

RT² Profiler PCR Array (384-Well Format)

Pig Ubiquitin Ligases

Cat. no. 330231 PASS-3079ZE

For pathway expression analysis

Format	For use with the following real-time cyclers
RT ² Profiler PCR Array, Format E	Applied Biosystems® models 7900HT (384-well block), ViiA™ 7 (384-well block); Bio-Rad CFX384™
RT ² Profiler PCR Array, Format G	Roche® LightCycler® 480 (384-well block)

Description

The Pig Ubiquitin Ligases RT² Profiler PCR Array profiles the expression of 370 ubiquitin ligase genes representing potential drug targets. Ubiquitination, also known as ubiquitylation, regulates degradation of cellular proteins by the ubiquitin-proteasome system. This process involves the sequential action of ubiquitin-activating enzymes (E1), ubiquitin-conjugating enzymes (E2), and ubiquitin ligases (E3). Mammalian genomes encode approximately 12 E1 enzymes, 30–40 E2 enzymes, and 600 E3 enzymes. These enzymes target many protein substrates, and are therefore involved in a wide variety of biological pathways. In addition, ubiquitination does not always target a protein for degradation. For example, monoubiquitination of cell surface transmembrane receptors marks them for endocytosis, whereas polyubiquitination acts as a scaffold for ubiquitin-binding proteins. Disruption of the ubiquitin-proteasomal degradation pathway has been implicated in a wide range of human diseases, such as cancer, diabetes, and cardiovascular and neurodegenerative diseases. The diversity and protein substrate specificity of E3 enzymes allows them to play a major role in normal and disease-related pathways, identifying these enzymes as potential drug targets. Developing drug screening assays requires surveying the expression of not only the drug target, but also related genes with redundant or compensating functions that could possibly cause lower drug efficacy or off-target effects. This array includes ubiquitin ligases from all major E3 families, focusing on the most characterized and broadly expressed enzymes. Using real-time PCR, research studies can easily and reliably analyze the expression of a focused panel of ubiquitin ligases with this array.

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



Shipping and storage

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

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 cyclers (see table above).

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

Gene table: RT² Profiler PCR Array

Position	Unigene	GenBank	Symbol	Description
A01	Ssc.10833	XM_013994553	AMFR	E3 ubiquitin-protein ligase AMFR-like
A02	Ssc.38714	NM_001177927	ANAPC10	Anaphase promoting complex subunit 10 protein
A03	Ssc.2261	XM_003360558	ANAPC11	Anaphase-promoting complex subunit 11-like
A04	Ssc.2221	NM_001178070	ANAPC13	Anaphase promoting complex subunit 13
A05	Ssc.42812	XM_013992246	ANAPC2	Anaphase promoting complex subunit 2
A06	Ssc.18433	XM_013986777	ANAPC4	Anaphase-promoting complex subunit 4
A07	Ssc.21435	XM_001929287	ANAPC5	Anaphase promoting complex subunit 5
A08	N/A	XM_001929407	ANAPC7	Anaphase promoting complex subunit 7
A09	N/A	XM_003130136	ANKIB1	Ankyrin repeat and IBR domain containing 1
A10	Ssc.85987	NM_001206431	APC2	Adenomatosis polyposis coli 2
A11	Ssc.19028	XM_013978104	ARIH1	E3 ubiquitin-protein ligase ARIH1
A12	Ssc.15452	XM_003132197	ARIH2	Ariadne homolog 2 (Drosophila)
A13	Ssc.99365	XM_003359698	ASB1	Ankyrin repeat and SOCS box protein 1-like
A14	N/A	XM_003483783	ASB18	Ankyrin repeat and SOCS box containing 18
A15	N/A	XM_013978393	ASB2	Ankyrin repeat and SOCS box protein 2
A16	Ssc.27198	NM_001205042	ASB3	Ankyrin repeat and SOCS box containing 3
A17	Ssc.39109	NM_001243703	ASB9	Ankyrin repeat and SOCS box containing 9
A18	Ssc.75262	XM_013990935	ATRX	Alpha thalassemia/mental retardation syndrome X-linked
A19	N/A	XM_001924300	BARD1	BRCA1 associated RING domain 1
A20	Ssc.8242	XM_003360264	BCOR	BCL6 corepressor
A21	Ssc.31092	NM_001244218	BFAR	Bifunctional apoptosis regulator
A22	N/A	XM_003357258	BIRC3	Baculoviral IAP repeat containing 3
A23	N/A	XM_021077578	BIRC7	Baculoviral IAP repeat containing 7
A24	N/A	NM_001285971	BMI1	BMI1 polycomb ring finger oncogene
B01	N/A	XM_013991469	BRAP	BRCA1-associated protein-like
B02	Ssc.24110	XM_003358029	BRCA1	Breast cancer 1, early onset
B03	Ssc.99577	XM_013991802	BRCA2	Breast cancer type 2 susceptibility protein-like
B04	Ssc.49952	NM_001243023	BRCC3	BRCA1/BRCA2-containing complex, subunit 3
B05	N/A	XM_001929165	BTBD1	BTB (POZ) domain containing 1
B06	N/A	XM_005661360	BTBD2	BTB (POZ) domain containing 2
B07	Ssc.50003	XM_001924828	BTRC	Beta-transducin repeat containing

