# RT² Profiler PCR Array (96-Well Format and 384-Well [4 x 96] Format)

# Dog mTOR Signaling

### Cat. no. 330231 PAFD-098ZA

### For pathway expression analysis

| Format | For use with the following real-time cyclers |
|---|---|
| RT² Profiler PCR Array, Format A | Applied Biosystems® models 5700, 7000, 7300, 7500, 7700, 7900HT, ViiA™ 7 (96-well block); Bio-Rad® models iCycler®, iQ™5, MyiQ™, MyiQ2; Bio-Rad/MJ Research Chromo4™; Eppendorf® Mastercycler® ep realplex models 2, 2s, 4, 4s; Stratagene® models Mx3005P®, Mx3000P®; Takara TP-800 |
| RT² Profiler PCR Array, Format C | Applied Biosystems models 7500 (Fast block), 7900HT (Fast block), StepOnePlus™, ViiA 7 (Fast block) |
| RT² Profiler PCR Array, Format D | Bio-Rad CFX96™; Bio-Rad/MJ Research models DNA Engine Opticon®, DNA Engine Opticon 2; Stratagene Mx4000® |
| RT² Profiler PCR Array, Format E | Applied Biosystems models 7900HT (384-well block), ViiA 7 (384-well block); Bio-Rad CFX384™ |
| RT² Profiler PCR Array, Format F | Roche® LightCycler® 480 (96-well block) |
| RT² Profiler PCR Array, Format G | Roche LightCycler 480 (384-well block) |
| RT² Profiler PCR Array, Format H | Fluidigm® BioMark™ |

QIAGEN®

Sample & Assay Technologies

## Description

The Dog mTOR Signaling RT² Profiler PCR Array profiles the expression of 84 key genes involved in the mammalian target of rapamycin (mTOR) signaling pathway. mTOR, a serine/threonine protein kinase, integrates responses from a wide variety of signals (nutrients, hormones, growth factors and cellular stresses) to regulate cell growth, metabolism and survival. The first generation of mTOR inhibitors (e.g. rapamycin) failed to inhibit all mTOR functions, because the kinase forms two distinct protein complexes, mTORC1 and mTORC2. The rapamycin-sensitive mTORC1 complex regulates multiple biosynthetic cellular processes (protein synthesis, cell cycle progression, cell growth and proliferation). Until recently, the lack of mTORC2-specific inhibitors complicated elucidation of this protein complex's molecular functions. One definitive mTORC2 response is AKT activation, important for cell proliferation, migration and survival (apoptosis and autophagy inhibition). This array includes members of the mTORC1 and mTORC2 complexes as well as upstream regulators of many mTOR responses, and downstream genes from the many cellular processes regulated by mTOR complex activation. Using real-time PCR, you can easily and reliably analyze the expression of a focused panel of genes involved in mTOR signaling with this array.

For further details, consult the *RT² Profiler PCR Array Handbook*.

## Shipping and storage

RT² Profiler PCR Arrays in formats A, C, D, E, F, and G are shipped at ambient temperature, on dry ice, or blue ice packs depending on destination and accompanying products. RT² Profiler PCR Arrays in format H are shipped on dry ice or blue ice packs.

For long term storage, keep plates at –20°C.

Note: Ensure that you have the correct RT² Profiler PCR Array format for your real-time cycler (see table above).

Note: Open the package and store the products appropriately immediately on receipt.

