RT² Profiler PCR Array (Rotor-Gene® Format)

Rhesus macaque Skeletal Muscle: Myogenesis & Myopathy

Cat. no. 330231 PAQQ-099ZR

For pathway expression analysis

Format	For use with the following real-time cyclers
RT² Profiler PCR Array, Format R	Rotor-Gene Q, other Rotor-Gene cyclers

Description

The Rhesus Macaque Skeletal Muscle Development & Disease RT² Profiler PCR Array profiles the expression of 84 key genes involved in skeletal muscle differentiation, function and disease-related processes. Skeletal muscle's role in voluntary movement contributes greatly to energy metabolism and its regulation via glucose uptake and storage by insulin. Complications from aging and metabolic diseases like diabetes and metabolic syndrome contribute to muscle wasting (atrophy). However, recent research hypothesizes that metabolic defects in skeletal muscle contribute to the etiology of diabetes and metabolic syndrome, suggesting that skeletal muscle has a larger role in these disease states than initially expected. Large heterogeneous protein complexes including titin or dystrophin facilitate muscle contraction by connecting the skeletal muscle cytoskeleton to the extracellular matrix. Muscular dystrophies arise from inherited mutations in the genes encoding components of these complexes, and gene expression changes disrupting their normal contractile function dysregulate signaling pathways that control muscle growth. Potential therapies for muscle wasting include generation of new muscle cells (myogenesis) or increasing the mass of current muscle cells (hypertrophy). Thus, muscle-specific biological and pathophysiological processes are interrelated and cannot be studied in isolation. This array includes genes important for basic skeletal muscle function, development and growth, as well as genes related to the disease processes of metabolic syndrome and muscle wasting. A set of controls present on each array enables data analysis using the Delta-Delta CT method of relative quantification and assessment of reverse transcription performance, genomic DNA contamination, and PCR performance. Using real-time PCR, research studies can easily and reliably analyze the expression of a

focused panel of genes involved in skeletal muscle development and disease with this array.

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

Shipping and storage

RT² Profiler PCR Arrays in the Rotor-Gene format 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 cycler (see table above).

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

Array layout

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.

