

RT² Profiler™ PCR Array:

Rat Drug Metabolism

Catalog Number

PARN-002A

PARN-002C

PARN-002D

PARN-002E

PARN-002F

PARN-002G

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 Drug Metabolism RT² Profiler PCR Array contains 84 genes involved in the metabolism of drugs, toxic chemicals, hormones, and micronutrients. Drug metabolism is important to pharmacology, endocrinology, and food science and is often implicated in many disease states including cancer, intoxication, and addiction, as well as metabolic diseases. This PCR Array represents genes involved in drug transport (such as metallothioneins and P-glycoproteins), phase I metabolism (specifically the P450 family), and phase II metabolism (such as transferases and hydrolases). Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to drug metabolism with this array.

Functional Gene Groupings**Drug Transporters:**Metallothioneins: Mt3.P-Glycoprotein Family: Abcb1, Abcb1a, Abcb4, Abcc1, Gpi.**Phase I Metabolizing Enzymes:**P450 Family: Cyp17a1, Cyp19a1, Cyp1a1, Cyp1a2, Cyp1b1, Cyp27b1, Cyp2b15, Cyp2b6, Cyp2C13, Cyp2C6, Cyp2C7, Cyp2e1, Cyp3a3, Cyp4b1.**Phase II Metabolizing Enzymes:**Carboxylesterases: Ces1, Ces2.Decarboxylases: Gad1, Gad2.Dehydrogenases: Adh1, Adh4, Alad, Aldh1a1, Hsd17b1, Hsd17b2, Hsd17b3.Glutathione Peroxidases: Gpx1, Gpx2, Gpx3, Gpx4, Gpx5, Gsta3, Gsta4, Gstm1, Gstm2, Gstm3, Gstm4, Gstm5, Gstp2, Gstt1, Lpo, Mpo.Hydrolases: Ephx1, Faah, Fbp1.Kinases: Hk2, Pklr, Pkm2.Lipoxygenases: Alox15, Alox5, Apoe.Oxidoreductases: Blvra, Blvrb, Cyb5r3 (Dia1), Gpx1, Gpx2, Gsr, Mthfr, Nos2, Nos3, Nqo1, Srd5a1, Xdh (Srd5a2).Paraoxonases: Pon1, Pon2, Pon3.Sulfotransferases: Chst1, Gsta3, Gstm2, Gstm3, Gstm5, Gstp2, Gstt1, Mgst1, Mgst2, Mgst3.Transferases: Nat1, Comt, Ggt1.**Other Genes Related to Drug Metabolism:** Abp1, Ahr, Arnt, Asna1, Gckr, Marcks, Smarcal1, Snn.

Product Specification Sheet

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.

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

References

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2. Gram TE, Okine LK, Gram RA (1986). The Metabolism of Xenobiotics By Certain Extrahepatic Organs And Its Relation To Toxicity. *Annu Rev Pharmacol Toxicol.* **26:**259-91.
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4. Brodie BB, Axelrod J, Cooper JR, et al (1955). Detoxication Of Drugs And Other Foreign Compounds By Liver Microsomes. *Science* **121:** 603-604.
5. Nelson DR, Koymans L, Kamataki T, et al (1996). P450 Superfamily: Update On New Sequences, Gene Mapping, Accession Numbers And Nomenclature. *Pharmacogenetics* **6:**1-42.
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11. Kaufmann FC, editor (1994). *Conjugation-deconjugation in drug metabolism Sulfotransferase enzymes handbook of experimental pharmacology, Vol 112.*
12. Falany CN (1997) Enzymology of Human Cytosolic Sulfotransferase *FASEB J* **11:** 206-216.
13. Daujat M, Pichard L, Fabre I, et al (1991) Induction Protocols For Cytochrome P450 IIIA *in vivo* and in Primary Cultures of Animal and Human Hepatocytes. *Methods Enzymol* **206:** 345-353.
14. King CD, Rios GR, Green MD, Tephly TR. (2000) UDP-Glucuronosyltransferases. *Curr Drug Metab.* **1:** 143-61.
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Product Specification Sheet