## Array layout (96-well)

For 384-well 4 x 96 PCR arrays, genes are present in a staggered format. Refer to the *RT² Profiler PCR Array Handbook* for layout.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | AKT1 | AKT1S1 | AKT2 | AKT3 | CAB39 | CAB39L | CDC42 | CHUK | DDIT4 | DDIT4L | DEPTOR | EIF4B |
| B | EIF4E | EIF4EBP1 | EIF4EBP2 | FKBP1A | FKBP8 | GSK3B | HIF1A | HRAS | HSPA4 | IGF1 | IGFBP3 | IKBKB |
| C | ILK | INS | INSR | IRS1 | MAPK1 | MAPK3 | MAPKAP1 | MLST8 | MTOR | MYO1C | PDPK1 | PIK3C3 |
| D | PIK3CA | PIK3CB | PIK3CD | PIK3CG | PIK3R1 | PLD1 | PLD2 | PPP2CA | PPP2R2B | PPP2R4 | PRKAA1 | PRKAA2 |
| E | PRKAB1 | PRKAB2 | PRKAG1 | PRKAG2 | PRKAG3 | PRKCA | PRKCB | PRKCE | PTEN | RHEB | RHOA | RICTOR |
| F | RPS6 | RPS6KA1 | RPS6KA2 | RPS6KA5 | RPS6KB1 | RPS6KB2 | RPTOR | RRAGA | RRAGB | RRAGC | RRAGD | SGK1 |
| G | STK11 | STRADB | TELO2 | TP53 | TSC1 | TSC2 | ULK1 | ULK2 | VEGFA | VEGFB | VEGFC | YWHAQ |
| H | ACTB | B2M | GAPDH | HPRT1 | RPLP1 | FGDC | RTC | RTC | RTC | PPC | PPC | PPC |

## Gene table: RT² Profiler PCR Array

| Position | UniGene | GenBank | Symbol | Description | Assay |
|---|---|---|---|---|---|
| A01 | N/A | XM_005623876 | AKT1 | V-akt murine thymoma viral oncogene homolog 1 | PPF10547A |
| A02 | N/A | XM_005616283 | AKT1S1 | AKT1 substrate 1 (proline-rich) | PPF12609A |
| A03 | Cfa.10875 | NM_001012340 | AKT2 | V-akt murine thymoma viral oncogene homolog 2 | PPF00683A |
| A04 | Cfa.4557 | XM_005622592 | AKT3 | V-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma) | PPF00620A |
| A05 | N/A | XM_534599 | CAB39 | Calcium binding protein 39 | PPF02696A |
| A06 | N/A | XM_005633859 | CAB39L | Calcium binding protein 39-like | PPF07450A |
| A07 | Cfa.39956 | NM_001003254 | CDC42 | Cell division cycle 42 (GTP binding protein, 25kDa) | PPF00486A |
| A08 | N/A | XM_534990 | CHUK | Conserved helix-loop-helix ubiquitous kinase | PPF02947A |
| A09 | N/A | XM_546156 | DDIT4 | DNA-damage-inducible transcript 4 | PPF09438A |
| A10 | N/A | XM_544999 | DDIT4L | DNA-damage-inducible transcript 4-like | PPF08837A |
| A11 | N/A | XM_539149 | DEPTOR | DEP domain containing MTOR-interacting protein | PPF05578A |
| A12 | N/A | XM_005636787 | EIF4B | Eukaryotic translation initiation factor 4B | PPF02816A |
| B01 | N/A | XM_005639217 | EIF4E | Eukaryotic translation initiation factor 4E | PPF08832A |
| B02 | N/A | XM_549448 | EIF4EBP1 | Eukaryotic translation initiation factor 4E binding protein 1 | PPF01501A |
| B03 | N/A | XM_546145 | EIF4EBP2 | Eukaryotic translation initiation factor 4E binding protein 2 | PPF09430A |
