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

Dog Molecular Toxicology PathwayFinder

Cat. no. 330231 PAFD-3401ZE

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 Molecular Toxicology PathwayFinder RT² Profiler PCR Array profiles the expression of 370 key genes in 13 different biological pathways activated in response to toxic drugs. Profiling the expression of these genes in cell lines (such as hepatocytes) or organs (especially livers) treated with candidate drugs can help indicate the toxicological responses that they induce. Understanding these mechanisms can then guide chemical modifications to avoid the observed toxic responses rather than completely dismissing a drug class otherwise effective at preventing or treating the target disease phenotype. All of the toxic response pathways represented by this array can be independent or interrelated. For example, inhibition of β-oxidation leads to steatosis, and uncoupling mitochondrial energy metabolism leads to apoptosis and necrosis. Drugs affecting reactive oxygen species metabolism or cellular redox status cause oxidative stress and induce antioxidant responses. These and other reactive drugs also directly damage DNA or inhibit its repair activating DNA damage signaling and DNA repair pathways or apoptosis and necrosis under more extreme conditions of prolonged exposure or excess DNA, cell or tissue damage. Interference with protein synthesis causes endoplasmic reticulum stress and activates the unfolded protein response up-regulating heat shock protein and chaperone gene expression. Increased expression of the cytochrome P450s and other phase I drug metabolism enzymes occur when drugs inhibit or overwhelm their chemical modification activities. More severe and complex phenomena result when drugs inhibit fatty acid and lipid metabolism (β-oxidation) including the lipid storage disorders of steatosis, cholestasis, and phospholipidosis. Toxic responses to drugs in immune system cells bring about immunotoxicity and immunosuppression. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of genes to determine which molecular toxicological response pathways drug candidates under study activate with this array. Once the pathways involved have been defined, comprehensive surveys of more genes in those pathways can be performed using other application-specific or custom PCR Arrays designed for individual pathways.

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	AASS	ABCA1	ABCB1	ABCB11	ABCB4	ABCC1	ABCC2	ABCC3	ABL1	ACAA1	ACACA	ACAD10
B	ACAD9	ACADL	ACADM	ACADS	ACADSB	ACADVL	ACAT1	ACAT2	ACLY	ACO1	ACO2	ACOT12
C	ACOT2	ACOT7	ACOT8	ACOX1	ACOX3	ADH1C	ADIPOQ	ADK	AGPAT2	AHR	AHSG	AKT1
D	ALB	ALDH1A1	ALDH2	AMFR	APAF1	APEX1	APOA5	APOF	AQP4	ASAH1	LOC475240	ATF4
E	ATF6	ATM	ATP6V1G2	ATP8B1	BAD	LOC481744	BAX	BCL2	BCL2L1	LOC612867	BID	BIRC3
F	BMF	BRCA1	BRCA2	C3	C9	CASP3	CASP4	CASP7	CASP8	CASP9	CAT	LOC490934
G	CD19	CD300LD	CD36	CD4	CD40	CD40LG	CD44	CD63	CD80	CD86	CD8A	CDKN1A
H	CES2	CFLAR	CHEK1	CHEK2	COMT	CPT1A	CPT1B	CPT2	CRAT	CROT	CRYAA	CRYAB

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	N/A	XM_005628768	AASS	Aminoadipate-semialdehyde synthase
A02	N/A	XM_538773	ABCA1	ATP-binding cassette, sub-family A (ABC1), member 1
A03	Cfa.19	NM_001003215	ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1
A04	Cfa.46041	NM_001143932	ABCB11	ATP-binding cassette, sub-family B (MDR/TAP), member 11
A05	N/A	XM_539403	ABCB4	ATP-binding cassette, sub-family B (MDR/TAP), member 4
