MGI Symbol Acc MGI 95566                                      |
| C06      | SBM1082511 | ENSMUST00000161684.7  | Fxyd5  | ENSMUSG0000009687  | FXFD domain-containing ion transport regulator 5 Source MGI Symbol Acc MGI 1201785 |
| C07      | SBM1071689 | ENSMUST00000204260.1  | Gpnmb  | ENSMUSG0000029816  | glycoprotein (transmembrane) nmb Source MGI Symbol Acc MGI 1934765                 |
| C08      | SBM0858725 | ENSMUST00000200189.4  | Hgf    | ENSMUSG0000028864  | hepatocyte growth factor Source MGI Symbol Acc MGI 96079                           |
| C09      | SBM0962947 | ENSMUST00000112908.1  | Hpse   | ENSMUSG0000035273  | heparanase Source MGI Symbol Acc MGI 1343124                                       |
| C10      | SBM0815785 | ENSMUST00000097957.10 | Hras   | ENSMUSG0000025499  | Harvey rat sarcoma virus oncogene Source MGI Symbol Acc MGI 96224                  |
|          |            | ENSMUST00000          |        | ENSMUSG00          |                                                                                    |

| Position | Assay      | Name                  | Symbol  | Ensembl ID         | Description                                                                                        |
|----------|------------|-----------------------|---------|--------------------|----------------------------------------------------------------------------------------------------|
| C11      | SBM1069391 | 085272.6              | Htatip2 | 000039745          | HIV-1 Tat interactive protein 2 Source MGI Symbol Acc MGI 1859271                                  |
| C12      | SBM1026650 | ENSMUST00000122386.7  | Igf1    | ENSMUSG0000020053  | insulin-like growth factor 1 Source MGI Symbol Acc MGI 96432                                       |
| D01      | SBM0953194 | ENSMUST00000180021.1  | Il18    | ENSMUSG00000039217 | interleukin 18 Source MGI Symbol Acc MGI 107936                                                    |
| D02      | SBM0738485 | ENSMUST00000028881.13 | Il1b    | ENSMUSG00000027398 | interleukin 1 beta Source MGI Symbol Acc MGI 96543                                                 |
| D03      | SBM0943260 | ENSMUST00000218290.1  | Itga7   | ENSMUSG00000025348 | integrin alpha 7 Source MGI Symbol Acc MGI 102700                                                  |
| D04      | SBM0851696 | ENSMUST00000127140.2  | Itgb3   | ENSMUSG00000020689 | integrin beta 3 Source MGI Symbol Acc MGI 96612                                                    |
| D05      | SBM0884233 | ENSMUST00000178033.4  | Kiss1   | ENSMUSG0000116158  | KISS-1 metastasis-suppressor Source MGI Symbol Acc MGI 2663985                                     |
| D06      | SBM0992776 | ENSMUST00000045529.2  | Kiss1r  | ENSMUSG00000035773 | KISS1 receptor Source MGI Symbol Acc MGI 2148793                                                   |
| D07      | SBM1059793 | ENSMUST00000203147.2  | Kras    | ENSMUSG00000030265 | Kirsten rat sarcoma viral oncogene homolog Source MGI Symbol Acc MGI 96680                         |
| D08      | SBM1081680 | ENSMUST00000044405.7  | Lpar6   | ENSMUSG00000033446 | lysophosphatidic acid receptor 6 Source MGI Symbol Acc MGI 1914418                                 |
| D09      | SBM0892832 | ENSMUST00000034650.14 | Mcam    | ENSMUSG00000032135 | melanoma cell adhesion molecule Source MGI Symbol Acc MGI 1933966                                  |
| D10      | SBM0989223 | ENSMUST00000020408.15 | Mdm2    | ENSMUSG00000020184 | transformed mouse 3T3 cell double minute 2 Source MGI Symbol Acc MGI 96952                         |
| D11      | SBM1055926 | ENSMUST00000115442.7  | Met     | ENSMUSG00000009376 | met proto-oncogene Source MGI Symbol Acc MGI 96969                                                 |
| D12      | SBM0917028 | ENSMUST00000034488.3  | Mmp10   | ENSMUSG0000047562  | matrix metalloproteinase 10 Source MGI Symbol Acc MGI 97007                                        |
