

RT² Profiler™ PCR Array:

Rat Diabetes

Catalog Number

PARN-023A

PARN-023C

PARN-023D

PARN-023E

PARN-023F

PARN-023G

For Real-Time Instruments:

ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4; and Stratagene Mx3005p, Mx3000p

ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus

Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000

ABI 7900HT 384-Well Block

Roche LightCycler 480 96-well Block

Roche LightCycler 480 384-well Block

Description

The Rat Diabetes RT² Profiler PCR Array profiles the expression of 84 genes related to the onset, development, and progression of diabetes. They include genes that contribute to obesity, insulin resistance, the early onset of diabetes, and complications from diabetes mellitus. These genes are grouped into six functional categories: receptors, transporters, and channels; nuclear receptors; metabolic enzymes; secreted factors; signal transduction proteins; and transcription factors. Many of the genes included have a tissue-specific or tissue-biased expression pattern which can also be affected by different pathophysiological states. This array can be used to study models of obesity and diabetes, to screen for therapeutics and their targets, and to profile the effect of various epidemiological and environmental factors on gene expression in various tissues or cell lines. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to diabetes with this array.

Functional Gene Groupings

Receptors, Transporters & Channels: Adra1a, Adrb3, Aqp2, Ccr2, Cd28, Ceacam1, Ctla4, Gcgr, Glp1r, Icam1, Il4ra, Nsf, Rab4a, Sell (LECAM-1), Slc2a4 (GLUT4), Slc14a2, Snap23, Snap25, Stx4a, Stxbp1, Stxbp2, Stxbp4, Tnfrsf1a, Tnfrsf1b, Vamp2, Vamp3, Vapa.

Nuclear Receptors: Ppara, Pparg.

Metabolic Enzymes: Ace, Acly, Parp1 (Adprt), Dpp4, Enpp1, Fbp1, G6pc, Gck, Gpd1, Gsk3b, Hmox1, Ide, Nos3, Pygl, Sod2.

Secreted Factors: Agt, Ccl5 (Rantes), Gcg, Ifng, Il6, Il10, Il12b, Ins1, Retn, Tgfb1, Tnf, Vegfa.

Signal Transduction: Akt2, Dusp4, Igfbp5, Ikbkb (IKKbeta), Inpp1 (SHIP2), Irs1, Irs2, Mapk8 (JNK1), Mapk14 (p38 MAPK), Pik3cd, Pik3r1, Ptpn1 (PTP-1B), Trib3 (Skip3).

Transcription Factors: Cebpa, Foxc2, Foxg1, Hnf4a, Foxp3 (LOC317382), Neurod1, Nfkb1, Nrf1, Pdx1 (Ipf1), Ppargc1a, Srebf1, Tcf2 (HNF1b), Ttf1.

Others: Serpine1 (PAI-1), Ucp2.

Storage Conditions

Please check the kit components immediately after you receive this package. We are only responsible for missing items reported within two (2) business days of receipt.

Storage Conditions: PCR Arrays are shipped at ambient temperature. Keep plates at -20 °C for long-term storage.

Product Specification Sheet

NOTE: Be sure that you have the correct PCR Array format for your instrument before starting the experiment.

References

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10. Makita Y, Moczulski DK, Bochenski J, Smiles AM, Warram JH, Krolewski AS. Methylenetetrahydrofolate reductase gene polymorphism and susceptibility to diabetic nephropathy in type 1 diabetes. *Am J Kidney Dis.* 2003 Jun; **41** (6): 1189-94.
11. Sartipy P, Loskutoff DJ. Monocyte chemoattractant protein 1 in obesity and insulin resistance. *Proc Natl Acad Sci U S A.* 2003 Jun 10; **100** (12): 7265-70.
12. Bassuny WM, Ihara K, Sasaki Y, Kuromaru R, Kohno H, Matsuura N, Hara T. A functional polymorphism in the promoter/enhancer region of the FOXP3/Scurfin gene associated with type 1 diabetes. *Immunogenetics.* 2003 Jun; **55** (3): 149-56.