Position	Unigene	GenBank	Symbol	Description
B08	N/A	XM_003129932	CBL	Cas-Br-M (murine) ecotropic retroviral transforming sequence
B09	Ssc.2897	XM_003358826	CBLB	Cas-Br-M (murine) ecotropic retroviral transforming sequence b
B10	Ssc.78606	XM_005653285	CBLC	Cbl proto-oncogene C, E3 ubiquitin protein ligase
B11	Ssc.76715	XM_003357515	CBLL1	E3 ubiquitin-protein ligase Hakai-like
B12	Ssc.48844	NM_001244499	CBX8	Chromobox homolog 8
B13	Ssc.19486	XR_001303929	CCNB1IP1	Cyclin B1 interacting protein 1
B14	N/A	XM_003124740	CCNF	Cyclin-F-like
B15	N/A	NM_001278771	CDC16	Cell division cycle 16 homolog (<i>S. cerevisiae</i>)
B16	Ssc.17001	NM_001123094	CDC20	Cell division cycle 20 homolog (<i>S. cerevisiae</i>)
B17	Ssc.47545	NM_001267826	CDC23	Cell division cycle 23 homolog (<i>S. cerevisiae</i>)
B18	Ssc.98469	XM_003131307	CDC27	Cell division cycle protein 27 homolog
B19	Ssc.32151	XM_013991378	CDC34	Ubiquitin-conjugating enzyme E2 R1-like
B20	Ssc.7538	NM_001163060	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)
B21	N/A	XM_003360651	CGRRF1	Cell growth regulator with RING finger domain protein 1
B22	Ssc.28962	XM_001928455	CHFR	Checkpoint with forkhead and ring finger domains
B23	N/A	XM_005674605	CISH	Cytokine inducible SH2-containing protein
B24	N/A	XM_003360133	CNOT4	CCR4-NOT transcription complex subunit 4
C01	Ssc.84224	XM_005669735	CRBN	Cereblon
C02	Ssc.5907	XM_013979868	CUL1	Cullin 1
C03	Ssc.81554	XM_013980305	CUL2	Cullin 2
C04	N/A	XM_003133685	CUL3	Cullin-3-like
C05	Ssc.3315	XM_003131101	CUL4A	Cullin 4A
C06	N/A	XM_005673851	CUL4B	Cullin-4B
C07	Ssc.83955	XM_005667298	CUL5	Cullin 5
C08	N/A	XM_013977946	CUL7	Cullin 7
C09	N/A	XM_005663341	DCST1	DC-STAMP domain containing 1
C10	Ssc.5538	XM_003360263	DDA1	DET1- and DDB1-associated protein 1-like
C11	Ssc.17566	XM_003122651	DDB1	Damage specific DNA binding protein 1
C12	Ssc.20115	XM_003122813	DDB2	DNA damage-binding protein 2-like
C13	Ssc.25892	XM_003121855	DET1	DET1 homolog
C14	Ssc.5098	NM_001190216	DIABLO	Diablo, IAP-binding mitochondrial protein
C15	N/A	XM_005667860	DTL	Denticleless E3 ubiquitin protein ligase homolog (<i>Drosophila</i>)
C16	N/A	XM_003355494	DTX3	Probable E3 ubiquitin-protein ligase DTX3
C17	N/A	XM_003122698	DTX4	Deltex homolog 4 (<i>Drosophila</i>)
C18	N/A	XM_013982467	DZIP3	DAZ interacting protein 3, zinc finger
C19	Ssc.96856	XM_003123701	ENC1	Ectodermal-neural cortex 1 (with BTB-like domain)
C20	Ssc.82752	XM_013996143	FANCL	E3 ubiquitin-protein ligase FANCL
C21	Ssc.20390	XM_003123231	FBXL12	F-box/LRR-repeat protein 12-like
C22	N/A	XR_001308816	FBXL14	Uncharacterized LOC102158589
C23	N/A	XM_021072747	FBXL15	F-box and leucine rich repeat protein 15
C24	N/A	XM_003123817	FBXL17	F-box and leucine-rich repeat protein 17
D01	N/A	XM_005661841	FBXL18	F-box and leucine rich repeat protein 18
D02	N/A	XM_005658088	FBXL2	F-box/LRR-repeat protein 2-like
D03	Ssc.98225	XM_003482995	FBXL20	F-box and leucine-rich repeat protein 20
D04	Ssc.101803	XM_003357868	FBXL3	F-box and leucine-rich repeat protein 3