A06	Cfa.3224	NM_001002971	ABCC1	ATP-binding cassette, sub-family C (CFTR/MRP), member 1
A07	Cfa.18	NM_001003081	ABCC2	ATP-binding cassette, sub-family C (CFTR/MRP), member 2
A08	Cfa.24637	XM_005624674	ABCC3	ATP-binding cassette, sub-family C (CFTR/MRP), member 3
A09	N/A	XM_548413	ABL1	C-abl oncogene 1, non-receptor tyrosine kinase
A10	N/A	XM_854439	ACAA1	Acetyl-CoA acyltransferase 1
A11	N/A	XM_548250	ACACA	Acetyl-CoA carboxylase alpha
A12	N/A	XM_005636239	ACAD10	Acyl-CoA dehydrogenase family, member 10
A13	N/A	XM_005632086	ACAD9	Acyl-CoA dehydrogenase family, member 9
A14	N/A	XM_536053	ACADL	Acyl-CoA dehydrogenase, long chain
A15	N/A	XM_005622131	ACADM	Acyl-CoA dehydrogenase, C-4 to C-12 straight chain
A16	N/A	XM_005636308	ACADS	Acyl-CoA dehydrogenase, C-2 to C-3 short chain
A17	N/A	XM_535048	ACADSB	Acyl-CoA dehydrogenase, short/branched chain
A18	N/A	XM_546581	ACADVL	Acyl-CoA dehydrogenase, very long chain
A19	N/A	XM_546539	ACAT1	Acetyl-CoA acetyltransferase 1
A20	N/A	XM_541180	ACAT2	Acetyl-CoA acetyltransferase 2
A21	N/A	XM_845105	ACLY	ATP citrate lyase
A22	N/A	XM_538698	ACO1	Aconitase 1, soluble
A23	N/A	XM_844073	ACO2	Aconitase 2, mitochondrial
A24	N/A	XM_546042	ACOT12	Acyl-CoA thioesterase 12
B01	N/A	XM_547892	ACOT2	Acyl-CoA thioesterase 2
B02	Cfa.11699	XM_536727	ACOT7	Acyl-CoA thioesterase 7
B03	N/A	XM_534440	ACOT8	Acyl-CoA thioesterase 8
B04	N/A	XM_540441	ACOX1	Acyl-CoA oxidase 1, palmitoyl
B05	N/A	XM_545908	ACOX3	Acyl-CoA oxidase 3, pristanoyl
B06	N/A	XM_535667	ADH1C	Alcohol dehydrogenase 1C (class I), gamma polypeptide
B07	Cfa.3487	NM_001006644	ADIPOQ	Adiponectin, C1Q and collagen domain containing
B08	N/A	XM_536396	ADK	Adenosine kinase
B09	N/A	XM_548370	AGPAT2	1-acylglycerol-3-phosphate O-acyltransferase 2 (lysophosphatidic acid acyltransferase, beta)
B10	N/A	XM_532485	AHR	Aryl hydrocarbon receptor
B11	N/A	XM_005639808	AHSG	Alpha-2-HS-glycoprotein
B12	N/A	XM_548000	AKT1	V-akt murine thymoma viral oncogene homolog 1
B13	Cfa.5991	NM_001003026	ALB	Albumin
B14	Cfa.32366	NM_001286977	ALDH1A1	Aldehyde dehydrogenase 1 family, member A1
B15	N/A	XM_848535	ALDH2	Aldehyde dehydrogenase 2 family (mitochondrial)
B16	N/A	XM_005617914	AMFR	Autocrine motility factor receptor, E3 ubiquitin protein ligase
B17	N/A	XM_003432034	APAF1	Apoptotic peptidase activating factor 1
B18	Cfa.12033	NM_001145119	APEX1	APEX nuclease (multifunctional DNA repair enzyme) 1
B19	N/A	XM_546511	APOA5	Apolipoprotein A-V
B20	N/A	XM_005625504	APOF	Apolipoprotein F

Position	UniGene	GenBank	Symbol	Description
B21	N/A	XM_850363	AQP4	Aquaporin 4
B22	N/A	XM_005629957	ASAH1	N-acylsphingosine amidohydrolase (acid ceramidase) 1
B23	N/A	XM_005628536	LOC475240	Asparagine synthetase [glutamine-hydrolyzing]-like
B24	N/A	XM_854584	ATF4	Activating transcription factor 4 (tax-responsive enhancer element B67)
C01	N/A	XM_545777	ATF6	Activating transcription factor 6
C02	Cfa.48507	NM_001130828	ATM	Ataxia telangiectasia mutated
C03	Cfa.10969	NM_001014376	ATP6V1G2	ATPase, H+ transporting, lysosomal 13kDa, V1 subunit G2
C04	N/A	XM_533394	ATP8B1	ATPase, aminophospholipid transporter, class I, type 8B, member 1
C05	Cfa.38968	NM_001031820	BAD	BCL2-associated agonist of cell death
C06	Cfa.23307	NM_001020808	LOC481744	BCL2-antagonist/killer 1
C07	Cfa.22	NM_001003011	BAX	BCL2-associated X protein
C08	Cfa.110	NM_001002949	BCL2	B-cell CLL/lymphoma 2
C09	Cfa.3481	NM_001003072	BCL2L1	BCL2-like 1
C10	N/A	XR_294523	LOC612867	Bcl-2-like protein 11-like
C11	Cfa.10450	NM_001251938	BID	BH3 interacting domain death agonist
