

RT² Profiler™ PCR Array:

Human Drug Metabolism: Phase II Enzymes

Catalog Number**For Real-Time Instruments:**

PAHS-069A	ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4; and Stratagene Mx3005p, Mx3000p
PAHS-069C	ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus
PAHS-069D	Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000
PAHS-069E	ABI 7900HT 384-Well Block
PAHS-069F	Roche LightCycler 480 96-well Block
PAHS-069G	Roche LightCycler 480 384-well Block

Description

The Human Drug Metabolism Phase II Enzymes RT² Profiler PCR Array contains 84 genes involved in the enzymatic processes of drug biotransformation. Phase II drug metabolism enzymes catalyze the conjugation of lipophilic compounds with hydrophilic functional groups or moieties to form water-soluble conjugates that can be cleared from cells and from the body. This array represents genes encoding the seven major classes of phase II drug metabolism enzymes catalyzing such reactions as glutathione conjugation, glucuronidation, sulfation, methylation, amino acid conjugation, epoxidation, and esterification. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of drug metabolism enzymes with this array.

Functional Gene Groupings

Amino Acid Transferase: AGXT, BAAT, CCBL1, GLYAT.

Dehydrogenase: NQO1, NQO2, XDH.

Epoxidase: EPHX1, EPHX2.

Esterase: CES1, CES2, CES3, CES7.

Glucuronosyl Transferase: DDOST, UGT1A1, UGT1A10, UGT1A3, UGT1A4, UGT1A5, UGT1A6, UGT1A7, UGT1A8, UGT1A9, UGT2A1, UGT2A3, UGT2B10, UGT2B17, UGT2B28, UGT2B4, UGT2B7, UGT3A1, UGT8.

Glutathione Transferase: GSTA1, GSTA3, GSTA4, GSTA5, GSTK1, GSTM2, GSTM3, GSTM4, GSTM5, GSTO1, GSTO2, GSTP1, GSTT1, GSTT2, HNMT, INMT, MGST1, MGST2, MGST3, PETGS.

Methyl Transferase: AS3MT, ASMT, COMT, GAMT, GNMT, NNMT, PNMT, TPMT.

N-Acetyl Transferase: AANAT, ACSL1, ACSL3, ACSL4, ACSM1, ACSM2, ACSM3, NAT1, NAT2, NAT5, SAT1.

Sulfotransferase: SULT1A1, SULT1A2, SULT1A3, SULT1B1, SULT1C1, SULT1C2, SULT1C3, SULT1E1, SULT2A1, SULT2B1, SULT4A1, SULT6B1, TST.

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

1. Russo A, Corsale S, Cammareri P, Agnese V, Cascio S, Di Fede G, Macaluso M, Bazan V. 2005. Pharmacogenomics in colorectal carcinomas: future perspectives in personalized therapy. *J Cell Physiol.* **204** (3):742-9.
2. Linares GE, Rodriguez JB. 2007. Current status and progresses made in malaria chemotherapy. *Curr Med Chem.* **14** (3): 289-314.
3. Hayslip J, Montero A. 2006. Tumor suppressor gene methylation in follicular lymphoma: a comprehensive review. *Mol Cancer.* **5**: 44.
4. Nowell S, Falany CN. 2006. Pharmacogenetics of human cytosolic sulfotransferases. *Oncogene.* **25** (11): 1673-8.