Position	Unigene	GenBank	Symbol	Description
D05	Ssc.19070	NM_001171752	FBXL4	F-box and leucine-rich repeat protein 4
D06	Ssc.32966	XM_013978532	FBXL5	F-box and leucine-rich repeat protein 5
D07	Ssc.7060	XM_003354838	FBXO11	F-box protein 11
D08	N/A	XM_013998503	FBXO17	F-box protein 17
D09	N/A	XM_013980322	FBXO18	F-box protein, helicase, 18
D10	Ssc.4628	XM_013998979	FBXO2	F-box protein 2
D11	Ssc.19193	NM_001244497	FBXO21	F-box protein 21
D12	Ssc.52078	XM_013989023	FBXO22	F-box only protein 22-like
D13	N/A	XM_013991955	FBXO25	F-box only protein 25-like
D14	Ssc.44297	XM_003122876	FBXO3	F-box protein 3
D15	N/A	XM_003121151	FBXO30	F-box protein 30
D16	Ssc.18487	XM_003126816	FBXO31	F-box protein 31
D17	Ssc.4368	NM_001044588	FBXO32	F-box protein 32
D18	Ssc.95900	XM_001926592	FBXO33	F-box only protein 33-like
D19	Ssc.50015	XM_003133916	FBXO4	F-box only protein 4-like
D20	Ssc.34386	XM_001925334	FBXO43	F-box protein 43
D21	Ssc.55715	XM_003481951	FBXO44	F-box protein 44
D22	N/A	XM_003121138	FBXO5	F-box protein 5
D23	Ssc.54679	NM_001244632	FBXO6	F-box protein 6
D24	Ssc.24546	NM_001171751	FBXO7	F-box protein 7
E01	Ssc.9128	NM_001160297	FBXO9	F-box protein 9
E02	N/A	XM_005657638	FBXW11	F-box and WD repeat domain containing 11
E03	Ssc.43519	XM_001927300	FBXW2	F-box/WD repeat-containing protein 2
E04	Ssc.20217	XM_001924973	FBXW4	F-box and WD repeat domain containing 4
E05	Ssc.26283	XM_013989101	FBXW5	F-box and WD repeat domain containing 5
E06	Ssc.92749	XM_013992243	FBXW7	F-box/WD repeat-containing protein 7
E07	N/A	XM_013990336	FBXW8	F-box/WD repeat-containing protein 8-like
E08	N/A	XM_003121751	FEM1B	Fem-1 homolog b (C. elegans)
E09	N/A	XM_003126840	GAN	Gigaxonin
E10	Ssc.45301	NM_001195340	HACE1	HECT domain and ankyrin repeat containing, E3 ubiquitin protein ligase 1
E11	N/A	XM_013978136	HECTD1	HECT domain containing 1
E12	N/A	XM_003483528	HECTD2	HECT domain E3 ubiquitin protein ligase 2
E13	Ssc.44083	XM_005665478	HECTD3	E3 ubiquitin-protein ligase HECTD3
E14	Ssc.40804	XM_013985819	HECW1	E3 ubiquitin-protein ligase HECW1
E15	Ssc.96208	XM_001927251	HERC1	Hect (homologous to the E6-AP (UBE3A) carboxyl terminus) domain and RCC1 (CHC1)-like domain (RLD) 1
E16	N/A	XM_001924433	HERC2	Hect domain and RLD 2
E17	Ssc.83945	XM_005666994	HERC3	Hect domain and RLD 3
E18	Ssc.27529	XM_013983295	HERC4	HECT and RLD domain containing E3 ubiquitin protein ligase 4
E19	N/A	XM_005667000	HERC5	E3 ISG15--protein ligase HERC5
E20	N/A	XM_013991183	HERC6	Probable E3 ubiquitin-protein ligase HERC6
E21	Ssc.27044	XM_003358605	HLTF	Helicase-like transcription factor
E22	N/A	XM_001926494	HUWE1	HECT, UBA and WWE domain containing 1
E23	Ssc.19702	XM_003135490	IRAK1	Interleukin-1 receptor-associated kinase 1
E24	N/A	XM_001928316	IRF2BPL	Interferon regulatory factor 2-binding protein-like
F01	Ssc.31722	XR_308753	ITCH	Uncharacterized LOC102165807