Product Specification Sheet

Array Layout: Rat Diabetes RT² Profiler™ PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Ace	Acly	Parp1	Adra1a	Adrb3	Agt	Akt2	Aqp2	Ccl5	Ccr2	Cd28	Ceacam1
B	Cebpa	Ctla4	Dpp4	Dusp4	Enpp1	Fbp1	Foxc2	Foxg1	G6pc	Gcg	Gcgr	Gck
C	Glp1r	Gpd1	Gsk3b	Hmox1	Hnf4a	Icam1	Ide	Iifng	Igfbp5	Ikbkb	Il10	Il12b
D	Il4ra	Il6	Inpp1	Ins1	Irs1	Irs2	FOXP3	Mapk14	Mapk8	Neurod1	Nfkb1	Nos3
E	Nrf1	Nsf	Pdx1	Pik3cd	Pik3r1	Ppara	Pparg	Ppargc1a	Ptpn1	Pygl	Rab4a	Retn
F	Sell	Serpine1	Slc14a2	Slc2a4	Snap23	Snap25	Sod2	Sreb1	Stxa4	Stxbp1	Stxbp2	Stxbp4
G	Tcf2	Tgfb1	Titf1	Tnf	Tnfrsf1a	Tnfrsf1b	Trib3	Ucp2	Vamp2	Vamp3	Vapa	Vegfa
H	Rplp1	Hprt	Rpl13a	Ldha	Actb	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Rn.10149	NM_012544	Ace	Angiotensin I converting enzyme (peptidyl-dipeptidase A) 1
A02	Rn.29771	NM_016987	Acly	ATP citrate lyase
A03	Rn.11327	NM_013063	Parp1	Poly (ADP-ribose) polymerase family, member 1
A04	Rn.9991	NM_017191	Adra1a	Adrenergic receptor, alpha 1a
A05	Rn.10100	NM_013108	Adrb3	Adrenergic receptor, beta 3
A06	Rn.6319	NM_134432	Agt	Angiotensinogen (serpin peptidase inhibitor, clade A, member 8)
A07	Rn.87066	NM_017093	Akt2	Thymoma viral proto-oncogene 2
A08	Rn.90076	NM_012909	Aqp2	Aquaporin 2
A09	Rn.8019	NM_031116	Ccl5	Chemokine (C-C motif) ligand 5
A10	Rn.149076	NM_021866	Ccr2	Chemokine (C-C motif) receptor 2
A11	Rn.10327	NM_013121	Cd28	CD28 antigen
A12	Rn.91235	NM_031755	Ceacam1	CEA-related cell adhesion molecule 1
B01	Rn.153603	NM_012524	Cebpa	CCAAT/enhancer binding protein (C/EBP), alpha
B02	Rn.10259	NM_031674	Ctla4	Cytotoxic T-lymphocyte-associated protein 4
B03	Rn.91364	NM_012789	Dpp4	Dipeptidylpeptidase 4
B04	Rn.44407	NM_022199	Dusp4	Dual specificity phosphatase 4
B05	Rn.1199	NM_053535	Enpp1	Ectonucleotide pyrophosphatase/phosphodiesterase 1
B06	Rn.33703	NM_012558	Fbp1	Fructose-1,6- biphosphatase 1
B07	Rn.202707	XM_001079064	Foxc2	Forkhead box C2
B08	Rn.9864	NM_012560	Foxg1	Forkhead box G1
B09	Rn.10992	NM_013098	G6pc	Glucose-6-phosphatase, catalytic
B10	Rn.54383	NM_012707	Gcg	Glucagon
B11	Rn.11225	NM_172092	Gcgr	Glucagon receptor
B12	Rn.10447	NM_012565	Gck	Glucokinase
C01	Rn.11408	NM_012728	Glp1r	Glucagon-like peptide 1 receptor
C02	Rn.44452	NM_022215	Gpd1	Glycerol-3-phosphate dehydrogenase 1 (soluble)
C03	Rn.10426	NM_032080	Gsk3b	Glycogen synthase kinase 3 beta
C04	Rn.3160	NM_012580	Hmox1	Heme oxygenase (decycling) 1
C05	Rn.44442	NM_022180	Hnf4a	Hepatocyte nuclear factor 4, alpha
C06	Rn.12	NM_012967	Icam1	Intercellular adhesion molecule 1
C07	Rn.45029	NM_013159	ide	Insulin degrading enzyme
C08	Rn.10795	NM_138880	Iifng	Interferon gamma
C09	Rn.1593	NM_012817	Igfbp5	Insulin-like growth factor binding protein 5
C10	Rn.19222	NM_053355	Ikbkb	Inhibitor of kappaB kinase beta
C11	Rn.9868	NM_012854	Il10	Interleukin 10
C12	Rn.48686	NM_022611	Il12b	Interleukin 12b
D01	Rn.10471	NM_133380	Il4ra	Interleukin 4 receptor, alpha
D02	Rn.9873	NM_012589	Il6	Interleukin 6
D03	Rn.42902	NM_022944	Inpp1	Inositol polyphosphate phosphatase-like 1

