

RT² Profiler™ PCR Array:

Human Drug Metabolism: Phase I Enzymes

Catalog Number

PAHS-068A

PAHS-068C

PAHS-068D

PAHS-068E

PAHS-068F

PAHS-068G

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 Human Drug Metabolism: Phase I Enzymes RT² Profiler PCR Array contains 84 genes involved in phase I drug metabolism. Phase I drug metabolism enzymes make compounds more hydrophilic and add functional groups necessary for the completion of Phase II drug metabolism. This array represents genes involved in Phase I drug metabolism reactions including oxidation, reduction, hydrolysis, cyclization, and decyclization. Members of the Cytochrome P450 enzyme family that play a key role in mediating phase I drug metabolism reactions are also included on this array. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to drug phase I metabolism with this array.

Functional Gene Groupings

Cytochrome P450: CYP11A1, CYP11B1, CYP11B2, CYP17A1, CYP19A1, CYP1A1, CYP1A2, CYP1B1, CYP21A2, CYP24A1, CYP26A1, CYP26B1, CYP26C1, CYP27A1, CYP27B1, CYP2A13, CYP2A6, CYP2A7, CYP2B6, CYP2C18, CYP2C19, CYP2C8, CYP2C9, CYP2D6, CYP2E1, CYP2F1, CYP2W1, CYP3A4, CYP3A43, CYP3A5, CYP3A7, CYP4A11, CYP4A22, CYP4B1, CYP4F11, CYP4F12, CYP4F2, CYP4F3, CYP4F8, CYP7A1, CYP7B1, CYP8B1.

Alcohol Dehydrogenase: ADH1A, ADH1B, ADH1C, ADH4, ADH5, ADH6, ADH7, DHRS2, HSD17B10 (HADH2).

Esterase: AADAC, CEL, ESD, GZMA, GZMB, UCHL1, UCHL3.

Aldehyde Dehydrogenase: ALDH1A1, ALDH1A2, ALDH1A3, ALDH1B1, ALDH2, ALDH3A1, ALDH3A2, ALDH3B1, ALDH3B2, ALDH4A1, ALDH5A1, ALDH6A1, ALDH7A1, ALDH8A1, ALDH9A1.

Flavin containing Monooxygenase: FMO1, FMO2, FMO3, FMO4, FMO5.

Monoamine Oxidase: MAOA, MAOB.

Prostaglandin-endoperoxide Synthase: PTGS1, PTGS2.

Xanthine Dehydrogenase: XDH.

Dihydropyrimidine Dehydrogenase: DPYD.

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. van Schaik RH. 2005. Cancer treatment and pharmacogenetics of cytochrome P450 enzymes. *Invest New Drugs*. **23** (6): 513-22.
2. Mathijssen RH, van Schaik RH. 2006. Genotyping and phenotyping cytochrome P450: perspectives for cancer treatment. *Eur J Cancer*. **42** (2): 141-8.
3. Vasiliou V, Pappa A, Estey T. 2004. Role of human aldehyde dehydrogenases in endobiotic and xenobiotic metabolism. *Drug Metab Rev*. **36** (2): 279-99.
4. Donnelly JG. 2004. Pharmacogenetics in cancer chemotherapy: balancing toxicity and response. *Ther Drug Monit*. **26** (2): 231-5.
5. Marsh S, McLeod HL. 2007. Pharmacogenetics and oncology treatment for breast cancer. *Expert Opin Pharmacother*. **8** (2): 119-27.