Position	Unigene	GenBank	Symbol	Description
F02	Ssc.55299	XM_003130995	KBTBD7	Kelch repeat and BTB domain-containing protein 7
F03	Ssc.4963	XM_005670738	KCTD10	Potassium channel tetramerization domain containing 10
F04	Ssc.87184	NM_001114671	KEAP1	Kelch-like ECH-associated protein 1
F05	N/A	XM_013986392	KLHL13	Kelch-like protein 13
F06	Ssc.5842	XM_003128989	KLHL2	Kelch-like 2, Mayven (Drosophila)
F07	Ssc.27212	XM_005656716	KLHL20	Kelch-like family member 20
F08	N/A	XM_013988749	KLHL21	Kelch-like family member 21
F09	N/A	XM_003483464	KLHL22	Kelch-like protein 22
F10	N/A	XM_003132561	KLHL24	Kelch-like 24 (Drosophila)
F11	Ssc.73140	XM_003359548	KLHL41	Kelch repeat and BTB (POZ) domain containing 10
F12	Ssc.30679	XM_013989581	KLHL7	Kelch-like protein 7
F13	N/A	XM_005660068	KLHL9	Kelch like family member 9
F14	Ssc.22793	XM_013980584	LMO7	LIM domain only protein 7-like
F15	Ssc.6738	XM_013978673	LNK1	Ligand of numb-protein X 1, E3 ubiquitin protein ligase
F16	N/A	XM_003128995	LOC100513415	Tripartite motif-containing protein 75-like
F17	N/A	XM_005667218	LOC100524034	Tripartite motif containing 64
F18	Ssc.3623	XM_003357261	LOC100622859	Baculoviral IAP repeat containing 2
F19	N/A	XM_013986018	LOC102167889	E3 ubiquitin-protein ligase RNF168
F20	Ssc.5030	NM_001044532	LOC733579	Tripartite motif protein TRIM5
F21	Ssc.98995	XM_013984950	LONRF1	LON peptidase N-terminal domain and ring finger 1
F22	Ssc.29387	XM_003128024	LRRC41	Leucine rich repeat containing 41
F23	N/A	XM_005660441	LRSAM1	Leucine rich repeat and sterile alpha motif containing 1
F24	N/A	XM_013982552	LTN1	Listerin E3 ubiquitin protein ligase 1
G01	Ssc.30532	XM_013993291	MALT1	Mucosa associated lymphoid tissue lymphoma translocation gene 1
G02	Ssc.19729	XM_003133973	MAP3K1	Mitogen-activated protein kinase kinase kinase 1
G03	N/A	XM_013978707	MARCH1	E3 ubiquitin-protein ligase MARCH1
G04	N/A	XM_003133851	MARCH11	E3 ubiquitin-protein ligase MARCH11-like
G05	Ssc.2476	NM_001244915	MARCH2	Membrane-associated ring finger (C3HC4) 2, E3 ubiquitin protein ligase
G06	Ssc.4114	NM_001244831	MARCH3	Membrane-associated ring finger (C3HC4) 3, E3 ubiquitin protein ligase
G07	Ssc.7478	XM_001927572	MARCH5	Membrane-associated ring finger (C3HC4) 5
G08	Ssc.4366	NM_001130535	MARCH6	Membrane-associated ring finger (C3HC4) 6
G09	Ssc.13470	XM_001928215	MARCH7	Membrane-associated ring finger (C3HC4) 7
G10	Ssc.5491	XM_005671226	MARCH8	Membrane-associated ring finger (C3HC4) 8, E3 ubiquitin protein ligase
G11	Ssc.62777	NM_001105303	MDM2	Mdm2 p53 binding protein homolog (mouse)
G12	Ssc.32964	XM_013989569	MDM4	Mdm4 p53 binding protein homolog (mouse)
G13	N/A	XM_005663307	MEX3A	Mex-3 RNA binding family member A
G14	Ssc.8821	XM_013985357	MEX3C	Mex-3 RNA binding family member C
G15	N/A	XM_013994841	MEX3D	Mex-3 RNA binding family member D
G16	Ssc.78861	XM_003124624	MGRN1	Mahogunin, ring finger 1
G17	N/A	XM_003356369	MIB1	Mindbomb homolog 1 (Drosophila)
G18	N/A	XM_005653346	MIB2	Mindbomb E3 ubiquitin protein ligase 2
G19	Ssc.38780	XM_003134922	MID1	Midline 1 (Opitz/BBB syndrome)
G20	Ssc.21599	XM_003360410	MID2	Midline 2
G21	Ssc.10393	XM_003134608	MKRN1	Makorin ring finger protein 1

