

RT² Profiler™ PCR Array:

Mouse Cancer Drug Resistance and Metabolism

Catalog Number

PAMM-004A

PAMM-004C

PAMM-004D

PAMM-004E

PAMM-004F

PAMM-004G

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 Mouse Cancer Drug Resistance & Metabolism RT² Profiler PCR Array profiles the expression of 84 genes involved in the body's response to chemotherapy. The genes encoding important enzymes for drug resistance (such as the P-glycoproteins), phase I metabolism (specifically the P450 family), and phase II metabolism (such as various covalent modification enzymes) are all represented on the array. Cancer-related genes involved in aspects of resistance are also included on the array such as DNA repair enzymes, cell cycle regulators, growth factor and hormone receptors, and transcription factors. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to cancer drug resistance and metabolism with this array.

Functional Gene Groupings

Drug Resistance: Abcb1a (ABCB4), Abcb1b (ABCB1), Abcc1, Abcc2, Abcc3 (MLP-2), Abcc5, Abcc6, Abcg2, Bax, Bcl2, Bcl2l1 (bcl-x), Mvp, Rb1, Top1, Top2a, Top2b, Trp53 (p53).

Drug Metabolism: Arnt, Blmh, Crabp1, Cyp1a1, Cyp1a2, Cyp2b19, Cyp2b20, Cyp2c29, Cyp2c40, Cyp2c70, Cyp2d22, Cyp2e1, Dhfr, Ephx1, Gstm1 (MGST1), Gstp2, Nat2, Sult1e1 (Ste), Sod1, Tpm1, Ugcg.

DNA Repair: Apc, Atm, Brca1, Brca2, Ercc3 (XPB), Xpa, Xpc.

Cell Cycle: Ccnd1 (cyclin D1), Ccne1 (cyclin E1), Cdk1, Cdk2, Cdk4, Cdkn1a (p21Waf1), Cdkn1b (p27Kip1), Cdkn2a (p16Ink4a), Cdkn2d (p19).

Growth Factor Receptors: Egfr, Erbb2 (Neu, HER2), Erbb3, Erbb4, Fgf2 (bFGF), Met.

Hormone Receptors: Ar, Esr1, Esr2, Igf2r, Ppara, Ppard, Pparg, Rara, Rarb, Rxra, Rxrb.

Transcription Factors: Ahr, Ap1s1, Elk1, Fos (c-fos), Gabpa, Hif1a, Mafk, Myc (c-myc), Nfkb1, Nfkb2, Nfkbib, Nfkbie, Relb (I-rel), Tnfrsf11A.

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

1. Karran P (2001). Mechanisms of tolerance to DNA damaging therapeutic drugs. *Carcinogenesis* **22**: 1931-1937.
2. Veldman RJ, *et al.* (2002) Altered sphingolipid metabolism in multidrug-resistant ovarian cancer cells is due to uncoupling of glycolipid biosynthesis in the Golgi apparatus. *FASEB J.* **16**: 1111-1113.
3. Liu YY, Han TY, Giuliano AE, and Cabot MC (2001) Ceramide glycosylation potentiates cellular multidrug resistance. *FASEB J.* **15**: 719-730.
4. Rushmore TH and Kong AN (2002) Pharmacogenomics, regulation and signaling pathways of phase I and II drug metabolizing enzymes. *Curr. Drug Metab.* **3**: 481-490.
5. Weinhofer I, Forss-Petter S, Zigman M, Berger J (2002) Cholesterol regulates ABCD2 expression: implications for the therapy of X-linked adrenoleukodystrophy. *Hum. Mol. Genet.* **11**: 2701-2708.
6. Aloyz R, *et al.* (2002) Regulation of cisplatin resistance and homologous recombinational repair by the TFIIH subunit XPD. *Cancer Res.* **62**: 5457-5462.
7. Dini G, *et al.* (2002) Overexpression of the 18 kDa and 22/24 kDa FGF-2 isoforms results in differential drug resistance and amplification potential. *J. Cell. Physiol.* **193**: 64-72.
8. Dong QG, *et al.* (2002) The function of multiple I κ B: NF- κ B complexes in the resistance of cancer cells to Taxol-induced apoptosis. *Oncogene* **21**: 6510-6519.
9. Eldar-Finkelman H. (2002) Glycogen synthase kinase 3: an emerging therapeutic target. *Trends Mol. Med.* **8**: 126-132.