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Mmu.29238	XM_002802126	ACTA1	Actin, alpha 1, skeletal muscle
A02	Mmu.26627	XM_001109697	ACTN3	Actinin, alpha 3
A03	Mmu.24184	XM_001084713	ACVR2B	Activin A receptor, type IIB
A04	Mmu.3575	NM_001032871	ADIPOQ	Adiponectin, C1Q and collagen domain containing
A05	Mmu.3441	NM_001042774	ADRB2	Adrenergic, beta-2-, receptor, surface
A06	Mmu.23330	XM_001088755	AGRN	Agrin-like
A07	Mmu.28543	XM_001085265	AKT1	V-akt murine thymoma viral oncogene homolog 1
A08	Mmu.28543	XM_001093461	AKT2	V-akt murine thymoma viral oncogene homolog 2
A09	Mmu.29165	XM_002802438	ATP2A1	ATPase, Ca++ transporting, cardiac muscle, fast twitch 1
A10	Mmu.27902	XM_001084801	BMP4	Bone morphogenetic protein 4
A11	Mmu.22762	XM_001099567	CAMK2G	Calcium/calmodulin-dependent protein kinase II gamma
A12	Mmu.20725	XM_001098172	CAPN2	Calpain 2, (m/II) large subunit
B01	Mmu.28073	XM_001103220	CAPN3	Calpain 3, (p94)
B02	Mmu.1947	XM_001083160	CASP3	Caspase 3, apoptosis-related cysteine peptidase
B03	Mmu.20841	XM_001091928	CAST	Calpastatin
B04	Mmu.11409	NM_001168614	CAV1	Caveolin 1, caveolae protein, 22kDa
B05	Mmu.19380	XM_001097615	CAV3	Caveolin 3
B06	Mmu.252	XM_001106498	CRYAB	Crystallin, alpha B
B07	Mmu.2322	XM_001115474	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
B08	Mmu.2657	XM_001108378	DAG1	Dystroglycan 1 (dystrophin-associated glycoprotein 1)
B09	Mmu.4655	NM_001194266	DES	Desmin
B10	Mmu.21206	XM_001096514	DMD	Dystrophin
B11	Mmu.31661	XM_001111330	DMPK	Dystrophia myotonica-protein kinase
B12	Mmu.29735	XM_002799290	DYSF	Dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive)
C01	Mmu.23085	XM_001090376	EMD	Emerin
C02	Mmu.22711	XM_001100697	FBXO32	F-box protein 32
C03	Mmu.3766	XM_001099284	FGF2	Fibroblast growth factor 2 (basic)
C04	Mmu.25871	XM_001088437	FOXO1	Forkhead box O1
C05	Mmu.13070	XM_001093593	FOXO3	Forkhead box O3
C06	Mmu.21891	XM_001100255	HDAC5	Histone deacetylase 5-like
C07	Mmu.13636	XM_001111706	HK2	Hexokinase 2
C08	Mmu.28430	XM_001094251	IGF1	Insulin-like growth factor 1 (somatomedin C)
C09	Mmu.767	XM_001085359	IGFBP3	Insulin-like growth factor binding protein 3
C10	Mmu.4685	XM_001087664	IGFBP5	Insulin-like growth factor binding protein 5
C11	Mmu.11069	XM_001096913	IKBKB	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
C12	Mmu.648	NM_001042756	IL1B	Interleukin 1, beta
D01	Mmu.3376	NM_001042733	IL6	Interleukin 6 (interferon, beta 2)
D02	Mmu.3445	NM_001042755	LEP	Leptin
D03	Mmu.17569	XM_001113604	LMNA	Lamin A/C
D04	Mmu.24238	XM_001085656	LOC697047	Troponin C, slow skeletal and cardiac muscles-like
D05	Mmu.24722	XM_001091106	LOC702013	Paired box protein Pax-7-like
D06	Mmu.29787	XM_002808012	LOC703527	Titin-like
D07	Mmu.26652	XM_001091834	LOC704095	Troponin T, fast skeletal muscle-like
D08	Mmu.1984	XM_001094831	LOC706455	Transforming protein RhoA-like
D09	Mmu.467	XM_001098147	LOC709604	Citrate synthase, mitochondrial-like
D10	Mmu.28832	XM_002804585	LOC711027	Peroxisome proliferator-activated receptor gamma coactivator 1-beta-like
D11	Mmu.4721	XM_001112423	LOC718976	Mitogen-activated protein kinase 14-like
D12	Mmu.26650	XM_001117040	LOC721041	Troponin I, fast skeletal muscle-like
E01	Mmu.21817	XM_001089600	MAPK1	Mitogen-activated protein kinase 1
E02	Mmu.9634	XM_002802443	MAPK3	Mitogen-activated protein kinase 3-like
E03	Mmu.3822	XM_001108815	MAPK8	Mitogen-activated protein kinase 8
E04	Mmu.27309	XM_001081975	MB	Myoglobin
E05	Mmu.2711	XM_001106579	MBNL1	Muscleblind-like protein 1-like
E06	Mmu.279	XM_001087589	MEF2C	Myocyte enhancer factor 2C
E07	Mmu.28433	XM_001104871	MMP9	Matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
E08	Mmu.16484	NM_001080119	MSTN	Myostatin