Position	Unigene	GenBank	Symbol	Description
G22	N/A	XM_003483223	MKRN2	Makorin ring finger protein 2
G23	Ssc.80090	NM_001166316	MNAT1	Menage a trois homolog 1, cyclin H assembly factor (Xenopus laevis)
G24	Ssc.98285	XM_001927762	MSL2	Male-specific lethal 2 homolog (Drosophila)
H01	Ssc.2838	XM_003356176	MUL1	Mitochondrial E3 ubiquitin protein ligase 1
H02	Ssc.34825	NM_001244359	MURF3	Tripartite motif-containing protein 54
H03	Ssc.8395	XM_013980587	MYCBP2	MYC binding protein 2
H04	Ssc.10232	XM_001929076	MYLIP	Myosin regulatory light chain interacting protein
H05	N/A	XM_001925675	NEDD4	Neural precursor cell expressed, developmentally down-regulated 4
H06	Ssc.54780	XM_001926056	NEDD4L	E3 ubiquitin-protein ligase NEDD4-like
H07	N/A	XM_001926877	NEURL1	Neuralized-like protein 1A-like
H08	Ssc.84089	XM_013980188	NFX1	Nuclear transcription factor, X-box binding 1
H09	N/A	XM_013978651	NFXL1	Nuclear transcription factor, X-box binding-like 1
H10	Ssc.37385	NM_001258302	NHLRC1	NHL repeat containing E3 ubiquitin protein ligase 1
H11	Ssc.80237	XM_003127327	NOSIP	Nitric oxide synthase-interacting protein-like
H12	Ssc.53637	XM_001927476	OSTM1	Osteopetrosis-associated transmembrane protein 1
H13	Ssc.30362	NM_001044603	PARK2	Parkinson protein 2, E3 ubiquitin protein ligase (parkin)
H14	Ssc.33027	NM_001244173	PAX6	Paired box 6
H15	N/A	XM_013992242	PCGF2	Polycomb group ring finger 2
H16	Ssc.82525	XM_013997685	PCGF3	Polycomb group RING finger protein 3-like
H17	N/A	XM_003133143	PCGF5	Polycomb group RING finger protein 5-like
H18	Ssc.19005	XM_013980617	PDZRN3	PDZ domain containing ring finger 3
H19	N/A	XM_003481711	PDZRN4	PDZ domain containing ring finger 4
H20	Ssc.6229	XM_003125095	PEL1	Pellino homolog 1 (Drosophila)
H21	N/A	XM_013993445	PEL2	Pellino homolog 2 (Drosophila)
H22	Ssc.5736	XM_003131719	PEX12	Peroxisome assembly protein 12-like
H23	Ssc.25938	NM_001243380	PEX2	Peroxisomal biogenesis factor 2
H24	N/A	XM_003480312	PHIP	Pleckstrin homology domain interacting protein
I01	N/A	XM_003122392	PHRF1	PHD and ring finger domains 1
I02	Ssc.5358	XM_003121749	PIAS1	Protein inhibitor of activated STAT, 1
I03	N/A	XM_003361616	PIAS2	Protein inhibitor of activated STAT, 2
I04	N/A	XM_003354007	PIAS4	Protein inhibitor of activated STAT, 4
I05	N/A	XM_003360348	PJA1	Praja ring finger 1
I06	N/A	XM_003123822	PJA2	E3 ubiquitin-protein ligase Praja-2
I07	Ssc.12286	XM_001925572	PML	Protein PML
I08	Ssc.18120	NM_001142833	RAD18	RAD18 homolog (S. cerevisiae)
I09	Ssc.22664	NM_001123181	RAD51	RAD51 homolog (S. cerevisiae)
I10	Ssc.21677	XM_005662337	RANBP2	E3 SUMO-protein ligase RanBP2
I11	Ssc.96314	XM_003124540	RBBP6	Retinoblastoma binding protein 6
I12	N/A	XM_005654240	RBCK1	RanBP-type and C3HC4-type zinc finger containing 1
I13	N/A	XM_021091463	RBX1	Ring-box 1
I14	N/A	XM_003357546	RC3H1	Ring finger and CCCH-type domains 1
I15	N/A	XM_013993835	RC3H2	Ring finger and CCCH-type domains 2
I16	Ssc.9304	NM_001097490	RCHY1	Pirh2
I17	Ssc.48571	XM_013989641	RFWD2	Ring finger and WD repeat domain 2
I18	Ssc.18959	XM_013983276	RHOBTB1	Rho-related BTB domain containing 1