C12	Cfa.18376	NM_001080725	BIRC3	Baculoviral IAP repeat containing 3
C13	N/A	XM_843970	BMF	Bcl2 modifying factor
C14	Cfa.140	NM_001013416	BRCA1	Breast cancer 1, early onset
C15	Cfa.9868	NM_001006653	BRCA2	Breast cancer 2, early onset
C16	N/A	XM_005633228	C3	Complement component 3
C17	N/A	XM_005619370	C9	Complement component 9
C18	Cfa.84	NM_001003042	CASP3	Caspase 3, apoptosis-related cysteine peptidase
C19	Cfa.3589	NM_001003125	CASP4	Caspase 4, apoptosis-related cysteine peptidase
C20	N/A	XM_005637738	CASP7	Caspase 7, apoptosis-related cysteine peptidase
C21	Cfa.24658	NM_001048029	CASP8	Caspase 8, apoptosis-related cysteine peptidase
C22	Cfa.20874	NM_001031633	CASP9	Caspase 9, apoptosis-related cysteine peptidase
C23	Cfa.188	NM_001002984	CAT	Catalase
C24	N/A	XM_548057	LOC490934	Coiled-coil domain containing 103
D01	N/A	XM_005621381	CD19	CD19 molecule
D02	N/A	XM_003435179	CD300LD	CD300 molecule-like family member d
D03	Cfa.33291	NM_001177734	CD36	CD36 molecule (thrombospondin receptor)
D04	Cfa.3673	NM_001003252	CD4	CD4 molecule
D05	Cfa.180	NM_001002982	CD40	CD40 molecule, TNF receptor superfamily member 5
D06	Cfa.179	NM_001002981	CD40LG	CD40 ligand
D07	Cfa.3800	NM_001197022	CD44	CD44 molecule (Indian blood group)
D08	N/A	XM_003639318	CD63	CD63 molecule
D09	Cfa.29354	NM_001003147	CD80	CD80 molecule
D10	Cfa.3629	NM_001003146	CD86	CD86 molecule
D11	Cfa.3636	NM_001002935	CD8A	CD8a molecule
D12	Cfa.48328	XM_532125	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
D13	N/A	XM_859671	CES2	Carboxylesterase 2
D14	N/A	XM_545592	CFLAR	CASP8 and FADD-like apoptosis regulator
D15	N/A	XM_847098	CHEK1	CHK1 checkpoint homolog (S. pombe)
D16	N/A	XM_005636390	CHEK2	Checkpoint kinase 2
D17	Cfa.11341	NM_001004074	COMT	Catechol-O-methyltransferase
D18	Cfa.101	XM_533208	CPT1A	Carnitine palmitoyltransferase 1A (liver)
D19	N/A	XM_538305	CPT1B	Carnitine palmitoyltransferase 1B (muscle)
D20	N/A	XM_546705	CPT2	Carnitine palmitoyltransferase 2
D21	N/A	XM_548425	CRAT	Carnitine O-acetyltransferase
D22	N/A	XM_539402	CROT	Carnitine O-octanoyltransferase
D23	Cfa.46602	NM_001080898	CRYAA	Crystallin, alpha A
D24	N/A	XM_857165	CRYAB	Crystallin, alpha B
E01	N/A	XM_531634	CS	Citrate synthase
E02	N/A	XM_543203	CTSB	Cathepsin B
E03	N/A	XM_545694	CTSE	Cathepsin E
E04	N/A	XM_849343	CYLD	Cylindromatosis (turban tumor syndrome)
E05	Cfa.16227	NM_001008715	CYP19A1	Cytochrome P450, family 17, subfamily A, polypeptide 1
E06	N/A	XM_544773	CYP1A1	Cytochrome P450
E07	Cfa.14521	NM_001008720	CYP1A2	Cytochrome P450, family 1, subfamily A, polypeptide 2
E08	Cfa.20865	NM_001159684	CYP1B1	Cytochrome P450, family 1, subfamily B, polypeptide 1
E09	Cfa.13404	NM_001037345	CYP2A13	Cytochrome P450 family 2 subfamily A polypeptide 13
E10	Cfa.3883	NM_001006652	CYP2B6	Cytochrome P450 2B11
E11	Cfa.3499	NM_001003334	CYP2C41	Cytochrome P450 2C41
E12	Cfa.15290	NM_001003333	CYP2D15	Cytochrome P450 2D
E13	Cfa.28355	NM_001003339	CYP2E1	Cytochrome P450, family 2, subfamily E, polypeptide 1
E14	Cfa.25714	NM_001003340	CYP3A12	Cytochrome P-450 3A12
E15	Cfa.13343	NM_001048034	CYP4A11	Cytochrome P450, family 4, subfamily A, polypeptide 11
E16	N/A	XM_005625542	DDIT3	DNA-damage-inducible transcript 3
E17	N/A	XM_535127	DECR1	2,4-dienoyl CoA reductase 1, mitochondrial
E18	Cfa.47269	NM_001113713	DEFB1	Defensin, beta 1
E19	N/A	XM_532320	DERL1	Der1-like domain family, member 1

Position	UniGene	GenBank	Symbol	Description
E20	N/A	XM_546693	DHCR24	24-dehydrocholesterol reductase
E21	N/A	XM_546524	DLAT	Dihydrolipoamide S-acetyltransferase