Product Specification Sheet

Array Layout: Human Drug Metabolism: Phase I Enzymes PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	AANAT	ACSL1	ACSL3	ACSL4	ACSM1	ACSM2	ACSM3	AGXT	AS3MT	ASMT	BAAT	CCBL1
B	CES1	CES2	CES3	CES7	COMT	DDOST	EPHX1	EPHX2	GAMT	GLYAT	GNMT	GSTA1
C	GSTA3	GSTA4	GSTA5	GSTK1	GSTM2	GSTM3	GSTM4	GSTM5	GSTO1	GSTO2	GSTP1	GSTT1
D	GSTT2	HNMT	INMT	MGST1	MGST2	MGST3	NAT1	NAT2	NAT5	NNMT	NQO1	NQO2
E	PNMT	PTGES	SAT1	SULT1A1	SULT1A2	SULT1A3	SULT1B1	SULT1C1	SULT1C2	SULT1C3	SULT1E1	SULT2A1
F	SULT2B1	SULT4A1	SULT6B1	TPMT	TST	UGT1A1	UGT1A10	UGT1A3	UGT1A4	UGT1A5	UGT1A6	UGT1A7
G	UGT1A8	UGT1A9	UGT2A1	UGT2A3	UGT2B10	UGT2B17	UGT2B28	UGT2B4	UGT2B7	UGT3A1	UGT8	XDH
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.431417	NM_001088	AANAT	Arylalkylamine N-acetyltransferase
A02	Hs.406678	NM_001995	ACSL1	Acyl-CoA synthetase long-chain family member 1
A03	Hs.471461	NM_004457	ACSL3	Acyl-CoA synthetase long-chain family member 3
A04	Hs.268785	NM_004458	ACSL4	Acyl-CoA synthetase long-chain family member 4
A05	Hs.306812	NM_052956	ACSM1	Acyl-CoA synthetase medium-chain family member 1
A06	Hs.567879	NM_182617	ACSM2	Acyl-CoA synthetase medium-chain family member 2
A07	Hs.653192	NM_005622	ACSM3	Acyl-CoA synthetase medium-chain family member 3
A08	Hs.144567	NM_000030	AGXT	Alanine-glyoxylate aminotransferase (oxalosis I; hyperoxaluria I; glycolicaciduria; serine-pyruvate aminotransferase)
A09	Hs.123461	NM_020682	AS3MT	Arsenic (+3 oxidation state) methyltransferase
A10	Hs.522572	NM_004043	ASMT	Acetylserotonin O-methyltransferase
A11	Hs.284712	NM_001701	BAAT	Bile acid Coenzyme A: amino acid N-acyltransferase (glycine N-choloyltransferase)
A12	Hs.495250	NM_004059	CCBL1	Cysteine conjugate-beta lyase; cytoplasmic (glutamine transaminase K, kynurenine aminotransferase)
B01	Hs.558865	NM_001266	CES1	Carboxylesterase 1 (monocyte/macrophage serine esterase 1)
B02	Hs.282975	NM_198061	CES2	Carboxylesterase 2 (intestine, liver)
B03	Hs.268700	NM_024922	CES3	Carboxylesterase 3 (brain)
B04	Hs.350800	NM_145024	CES7	Carboxylesterase 7
B05	Hs.370408	NM_000754	COMT	Catechol-O-methyltransferase
B06	Hs.523145	NM_005216	DDOST	Dolichyl-diphosphooligosaccharide-protein glycosyltransferase
B07	Hs.89649	NM_000120	EPHX1	Epoxide hydrolase 1, microsomal (xenobiotic)
B08	Hs.212088	NM_001979	EPHX2	Epoxide hydrolase 2, cytoplasmic
B09	Hs.81131	NM_000156	GAMT	Guanidinoacetate N-methyltransferase
B10	Hs.145384	NM_005838	GLYAT	Glycine-N-acyltransferase
B11	Hs.144914	NM_018960	GNMT	Glycine N-methyltransferase
B12	Hs.446309	NM_145740	GSTA1	Glutathione S-transferase A1
C01	Hs.102484	NM_000847	GSTA3	Glutathione S-transferase A3
C02	Hs.485557	NM_001512	GSTA4	Glutathione S-transferase A4
C03	Hs.553652	NM_153699	GSTA5	Glutathione S-transferase A5
C04	Hs.390667	NM_015917	GSTK1	Glutathione S-transferase kappa 1
C05	Hs.279837	NM_000848	GSTM2	Glutathione S-transferase M2 (muscle)
C06	Hs.2006	NM_000849	GSTM3	Glutathione S-transferase M3 (brain)
C07	Hs.348387	NM_000850	GSTM4	Glutathione S-transferase M4
C08	Hs.75652	NM_000851	GSTM5	Glutathione S-transferase M5
C09	Hs.190028	NM_004832	GSTO1	Glutathione S-transferase omega 1
C10	Hs.203634	NM_183239	GSTO2	Glutathione S-transferase omega 2
C11	Hs.523836	NM_000852	GSTP1	Glutathione S-transferase pi
C12	Hs.268573	NM_000853	GSTT1	Glutathione S-transferase theta 1
D01	Hs.1581	NM_000854	GSTT2	Glutathione S-transferase theta 2
D02	Hs.42151	NM_006895	HNMT	Histamine N-methyltransferase