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Position	UniGene	GenBank	Symbol	Description
D04	Rn.962	NM_019129	Ins1	Insulin 1
D05	Rn.10476	NM_012969	Irs1	Insulin receptor substrate 1
D06	Rn.102309	XM_573948	Irs2	Insulin receptor substrate 2
D07	Rn.162384	XM_228771	Foxp3_predicted	Forkhead box P3 (predicted)
D08	Rn.88085	NM_031020	Mapk14	Mitogen activated protein kinase 14
D09	Rn.4090	XM_341399	Mapk8	Mitogen-activated protein kinase 8
D10	Rn.44289	NM_019218	Neurod1	Neurogenic differentiation 1
D11	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105
D12	Rn.44265	NM_021838	Nos3	Nitric oxide synthase 3, endothelial cell
E01	Rn.162735	XM_231566	Nrf1_predicted	Nuclear respiratory factor 1 (predicted)
E02	Rn.13345	NM_021748	Nsf	N-ethylmaleimide sensitive fusion protein
E03	Rn.54603	NM_022852	Pdx1	Pancreatic and duodenal homeobox gene 1
E04	Rn.198311	XM_345606	Pik3cd_predicted	Phosphatidylinositol 3-kinase catalytic delta polypeptide (predicted)
E05	Rn.10599	NM_013005	Pik3r1	Phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 1
E06	Rn.9753	NM_013196	Ppara	Peroxisome proliferator activated receptor alpha
E07	Rn.23443	NM_013124	Pparg	Peroxisome proliferator activated receptor gamma
E08	Rn.19172	NM_031347	Ppargc1a	Peroxisome proliferative activated receptor, gamma, coactivator 1 alpha
E09	Rn.11317	NM_012637	Ptpn1	Protein tyrosine phosphatase, non-receptor type 1
E10	Rn.21399	NM_022268	Pygl	Liver glycogen phosphorylase
E11	Rn.3016	NM_013019	Rab4a	RAB4A, member RAS oncogene family
E12	Rn.16746	NM_144741	Retn	Resistin
F01	Rn.10461	NM_019177	Sell	Selectin, lymphocyte
F02	Rn.29367	NM_012620	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
F03	Rn.10157	NM_019347	Slc14a2	Solute carrier family 14 (urea transporter), member 2
F04	Rn.1314	NM_012751	Slc2a4	Solute carrier family 2 (facilitated glucose transporter), member 4
F05	Rn.14789	NM_022689	Snap23	Synaptosomal-associated protein 23
F06	Rn.107689	NM_030991	Snap25	Synaptosomal-associated protein 25
F07	Rn.10488	NM_017051	Sod2	Superoxide dismutase 2, mitochondrial
F08	Rn.202597	XM_213329	Srebf1	Sterol regulatory element binding factor 1
F09	Rn.33218	NM_031125	Stx4a	Syntaxin 4A (placental)
F10	Rn.80843	NM_013038	Stxbp1	Syntaxin binding protein 1
F11	Rn.10121	NM_031126	Stxbp2	Syntaxin binding protein 2
F12	Rn.49449	XM_220860	Stxbp4_predicted	Syntaxin binding protein 4 (predicted)
G01	Rn.11342	NM_013103	Tcf2	Transcription factor 2
G02	Rn.40136	NM_021578	Tgfb1	Transforming growth factor, beta 1
G03	Rn.34265	XM_216720	Titf1	Thyroid transcription factor 1
G04	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
G05	Rn.11119	NM_013091	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
G06	Rn.83633	NM_130426	Tnfrsf1b	Tumor necrosis factor receptor superfamily, member 1b
G07	Rn.22325	NM_144755	Trib3	Tribbles homolog 3 (Drosophila)
G08	Rn.13333	NM_019354	Ucp2	Uncoupling protein 2 (mitochondrial, proton carrier)
G09	Rn.12939	NM_012663	Vamp2	Vesicle-associated membrane protein 2
G10	Rn.202344	NM_057097	Vamp3	Vesicle-associated membrane protein 3
G11	Rn.162275	NM_031631	Vapa	Vesicle-associated membrane protein, associated protein a
G12	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
H01	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H02	Rn.47	NM_012583	Hprt	Hypoxanthine guanine phosphoribosyl transferase
H03	Rn.92211	NM_173340	Rpl13a	Ribosomal protein L13A
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.94978	NM_031144	Actb	Actin, beta
H06	N/A	U26919	RGDC	Rat 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