Position	Unigene	GenBank	Symbol	Description
I19	Ssc.33071	XM_003354222	RHOBTB3	Rho-related BTB domain-containing protein 3-like
I20	Ssc.5967	NM_001190235	RING1	Ring finger protein 1
I21	Ssc.31953	XM_013982944	RNF10	Ring finger protein 10
I22	Ssc.25676	XM_005662399	RNF103	Ring finger protein 103
I23	N/A	XM_003482086	RNF11	Ring finger protein 11
I24	N/A	XM_013992922	RNF111	Ring finger protein 111
J01	Ssc.57997	XM_003135338	RNF113A	RING finger protein 113A-like
J02	Ssc.32113	NM_001001869	RNF114	Ring finger protein 114
J03	N/A	XM_003481472	RNF115	Ring finger protein 115
J04	Ssc.12788	XM_003129616	RNF121	Ring finger protein 121
J05	N/A	XM_013981692	RNF123	Ring finger protein 123
J06	Ssc.31754	XM_003127888	RNF125	E3 ubiquitin-protein ligase RNF125-like
J07	N/A	XM_021084297	RNF126	Ring finger protein 126
J08	Ssc.18929	XM_003135291	RNF128	E3 ubiquitin-protein ligase RNF128-like
J09	Ssc.2212	XM_003358608	RNF13	E3 ubiquitin-protein ligase RNF13-like
J10	Ssc.39944	XM_013987509	RNF130	E3 ubiquitin-protein ligase RNF130-like
J11	Ssc.10766	XM_003131735	RNF135	E3 ubiquitin-protein ligase RNF135-like
J12	N/A	XM_003127882	RNF138	E3 ubiquitin-protein ligase RNF138-like
J13	N/A	XM_013996489	RNF139	E3 ubiquitin-protein ligase RNF139-like
J14	Ssc.5933	XM_003124007	RNF14	Ring finger protein 14
J15	Ssc.42243	XM_003125397	RNF144A	E3 ubiquitin-protein ligase RNF144A-like
J16	Ssc.39259	XM_001928021	RNF144B	Ring finger 144B
J17	N/A	XM_013984886	RNF145	Ring finger protein 145
J18	Ssc.55585	XM_003480254	RNF146	Ring finger protein 146
J19	N/A	XM_013978881	RNF150	RING finger protein 150
J20	Ssc.93832	NM_001244578	RNF152	Ring finger protein 152
J21	N/A	XM_021093662	RNF166	Ring finger protein 166
J22	N/A	XM_003131906	RNF167	E3 ubiquitin-protein ligase RNF167-like
J23	N/A	XM_021070157	RNF168	Ring finger protein 168
J24	Ssc.27980	XM_003359870	RNF170	RING finger protein 170-like
K01	N/A	XM_013984809	RNF180	Ring finger protein 180
K02	Ssc.18173	NM_001243378	RNF181	Ring finger protein 181
K03	N/A	XR_300567	RNF187	Uncharacterized LOC102166675
K04	Ssc.94631	NM_001038006	RNF19A	Ring finger protein 19
K05	Ssc.25996	XM_005665197	RNF19B	Ring finger protein 19B
K06	Ssc.7445	XM_001926594	RNF20	E3 ubiquitin-protein ligase BRE1A-like
K07	Ssc.23925	XM_003481937	RNF207	Ring finger protein 207
K08	N/A	XM_005652750	RNF208	RING finger protein 208-like
K09	N/A	XM_021100857	RNF212	Ring finger protein 212
K10	N/A	XM_005670835	RNF215	Ring finger protein 215
K11	Ssc.4180	XM_003354443	RNF216	E3 ubiquitin-protein ligase RNF216-like
K12	Ssc.50097	XM_003131038	RNF219	Ring finger protein 219
K13	N/A	XM_003482102	RNF220	E3 ubiquitin-protein ligase RNF220
K14	N/A	XM_003134311	RNF24	RING finger protein 24-like
K15	N/A	XM_005667432	RNF26	Ring finger protein 26
K16	Ssc.4607	XM_005666242	RNF31	Ring finger protein 31
K17	N/A	XM_021073434	RNF34	Ring finger protein 34

Position	Unigene	GenBank	Symbol	Description
K18	Ssc.38191	XM_005660239	RNF38	Ring finger protein 38
K19	Ssc.11606	NM_001044528	RNF4	Ring finger protein 4
K20	Ssc.83002	XM_013992383	RNF40	E3 ubiquitin-protein ligase BRE1B-like
K21	N/A	XM_003481616	RNF41	E3 ubiquitin-protein ligase NRDP1
K22	Ssc.39004	XM_013981103	RNF43	Ring finger protein 43
K23	Ssc.1324	XM_005661462	RNF44	Ring finger protein 44
K24	Ssc.1246	NM_001123224	RNF5	Ring finger protein 5
L01	N/A	XM_003130902	RNF6	Ring finger protein (C3H2C3 type) 6
L02	Ssc.18436	NM_001245011	RNF7	Ring finger protein 7
L03	Ssc.70573	XM_005665930	RNF8	Ring finger protein 8, E3 ubiquitin protein ligase
L04	Ssc.46816	XM_003126970	RSPRY1	RING finger and SPRY domain-containing protein 1-like
L05	Ssc.41092	XM_001924790	SHPRH	SNF2 histone linker PHD RING helicase
L06	N/A	XM_003126991	SIAH1	E3 ubiquitin-protein ligase SIAH1
L07	Ssc.2242	XM_003358611	SIAH2	Seven in absentia homolog 2 (Drosophila)
L08	N/A	XM_021084761	SKP1	S-phase kinase associated protein 1
L09	Ssc.22189	NM_001171755	SKP2	S-phase kinase-associated protein 2 (p45)
L10	N/A	XM_013995373	SMURF1	E3 ubiquitin-protein ligase SMURF1
L11	N/A	XM_003362012	SMURF2	SMAD specific E3 ubiquitin protein ligase 2
L12	Ssc.26216	NM_001204768	SOCS1	Suppressor of cytokine signaling 1
L13	Ssc.6475	NM_001097461	SOCS2	Suppressor of cytokine signaling 2
L14	Ssc.42668	NM_001123196	SOCS3	Suppressor of cytokine signaling 3
L15	Ssc.39968	NM_001162889	SOCS4	Suppressor of cytokine signaling 4
L16	Ssc.28813	NM_001162890	SOCS5	Suppressor of cytokine signaling 5
L17	Ssc.22685	NM_001170518	SOCS6	Suppressor of cytokine signaling 6
L18	Ssc.81846	XM_003131559	SPOP	Speckle-type POZ protein
L19	N/A	XM_021095289	SPSB1	SplA/ryanodine receptor domain and SOCS box containing 1
L20	Ssc.49971	NM_001243315	SPSB2	SplA/ryanodine receptor domain and SOCS box containing 2
L21	N/A	XM_003358587	SPSB4	SPRY domain-containing SOCS box protein 4-like
L22	Ssc.55156	XM_003124708	STUB1	E3 ubiquitin-protein ligase CHIP-like
L23	N/A	XM_003122541	SYVN1	Synovial apoptosis inhibitor 1, synoviolin
L24	N/A	XM_001927321	TCEB1	Transcription elongation factor B polypeptide 1-like
M01	Ssc.57965	XM_003124746	TCEB2	Transcription elongation factor B polypeptide 2-like
M02	Ssc.75729	XM_003483067	TNFAIP1	TNF alpha induced protein 1
M03	Ssc.50296	NM_001267890	TNFAIP3	Tumor necrosis factor, alpha-induced protein 3
M04	N/A	XM_005668076	TOPORS	Topoisomerase I binding, arginine/serine-rich, E3 ubiquitin protein ligase
M05	N/A	XM_005652719	TRAF2	TNF receptor-associated factor 2
M06	Ssc.99318	XM_005666443	TRAF3	TNF receptor-associated factor 3
M07	N/A	XM_005656996	TRAF4	TNF receptor-associated factor 4-like
M08	Ssc.41249	XM_003482755	TRAF5	TNF receptor-associated factor 5
M09	Ssc.96412	NM_001105286	TRAF6	TNF receptor-associated factor 6
M10	N/A	XM_003124733	TRAF7	TNF receptor-associated factor 7
M11	N/A	XM_013981709	TRAIP	TRAF interacting protein
M12	Ssc.29070	NM_001123207	TRIM10	Tripartite motif containing 10
M13	N/A	XM_013992391	TRIM11	E3 ubiquitin-protein ligase TRIM11
M14	Ssc.11663	XM_013986833	TRIM13	Tripartite motif containing 13