Product Specification Sheet

Array Layout: Mouse Cancer Drug Resistance and Metabolism PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Abcb1a	Abcb1b	Abcc1	Abcc2	Abcc3	Abcc5	Abcc6	Abcg2	Ahr	Ap1s1	Apc	Ar
B	Arnt	Atm	Bax	Bcl2	Bcl2l1	Blmh	Brca1	Brca2	Ccnd1	Ccne1	Cdk2	Cdk4
C	Cdkn1a	Cdkn1b	Cdkn2a	Cdkn2d	Crabp1	Cyp1a1	Cyp1a2	Cyp2b19	Cyp2b20	Cyp2c29	Cyp2c40	Cyp2c70
D	Cyp2d22	Cyp2e1	Dhfr	Egfr	Elk1	Ephx1	ErbB2	ErbB3	ErbB4	Ercc3	Esr1	Esr2
E	Fgf2	Fos	Gabpa	Gstm1	Gstp2	Hif1a	Igf2r	Ma1b	Met	Mvp	Myc	Nat2
F	Nfkb1	Nfkb2	Nfkbib	Nfkie	Ppara	Ppard	Pparg	Rara	Rarb	Rb1	Relb	Rxra
G	Rxb	Sod1	Sult1e1	Tnfrsf11a	Top1	Top2a	Top2b	Tpmt	Trp53	Ugcg	Xpa	Xpc
H	Gusb	Hprt1	Hsp90ab1	Gapdh	Actb	MGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Mm.207354	NM_011076	Abcb1a	ATP-binding cassette, sub-family B (MDR/TAP), member 1A
A02	Mm.146649	NM_011075	Abcb1b	ATP-binding cassette, sub-family B (MDR/TAP), member 1B
A03	Mm.196634	NM_008576	Abcc1	ATP-binding cassette, sub-family C (CFTR/MRP), member 1
A04	Mm.39054	NM_013806	Abcc2	ATP-binding cassette, sub-family C (CFTR/MRP), member 2
A05	Mm.23942	NM_029600	Abcc3	ATP-binding cassette, sub-family C (CFTR/MRP), member 3
A06	Mm.20845	NM_013790	Abcc5	ATP-binding cassette, sub-family C (CFTR/MRP), member 5
A07	Mm.63514	NM_018795	Abcc6	ATP-binding cassette, sub-family C (CFTR/MRP), member 6
A08	Mm.333096	NM_011920	Abcg2	ATP-binding cassette, sub-family G (WHITE), member 2
A09	Mm.341377	NM_013464	Ahr	Aryl-hydrocarbon receptor
A10	Mm.833	NM_007457	Ap1s1	Adaptor protein complex AP-1, sigma 1
A11	Mm.7883	NM_007462	Apc	Adenomatosis polyposis coli
A12	Mm.39005	NM_013476	Ar	Androgen receptor
B01	Mm.250265	NM_009709	Arnt	Aryl hydrocarbon receptor nuclear translocator
B02	Mm.5088	NM_007499	Atm	Ataxia telangiectasia mutated homolog (human)
B03	Mm.19904	NM_007527	Bax	Bcl2-associated X protein
B04	Mm.257460	NM_009741	Bcl2	B-cell leukemia/lymphoma 2
B05	Mm.238213	NM_009743	Bcl2l1	Bcl2-like 1
B06	Mm.399785	NM_178645	Blmh	Bleomycin hydrolase
B07	Mm.244975	NM_009764	Brca1	Breast cancer 1
B08	Mm.236256	NM_009765	Brca2	Breast cancer 2
B09	Mm.273049	NM_007631	Ccnd1	Cyclin D1
B10	Mm.16110	NM_007633	Ccne1	Cyclin E1
B11	Mm.111326	NM_016756	Cdk2	Cyclin-dependent kinase 2
B12	Mm.6839	NM_009870	Cdk4	Cyclin-dependent kinase 4
C01	Mm.195663	NM_007669	Cdkn1a	Cyclin-dependent kinase inhibitor 1A (P21)
C02	Mm.2958	NM_009875	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
C03	Mm.4733	NM_009877	Cdkn2a	Cyclin-dependent kinase inhibitor 2A
C04	Mm.29020	NM_009878	Cdkn2d	Cyclin-dependent kinase inhibitor 2D (p19, inhibits CDK4)
C05	Mm.34797	NM_013496	Crabp1	Cellular retinoic acid binding protein 1
C06	Mm.14089	NM_009992	Cyp1a1	Cytochrome P450, family 1, subfamily a, polypeptide 1
C07	Mm.15537	NM_009993	Cyp1a2	Cytochrome P450, family 1, subfamily a, polypeptide 2
C08	Mm.14098	NM_007814	Cyp2b19	Cytochrome P450, family 2, subfamily b, polypeptide 19
C09	Mm.218749	NM_009999	Cyp2b20	Cytochrome P450, family 2, subfamily b, polypeptide 10
C10	Mm.20764	NM_007815	Cyp2c29	Cytochrome P450, family 2, subfamily c, polypeptide 29
C11	Mm.358585	NM_010004	Cyp2c40	Cytochrome P450, family 2, subfamily c, polypeptide 40
C12	Mm.29119	NM_145499	Cyp2c70	Cytochrome P450, family 2, subfamily c, polypeptide 70
D01	Mm.157435	NM_019823	Cyp2d22	Cytochrome P450, family 2, subfamily d, polypeptide 22
D02	Mm.21758	NM_021282	Cyp2e1	Cytochrome P450, family 2, subfamily e, polypeptide 1
D03	Mm.23695	NM_010049	Dhfr	Dihydrofolate reductase
D04	Mm.8534	NM_007912	Egfr	Epidermal growth factor receptor