| B04 | Cfa.10988 | NM_001252190 | FKBP1A | FK506 binding protein 1A, 12kDa | PPF11775A |
| B05 | N/A | XM_005632687 | FKBP8 | FK506 binding protein 8, 38kDa | PPF07104A |
| B06 | N/A | XM_535751 | GSK3B | Glycogen synthase kinase 3 beta | PPF03443A |
| B07 | Cfa.126 | NM_001287163 | HIF1A | Hypoxia inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor) | PPF04605B |
| B08 | Cfa.3599 | NM_001287069 | HRAS | V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog | PPF00309A |
| B09 | Cfa.19900 | NM_001048016 | HSPA4 | Heat shock 70kDa protein 4 | PPF00914A |
| B10 | Cfa.3888 | NM_001313855 | IGF1 | Insulin-like growth factor 1 (somatomedin C) | PPF12664A |
| B11 | N/A | XM_548740 | IGFBP3 | Insulin-like growth factor binding protein 3 | PPF10898A |
| B12 | N/A | XM_539954 | IKBKB | Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta | PPF05984A |
| C01 | N/A | XM_534040 | ILK | Integrin-linked kinase | PPF02329A |
| C02 | Cfa.18796 | NM_001130093 | INS | Insulin | PPF06441A |
| C03 | N/A | XM_005633222 | INSR | Insulin receptor | PPF07200A |
| C04 | N/A | XM_543274 | IRS1 | Insulin receptor substrate 1 | PPF07853A |
| C05 | Cfa.2796 | NM_001110800 | MAPK1 | Mitogen-activated protein kinase 1 | PPF02798A |
| C06 | Cfa.33452 | NM_001252035 | MAPK3 | Mitogen-activated protein kinase 3 | PPF08194A |
| C07 | N/A | XM_005625353 | MAPKAP1 | Mitogen-activated protein kinase associated protein 1 | PPF04847A |
| C08 | N/A | XM_005621690 | MLST8 | MTOR associated protein, LST8 homolog (S. cerevisiae) | PPF12941A |
| C09 | N/A | XM_005618003 | MTOR | Mechanistic target of rapamycin (serine/threonine kinase) | PPF03217A |
| C10 | N/A | XM_537765 | MYO1C | Myosin IC | PPF04799A |
| C11 | N/A | XM_005621677 | PDPK1 | 3-phosphoinositide dependent protein kinase-1 | PPF04293A |
| C12 | N/A | NM_001287160 | PIK3C3 | Phosphoinositide-3-kinase, class 3 | PPF10348A |
| D01 | N/A | XM_545208 | PIK3CA | Phosphoinositide-3-kinase, catalytic, alpha polypeptide | PPF08939A |
| D02 | N/A | XM_534280 | PIK3CB | Phosphoinositide-3-kinase, catalytic, beta polypeptide | PPF02483A |
| D03 | N/A | XM_546764 | PIK3CD | Phosphoinositide-3-kinase, catalytic, delta polypeptide | PPF09823A |
| D04 | N/A | XM_005630959 | PIK3CG | Phosphoinositide-3-kinase, catalytic, gamma polypeptide | PPF06202A |
| D05 | Cfa.4502 | XM_544363 | PIK3R1 | Phosphoinositide-3-kinase, regulatory subunit 1 (alpha) | PPF08461A |
| D06 | N/A | XM_014110360 | PLD1 | Phospholipase D1, phosphatidylcholine-specific | PPF08995A |

