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

Human Skeletal Muscle: Myogenesis & Myopathy

Cat. no. 330231 PAHS-099ZA

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™

Sample & Assay Technologies

Description

The Human Skeletal Muscle Development & Disease RT^2 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. Using real-time PCR, you 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 *RT^2 Profiler PCR Array Handbook*.

Shipping and storage

RT^2 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. RT^2 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 RT^2 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 *RT²Profiler PCR Array Handbook* for layout.

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACTA1	ACTN3	ACVR2B	ADIPOQ	ADRB2	AGRN	AKT1	AKT2	ATP2A1	BCL2	BMP4	CAMK2G
B	CAPN2	CAPN3	CASP3	CAST	CAV1	CAV3	CRYAB	CS	CTNNB1	DAG1	DES	DMD
C	DMPK	DYSF	FBXO32	FGF2	FOXO1	FOXO3	HDAC5	HK2	IGF1	IGF2	IGFBP3	IGFBP5
D	IKBKB	IL1B	IL6	LEP	LMNA	MAPK1	MAPK14	MAPK3	MAPK8	MB	MEF2C	MMP9
E	MSTN	MUSK	MYF5	MYF6	MYH1	MYH2	MYOD1	MYOG	MYOT	NEB	NFKB1	NOS2
F	PAX3	PAX7	PDK4	PPARG	PPARGC1A	PPARGC1B	PPP3CA	PRKAA1	PRKAB2	PRKAG1	PRKAG3	RHOA
G	RPS6KB1	SGCA	SLC2A4	TGFB1	TNF	TNNC1	TNNI2	TNNT1	TNNT3	TRIM63	TTN	UTRN
H	ACTB	B2M	GAPDH	HPRT1	RPLP0	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene table: RT² Profiler PCR Array

Position	UniGene	GenBank	Symbol	Description
A01	Hs.1288	NM_001100	ACTA1	Actin, alpha 1, skeletal muscle
A02	Hs.654432	NM_001104	ACTN3	Actinin, alpha 3
A03	Hs.174273	NM_001106	ACVR2B	Activin A receptor, type IIB
A04	Hs.80485	NM_004797	ADIPOQ	Adiponectin, C1Q and collagen domain containing
A05	Hs.591251	NM_000024	ADRB2	Adrenergic, beta-2-, receptor, surface
A06	Hs.273330	NM_198576	AGRN	Agrin
A07	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A08	Hs.631535	NM_001626	AKT2	V-akt murine thymoma viral oncogene homolog 2
A09	Hs.657344	NM_173201	ATP2A1	ATPase, Ca++ transporting, cardiac muscle, fast twitch 1
A10	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A11	Hs.68879	NM_130851	BMP4	Bone morphogenetic protein 4
A12	Hs.523045	NM_001222	CAMK2G	Calcium/calmodulin-dependent protein kinase II gamma
B01	Hs.350899	NM_001748	CAPN2	Calpain 2, (m/II) large subunit
B02	Hs.143261	NM_173090	CAPN3	Calpain 3, (p94)
B03	Hs.141125	NM_004346	CASP3	Caspase 3, apoptosis-related cysteine peptidase
B04	Hs.440961	NM_001042440	CAST	Calpastatin
B05	Hs.74034	NM_001753	CAV1	Caveolin 1, caveolae protein, 22kDa
B06	Hs.98303	NM_001234	CAV3	Caveolin 3
B07	Hs.408767	NM_001885	CRYAB	Crystallin, alpha B
B08	Hs.430606	NM_004077	CS	Citrate synthase
B09	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
B10	Hs.707131	NM_004393	DAG1	Dystroglycan 1 (dystrophin-associated glycoprotein 1)
B11	Hs.594952	NM_001927	DES	Desmin
B12	Hs.495912	NM_000109	DMD	Dystrophin
C01	Hs.631596	NM_004409	DMPK	Dystrophia myotonica-protein kinase
C02	Hs.252180	NM_003494	DYSF	Dysferlin, limb girdle muscular dystrophy 2B (autosomal recessive)
C03	Hs.403933	NM_058229	FBXO32	F-box protein 32
C04	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)
C05	Hs.370666	NM_002015	FOXO1	Forkhead box O1
C06	Hs.220950	NM_001455	FOXO3	Forkhead box O3
C07	Hs.438782	NM_005474	HDAC5	Histone deacetylase 5
C08	Hs.406266	NM_000189	HK2	Hexokinase 2
C09	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)
C10	Hs.523414	NM_000612	IGF2	Insulin-like growth factor 2 (somatomedin A)
C11	Hs.450230	NM_000598	IGFBP3	Insulin-like growth factor binding protein 3
C12	Hs.607212	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5
D01	Hs.597664	NM_001556	IKBKB	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
D02	Hs.126256	NM_000576	IL1B	Interleukin 1, beta
D03	Hs.654458	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
D04	Hs.194236	NM_000230	LEP	Leptin
D05	Hs.594444	NM_005572	LMNA	Lamin A/C
D06	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1
D07	Hs.485233	NM_001315	MAPK14	Mitogen-activated protein kinase 14
D08	Hs.861	NM_002746	MAPK3	Mitogen-activated protein kinase 3
D09	Hs.138211	NM_002750	MAPK8	Mitogen-activated protein kinase 8