| E01      | SBM0701635 | ENSMUST00000000924.12 | Mmp11   | ENSMUSG00000000901 | matrix metalloproteinase 11 Source MGI Symbol Acc MGI 97008                                        |
| E02      | SBM0784073 | ENSMUST00000015394.9  | Mmp13   | ENSMUSG00000050578 | matrix metalloproteinase 13 Source MGI Symbol Acc MGI 1340026                                      |
| E03      | SBM0690200 | ENSMUST00000034187.8  | Mmp2    | ENSMUSG00000031740 | matrix metalloproteinase 2 Source MGI Symbol Acc MGI 97009                                         |
| E04      | SBM1025609 | ENSMUST00000034497.7  | Mmp3    | ENSMUSG00000043613 | matrix metalloproteinase 3 Source MGI Symbol Acc MGI 97010                                         |
| E05      | SBM0709342 | ENSMUST00000018767.7  | Mmp7    | ENSMUSG0000018623  | matrix metalloproteinase 7 Source MGI Symbol Acc MGI 103189                                        |
| E06      | SBM1089430 | ENSMUST00000017881.2  | Mmp9    | ENSMUSG0000017737  | matrix metalloproteinase 9 Source MGI Symbol Acc MGI 97011                                         |
| E07      | SBM0991754 | ENSMUST00000009099.12 | Mta1    | ENSMUSG00000021144 | metastasis associated 1 Source MGI Symbol Acc MGI 2150037                                          |
| E08      | SBM0876077 | ENSMUST00000080371.7  | Mtss1   | ENSMUSG00000022353 | metastasis suppressor 1 Source MGI Symbol Acc MGI 2384818                                          |
| E09      | SBM0987162 | ENSMUST000000159338.1 | Myc     | ENSMUSG00000022346 | myelocytomatosis oncogene Source MGI Symbol Acc MGI 97250                                          |
| E10      | SBM0802635 | ENSMUST000000147259.1 | Mycl    | ENSMUSG00000028654 | v-myc avian myelocytomatosis viral oncogene lung carcinoma derived Source MGI Symbol Acc MGI 96799 |
| E11      | SBM0877965 | ENSMUST000000124878.2 | Nf2     | ENSMUSG00000009073 | neurofibromin 2 Source MGI Symbol Acc MGI 97307                                                    |
| E12      | SBM1076959 | ENSMUST00000021220.9  | Nme1    | ENSMUSG00000037601 | NME/NM23 nucleoside diphosphate kinase 1 Source MGI Symbol Acc MGI 97355                           |
| F01      | SBM1007830 | ENSMUST00000021217.10 | Nme2    | ENSMUSG00000020857 | NME/NM23 nucleoside diphosphate kinase 2 Source MGI Symbol Acc MGI 97356                           |
| F02      | SBM0701614 | ENSMUST000000236967.1 | Nme4    | ENSMUSG00000024177 | NME/NM23 nucleoside diphosphate kinase 4 Source MGI Symbol Acc MGI 1931148                         |
| F03      | SBM0766720 | ENSMUST00000030025.9  | Nr4a3   | ENSMUSG00000028341 | nuclear receptor subfamily 4, group A, member 3 Source MGI Symbol Acc MGI 1352457                  |
| F04      | SBM0732269 | ENSMUST000000206514.1 | Plaur   | ENSMUSG00000046223 | plasminogen activator, urokinase receptor Source MGI Symbol Acc MGI 97612                          |
| F05      | SBM0706790 | ENSMUST000000219176.1 | Pnn     | ENSMUSG00000020994 | pinin Source MGI Symbol Acc MGI 1100514                                                            |
| F06      | SBM1220566 | ENSMUST00000013807.7  | Pten    | ENSMUSG0000013663  | phosphatase and tensin homolog Source MGI Symbol Acc MGI 109583                                    |
| F07      | SBM0795530 | ENSMUST000000168495.1 | Rb1     | ENSMUSG00000022105 | RB transcriptional corepressor 1 Source MGI Symbol Acc MGI 97874                                   |
| F08      | SBM0844721 | ENSMUST000000147907.1 | Rorb    | ENSMUSG00000036192 | RAR-related orphan receptor beta Source MGI Symbol Acc MGI 1343464                                 |
| F09      | SBM0733530 | ENSMUST00000035105.6  | Rpsa    | ENSMUSG00000032518 | ribosomal protein SA Source MGI Symbol Acc MGI 105381                                              |
| F10      | SBM1022400 | ENSMUST000000125824.7 | Set     | ENSMUSG00000054766 | SET nuclear oncogene Source MGI Symbol Acc MGI 1860267                                             |