| Position | UniGene | GenBank | Symbol | Description | Assay |
|---|---|---|---|---|---|
| D07 | N/A | XM_005620316 | PLD2 | Phospholipase D2 | PPF04022A |
| D08 | Cfa.47717 | NM_001003063 | PPP2CA | Protein phosphatase 2, catalytic subunit, alpha isozyme | PPF00188A |
| D09 | N/A | XM_003433780 | PPP2R2B | Protein phosphatase 2, regulatory subunit B, beta | PPF03104A |
| D10 | N/A | XM_005625252 | PPP2R4 | Protein phosphatase 2A activator, regulatory subunit 4 | PPF10817A |
| D11 | N/A | XM_536491 | PRKAA1 | Protein kinase, AMP-activated, alpha 1 catalytic subunit | PPF03949A |
| D12 | N/A | XM_014113763 | PRKAA2 | Protein kinase, AMP-activated, alpha 2 catalytic subunit | PPF09772A |
| E01 | N/A | XM_543421 | PRKAB1 | Protein kinase, AMP-activated, beta 1 non-catalytic subunit | PPF07936A |
| E02 | N/A | XM_845060 | PRKAB2 | Protein kinase, AMP-activated, beta 2 non-catalytic subunit | PPF13769A |
| E03 | N/A | XM_005636885 | PRKAG1 | Protein kinase, AMP-activated, gamma 1 non-catalytic subunit | PPF08079A |
| E04 | N/A | XM_014119809 | PRKAG2 | Similar to 5-AMP-activated protein kinase, gamma-2 subunit (AMPK gamma-2 chain) (AMPK gamma2) (H91620p) | PPF14100A |
| E05 | N/A | XM_014111094 | PRKAG3 | Protein kinase, AMP-activated, gamma 3 non-catalytic subunit | PPF09146A |
| E06 | N/A | XM_005624271 | PRKCA | Protein kinase C, alpha | PPF10558A |
| E07 | N/A | XM_014114422 | PRKCB | Protein kinase C, beta | PPF10041A |
| E08 | N/A | XM_005626079 | PRKCE | Protein kinase C, epsilon | PPF12527A |
| E09 | Cfa.3695 | NM_001003192 | PTEN | Phosphatase and tensin homolog | PPF00398A |
| E10 | N/A | XM_532768 | RHEB | Ras homolog enriched in brain | PPF01476A |
| E11 | Cfa.20231 | NM_001003273 | RHOA | Ras homolog gene family, member A | PPF00506A |
| E12 | N/A | XM_014113124 | RICTOR | RPTOR independent companion of MTOR, complex 2 | PPF03954A |
| F01 | Cfa.10190 | NM_001252170 | RPS6 | Ribosomal protein S6 | PPF00939A |
| F02 | N/A | XM_003433854 | RPS6KA1 | Ribosomal protein S6 kinase, 90kDa, polypeptide 1 | PPF08542A |
| F03 | N/A | XM_003432550 | RPS6KA2 | Ribosomal protein S6 kinase, 90kDa, polypeptide 2 | PPF13612A |
| F04 | N/A | XM_005623743 | RPS6KA5 | Ribosomal protein S6 kinase, 90kDa, polypeptide 5 | PPF10523A |
| F05 | N/A | XM_005624752 | RPS6KB1 | Ribosomal protein S6 kinase, 70kDa, polypeptide 1 | PPF04757A |
| F06 | N/A | XM_014121218 | RPS6KB2 | Ribosomal protein S6 kinase, 70kDa, polypeptide 2 | PPF12762A |
| F07 | N/A | XM_005624016 | RPTOR | Regulatory associated protein of MTOR, complex 1 | PPF11868A |
| F08 | N/A | XM_531945 | RRAGA | Ras-related GTP binding A | PPF00936A |
| F09 | N/A | XM_005641400 | RRAGB | Ras-related GTP binding B | PPF11035A |
| F10 | N/A | XM_003431952 | RRAGC | Ras-related GTP binding C | PPF18200A |
| F11 | N/A | XM_532231 | RRAGD | Ras-related GTP binding D | PPF01110A |
| F12 | Cfa.18962 | XM_003432524 | SGK1 | Serum/glucocorticoid regulated kinase 1 | PPF00226A |
| G01 | N/A | XM_542206 | STK11 | Serine/threonine kinase 11 | PPF07274A |
| G02 | N/A | XM_005640539 | STRADB | STE20-related kinase adaptor beta | PPF03628A |
| G03 | N/A | XM_547196 | TELO2 | TEL2, telomere maintenance 2, homolog (S. cerevisiae) | PPF10111A |
| G04 | Cfa.3658 | NM_001003210 | TP53 | Tumor protein p53 | PPF00431A |
| G05 | N/A | XM_537808 | TSC1 | Tuberous sclerosis 1 | PPF04828A |
| G06 | N/A | XM_005621715 | TSC2 | Tuberous sclerosis 2 | PPF04299A |
| G07 | N/A | XM_005636080 | ULK1 | Unc-51-like kinase 1 (C. elegans) | PPF02710A |
| G08 | N/A | XM_005620112 | ULK2 | Unc-51-like kinase 2 (C. elegans) | PPF15709A |
| G09 | Cfa.3581 | NM_001110502 | VEGFA | Vascular endothelial growth factor A | PPF00370B |
| G10 | N/A | XM_003432332 | VEGFB | Similar to vascular endothelial growth factor B | PPF14156A |
| G11 | N/A | XM_540047 | VEGFC | Vascular endothelial growth factor C | PPF06018A |
| G12 | N/A | XM_532871 | YWHAQ | Tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, theta polypeptide | PPF11324A |
| H01 | Cfa.17735 | NM_001195845 | ACTB | Actin, beta | PPF12880A |
| H02 | N/A | XM_535458 | B2M | Beta-2-microglobulin | PPF03253A |
| H03 | Cfa.36213 | NM_001003142 | GAPDH | Glyceraldehyde-3-phosphate dehydrogenase | PPF00328A |
| H04 | Cfa.4551 | NM_001003357 | HPRT1 | Hypoxanthine phosphoribosyltransferase 1 | PPF00602A |
| H05 | N/A | XM_014109387 | RPLP1 | Ribosomal protein, large, P1 | PPF03305A |
| H06 | N/A | SA_00130 | FGDC | Dog Genomic DNA Contamination | PPF68934A |
| H07 | N/A | SA_00104 | RTC | Reverse Transcription Control | PPX63340A |
| H08 | N/A | SA_00104 | RTC | Reverse Transcription Control | PPX63340A |
| H09 | N/A | SA_00104 | RTC | Reverse Transcription Control | PPX63340A |
| H10 | N/A | SA_00103 | PPC | Positive PCR Control | PPX63339A |
| H11 | N/A | SA_00103 | PPC | Positive PCR Control | PPX63339A |
| H12 | N/A | SA_00103 | PPC | Positive PCR Control | PPX63339A |