E22	Cfa.862	NM_001003294	DLD	Dihydrolipoamide dehydrogenase
E23	Cfa.40055	NM_001252143	DNAJA1	DnaJ (Hsp40) homolog, subfamily A, member 1
E24	N/A	XM_535319	DNAJA2	DnaJ (Hsp40) homolog, subfamily A, member 2
F01	N/A	XM_536990	DNAJA3	DnaJ (Hsp40) homolog, subfamily A, member 3
F02	N/A	XM_005632785	DNAJB1	DnaJ (Hsp40) homolog, subfamily B, member 1
F03	N/A	XM_856542	DNAJB6	DnaJ (Hsp40) homolog, subfamily B, member 6
F04	N/A	XM_005634019	DNAJC3	DnaJ (Hsp40) homolog, subfamily C, member 3
F05	N/A	XM_005635314	DNAJC5	DnaJ (Hsp40) homolog, subfamily C, member 5
F06	N/A	XM_546673	DNAJC6	DnaJ (Hsp40) homolog, subfamily C, member 6
F07	Cfa.10966	NM_001131049	DNM1	Dynamin 1
F08	N/A	XM_548709	DPYSL4	Dihydropyrimidinase-like 4
F09	Cfa.3587	NM_001003122	DUOX1	Dual oxidase 1
F10	Cfa.3586	XM_005638367	DUOX2	Dual oxidase 2
F11	N/A	XM_537945	ECHS1	Enoyl CoA hydratase, short chain, 1, mitochondrial
F12	N/A	XM_533753	EDEM1	ER degradation enhancer, mannosidase alpha-like 1
F13	N/A	XM_537162	EDEM3	ER degradation enhancer, mannosidase alpha-like 3
F14	Cfa.3524	NM_001003094	EGF	Epidermal growth factor
F15	N/A	XM_545234	EHHADH	Enoyl-CoA, hydratase/3-hydroxyacyl CoA dehydrogenase
F16	N/A	XM_849682	EIF2AK3	Eukaryotic translation initiation factor 2-alpha kinase 3
F17	N/A	XM_005626021	EIF5B	Eukaryotic translation initiation factor 5B
F18	Cfa.39114	XM_536735	ENO1	Enolase 1, (alpha)
F19	N/A	XM_003431496	EP300	E1A binding protein p300
F20	N/A	XM_858879	EPHX1	Epoxide hydrolase 1, microsomal (xenobiotic)
F21	N/A	XM_548229	EPX	Eosinophil peroxidase
F22	N/A	XM_005616444	ERCC1	Excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence)
F23	N/A	XM_533314	ERCC3	Excision repair cross-complementing rodent repair deficiency, complementation group 3 (xeroderma pigmentosum group B complementing)
F24	N/A	XM_534944	ERCC6	Excision repair cross-complementing rodent repair deficiency, complementation group 6
G01	N/A	XM_547090	ERN2	Endoplasmic reticulum to nucleus signaling 2
G02	N/A	XM_547813	ERO1L	ERO1-like (S. cerevisiae)
G03	N/A	XM_546074	ERO1LB	ERO1-like beta (S. cerevisiae)
G04	N/A	XM_005626994	ERP44	Endoplasmic reticulum protein 44
G05	N/A	XM_843276	ESD	Esterase D
G06	Cfa.3504	NM_001286958	ESR1	Estrogen receptor 1
G07	Cfa.3483	NM_001287051	FABP1	Fatty acid binding protein 1, liver
G08	N/A	XM_005631743	FADD	Fas (TNFRSF6)-associated via death domain
G09	N/A	XM_005636650	FAS	Fas cell surface death receptor
G10	Cfa.4547	XM_848916	FASLG	Fas ligand (TNF superfamily, member 6)
G11	Cfa.17136	XM_005624145	FASN	Fatty acid synthase
G12	N/A	XM_005618001	FBXO6	F-box protein 6
G13	N/A	XM_537215	FH	Fumarate hydratase
G14	N/A	XM_531773	FHL2	Four and a half LIM domains 2
G15	N/A	XM_537197	FMO2	Flavin containing monooxygenase 2 (non-functional)
G16	Cfa.770	NM_001003060	FMO3	Flavin containing monooxygenase 3
G17	N/A	XM_547466	FMO4	Flavin containing monooxygenase 4
G18	N/A	XM_005630705	FMO5	Flavin containing monooxygenase 5
G19	N/A	XM_546245	FOXI1	Forkhead box I1
G20	N/A	XM_848588	FXC1	Fracture callus 1 homolog (rat)
G21	N/A	XM_545481	GALNT5	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 5 (GalNAc-T5)
G22	N/A	XM_533901	GCDH	Glutaryl-CoA dehydrogenase
G23	N/A	XM_005621897	GCLM	Glutamate-cysteine ligase, modifier subunit
G24	N/A	XM_538073	GJB1	Gap junction protein, beta 1, 32kDa
H01	N/A	XM_845287	GPD1	Glycerol-3-phosphate dehydrogenase 1 (soluble)
H02	N/A	XM_005628317	GPT	Glutamic-pyruvate transaminase (alanine aminotransferase)
H03	Cfa.4561	NM_001115119	GPX1	Glutathione peroxidase 1
H04	Cfa.12202	NM_001115135	GPX2	Glutathione peroxidase 2 (gastrointestinal)