Position	UniGene	GenBank	Symbol	Description
E09	Mmu.26311	XM_001106501	MUSK	Muscle, skeletal, receptor tyrosine kinase
E10	N/A	XM_001087187	MYF5	Myogenic factor 5
E11	Mmu.27084	XM_001086944	MYF6	Myogenic factor 6 (herculin)
E12	Mmu.19865	NM_001195293	MYH1	Myosin, heavy chain 1, skeletal muscle, adult
F01	Mmu.19866	XM_001113877	MYH2	Myosin, heavy chain 2, skeletal muscle, adult
F02	N/A	XM_001088038	MYOD1	Myogenic differentiation 1
F03	N/A	XM_001104569	MYOG	Myogenin (myogenic factor 4)
F04	Mmu.28194	XM_001106921	MYOT	Myotilin
F05	Mmu.26959	XM_001084585	NEB	Nebulin
F06	Mmu.3512	XM_001109277	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
F07	Mmu.3443	XM_001106245	NOS2	Nitric oxide synthase 2, inducible
F08	N/A	XM_001107509	PAX3	Paired box 3
F09	Mmu.23095	XM_001093471	PDK4	Pyruvate dehydrogenase kinase, isozyme 4
F10	Mmu.3422	NM_001032860	PPARG	Peroxisome proliferator-activated receptor gamma
F11	Mmu.28411	XM_001105289	PPARGC1A	Peroxisome proliferator-activated receptor gamma, coactivator 1 alpha
F12	Mmu.22649	XM_001108659	PPP3CA	Protein phosphatase 3, catalytic subunit, alpha isozyme
G01	Mmu.20359	XM_001086285	PRKAA1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
G02	Mmu.24503	XM_001093423	PRKAB2	Protein kinase, AMP-activated, beta 2 non-catalytic subunit
G03	Mmu.30856	XM_001105403	PRKAG1	Protein kinase, AMP-activated, gamma 1 non-catalytic subunit
G04	N/A	XM_001091081	PRKAG3	Protein kinase, AMP-activated, gamma 3 non-catalytic subunit
G05	Mmu.1022	XM_001109701	RPS6KB1	Ribosomal protein S6 kinase, 70kDa, polypeptide 1
G06	N/A	XM_001092850	SGCA	Sarcoglycan, alpha (50kDa dystrophin-associated glycoprotein)
G07	N/A	XM_001107391	SLC2A4	Solute carrier family 2 (facilitated glucose transporter), member 4
G08	Mmu.3765	XM_001100842	TGFB1	Transforming growth factor, beta 1
G09	Mmu.3364	NM_001047149	TNF	Tumor necrosis factor
G10	Mmu.25402	XM_001085351	TNNT1	Troponin T, slow skeletal muscle-like
G11	Mmu.30306	XM_001108306	TRIM63	Tripartite motif containing 63
G12	Mmu.22071	XM_002808397	UTRN	Utrophin-like
H01	Mmu.11089	NM_001033084	ACTB	Actin, beta
H02	Mmu.5037	NM_001047137	B2M	Beta-2-microglobulin
H03	Mmu.3145	XM_001105471	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Mmu.12316	XM_001097691	LOC709186	Hypoxanthine-guanine phosphoribosyltransferase-like
H05	Mmu.2512	XM_001115079	RPL13A	Ribosomal protein L13A
H06	N/A	SA_00125	QGDC	Rhesus Macaque Genomic DNA Contamination
H07	N/A	SA_00104	RTC	Reverse Transcription Control
H08	N/A	SA_00104	RTC	Reverse Transcription Control
H09	N/A	SA_00104	RTC	Reverse Transcription Control
H10	N/A	SA_00103	PPC	Positive PCR Control
H11	N/A	SA_00103	PPC	Positive PCR Control
H12	N/A	SA_00103	PPC	Positive PCR Control

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 ROX™ FAST Mastermix (2)*	For 2 x 96 assays in 96-well plates; suitable for use with the Rotor-Gene Q and other Rotor-Gene cyclers	330620

* 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.

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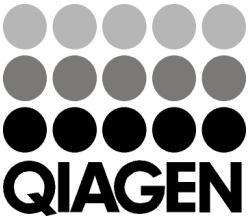

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