Array Layout: Rat Drug Metabolism RT² Profiler™ PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Abcb1	Abcb1a	Abcb4	Abcc1	Abp1	Adh1	Adh4	Ahr	Alad	Aldh1a1	Alox15	Alox5
B	Apoe	Arnt	Asna1	Blvra	Blvrb	Ces1	Ces2	Chst1	Comt	Cyb5r3	Cyp17a1	Cyp19a1
C	Cyp1a1	Cyp1a2	Cyp1b1	Cyp27b1	Cyp2b15	Cyp2b6	Cyp2c13	Cyp2c6	Cyp2c7	Cyp2e1	Cyp3a3	Cyp4b1
D	Ephx1	Faah	Fbp1	Gad1	Gad2	Gckr	Ggt1	Gpi	Gpx1	Gpx2	Gpx3	Gpx4
E	Gpx5	Gsr	Gsta3	Gsta4	Gstm1	Gstm2	Gstm3	Gstm4	Gstm5	Gstp2	Gstt1	Hk2
F	Hsd17b1	Hsd17b2	Hsd17b3	Lpo	Marcks	Mgst1	Mgst2	Mgst3	Mpo	Mt3	Mthfr	Nat1
G	Nos2	Nos3	Nqo1	Pklr	Pkm2	Pon1	Pon2	Pon3	Smarcal1	Snn	Srd5a1	Xdh
H	Rplp1	Hprt	Rpl13a	Ldha	Actb	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Rn.144554	NM_012623	Abcb1	ATP-binding cassette, sub-family B (MDR/TAP), member 1
A02	Rn.144554	NM_133401	Abcb1a	ATP-binding cassette, sub-family B (MDR/TAP), member 1A
A03	N/A	NM_012690	Abcb4	ATP-binding cassette, sub-family B (MDR/TAP), member 4
A04	Rn.10495	NM_022281	Abcc1	ATP-binding cassette, sub-family C (CFTR/MRP), member 1
A05	Rn.54493	NM_022935	Abp1	Amiloride binding protein 1 (amine oxidase, copper-containing)
A06	Rn.40222	NM_019286	Adh1	Alcohol dehydrogenase 1 (class I)
A07	Rn.98159	NM_017270	Adh4	Alcohol dehydrogenase 4 (class II), pi polypeptide
A08	Rn.91370	NM_013149	Ahr	Aryl hydrocarbon receptor
A09	Rn.3941	NM_012899	Alad	Aminolevulinatase, delta-, dehydratase
A10	Rn.6132	NM_022407	Aldh1a1	Aldehyde dehydrogenase family 1, member A1
A11	Rn.11318	NM_031010	Alox15	Arachidonate 15-lipoxygenase
A12	Rn.9662	NM_012822	Alox5	Arachidonate 5-lipoxygenase
B01	Rn.32351	NM_138828	Apoe	Apolipoprotein E
B02	Rn.10520	NM_012780	Arnt	Aryl hydrocarbon receptor nuclear translocator
B03	Rn.7354	XM_213848	Asna1	ArsA arsenite transporter, ATP-binding, homolog 1 (bacterial)
B04	Rn.9865	NM_053850	Blvra	Biliverdin reductase A
B05	Rn.161812	XM_214823	Blvrb_predicted	Biliverdin reductase B (flavin reductase (NADPH)) (predicted)
B06	Rn.82692	NM_031565	Ces1	Carboxylesterase 1
B07	Rn.14535	NM_133586	Ces2	Carboxylesterase 2 (intestine, liver)
B08	Rn.16695	NM_001011955	Chst1	Carbohydrate (keratan sulfate Gal-6) sulfotransferase 1
B09	Rn.220	NM_012531	Comt	Catechol-O-methyltransferase
B10	Rn.35994	NM_138877	Cyb5r3	Cytochrome b5 reductase 3
B11	Rn.10172	NM_012753	Cyp17a1	Cytochrome P450, family 17, subfamily a, polypeptide 1
B12	Rn.21402	NM_017085	Cyp19a1	Cytochrome P450, family 19, subfamily a, polypeptide 1
C01	Rn.10352	NM_012540	Cyp1a1	Cytochrome P450, family 1, subfamily a, polypeptide 1
C02	Rn.5563	NM_012541	Cyp1a2	Cytochrome P450, family 1, subfamily a, polypeptide 2
C03	Rn.10125	NM_012940	Cyp1b1	Cytochrome P450, family 1, subfamily b, polypeptide 1
C04	Rn.10847	NM_053763	Cyp27b1	Cytochrome P450, family 27, subfamily b, polypeptide 1
C05	Rn.144570	NM_017156	Cyp2b15	Cytochrome P450, family 2, subfamily b, polypeptide 15
C06	Rn.127147	M19973	Cyp2b6	Cytochrome P450, subfamily IIB (phenobarbital-inducible), polypeptide 6
C07	Rn.82715	NM_138514	Cyp2c13	Cytochrome P450 2c13
C08	Rn.91122	XM_001066767	Cyp2c6	Cytochrome P450, subfamily IIC6
C09	Rn.1247	NM_017158	Cyp2c7	Cytochrome P450, family 2, subfamily c, polypeptide 7
C10	Rn.1372	NM_031543	Cyp2e1	Cytochrome P450, family 2, subfamily e, polypeptide 1
C11	Rn.91120	NM_013105	Cyp3a3	Cytochrome P450, subfamily 3A, polypeptide 3
C12	Rn.86651	NM_016999	Cyp4b1	Cytochrome P450, family 4, subfamily b, polypeptide 1
D01	Rn.3603	NM_012844	Ephx1	Epoxide hydrolase 1, microsomal
D02	Rn.89119	NM_024132	Faah	Fatty acid amide hydrolase
D03	Rn.33703	NM_012558	Fbp1	Fructose-1,6-bisphosphatase 1
D04	Rn.91245	NM_017007	Gad1	Glutamic acid decarboxylase 1
D05	Rn.29951	NM_012563	Gad2	Glutamic acid decarboxylase 2
D06	Rn.7863	NM_013120	Gckr	Glucokinase regulatory protein