H05	Cfa.40786	NM_001164454	GPX3	Glutathione peroxidase 3
H06	Cfa.3743	NM_001003213	GPX5	Glutathione peroxidase 5 (epididymal androgen-related protein)
H07	N/A	XM_005629410	GPX7	Glutathione peroxidase 7
H08	N/A	XM_540431	GRB2	Growth factor receptor-bound protein 2
H09	Cfa.40762	XM_532173	GSTA3	Glutathione S-transferase alpha 3
H10	N/A	XM_537038	GSTM1	Glutathione S-transferase mu 4
H11	N/A	XM_005626064	HAAO	3-hydroxyanthranilate 3,4-dioxygenase
H12	N/A	XM_844603	HADHB	Hydroxyacyl-CoA dehydrogenase/3-ketoacyl-CoA thiolase/enoyl-CoA hydratase (trifunctional protein), beta subunit
H13	N/A	XM_005617538	HERPUD1	Homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like

Position	UniGene	GenBank	Symbol	Description
				domain member 1
H14	Cfa.18984	NM_001014768	HLA-DRB1	MHC class II DLA DRB1 beta chain
H15	Cfa.4568	NM_001194969	HMOX1	Heme oxygenase (decycling) 1
H16	N/A	XM_005628658	HOXA3	Homeobox A3
H17	N/A	XM_848583	HPX	Hemopexin
H18	N/A	XM_005628077	HSF1	Heat shock transcription factor 1
H19	N/A	XM_005615709	HSF2	Heat shock transcription factor 2
H20	Cfa.172	NM_001003067	HSP70	Heat shock protein 70
H21	N/A	XM_005623935	HSP90AA1	Heat shock protein 90kDa alpha (cytosolic), class A member 1
H22	N/A	XM_532154	HSP90AB1	Heat shock protein 90kDa alpha (cytosolic), class B member 1
H23	Cfa.3896	NM_001003327	HSP90B1	Heat shock protein 90kDa beta (Grp94), member 1
H24	N/A	XM_535180	HSPA14	Heat shock 70kDa protein 14
I01	N/A	XM_005627163	HSPA1L	Heat shock 70kDa protein 1-like
I02	N/A	XM_537479	HSPA2	Heat shock 70kDa protein 2
I03	Cfa.19900	NM_001048016	HSPA4	Heat shock 70kDa protein 4
I04	N/A	XM_858292	HSPA5	Heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)
I05	N/A	XM_005619650	HSPA8	Heat shock 70kDa protein 8
I06	N/A	XM_531923	HSPA9	Heat shock 70kDa protein 9 (mortalin)
I07	Cfa.3849	NM_001003295	HSPB1	Heat shock 27kDa protein 1
I08	N/A	XM_849018	HSPB2	Heat shock 27kDa protein 2
I09	Cfa.305	NM_001003029	HSPB8	Heat shock 22kDa protein 8
I10	N/A	XM_535763	HSPBAP1	HSPB (heat shock 27kDa) associated protein 1
I11	N/A	XM_005640496	HSPD1	Heat shock 60kDa protein 1 (chaperonin)
I12	Cfa.39534	XM_003434292	HSPE1	Heat shock 10kDa protein 1 (chaperonin 10)
I13	N/A	XM_003639872	HSPH1	Heat shock 105kDa/110kDa protein 1
I14	Cfa.5363	XM_532992	HTRA2	HtrA serine peptidase 2
I15	N/A	XM_005629920	LOC475580	Serine protease HTR4-like
I16	Cfa.3842	NM_001003291	ICAM1	Intercellular adhesion molecule 1
I17	N/A	XM_536047	IDH1	Isocitrate dehydrogenase 1 (NADP+), soluble
I18	N/A	XM_005618362	IDH2	Isocitrate dehydrogenase 2 (NADP+), mitochondrial
I19	N/A	XM_536213	IDH3A	Isocitrate dehydrogenase 3 (NAD+) alpha
I20	N/A	XM_005634871	IDH3B	Isocitrate dehydrogenase 3 (NAD+) beta
I21	N/A	XM_538201	IDH3G	Isocitrate dehydrogenase 3 (NAD+) gamma
I22	Cfa.3900	NM_001003174	IFNG	Interferon gamma
I23	Cfa.38	NM_001003077	IL10	Interleukin 10
I24	Cfa.3566	NM_001003384	IL13	Interleukin 13
J01	Cfa.3645	NM_001003157	IL1A	Interleukin 1, alpha
J02	Cfa.33592	NM_001037971	IL1B	Interleukin 1, beta
J03	Cfa.7	NM_001003305	IL2	Interleukin 2
J04	Cfa.3735	NM_001003211	IL2RA	Interleukin 2 receptor, alpha
J05	Cfa.39	NM_001003159	IL4	Interleukin 4
J06	Cfa.3486	NM_001006950	IL5	Interleukin 5 (colony-stimulating factor, eosinophil)
J07	Cfa.3528	NM_001003301	IL6	Interleukin 6 (interferon, beta 2)
J08	Cfa.3510	NM_001003200	IL8	Interleukin 8
J09	N/A	XM_537138	IRF6	Interferon regulatory factor 6
J10	N/A	XM_547049	ITGAX	Integrin, alpha X (complement component 3 receptor 4 subunit)