Position	Unigene	GenBank	Symbol	Description
M15	N/A	XM_003123625	TRIM17	E3 ubiquitin-protein ligase TRIM17-like
M16	N/A	XM_013998053	TRIM2	Tripartite motif-containing protein 2
M17	Ssc.75013	NM_001163649	TRIM21	Tripartite motif containing 21
M18	Ssc.50113	XM_003134013	TRIM23	E3 ubiquitin-protein ligase TRIM23
M19	Ssc.26642	XM_003360125	TRIM24	Transcription intermediary factor 1-alpha
M20	Ssc.21509	XM_005656971	TRIM25	Tripartite motif containing 25
M21	Ssc.54632	NM_001123209	TRIM26	Tripartite motif containing 26
M22	Ssc.14997	XM_003128235	TRIM27	Tripartite motif containing 27
M23	N/A	XM_021097344	TRIM28	Tripartite motif containing 28
M24	N/A	XM_003482520	TRIM3	Tripartite motif containing 3
N01	Ssc.26008	NM_001206402	TRIM31	Tripartite motif containing 31
N02	N/A	XM_005660379	TRIM32	Tripartite motif containing 32
N03	Ssc.102172	XM_003355236	TRIM33	E3 ubiquitin-protein ligase TRIM33-like
N04	N/A	XM_003480892	TRIM36	E3 ubiquitin-protein ligase TRIM36
N05	N/A	XM_013981115	TRIM37	Tripartite motif containing 37
N06	Ssc.47836	XM_001926006	TRIM38	Tripartite motif containing 38
N07	Ssc.96738	NM_001128479	TRIM39	Tripartite motif containing 39
N08	N/A	XM_003124333	TRIM4	Tripartite motif containing 4
N09	Ssc.75305	NM_001160087	TRIM40	Tripartite motif containing 40
N10	N/A	XM_013991418	TRIM41	Tripartite motif containing 41
N11	Ssc.24607	XM_003122865	TRIM44	Tripartite motif-containing protein 44-like
N12	N/A	XM_001929343	TRIM45	Tripartite motif-containing protein 45-like
N13	Ssc.75652	XM_003360974	TRIM52	Tripartite motif-containing protein 52-like
N14	Ssc.22520	NM_001244690	TRIM55	Tripartite motif containing 55
N15	N/A	XM_021086255	TRIM56	Tripartite motif containing 56
N16	N/A	XM_003127763	TRIM62	Tripartite motif-containing protein 62-like
N17	Ssc.61531	NM_001184756	TRIM63	Tripartite motif containing 63
N18	N/A	XM_013993616	TRIM67	Tripartite motif containing 67
N19	N/A	XM_003129563	TRIM68	Tripartite motif containing 68
N20	N/A	XM_013992080	TRIM71	Tripartite motif containing 71
N21	Ssc.52223	XM_003124494	TRIM72	Tripartite motif containing 72
N22	Ssc.41770	XM_001928904	TRIM8	Tripartite motif containing 8
N23	Ssc.77251	XM_001928211	TRIM9	E3 ubiquitin-protein ligase TRIM9-like
N24	N/A	XM_001926822	TRIML1	Tripartite motif family-like 1
O01	N/A	XM_013991170	TRIP12	Thyroid hormone receptor interactor 12
O02	Ssc.1493	XM_003123656	TSPAN17	Tetraspanin-17-like
O03	N/A	XM_003358955	TTC3	Tetratricopeptide repeat domain 3
O04	Ssc.55511	XM_003483411	UBC	Ubiquitin C
O05	Ssc.96995	NM_001243181	UBE3A	Ubiquitin protein ligase E3A
O06	Ssc.97282	XM_001929210	UBE3B	Ubiquitin protein ligase E3B
O07	Ssc.31114	XM_005673078	UBE3C	Ubiquitin-protein ligase E3C
O08	Ssc.30196	NM_001244872	UBE4A	Ubiquitination factor E4A
O09	Ssc.5222	XM_005664989	UBE4B	Ubiquitin conjugation factor E4 B
O10	N/A	XM_013993095	UBR1	Ubiquitin protein ligase E3 component n-recognin 1
O11	Ssc.48222	XM_005665998	UBR2	Ubiquitin protein ligase E3 component n-recognin 2
O12	N/A	XM_013984250	UBR3	Ubiquitin protein ligase E3 component n-recognin 3 (putative)