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	AADAC	ADH1A	ADH1B	ADH1C	ADH4	ADH5	ADH6	ADH7	ALDH1A1	ALDH1A2	ALDH1A3	ALDH1B1
B	ALDH2	ALDH3A1	ALDH3A2	ALDH3B1	ALDH3B2	ALDH4A1	ALDH5A1	ALDH6A1	ALDH7A1	ALDH8A1	ALDH9A1	CEL
C	CYP11A1	CYP11B1	CYP11B2	CYP17A1	CYP19A1	CYP1A1	CYP1A2	CYP1B1	CYP21A2	CYP24A1	CYP26A1	CYP26B1
D	CYP26C1	CYP27A1	CYP27B1	CYP2A13	CYP2A6	CYP2A7	CYP2B6	CYP2C18	CYP2C19	CYP2C8	CYP2C9	CYP2D6
E	CYP2E1	CYP2F1	CYP2W1	CYP3A4	CYP3A43	CYP3A5	CYP3A7	CYP4A11	CYP4A22	CYP4B1	CYP4F11	CYP4F12
F	CYP4F2	CYP4F3	CYP4F8	CYP7A1	CYP7B1	CYP8B1	DHRS2	DPYD	ESD	FMO1	FMO2	FMO3
G	FMO4	FMO5	GZMA	GZMB	HSD17B10	MAOA	MAOB	PTGS1	PTGS2	UCHL1	UCHL3	XDH
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.506908	NM_001086	AADAC	Arylacetamide deacetylase (esterase)
A02	Hs.368549	NM_000667	ADH1A	Alcohol dehydrogenase 1A (class I), alpha polypeptide
A03	Hs.4	NM_000668	ADH1B	Alcohol dehydrogenase 1B (class I), beta polypeptide
A04	Hs.2523	NM_000669	ADH1C	Alcohol dehydrogenase 1C (class I), gamma polypeptide
A05	Hs.1219	NM_000670	ADH4	Alcohol dehydrogenase 4 (class II), pi polypeptide
A06	Hs.78989	NM_000671	ADH5	Alcohol dehydrogenase 5 (class III), chi polypeptide
A07	Hs.586161	NM_000672	ADH6	Alcohol dehydrogenase 6 (class V)
A08	Hs.389	NM_000673	ADH7	Alcohol dehydrogenase 7 (class IV), mu or sigma polypeptide
A09	Hs.76392	NM_000689	ALDH1A1	Aldehyde dehydrogenase 1 family, member A1
A10	Hs.435689	NM_003888	ALDH1A2	Aldehyde dehydrogenase 1 family, member A2
A11	Hs.459538	NM_000693	ALDH1A3	Aldehyde dehydrogenase 1 family, member A3
A12	Hs.436219	NM_000692	ALDH1B1	Aldehyde dehydrogenase 1 family, member B1
B01	Hs.632733	NM_000690	ALDH2	Aldehyde dehydrogenase 2 family (mitochondrial)
B02	Hs.531682	NM_000691	ALDH3A1	Aldehyde dehydrogenase 3 family, member A1
B03	Hs.499886	NM_000382	ALDH3A2	Aldehyde dehydrogenase 3 family, member A2
B04	Hs.523841	NM_000694	ALDH3B1	Aldehyde dehydrogenase 3 family, member B1
B05	Hs.87539	NM_000695	ALDH3B2	Aldehyde dehydrogenase 3 family, member B2
B06	Hs.77448	NM_003748	ALDH4A1	Aldehyde dehydrogenase 4 family, member A1
B07	Hs.371723	NM_001080	ALDH5A1	Aldehyde dehydrogenase 5 family, member A1 (succinate-semialdehyde dehydrogenase)
B08	Hs.293970	NM_005589	ALDH6A1	Aldehyde dehydrogenase 6 family, member A1
B09	Hs.483239	NM_001182	ALDH7A1	Aldehyde dehydrogenase 7 family, member A1
B10	Hs.486520	NM_022568	ALDH8A1	Aldehyde dehydrogenase 8 family, member A1
B11	Hs.2533	NM_000696	ALDH9A1	Aldehyde dehydrogenase 9 family, member A1
B12	Hs.533258	NM_001807	CEL	Carboxyl ester lipase (bile salt-stimulated lipase)
C01	Hs.303980	NM_000781	CYP11A1	Cytochrome P450, family 11, subfamily A, polypeptide 1
C02	Hs.184927	NM_000497	CYP11B1	Cytochrome P450, family 11, subfamily B, polypeptide 1
C03	Hs.632054	NM_000498	CYP11B2	Cytochrome P450, family 11, subfamily B, polypeptide 2
C04	Hs.438016	NM_000102	CYP17A1	Cytochrome P450, family 17, subfamily A, polypeptide 1
C05	Hs.511367	NM_000103	CYP19A1	Cytochrome P450, family 19, subfamily A, polypeptide 1
C06	Hs.72912	NM_000499	CYP1A1	Cytochrome P450, family 1, subfamily A, polypeptide 1
C07	Hs.1361	NM_000761	CYP1A2	Cytochrome P450, family 1, subfamily A, polypeptide 2
C08	Hs.154654	NM_000104	CYP1B1	Cytochrome P450, family 1, subfamily B, polypeptide 1
C09	Hs.278430	NM_000500	CYP21A2	Cytochrome P450, family 21, subfamily A, polypeptide 2
C10	Hs.89663	NM_000782	CYP24A1	Cytochrome P450, family 24, subfamily A, polypeptide 1
C11	Hs.150595	NM_000783	CYP26A1	Cytochrome P450, family 26, subfamily A, polypeptide 1
C12	Hs.91546	NM_019885	CYP26B1	Cytochrome P450, family 26, subfamily B, polypeptide 1
D01	Hs.369993	NM_183374	CYP26C1	Cytochrome P450, family 26, subfamily C, polypeptide 1
D02	Hs.516700	NM_000784	CYP27A1	Cytochrome P450, family 27, subfamily A, polypeptide 1
D03	Hs.524528	NM_000785	CYP27B1	Cytochrome P450, family 27, subfamily B, polypeptide 1