J11	N/A	XM_005634783	JAG1	Jagged 1
J12	N/A	XM_546789	JPH3	Junctophilin 3
J13	N/A	XM_005620245	JUN	Jun proto-oncogene
J14	N/A	XM_546243	KCNIP1	Kv channel interacting protein 1
J15	Cfa.13255	NM_001195155	KHK	Ketohexokinase (fructokinase)
J16	N/A	XM_542040	KLF1	Kruppel-like factor 1 (erythroid)
J17	Cfa.3476	NM_001003070	LEP	Leptin
J18	N/A	XM_542663	LIG4	Ligase IV, DNA, ATP-dependent
J19	Cfa.37327	NM_001287151	LMNA	Lamin A/C
J20	N/A	XM_003639101	GADD45A	Growth arrest and DNA damage-inducible protein GADD45 alpha-like
J21	N/A	XM_532351	CYC1	Similar to cytochrome c-1
J22	N/A	XM_541688	HSPB6	Similar to heat shock protein, alpha-crystallin-related, B6
J23	N/A	XM_544091	CYP7A1	Similar to Cytochrome P450 7A1 (Cholesterol 7-alpha-monooxygenase) (CYPVII) (Cholesterol 7-alpha-hydroxylase)
J24	N/A	XM_005638016	CYP7B1	Cytochrome P450, family 7, subfamily B, polypeptide 1
K01	N/A	XM_005640907	LOC488626	Olfactory receptor 10J4-like
K02	N/A	XM_546969	LOC489851	Similar to cytochrome P450, subfamily IIIA, polypeptide 4
K03	N/A	XM_547894	ACOT6	Acyl-coenzyme A thioesterase 6-like
K04	N/A	XM_846673	SLC51A	Similar to organic solute transporter alpha
K05	N/A	XM_848321	SLC51B	Similar to organic solute transporter beta
K06	N/A	XM_850376	LOC612644	Similar to cytochrome c oxidase, subunit VIb polypeptide 1
K07	Cfa.16202	XM_005635733	LPL	Lipoprotein lipase
K08	N/A	XM_003640093	LSS	Lanosterol synthase (2,3-oxidosqualene-lanosterol cyclase)
K09	N/A	XM_544500	LYPLA2	Lysophospholipase II
K10	N/A	XM_531672	LYZ	Lysozyme

Position	UniGene	GenBank	Symbol	Description
K11	N/A	XM_848694	MAG	Myelin associated glycoprotein
K12	N/A	XM_005639236	MANBA	Mannosidase, beta A, lysosomal
K13	Cfa.151	NM_001002969	MAOA	Monoamine oxidase A
K14	Cfa.152	NM_001002970	MAOB	Monoamine oxidase B
K15	N/A	XM_534943	MAPK8	Mitogen-activated protein kinase 8
K16	N/A	XM_005620647	MBTPS1	Membrane-bound transcription factor peptidase, site 1
K17	N/A	XM_548891	MBTPS2	Membrane-bound transcription factor peptidase, site 2
K18	Cfa.34	NM_001003016	MCL1	Myeloid cell leukemia sequence 1 (BCL2-related)
K19	N/A	XM_531844	MDH1	Malate dehydrogenase 1, NAD (soluble)
K20	N/A	XM_536042	MDH1B	Malate dehydrogenase 1B, NAD (soluble)
K21	Cfa.702	NM_001003103	MDM2	Mdm2 p53 binding protein homolog (mouse)
K22	N/A	XM_861061	METAP2	Methionyl aminopeptidase 2
K23	Cfa.3907	NM_001003376	MGMT	O-6-methylguanine-DNA methyltransferase
K24	N/A	XM_005637893	MKI67	Antigen identified by monoclonal antibody Ki-67
L01	N/A	XM_005634228	MLH1	MutL homolog 1, colon cancer, nonpolyposis type 2 (E. coli)
L02	N/A	XM_537511	MLH3	MutL homolog 3 (E. coli)
L03	N/A	XM_844284	MLX	MAX-like protein X
L04	N/A	XM_847352	MPO	Myeloperoxidase
L05	N/A	XM_532057	MRPS18B	Mitochondrial ribosomal protein S18B
L06	Cfa.3318	XM_538482	MSH2	MutS homolog 2, colon cancer, nonpolyposis type 1 (E. coli)
L07	N/A	XM_005618163	MSH3	MutS homolog 3
L08	N/A	XM_544995	MTTP	Microsomal triglyceride transfer protein
L09	N/A	XM_005615617	NCOA7	Nuclear receptor coactivator 7
L10	Cfa.10766	NM_001003344	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
L11	N/A	XM_540482	NPLOC4	Nuclear protein localization 4 homolog (S. cerevisiae)
L12	N/A	XM_848524	NQO1	NAD(P)H dehydrogenase, quinone 1
L13	N/A	XM_005617724	NR0B2	Nuclear receptor subfamily 0, group B, member 2
L14	N/A	XM_847866	NR1H4	Nuclear receptor subfamily 1, group H, member 4
L15	N/A	XM_547371	NR5A2	Nuclear receptor subfamily 5, group A, member 2
L16	N/A	XM_541506	NUCB1	Nucleobindin 1
L17	N/A	XM_547012	NUDT1	Nudix (nucleoside diphosphate linked moiety X)-type motif 1