Position	Unigene	GenBank	Symbol	Description
O13	N/A	XM_005656024	UBR4	E3 ubiquitin-protein ligase UBR4-like
O14	Ssc.13158	XM_013996565	UBR5	Ubiquitin protein ligase E3 component n-recogin 5
O15	Ssc.1210	XM_001926839	UBR7	Ubiquitin protein ligase E3 component n-recogin 7 (putative)
O16	N/A	XM_005660114	UHRF2	E3 ubiquitin-protein ligase UHRF2
O17	Ssc.16841	XM_003357967	UNK	RING finger protein unkempt homolog
O18	Ssc.39450	XM_003124759	UNKL	RING finger protein unkempt-like
O19	N/A	XM_003483214	VHL	Von Hippel-Lindau tumor suppressor, E3 ubiquitin protein ligase
O20	Ssc.82593	XM_013981746	VPRBP	Vpr (HIV-1) binding protein
O21	Ssc.4353	XM_003129923	VPS11	Vacuolar protein sorting 11 homolog (<i>S. cerevisiae</i>)
O22	Ssc.22397	XM_001929361	VPS18	Vacuolar protein sorting 18 homolog (<i>S. cerevisiae</i>)
O23	Ssc.6606	XM_003134906	VPS41	Vacuolar protein sorting 41 homolog (<i>S. cerevisiae</i>)
O24	Ssc.32001	XM_013982263	VPS8	Vacuolar protein sorting-associated protein 8 homolog
P01	N/A	XM_021074782	WDSUB1	WD repeat, sterile alpha motif and U-box domain containing 1
P02	Ssc.99584	XM_003128809	WHSC1	Probable histone-lysine N-methyltransferase NSD2-like
P03	Ssc.25169	XM_003131753	WSB1	WD repeat and SOCS box containing 1
P04	Ssc.1680	XM_005662985	WWP1	WW domain containing E3 ubiquitin protein ligase 1
P05	Ssc.43829	NM_001097436	XIAP	X-linked inhibitor of apoptosis
P06	Ssc.5022	XM_003357303	ZBTB16	Zinc finger and BTB domain containing 16
P07	Ssc.56361	NM_001244486	ZER1	Zer-1 homolog (<i>C. elegans</i>)
P08	N/A	XM_013998182	ZNRF1	E3 ubiquitin-protein ligase ZNRF1-like
P09	N/A	XM_003134814	ZNRF2	E3 ubiquitin-protein ligase ZNRF2-like
P10	N/A	XM_013999378	ZYG11B	Zyg-11 family member B, cell cycle regulator
P11	Ssc.10316	XM_003124280	ACTB	Actin, beta
P12	Ssc.73773	NM_213978	B2M	Beta-2-microglobulin
P13	Ssc.16135	NM_001206359	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
P14	Ssc.4158	NM_001032376	HPRT1	Hypoxanthine phosphoribosyltransferase 1
P15	Ssc.27927	NM_001244068	RPL13A	Ribosomal protein L13a
P16	N/A	SA_00133	SGDC	Pig Genomic DNA Contamination
P17	N/A	SA_00133	SGDC	Pig Genomic DNA Contamination
P18	N/A	SA_00133	SGDC	Pig 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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Product	Contents	Cat. no.
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RT ² SYBR Green qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with real-time cyclers that do not require a reference dye, including: Bio-Rad model CFX384; Roche LightCycler 480 (384-well); all other cyclers	330501
RT ² SYBR Green ROX™ qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with the following real-time cyclers: Applied Biosystems models 7900HT, ViiA 7 (384-well blocks)	330521
RT ² SYBR Green Fluor qPCR Mastermix (8)*	For 4 x 384 assays in 384-well plates; suitable for use with the following real-time cyclers: Bio-Rad models iCycler®, iQ™5, MyiQ™, MyiQ2	330511

* Larger kit sizes available; please inquire.

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