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Position	UniGene	GenBank	Symbol	Description
D04	Hs.567252	NM_000766	CYP2A13	Cytochrome P450, family 2, subfamily A, polypeptide 13
D05	Hs.1360	NM_000767	CYP2B6	Cytochrome P450, family 2, subfamily B, polypeptide 6
D06	Hs.511872	NM_000772	CYP2C18	Cytochrome P450, family 2, subfamily C, polypeptide 18
D07	Hs.282409	NM_000769	CYP2C19	Cytochrome P450, family 2, subfamily C, polypeptide 19
D08	Hs.282871	NM_000770	CYP2C8	Cytochrome P450, family 2, subfamily C, polypeptide 8
D09	Hs.282624	NM_000771	CYP2C9	Cytochrome P450, family 2, subfamily C, polypeptide 9
D10	Hs.648256	NM_000106	CYP2D6	Cytochrome P450, family 2, subfamily D, polypeptide 6
D11	Hs.12907	NM_000773	CYP2E1	Cytochrome P450, family 2, subfamily E, polypeptide 1
D12	Hs.558318	NM_000774	CYP2F1	Cytochrome P450, family 2, subfamily F, polypeptide 1
E01	Hs.371427	NM_024514	CYP2R1	Cytochrome P450, family 2, subfamily R, polypeptide 1
E02	Hs.98370	NM_030622	CYP2S1	Cytochrome P450, family 2, subfamily S, polypeptide 1
E03	Hs.272795	NM_017781	CYP2W1	Cytochrome P450, family 2, subfamily W, polypeptide 1
E04	Hs.651218	NM_017460	CYP3A4	Cytochrome P450, family 3, subfamily A, polypeptide 4
E05	Hs.306220	NM_022820	CYP3A43	Cytochrome P450, family 3, subfamily A, polypeptide 43
E06	Hs.150276	NM_000777	CYP3A5	Cytochrome P450, family 3, subfamily A, polypeptide 5
E07	Hs.111944	NM_000765	CYP3A7	Cytochrome P450, family 3, subfamily A, polypeptide 7
E08	Hs.1645	NM_000778	CYP4A11	Cytochrome P450, family 4, subfamily A, polypeptide 11
E09	Hs.567807	NM_001010969	CYP4A22	Cytochrome P450, family 4, subfamily A, polypeptide 22
E10	Hs.436317	NM_000779	CYP4B1	Cytochrome P450, family 4, subfamily B, polypeptide 1
E11	Hs.187393	NM_021187	CYP4F11	Cytochrome P450, family 4, subfamily F, polypeptide 11
E12	Hs.591000	NM_023944	CYP4F12	Cytochrome P450, family 4, subfamily F, polypeptide 12
F01	Hs.558423	NM_001082	CYP4F2	Cytochrome P450, family 4, subfamily F, polypeptide 2
F02	Hs.106242	NM_000896	CYP4F3	Cytochrome P450, family 4, subfamily F, polypeptide 3
F03	Hs.268554	NM_007253	CYP4F8	Cytochrome P450, family 4, subfamily F, polypeptide 8
F04	Hs.1644	NM_000780	CYP7A1	Cytochrome P450, family 7, subfamily A, polypeptide 1
F05	Hs.491869	NM_004820	CYP7B1	Cytochrome P450, family 7, subfamily B, polypeptide 1
F06	Hs.447793	NM_004391	CYP8B1	Cytochrome P450, family 8, subfamily B, polypeptide 1
F07	Hs.272499	NM_182908	DHRS2	Dehydrogenase/reductase (SDR family) member 2
F08	Hs.335034	NM_000110	DPYD	Dihydropyrimidine dehydrogenase
F09	Hs.432491	NM_001984	ESD	Esterase D/formylglutathione hydrolase
F10	Hs.1424	NM_002021	FMO1	Flavin containing monooxygenase 1
F11	Hs.144912	NM_001460	FMO2	Flavin containing monooxygenase 2 (non-functional)
F12	Hs.445350	NM_006894	FMO3	Flavin containing monooxygenase 3
G01	Hs.386502	NM_002022	FMO4	Flavin containing monooxygenase 4
G02	Hs.642706	NM_001461	FMO5	Flavin containing monooxygenase 5
G03	Hs.90708	NM_006144	GZMA	Granzyme A (granzyme 1, cytotoxic T-lymphocyte-associated serine esterase 3)
G04	Hs.1051	NM_004131	GZMB	Granzyme B (granzyme 2, cytotoxic T-lymphocyte-associated serine esterase 1)
G05	Hs.171280	NM_004493	HSD17B10	Hydroxysteroid (17-beta) dehydrogenase 10
G06	Hs.183109	NM_000240	MAOA	Monoamine oxidase A
G07	Hs.46732	NM_000898	MAOB	Monoamine oxidase B
G08	Hs.201978	NM_000962	PTGS1	Prostaglandin-endoperoxide synthase 1 (prostaglandin G/H synthase and cyclooxygenase)
G09	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
G10	Hs.518731	NM_004181	UCHL1	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin thiolesterase)
G11	Hs.162241	NM_006002	UCHL3	Ubiquitin carboxyl-terminal esterase L3 (ubiquitin thiolesterase)
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