| Position | Assay      | Name                  | Symbol   | Ensembl ID         | Description                                                                               |
|----------|------------|-----------------------|----------|--------------------|-------------------------------------------------------------------------------------------|
| F11      | SBM1009250 | ENSMUST00000165084.7  | Smad2    | ENSMUSG00000024563 | SMAD family member 2 Source MGI Symbol Acc MGI 108051                                     |
| F12      | SBM1071100 | ENSMUST00000114939.1  | Smad4    | ENSMUSG00000024515 | SMAD family member 4 Source MGI Symbol Acc MGI 894293                                     |
| G01      | SBM1051097 | ENSMUST00000029175.13 | Src      | ENSMUSG00000027646 | Rous sarcoma oncogene Source MGI Symbol Acc MGI 98397                                     |
| G02      | SBM0791847 | ENSMUST00000146390.2  | Sstr2    | ENSMUSG00000047904 | somatostatin receptor 2 Source MGI Symbol Acc MGI 98328                                   |
| G03      | SBM0702487 | ENSMUST00000120135.7  | Syk      | ENSMUSG00000021457 | spleen tyrosine kinase Source MGI Symbol Acc MGI 99515                                    |
| G04      | SBM0710181 | ENSMUST00000048966.6  | Tcf20    | ENSMUSG00000041852 | transcription factor 20 Source MGI Symbol Acc MGI 108399                                  |
| G05      | SBM0850388 | ENSMUST00000002678.9  | Tgfb1    | ENSMUSG00000002603 | transforming growth factor, beta 1 Source MGI Symbol Acc MGI 98725                        |
| G06      | SBM0732357 | ENSMUST00000155707.2  | Timp2    | ENSMUSG0000017466  | tissue inhibitor of metalloproteinase 2 Source MGI Symbol Acc MGI 98753                   |
| G07      | SBM1025772 | ENSMUST00000132307.1  | Timp3    | ENSMUSG00000020044 | tissue inhibitor of metalloproteinase 3 Source MGI Symbol Acc MGI 98754                   |
| G08      | SBM1077931 | ENSMUST00000032462.8  | Timp4    | ENSMUSG00000030317 | tissue inhibitor of metalloproteinase 4 Source MGI Symbol Acc MGI 109125                  |
| G09      | SBM0969669 | ENSMUST00000046383.11 | Tnfsf10  | ENSMUSG00000039304 | tumor necrosis factor (ligand) superfamily, member 10 Source MGI Symbol Acc MGI 107414    |
| G10      | SBM0841427 | ENSMUST00000108657.3  | Trp53    | ENSMUSG00000059552 | transformation related protein 53 Source MGI Symbol Acc MGI 98834                         |
| G11      | SBM0929034 | ENSMUST00000221216.1  | Tshr     | ENSMUSG00000020963 | thyroid stimulating hormone receptor Source MGI Symbol Acc MGI 98849                      |
| G12      | SBM1079198 | ENSMUST00000217017.1  | Vegfa    | ENSMUSG00000023951 | vascular endothelial growth factor A Source MGI Symbol Acc MGI 103178                     |
| H01      | SBM1220560 | ENSMUST00000100497.10 | Actb     | ENSMUSG00000029580 | actin, beta Source MGI Symbol Acc MGI 87904                                               |
| H02      | SBM0675336 | ENSMUST00000102476.4  | B2m      | ENSMUSG00000060802 | beta-2 microglobulin Source MGI Symbol Acc MGI 88127                                      |
| H03      | SBM1220562 | ENSMUST00000117757.8  | Gapdh    | ENSMUSG00000057666 | glyceraldehyde-3-phosphate dehydrogenase Source MGI Symbol Acc MGI 95640                  |
| H04      | SBM1220563 | ENSMUST00000026613.13 | Gusb     | ENSMUSG00000025534 | glucuronidase, beta Source MGI Symbol Acc MGI 95872                                       |
| H05      | SBM1220564 | ENSMUST00000166469.7  | Hsp90ab1 | ENSMUSG00000023944 | heat shock protein 90 alpha (cytosolic), class B member 1 Source MGI Symbol Acc MGI 96247 |
| H06      | SBM1218554 | Sybr_MGDC             | MGDC     | Sybr_MGDC          | Mouse Genomic DNA Contamination                                                           |
| H07      | SBH1218551 | Sybr_QIC              | QIC      | Sybr_QIC           | QuantiNova Internal Control                                                               |
| H08      | SBH1218551 | Sybr_QIC              | QIC      | Sybr_QIC           | QuantiNova Internal Control                                                               |
| H09      | SBH1218551 | Sybr_QIC              | QIC      | Sybr_QIC           | QuantiNova Internal Control                                                               |
| H10      | SBH1218550 | Sybr_PPC              | PPC      | Sybr_PPC           | Positive PCR Control                                                                      |
| H11      | SBH1218550 | Sybr_PPC              | PPC      | Sybr_PPC           | Positive PCR Control                                                                      |
| H12      | SBH1218550 | Sybr_PPC              | PPC      | Sybr_PPC           | Positive PCR Control                                                                      |



## Related products

| Product                                    | Contents                                                                                                                                                                                                                                                         | Cat. no. |
|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| QuantiNova LNA PCR QC Panel                | These panels are designed to assess the quality of RNA samples before characterization using QuantiNova LNA PCR Focus Panels; available in 96-well, 384-well, and Rotor-Disc 100 formats                                                                         | 249940   |
| 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 SYBR Green RT-PCR Kit (100)*    | For 100 x 20 $\mu$ l reactions: 1 ml QuantiNova SYBR Green RT-PCR Master Mix, 20 $\mu$ l QuantiNova SYBR Green 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 | 208152   |
| QuantiNova SYBR Green PCR Kit (100)*       | For 100 x 20 $\mu$ l reactions: 1 ml 2x QuantiNova SYBR Green PCR Master Mix, 500 $\mu$ l QuantiNova Yellow Template Dilution Buffer, 250 $\mu$ l QN ROX Reference Dye, 1.9 ml Water                                                                             | 208052   |

\*Larger kit sizes available.

The QuantiNova LNA 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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