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Position	UniGene	GenBank	Symbol	Description
D03	Hs.632629	NM_006774	INMT	Indolethylamine N-methyltransferase
D04	Hs.389700	NM_020300	MGST1	Microsomal glutathione S-transferase 1
D05	Hs.81874	NM_002413	MGST2	Microsomal glutathione S-transferase 2
D06	Hs.191734	NM_004528	MGST3	Microsomal glutathione S-transferase 3
D07	Hs.591847	NM_000662	NAT1	N-acetyltransferase 1 (arylamine N-acetyltransferase)
D08	Hs.2	NM_000015	NAT2	N-acetyltransferase 2 (arylamine N-acetyltransferase)
D09	Hs.368783	NM_016100	NAT5	N-acetyltransferase 5
D10	Hs.503911	NM_006169	NNMT	Nicotinamide N-methyltransferase
D11	Hs.406515	NM_000903	NQO1	NAD(P)H dehydrogenase, quinone 1
D12	Hs.533050	NM_000904	NQO2	NAD(P)H dehydrogenase, quinone 2
E01	Hs.1892	NM_002686	PNMT	Phenylethanolamine N-methyltransferase
E02	Hs.146688	NM_004878	PTGES	Prostaglandin E synthase
E03	Hs.28491	NM_002970	SAT1	Spermidine/spermine N1-acetyltransferase 1
E04	Hs.567342	NM_001055	SULT1A1	Sulfotransferase family, cytosolic, 1A, phenol-preferring, member 1
E05	Hs.546304	NM_001054	SULT1A2	Sulfotransferase family, cytosolic, 1A, phenol-preferring, member 2
E06	Hs.460587	NM_003166	SULT1A3	Sulfotransferase family, cytosolic, 1A, phenol-preferring, member 3
E07	Hs.129742	NM_014465	SULT1B1	Sulfotransferase family, cytosolic, 1B, member 1
E08	Hs.436123	NM_001056	SULT1C1	Sulfotransferase family, cytosolic, 1C, member 1
E09	Hs.312644	NM_006588	SULT1C2	Sulfotransferase family, cytosolic, 1C, member 2
E10	Hs.535156	NM_001008743	SULT1C3	Sulfotransferase family, cytosolic, 1C, member 3
E11	Hs.479898	NM_005420	SULT1E1	Sulfotransferase family 1E, estrogen-preferring, member 1
E12	Hs.515835	NM_003167	SULT2A1	Sulfotransferase family, cytosolic, 2A, dehydroepiandrosterone (DHEA)-preferring, member 1
F01	Hs.369331	NM_004605	SULT2B1	Sulfotransferase family, cytosolic, 2B, member 1
F02	Hs.189810	NM_014351	SULT4A1	Sulfotransferase family 4A, member 1
F03	Hs.631892	NM_001032377	SULT6B1	Sulfotransferase SULT6B1
F04	Hs.444319	NM_000367	TPMT	Thiopurine S-methyltransferase
F05	Hs.474783	NM_003312	TST	Thiosulfate sulfurtransferase (rhodanese)
F06	Hs.554822	NM_000463	UGT1A1	UDP glucuronosyltransferase 1 family, polypeptide A1
F07	Hs.554822	NM_019075	UGT1A10	UDP glucuronosyltransferase 1 family, polypeptide A10
F08	Hs.554822	NM_019093	UGT1A3	UDP glucuronosyltransferase 1 family, polypeptide A3
F09	Hs.554822	NM_007120	UGT1A4	UDP glucuronosyltransferase 1 family, polypeptide A4
F10	Hs.554822	NM_019078	UGT1A5	UDP glucuronosyltransferase 1 family, polypeptide A5
F11	Hs.554822	NM_001072	UGT1A6	UDP glucuronosyltransferase 1 family, polypeptide A6
F12	Hs.554822	NM_019077	UGT1A7	UDP glucuronosyltransferase 1 family, polypeptide A7
G01	Hs.554822	NM_019076	UGT1A8	UDP glucuronosyltransferase 1 family, polypeptide A8
G02	Hs.554822	NM_021027	UGT1A9	UDP glucuronosyltransferase 1 family, polypeptide A9
G03	Hs.225950	NM_006798	UGT2A1	UDP glucuronosyltransferase 2 family, polypeptide A1
G04	Hs.122583	NM_024743	UGT2A3	UDP glucuronosyltransferase 2 family, polypeptide A3
G05	Hs.201634	NM_001075	UGT2B10	UDP glucuronosyltransferase 2 family, polypeptide B10
G06	Hs.575083	NM_001077	UGT2B17	UDP glucuronosyltransferase 2 family, polypeptide B17
G07	Hs.653154	NM_053039	UGT2B28	UDP glucuronosyltransferase 2 family, polypeptide B28
G08	Hs.285887	NM_021139	UGT2B4	UDP glucuronosyltransferase 2 family, polypeptide B4
G09	Hs.654424	NM_001074	UGT2B7	UDP glucuronosyltransferase 2 family, polypeptide B7
G10	Hs.254699	NM_152404	UGT3A1	UDP glycosyltransferase 3 family, polypeptide A1
G11	Hs.144197	NM_003360	UGT8	UDP glycosyltransferase 8 (UDP-galactose ceramide galactosyltransferase)
G12	Hs.250	NM_000379	XDH	Xanthine dehydrogenase
H01	Hs.534255	NM_004048	B2M	Beta-2-microglobulin
H02	Hs.412707	NM_000194	HPRT1	Hypoxanthine phosphoribosyltransferase 1 (Lesch-Nyhan syndrome)
H03	Hs.546356	NM_012423	RPL13A	Ribosomal protein L13a
H04	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase
H05	Hs.520640	NM_001101	ACTB	Actin, beta
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