L18	N/A	XM_005619008	NUDT13	Nudix (nucleoside diphosphate linked moiety X)-type motif 13
L19	N/A	XM_003433082	NUDT15	Nudix (nucleoside diphosphate linked moiety X)-type motif 15
L20	N/A	XM_005632290	NUP210	Nucleoporin 210kDa
L21	N/A	XM_005642181	OGDH	Oxoglutarate (alpha-ketoglutarate) dehydrogenase (lipoamide)
L22	N/A	XM_541781	OGG1	8-oxoguanine DNA glycosylase
L23	N/A	XM_005625549	OS9	Osteosarcoma amplified 9, endoplasmic reticulum lectin
L24	N/A	XM_547506	PARP1	Poly (ADP-ribose) polymerase 1
M01	Cfa.11307	XM_532616	PARP2	Poly (ADP-ribose) polymerase 2
M02	N/A	XM_005634050	PCCA	Propionyl CoA carboxylase, alpha polypeptide
M03	N/A	XM_534355	PCNA	Proliferating cell nuclear antigen
M04	N/A	XM_542932	PDYN	Prodynorphin
M05	Cfa.729	NM_001251949	PFDN5	Prefoldin subunit 5
M06	N/A	XM_859697	PLIN2	Perilipin 2
M07	N/A	XM_005625764	PNPLA3	Patatin-like phospholipase domain containing 3
M08	N/A	XM_845126	PON1	Paraoxonase 1
M09	Cfa.30379	NM_001177805	POR	P450 (cytochrome) oxidoreductase
M10	Cfa.3519	NM_001003093	PPARA	Peroxisome proliferator-activated receptor alpha
M11	Cfa.3467	NM_001024632	PPARG	Peroxisome proliferator-activated receptor gamma
M12	N/A	XM_545680	PPP1R15B	Protein phosphatase 1, regulatory (inhibitor) subunit 15B
M13	Cfa.4507	NM_001252165	PRDX1	Peroxiredoxin 1
M14	N/A	XM_537190	PRDX6	Peroxiredoxin 6
M15	Cfa.18125	NM_001006651	PRKDC	Protein kinase, DNA-activated, catalytic polypeptide
M16	Cfa.3449	NM_001003354	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
M17	N/A	XM_005622278	PTPRC	Protein tyrosine phosphatase, receptor type, C
M18	N/A	XM_005616466	PVR	Poliovirus receptor
M19	N/A	XM_547540	RAB25	RAB25, member RAS oncogene family
M20	Cfa.85	NM_001003043	RAD51	RAD51 homolog (S. cerevisiae)
M21	N/A	XM_536581	RDX	Radixin
M22	N/A	XM_849220	RETN	Resistin
M23	Cfa.42417	NM_001146144	S100A8	S100 calcium binding protein A8
M24	N/A	XM_543968	SCD	Stearoyl-CoA desaturase (delta-9-desaturase)
N01	N/A	XM_535807	SDHA	Succinate dehydrogenase complex, subunit A, flavoprotein (Fp)
N02	Cfa.4977	NM_001252217	SDHB	Succinate dehydrogenase complex, subunit B, iron sulfur (Ip)
N03	N/A	XM_536140	SDHC	Succinate dehydrogenase complex, subunit C, integral membrane protein, 15kDa
N04	N/A	XM_536573	SDHD	Succinate dehydrogenase complex, subunit D, integral membrane protein
N05	N/A	XM_846664	SEC62	SEC62 homolog (S. cerevisiae)
N06	N/A	XM_537530	SEL1L	Sel-1 suppressor of lin-12-like (C. elegans)
N07	Cfa.21389	NM_001114757	VIMP	Selenoprotein S

Position	UniGene	GenBank	Symbol	Description
N08	N/A	XM_537546	SERPINA3	Serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3
N09	N/A	XM_537494	SLC10A1	Solute carrier family 10 (sodium/bile acid cotransporter family), member 1
N10	Cfa.41768	XM_540941	SLC7A11	Solute carrier family 7 (anionic amino acid transporter light chain, xc- system), member 11
N11	Cfa.17	XM_005637072	SLCO1A2	Solute carrier organic anion transporter family, member 1A2
N12	N/A	XM_542452	SMPD1	Sphingomyelin phosphodiesterase 1, acid lysosomal
N13	Cfa.6360	NM_001003035	SOD1	Superoxide dismutase 1, soluble
N14	N/A	XM_005636771	SP1	Sp1 transcription factor
N15	N/A	XM_543047	SPATA2	Spermatogenesis associated 2
N16	Cfa.189	NM_001197083	SREBF1	Sterol regulatory element binding transcription factor 1
N17	N/A	XM_005639327	STBD1	Starch binding domain 1
N18	N/A	XM_542566	SUCLA2	Succinate-CoA ligase, ADP-forming, beta subunit
N19	N/A	XM_532985	SUCLG1	Succinate-CoA ligase, alpha subunit
N20	N/A	XM_533767	SUCLG2	Succinate-CoA ligase, GDP-forming, beta subunit