Position	UniGene	GenBank	Symbol	Description
D10	Hs.517586	NM_005368	MB	Myoglobin
D11	Hs.653394	NM_002397	MEF2C	Myocyte enhancer factor 2C
D12	Hs.297413	NM_004994	MMP9	Matrix metallopeptidase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)
E01	Hs.41565	NM_005259	MSTN	Myostatin
E02	Hs.521653	NM_005592	MUSK	Muscle, skeletal, receptor tyrosine kinase
E03	Hs.178023	NM_005593	MYF5	Myogenic factor 5
E04	Hs.35937	NM_002469	MYF6	Myogenic factor 6 (herculin)
E05	Hs.689619	NM_005963	MYH1	Myosin, heavy chain 1, skeletal muscle, adult
E06	Hs.567307	NM_017534	MYH2	Myosin, heavy chain 2, skeletal muscle, adult
E07	Hs.181768	NM_002478	MYOD1	Myogenic differentiation 1
E08	Hs.2830	NM_002479	MYOG	Myogenin (myogenic factor 4)
E09	Hs.84665	NM_006790	MYOT	Myotilin
E10	Hs.588655	NM_004543	NEB	Nebulin
E11	Hs.654408	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1
E12	Hs.709191	NM_000625	NOS2	Nitric oxide synthase 2, inducible
F01	Hs.42146	NM_181461	PAX3	Paired box 3
F02	Hs.113253	NM_002584	PAX7	Paired box 7
F03	Hs.8364	NM_002612	PDK4	Pyruvate dehydrogenase kinase, isozyme 4
F04	Hs.162646	NM_015869	PPARG	Peroxisome proliferator-activated receptor gamma
F05	Hs.527078	NM_013261	PPARGC1A	Peroxisome proliferator-activated receptor gamma, coactivator 1 alpha
F06	Hs.591261	NM_133263	PPARGC1B	Peroxisome proliferator-activated receptor gamma, coactivator 1 beta
F07	Hs.435512	NM_000944	PPP3CA	Protein phosphatase 3, catalytic subunit, alpha isozyme
F08	Hs.43322	NM_006251	PRKAA1	Protein kinase, AMP-activated, alpha 1 catalytic subunit
F09	Hs.50732	NM_005399	PRKAB2	Protein kinase, AMP-activated, beta 2 non-catalytic subunit
F10	Hs.530862	NM_002733	PRKAG1	Protein kinase, AMP-activated, gamma 1 non-catalytic subunit
F11	Hs.591634	NM_017431	PRKAG3	Protein kinase, AMP-activated, gamma 3 non-catalytic subunit
F12	Hs.247077	NM_001664	RHOA	Ras homolog gene family, member A
G01	Hs.463642	NM_003161	RPS6KB1	Ribosomal protein S6 kinase, 70kDa, polypeptide 1
G02	Hs.463412	NM_000023	SGCA	Sarcoglycan, alpha (50kDa dystrophin-associated glycoprotein)
G03	Hs.380691	NM_001042	SLC2A4	Solute carrier family 2 (facilitated glucose transporter), member 4
G04	Hs.645227	NM_000660	TGFB1	Transforming growth factor, beta 1
G05	Hs.241570	NM_000594	TNF	Tumor necrosis factor
G06	Hs.118845	NM_003280	TNNC1	Troponin C type 1 (slow)
G07	Hs.523403	NM_003282	TNNI2	Troponin I type 2 (skeletal, fast)
G08	Hs.631558	NM_003283	TNNT1	Troponin T type 1 (skeletal, slow)
G09	Hs.73454	NM_006757	TNNT3	Troponin T type 3 (skeletal, fast)
G10	Hs.279709	NM_032588	TRIM63	Tripartite motif containing 63
G11	Hs.134602	NM_003319	TTN	Titin
G12	Hs.133135	NM_007124	UTRN	Utrophin
H01	Hs.520640	NM_001101	ACTB	Actin, beta
H02	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H03	Hs.592355	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H04	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1
H05	Hs.546285	NM_001002	RPLP0	Ribosomal protein, large, P0
H06	N/A	SA_00105	HGDC	Human 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 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.

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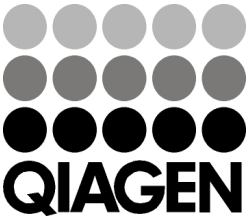

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