## Related products

For optimal performance, RT² Profiler PCR Arrays should be used together with the RT² First Strand Kit for cDNA synthesis and RT2 SYBR® Green qPCR Mastermixes for PCR.

| Product | Contents | Cat. no. |
|---|---|---|
| RT² First Strand Kit (12) | Enzymes and reagents for cDNA synthesis | 330401 |
| RT² SYBR Green qPCR Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad models CFX96, CFX384, DNA Engine Opticon 2; Bio-Rad/MJ Research Chromo4; Roche LightCycler 480 (96-well and 384-well); all other cyclers | 330500 |
| RT² SYBR Green ROX™ qPCR Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 5700, 7000, 7300, 7500 [Standard and FAST], 7700, 7900HT 96-well block [Standard and FAST] and 384-well block, StepOnePlus; Eppendorf Mastercycler ep realplex models 2, 2S, 4, 4S; Stratagene models Mx3000P, Mx3005P, Mx4000; Takara TP-800 | 330520 |
| RT² SYBR Green Fluor qPCR Mastermix (2)* | For 2 x 96 assays in 96-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler, iQ5, MyiQ, MyiQ2 | 330510 |

* Larger kit sizes available; please inquire.

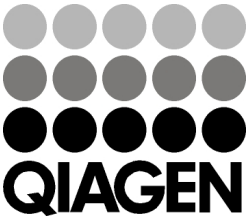
RT² Profiler PCR Array products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease.

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 or can be requested from QIAGEN Technical Services or your local distributor.



**www.qiagen.com**

**Australia** ▪ 1-800-243-800
**Austria** ▪ 0800/281010
**Belgium** ▪ 0800-79612
**Brazil** ▪ 0800-557779
**Canada** ▪ 800-572-9613
**China** ▪ 8621-3865-3865
**Denmark** ▪ 80-885945
**Finland** ▪ 0800-914416
**France** ▪ 01-60-920-930
**Germany** ▪ 02103-29-12000
**Hong Kong** ▪ 800 933 965
**Ireland** ▪ 1800 555 049
**Italy** ▪ 800-787980
**Japan** ▪ 03-6890-7300
**Korea (South)** ▪ 080-000-7145
**Luxembourg** ▪ 8002 2076
**Mexico** ▪ 01-800-7742-436
**The Netherlands** ▪ 0800 0229592
**Norway** ▪ 800-18859
**Singapore** ▪ 1800-742-4368
**Spain** ▪ 91-630-7050
**Sweden** ▪ 020-790282
**Switzerland** ▪ 055-254-22-11
**UK** ▪ 01293-422-911
**USA** ▪ 800-426-8157




Sample & Assay Technologies