N21	N/A	XM_005635362	SYCP2	Synaptonemal complex protein 2
N22	N/A	XM_539696	SYT1	Synaptotagmin I
N23	N/A	XM_540867	SYVN1	Synovial apoptosis inhibitor 1, synoviolin
N24	N/A	XM_536561	TAGLN	Transgelin
O01	N/A	XM_541181	TCP1	T-complex 1
O02	Cfa.40282	NM_001002990	TFF3	Trefoil factor 3 (intestinal)
O03	Cfa.3509	NM_001003309	TGFB1	Transforming growth factor, beta 1
O04	Cfa.4440	NM_001038648	TMEM57	Transmembrane protein 57
O05	Cfa.54	NM_001003244	TNF	Tumor necrosis factor
O06	N/A	XM_005633029	TNFAIP8L1	Tumor necrosis factor, alpha-induced protein 8-like 1
O07	N/A	XM_539146	TNFRSF11B	Tumor necrosis factor receptor superfamily, member 11b
O08	Cfa.3498	XM_849381	TNFRSF1A	Tumor necrosis factor receptor superfamily, member 1A
O09	N/A	XM_005620464	TNFRSF25	Tumor necrosis factor receptor superfamily, member 25
O10	Cfa.20893	NM_001130836	TNFSF10	Tumor necrosis factor (ligand) superfamily, member 10
O11	Cfa.3658	NM_001003210	TP53	Tumor protein p53
O12	Cfa.20	NM_001003009	TPO	Thyroid peroxidase
O13	N/A	XM_545467	TRIM10	Tripartite motif containing 10
O14	N/A	XM_533037	TXNIP	Thioredoxin interacting protein
O15	N/A	XM_848314	LOC612963	Thioredoxin-like 4B
O16	N/A	XM_845088	TXNRD2	Thioredoxin reductase 2
O17	N/A	XM_535603	UBE2G2	Ubiquitin-conjugating enzyme E2G 2
O18	N/A	XM_843241	UBE2J2	Ubiquitin-conjugating enzyme E2, J2
O19	N/A	XM_549029	UBQLN2	Ubiquilin 2
O20	N/A	XM_005631955	UBXN4	UBX domain protein 4
O21	Cfa.91	NM_001003046	UCP1	Uncoupling protein 1 (mitochondrial, proton carrier)
O22	Cfa.93	NM_001003048	UCP2	Uncoupling protein 2 (mitochondrial, proton carrier)
O23	Cfa.92	NM_001003047	UCP3	Uncoupling protein 3 (mitochondrial, proton carrier)
O24	N/A	XM_856718	UGT2A1	UDP glucuronosyltransferase 2 family, polypeptide A1, complex locus
P01	N/A	XM_537895	UGT2B4	UDP glucuronosyltransferase 2 family, polypeptide B4
P02	N/A	XM_847533	VCP	Valosin containing protein
P03	N/A	XM_548021	WIPI1	WD repeat domain, phosphoinositide interacting 1
P04	Cfa.242	XM_849540	XBP1	X-box binding protein 1
P05	Cfa.4543	XM_538165	XIAP	X-linked inhibitor of apoptosis
P06	N/A	XM_538745	XPA	Xeroderma pigmentosum, complementation group A
P07	N/A	XM_533727	XPC	Xeroderma pigmentosum, complementation group C
P08	N/A	XM_533653	XRCC1	X-ray repair complementing defective repair in Chinese hamster cells 1
P09	N/A	XM_532771	XRCC2	X-ray repair complementing defective repair in Chinese hamster cells 2
P10	N/A	XM_536061	XRCC5	X-ray repair complementing defective repair in Chinese hamster cells 5 (double-strand-break rejoining)
P11	Cfa.17735	NM_001195845	ACTB	Actin, beta
P12	N/A	XM_535458	B2M	Beta-2-microglobulin
P13	Cfa.39120	NM_001003142	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
P14	Cfa.4551	NM_001003357	HPRT1	Hypoxanthine phosphoribosyltransferase 1
P15	N/A	XM_005638707	RPLP1	Ribosomal protein, large, P1
P16	N/A	SA_00130	FGDC	Dog Genomic DNA Contamination
P17	N/A	SA_00130	FGDC	Dog Genomic DNA Contamination
P18	N/A	SA_00130	FGDC	Dog Genomic DNA Contamination
P19	N/A	SA_00104	RTC	Reverse Transcription Control
P20	N/A	SA_00104	RTC	Reverse Transcription Control
P21	N/A	SA_00104	RTC	Reverse Transcription Control
P22	N/A	SA_00103	PPC	Positive PCR Control
P23	N/A	SA_00103	PPC	Positive PCR Control
P24	N/A	SA_00103	PPC	Positive PCR Control

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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.

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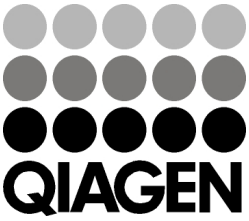

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