

RT² Profiler™ PCR Array:

Human EGF / PDGF Signaling

Catalog Number

PAHS-040A

PAHS-040C

PAHS-040D

PAHS-040E

PAHS-040F

PAHS-040G

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 Blocks

Roche LightCycler 480 384-well Blocks

Description

The Human EGF / PDGF Signaling Pathway RT² Profiler™ PCR Array profiles the expression of 84 genes related to EGF / PDGF-mediated signal transduction. This array includes genes that encode members of the Epidermal Growth Factor (EGF) and Platelet-Derived Growth Factor (PDGF) Signaling Pathways. The array represents growth factors and their receptors, proteins involved in signaling downstream of the growth factors, and the genes targeted by growth factor-mediated stimulation. Members of the MAP Kinase pathway, the AKT / PI3K pathway, and other downstream signaling cascades are included as well. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to EGF / PDGF signaling with this array.

Functional Gene Groupings

Epidermal Growth Factor Receptor Signaling Pathway: BCAR1, CBL, EGF, EGFR, EPS8, GAB1, GRB2, HBEGF, NCK2, NUP62, RPS6KA5, SHC1.

Platelet-Derived Growth Factor Receptor Signaling Pathway: BCAR1, PDGFA, PDGFB, PDGFRA, PLAT.

Intracellular Signaling Molecules:

AKT Signaling Pathway: AKT1, AKT2, AKT3, BAD, CASP9, CHUK, FASLG, FOXO3A, NFKB1, PTEN.

Erk1 / Erk2 MAPK Signaling Pathway: EGFR, ELK1, GRB2, MAP2K1, MAPK1, MAPK3, MKNK1, PDGFRA, RAF1, RPS6KA5, SHC1, SRC, STAT3.

IκB Kinase / NFκB Cascade: CHUK, FASLG, GSK3A, GSK3B, NUP62, RHOA, STAT1.

JAK / STAT Cascade: EPS8, GAB1, GRB2, JAK1, NUP62, PPP2CA, SRC, STAT1, STAT3, STAT5A.

JNK Cascade: MAP2K4, MAP3K2, MAPK10, MAPK8, MAPK9.

MAPKKK Cascade: DUSP1, DUSP6, EGF, EGFR, MAP2K1, MAP2K7, MAPK1, MAPK10, MAPK3, MAPK8, MAPK9, PPP2CA, PRKCA, SHC1.

PI3K / Phosphoinositide 3-kinase Cascade: PIK3CA, PIK3R1, PIK3R2, PTEN.

Small GTPase Mediated Signal Transduction: GRB2, HRAS, NRAS, NUP62, RAP1A, RASA1, RHOA.

Other Intracellular Signaling Molecules: ARAF, BRAF, CBL, CSNK2A1, CSNK2B, IKBKB, NCK2, PDPK1, PLCG1, RPS6KB1, SFN.

Cell Survival and Growth:

Apoptosis: AKT1, BAD, BCAR1, BCL2, BRAF, CASP3, CASP9, FASLG, FOXO3A, IL2, LTA, MAPK1, NFKB1, NUP62, PIK3R2, PPP2CA, PRKCA, PTEN, RAF1, RASA1, STAT1, TP53.

Cell Cycle: BCL2, CCND1, DUSP1, DUSP6, EGFR, HRAS, KRAS, MAPK1, MAPK3, NRAS, PDGFA, PDGFB, PPP2CA, PRKCA, PTEN, RAP1A, SHC1, STAT1, TP53.

Cell Differentiation: FOXO3A, IL2, PPP2CA, TP53.

Cell Growth: BCAR1, CCND1, EGF, HBEGF, IL2, PDGFA, PDGFB, PDGFRA, PPP2CA, RASA1, SHC1, TP53.

Cell Motility: ACTR2, BCAR1, EGFR, FN1, HBEGF, MAP2K1, MAPK8, PTEN, STAT3.

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Cell Proliferation: BCAR1, BCL2, EGF, EGFR, EPS8, GAB1, HBEGF, IL2, NCK2, NUP62, PDGFA, PDGFB, PDGFRA, PTEN, RAF1, SHC1, TP53.

Metabolism

DNA Metabolism: ATF1, ATF2, CREB1, EGF, EGFR, FOS, NUP62, PPP2CA, TP53.