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Position	UniGene	GenBank	Symbol	Description
D05	Mm.347420	NM_007922	Elk1	ELK1, member of ETS oncogene family
D06	Mm.9075	NM_010145	Ephx1	Epoxide hydrolase 1, microsomal
D07	Mm.290822	NM_001003817	ErbB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
D08	Mm.373043	NM_010153	ErbB3	V-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian)
D09	Mm.336982	XM_136682	ErbB4	V-erb-a erythroblastic leukemia viral oncogene homolog 4 (avian)
D10	Mm.282335	NM_133658	Ercc3	Excision repair cross-complementing rodent repair deficiency, complementation group 3
D11	Mm.9213	NM_007956	Esr1	Estrogen receptor 1 (alpha)
D12	Mm.2561	NM_010157	Esr2	Estrogen receptor 2 (beta)
E01	Mm.57094	NM_008006	Fgf2	Fibroblast growth factor 2
E02	Mm.246513	NM_010234	Fos	FBJ osteosarcoma oncogene
E03	Mm.18974	NM_008065	Gabpa	GA repeat binding protein, alpha
E04	Mm.37199	NM_010358	Gstm1	Glutathione S-transferase, mu 1
E05	Mm.299292	NM_181796	Gstp2	Glutathione S-transferase, pi 2
E06	Mm.3879	NM_010431	Hif1a	Hypoxia inducible factor 1, alpha subunit
E07	Mm.26553	NM_010515	Igf2r	Insulin-like growth factor 2 receptor
E08	Mm.330745	NM_010658	MafB	V-maf musculoaponeurotic fibrosarcoma oncogene family, protein B (avian)
E09	Mm.86844	NM_008591	Met	Met proto-oncogene
E10	Mm.228797	NM_080638	Mvp	Major vault protein
E11	Mm.2444	NM_010849	Myc	Myelocytomatosis oncogene
E12	Mm.4695	NM_010874	Nat2	N-acetyltransferase 2 (arylamine N-acetyltransferase)
F01	Mm.256765	NM_008689	Nfkb1	Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105
F02	Mm.102365	NM_019408	Nfkb2	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 2, p49/p100
F03	Mm.220333	NM_010908	Nfkbib	Nuclear factor of kappa light chain gene enhancer in B-cells inhibitor, beta
F04	Mm.57043	NM_008690	Nfkbie	Nuclear factor of kappa light polypeptide gene enhancer in B-cells inhibitor, epsilon
F05	Mm.212789	NM_011144	Ppara	Peroxisome proliferator activated receptor alpha
F06	Mm.328914	NM_011145	Ppard	Peroxisome proliferator activator receptor delta
F07	Mm.3020	NM_011146	Pparg	Peroxisome proliferator activated receptor gamma
F08	Mm.103336	NM_009024	Rara	Retinoic acid receptor, alpha
F09	Mm.259318	NM_011243	Rarb	Retinoic acid receptor, beta
F10	Mm.273862	NM_009029	Rb1	Retinoblastoma 1
F11	Mm.1741	NM_009046	Relb	Avian reticuloendotheliosis viral (v-rel) oncogene related B
F12	Mm.24624	NM_011305	Rxra	Retinoid X receptor alpha
G01	Mm.1243	NM_011306	Rxrb	Retinoid X receptor beta
G02	Mm.276325	NM_011434	Sod1	Superoxide dismutase 1, soluble
G03	Mm.89655	NM_023135	Sult1e1	Sulfotransferase family 1E, member 1
G04	Mm.6251	NM_009399	Tnfrsf11a	Tumor necrosis factor receptor superfamily, member 11a
G05	Mm.217233	NM_009408	Top1	Topoisomerase (DNA) I
G06	Mm.4237	NM_011623	Top2a	Topoisomerase (DNA) II alpha
G07	Mm.130362	NM_009409	Top2b	Topoisomerase (DNA) II beta
G08	Mm.10169	NM_016785	Tpmt	Thiopurine methyltransferase
G09	Mm.222	NM_011640	Trp53	Transformation related protein 53
G10	Mm.198803	NM_011673	Ugcg	UDP-glucose ceramide glucosyltransferase
G11	Mm.247036	NM_011728	Xpa	Xeroderma pigmentosum, complementation group A
G12	Mm.2806	NM_009531	Xpc	Xeroderma pigmentosum, complementation group C
H01	Mm.3317	NM_010368	Gusb	Glucuronidase, beta
H02	Mm.299381	NM_013556	Hprt1	Hypoxanthine guanine phosphoribosyl transferase 1
H03	Mm.2180	NM_008302	Hsp90ab1	Heat shock protein 90kDa alpha (cytosolic), class B member 1
H04	Mm.343110	NM_008084	Gapdh	Glyceraldehyde-3-phosphate dehydrogenase
H05	Mm.328431	NM_007393	Actb	Actin, beta, cytoplasmic
H06	N/A	SA_00106	MGDC	Mouse 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