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
D07	Rn.10010	NM_053840	Ggt1	Gamma-glutamyltransferase 1
D08	Rn.84435	NM_207592	Gpi	Glucose phosphate isomerase
D09	Rn.11323	NM_030826	Gpx1	Glutathione peroxidase 1
D10	Rn.3503	NM_183403	Gpx2	Glutathione peroxidase 2
D11	Rn.108074	NM_022525	Gpx3	Glutathione peroxidase 3
D12	Rn.3647	NM_017165	Gpx4	Glutathione peroxidase 4
E01	N/A	XM_001059839	Gpx5	Glutathione peroxidase 5
E02	Rn.19721	NM_053906	Gsr	Glutathione reductase
E03	Rn.10460	NM_031509	Gsta3	Glutathione S-transferase A3
E04	Rn.57528	XM_217195	Gsta4	Glutathione S-transferase, alpha 4
E05	Rn.93760	NM_017014	Gstm1	Glutathione S-transferase, mu 1
E06	Rn.625	NM_177426	Gstm2	Glutathione S-transferase, mu 2
E07	Rn.6036	NM_031154	Gstm3	Glutathione S-transferase, mu type 3
E08	Rn.48683	NM_020540	Gstm4	Glutathione S-transferase M4
E09	Rn.9158	NM_172038	Gstm5	Glutathione S-transferase, mu 5
E10	Rn.87063	NM_138974	Gstp2	Glutathione S-transferase, pi 2
E11	Rn.11122	NM_053293	Gstt1	Glutathione S-transferase theta 1
E12	Rn.91375	NM_012735	Hk2	Hexokinase 2
F01	Rn.10594	NM_012851	Hsd17b1	Hydroxysteroid (17-beta) dehydrogenase 1
F02	Rn.10515	NM_024391	Hsd17b2	Hydroxysteroid (17-beta) dehydrogenase 2
F03	Rn.10895	NM_054007	Hsd17b3	Hydroxysteroid (17-beta) dehydrogenase 3
F04	Rn.60583	XM_220831	Lpo_predicted	Lactoperoxidase (predicted)
F05	Rn.9560	XM_215403	Marcks	Myristoylated alanine rich protein kinase C substrate
F06	Rn.2580	NM_134349	Mgst1	Microsomal glutathione S-transferase 1
F07	Rn.7854	XM_215562	Mgst2_predicted	Microsomal glutathione S-transferase 2 (predicted)
F08	Rn.1916	XM_213943	Mgst3_predicted	Microsomal glutathione S-transferase 3 (predicted)
F09	Rn.47782	XM_220830	Mpo	Myeloperoxidase (mapped)
F10	Rn.11325	NM_053968	Mt3	Metallothionein 3
F11	Rn.10494	XM_342975	Mthfr_predicted	5,10-methylenetetrahydrofolate reductase (NADPH) (predicted)
F12	Rn.37420	NM_053853	Nat1	N-acetyltransferase 1 (arylamine N-acetyltransferase)
G01	Rn.10400	NM_012611	Nos2	Nitric oxide synthase 2, inducible
G02	Rn.44265	NM_021838	Nos3	Nitric oxide synthase 3, endothelial cell
G03	Rn.11234	NM_017000	Nqo1	NAD(P)H dehydrogenase, quinone 1
G04	Rn.48821	NM_012624	Pklr	Pyruvate kinase, liver and red blood cell
G05	Rn.1556	NM_053297	Pkm2	Pyruvate kinase, muscle
G06	Rn.20732	NM_032077	Pon1	Paraoxonase 1
G07	Rn.1100	NM_001013082	Pon2	Paraoxonase 2
G08	Rn.16469	NM_001004086	Pon3	Paraoxonase 3
G09	Rn.34679	XM_237241	Smarcal1_predicted	Swi/SNF related matrix associated, actin dependent regulator of chromatin, subfamily a-like 1
G10	Rn.6147	NM_001034083	Snn	Stannin
G11	Rn.4620	NM_017070	Srd5a1	Steroid 5 alpha-reductase 1
G12	Rn.202951	NM_017154	Xdh	Xanthine dehydrogenase
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