Lipid Metabolism: ARAF, BRAF, PIK3R1, PLCG1, PPP2CA, PRKCA, PTEN, RAF1, SHC1.

Protein Metabolism: ACTR2, AKT1, AKT2, AKT3, ARAF, ATF1, ATF2, BRAF, CBL, CHUK, CREB1, CSNK2A1, DUSP1, DUSP6, EGFR, FOS, GSK3A, GSK3B, IKBKB, JAK1, MAP2K1, MAP2K4, MAP2K7, MAP3K2, MAPK1, MAPK10, MAPK3, MAPK8, MAPK9, MKNK1, PDGFRA, PDPK1, PPP2CA, PRKCA, PTEN, RAF1, RPS6KA5, RPS6KB1, SRC.

Other Genes Related to Metabolism: COL1A1, EIF4E, FN1, MMP7, RASA1.

Development: BRAF, COL1A1, HBEGF, PTEN, RASA1, STAT3.

Response to Stimulus:

Response to Wounding: BCAR1, BCL2, FN1, HBEGF, IL2, NCK2, NFKB1, PDGFB, STAT3.

Response to Other Stimuli: AKT1, CHUK, COL1A1, DUSP1, EGFR, FASLG, FOS, KRAS, LTA, MAP2K1, MAP2K7, MAPK1, MAPK8, MAPK9, NFATC3, PPP2CA, RPS6KA5, STAT1, STAT5A, TP53.

Transcription Factors and Regulators: AKT1, ATF1, ATF2, CBL, CREB1, EGR1, EIF4E, ELK1, FOS, FOXO3A, IKBKB, JUN, MKNK1, NFATC3, NFKB1, NUP62, PPP2CA, RPS6KA5, STAT1, STAT3, STAT5A, TP53.

Actin and Calcium Ion Homeostasis: ACTR2, BCAR1, CBL, EGF, EGFR, MMP7, NCK2, PDPK1, PLCG1, PRKCA, RASA1, RHOA, STAT1, STAT3, STAT5A.

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. Carpenter, G. The EGF receptor: a nexus for trafficking and signaling. *BioEssays*. **22**: 697-707 (2000).
2. Moghal, N and Sternberg, PW. Multiple positive and negative regulators of signaling by the EGF-receptor. *Curr. Opin. Cell Biol.* **11**: 190-196 (1999).
3. Seedorf K. Intracellular signaling by growth factors. *Metabolism*. **44**: 24-32 (1995).
4. Heldin CH, Ostman A, Ronnstrand L. Signal transduction via platelet-derived growth factor receptors. *Biochim Biophys Acta*. **1378**: F79-113 (1998).
5. Pessin JE, Okada S. Insulin and EGF receptors integrate the Ras and Rap signaling pathways. *Endocr J.* **46**: S11-6 (1999).
6. Danielsen AJ, Maihle NJ. The EGF/ErbB receptor family and apoptosis. *Growth Factors*. **20**: 1-15 (2002).
7. Rosenkranz S and Kazlauskas A. Evidence for distinct signaling properties and biological responses induced by the PDGF receptor alpha and beta subtypes. *Growth Factors*. **16**: 201-216 (1999).
8. Heldin, CH. Simultaneous induction of stimulatory and inhibitory signals by PDGF. *FEBS Lett.* **410**: 17-21 (1997).

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Array Layout:

Human EGF / PDGF Signaling RT² Profiler™ PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	ACTR2	AKT1	AKT2	AKT3	ARAF	ATF1	ATF2	BAD	BCAR1	BCL2	BRAF	CASP3
B	CASP9	CBL	CCND1	CHUK	COL1A1	CREB1	CSNK2A1	CSNK2B	DUSP1	DUSP6	EGF	EGFR
C	EGR1	EIF4E	ELK1	EPS8	FASLG	FN1	FOS	FOXO3	GAB1	GRB2	GSK3A	GSK3B
D	HBEGF	HRAS	IKKBK	IL2	JAK1	JUN	KRAS	LTA	MAP2K1	MAP2K4	MAP2K7	MAP3K2
E	MAPK1	MAPK10	MAPK3	MAPK8	MAPK9	MKMK1	MMP7	NCK2	NFATC3	NFKB1	NRAS	NUP62
F	PDGFA	PDGFB	PDGFRA	PDPK1	PIK3CA	PIK3R1	PIK3R2	PLAT	PLCG1	PPP2CA	PRKCA	PTEN
G	RAF1	RAP1A	RASA1	RHOA	RPS6KA5	RPS6KB1	SHC1	SRC	STAT1	STAT3	STAT5A	TP53
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.393201	NM_005722	ACTR2	ARP2 actin-related protein 2 homolog (yeast)
A02	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
A03	Hs.631535	NM_001626	AKT2	V-akt murine thymoma viral oncogene homolog 2
A04	Hs.498292	NM_005465	AKT3	V-akt murine thymoma viral oncogene homolog 3 (protein kinase B, gamma)
A05	Hs.446641	NM_001654	ARAF	V-raf murine sarcoma 3611 viral oncogene homolog
A06	Hs.435267	NM_005171	ATF1	Activating transcription factor 1
A07	Hs.425104	NM_001880	ATF2	Activating transcription factor 2
A08	Hs.370254	NM_004322	BAD	BCL2-antagonist of cell death
A09	Hs.479747	NM_014567	BCAR1	Breast cancer anti-estrogen resistance 1
A10	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A11	Hs.550061	NM_004333	BRAF	V-raf murine sarcoma viral oncogene homolog B1
A12	Hs.141125	NM_004346	CASP3	Caspase 3, apoptosis-related cysteine peptidase
B01	Hs.329502	NM_001229	CASP9	Caspase 9, apoptosis-related cysteine peptidase
B02	Hs.504096	NM_005188	CBL	Cas-Br-M (murine) ecotropic retroviral transforming sequence
B03	Hs.523852	NM_053056	CCND1	Cyclin D1
B04	Hs.198998	NM_001278	CHUK	Conserved helix-loop-helix ubiquitous kinase
B05	Hs.172928	NM_000088	COL1A1	Collagen, type I, alpha 1
B06	Hs.584750	NM_004379	CREB1	CAMP responsive element binding protein 1
B07	Hs.446484	NM_001895	CSNK2A1	Casein kinase 2, alpha 1 polypeptide
B08	Hs.73527	NM_001320	CSNK2B	Casein kinase 2, beta polypeptide
B09	Hs.171695	NM_004417	DUSP1	Dual specificity phosphatase 1
B10	Hs.298654	NM_001946	DUSP6	Dual specificity phosphatase 6
B11	Hs.419815	NM_001963	EGF	Epidermal growth factor (beta-urogastrone)
B12	Hs.488293	NM_005228	EGFR	Epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)
C01	Hs.326035	NM_001964	EGR1	Early growth response 1
C02	Hs.249718	NM_001968	EIF4E	Eukaryotic translation initiation factor 4E
C03	Hs.181128	NM_005229	ELK1	ELK1, member of ETS oncogene family
C04	Hs.591160	NM_004447	EPS8	Epidermal growth factor receptor pathway substrate 8
C05	Hs.2007	NM_000639	FASLG	Fas ligand (TNF superfamily, member 6)
C06	Hs.203717	NM_002026	FN1	Fibronectin 1
C07	Hs.25647	NM_005252	FOS	V-fos FBJ murine osteosarcoma viral oncogene homolog
C08	Hs.220950	NM_001455	FOXO3	Forkhead box O3
C09	Hs.80720	NM_002039	GAB1	GRB2-associated binding protein 1
C10	Hs.444356	NM_002086	GRB2	Growth factor receptor-bound protein 2
C11	Hs.466828	NM_019884	GSK3A	Glycogen synthase kinase 3 alpha
C12	Hs.445733	NM_002093	GSK3B	Glycogen synthase kinase 3 beta
D01	Hs.799	NM_001945	HBEGF	Heparin-binding EGF-like growth factor
D02	Hs.37003	NM_005343	HRAS	V-Ha-ras Harvey rat sarcoma viral oncogene homolog
D03	Hs.413513	NM_001556	IKKBK	Inhibitor of kappa light polypeptide gene enhancer in B-cells, kinase beta
D04	Hs.89679	NM_000586	IL2	Interleukin 2
D05	Hs.551505	NM_002227	JAK1	Janus kinase 1 (a protein tyrosine kinase)
D06	Hs.525704	NM_002228	JUN	Jun oncogene
D07	Hs.505033	NM_004985	KRAS	V-Ki-ras2 Kirsten rat sarcoma viral oncogene homolog
D08	Hs.36	NM_000595	LTA	Lymphotoxin alpha (TNF superfamily, member 1)
D09	Hs.145442	NM_002755	MAP2K1	Mitogen-activated protein kinase kinase 1
D10	Hs.514681	NM_003010	MAP2K4	Mitogen-activated protein kinase kinase 4
D11	Hs.531754	NM_145185	MAP2K7	Mitogen-activated protein kinase kinase 7
D12	Hs.145605	NM_006609	MAP3K2	Mitogen-activated protein kinase kinase 2
E01	Hs.431850	NM_002745	MAPK1	Mitogen-activated protein kinase 1

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Position	UniGene	GenBank	Symbol	Description
E02	Hs.125503	NM_002753	MAPK10	Mitogen-activated protein kinase 10
E03	Hs.861	NM_002746	MAPK3	Mitogen-activated protein kinase 3
E04	Hs.138211	NM_002750	MAPK8	Mitogen-activated protein kinase 8
E05	Hs.484371	NM_002752	MAPK9	Mitogen-activated protein kinase 9
E06	Hs.371594	NM_003684	MKNK1	MAP kinase interacting serine/threonine kinase 1
E07	Hs.2256	NM_002423	MMP7	Matrix metalloproteinase 7 (matrilysin, uterine)
E08	Hs.529244	NM_003581	NCK2	NCK adaptor protein 2
E09	Hs.341716	NM_004555	NFATC3	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 3
E10	Hs.431926	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1 (p105)
E11	Hs.486502	NM_002524	NRAS	Neuroblastoma RAS viral (v-ras) oncogene homolog
E12	Hs.467133	NM_012346	NUP62	Nucleoporin 62kDa
F01	Hs.645488	NM_002607	PDGFA	Platelet-derived growth factor alpha polypeptide
F02	Hs.1976	NM_002608	PDGFB	Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)
F03	Hs.74615	NM_006206	PDGFRA	Platelet-derived growth factor receptor, alpha polypeptide
F04	Hs.459691	NM_002613	PDPK1	3-phosphoinositide dependent protein kinase-1
F05	Hs.553498	NM_006218	PIK3CA	Phosphoinositide-3-kinase, catalytic, alpha polypeptide
F06	Hs.132225	NM_181504	PIK3R1	Phosphoinositide-3-kinase, regulatory subunit 1 (p85 alpha)
F07	Hs.371344	NM_005027	PIK3R2	Phosphoinositide-3-kinase, regulatory subunit 2 (p85 beta)
F08	Hs.491582	NM_000930	PLAT	Plasminogen activator, tissue
F09	Hs.268177	NM_002660	PLCG1	Phospholipase C, gamma 1
F10	Hs.483408	NM_002715	PPP2CA	Protein phosphatase 2 (formerly 2A), catalytic subunit, alpha isoform
F11	Hs.531704	NM_002737	PRKCA	Protein kinase C, alpha
F12	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple advanced cancers 1)
G01	Hs.159130	NM_002880	RAF1	V-raf-1 murine leukemia viral oncogene homolog 1
G02	Hs.190334	NM_002884	RAP1A	RAP1A, member of RAS oncogene family
G03	Hs.582303	NM_002890	RASA1	RAS p21 protein activator (GTPase activating protein) 1
G04	Hs.247077	NM_001664	RHOA	Ras homolog gene family, member A
G05	Hs.510225	NM_004755	RPS6KA5	Ribosomal protein S6 kinase, 90kDa, polypeptide 5
G06	Hs.463642	NM_003161	RPS6KB1	Ribosomal protein S6 kinase, 70kDa, polypeptide 1
G07	Hs.433795	NM_003029	SHC1	SHC (Src homology 2 domain containing) transforming protein 1
G08	Hs.195659	NM_005417	SRC	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)
G09	Hs.642990	NM_007315	STAT1	Signal transducer and activator of transcription 1, 91kDa
G10	Hs.463059	NM_003150	STAT3	Signal transducer and activator of transcription 3 (acute-phase response factor)
G11	Hs.437058	NM_003152	STAT5A	Signal transducer and activator of transcription 5A
G12	Hs.408312	NM_000546	TP53	Tumor protein p53 (Li-Fraumeni syndrome)
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