

## RT<sup>2</sup> Profiler™ PCR Array:

### Human Breast Cancer and Estrogen Receptor Signaling

**Catalog Number**

PAHS-005A

PAHS-005C

PAHS-005D

PAHS-005E

PAHS-005F

PAHS-005G

**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 Breast Cancer and Estrogen Receptor Signaling RT<sup>2</sup> Profiler PCR Array profiles the expression of 84 genes related to breast cancer regulation and estrogen receptor-dependent signal transduction. Genes directly associated with breast cancer are included as well as related genes involved in estrogen-dependent signaling. Genes known to be preferentially expressed in breast cancer cells are represented for use as biomarkers of the disease. Also included are genes associated with cancer cells' response to chemotherapy. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to breast cancer and estrogen receptor signaling with this array.

**Functional Gene Groupings**

**Genes Directly Associated with Breast Cancer:** CDKN1A (p21<sup>Wap1/Cip1</sup>), CLDN7 (claudin-7), CLU (clusterin), ERBB2 (Her-2), FGF1, FLRT1 (fibronectin), GABRP (GABAa), GNAS, ID2, ITGA6, ITGB4 (β4 integrin), KLF5 (GC Box BP), KRT19 (Keratin 19), MT3 (metallothionein-III), MUC1 (mucin), PTGS2 (COX-2), RAC2 (p21Rac2), SCGB1D2 (lipophilin B), SCGB2A1 (mammaglobin 2), SPRR1B (Spr1), THBS1, THBS2, TNFAIP2 (B94).

**Genes Associated with the Estrogen Receptor Signaling Pathway:** AR, C3 (Complement component 3), CCND1, CTSD (cathepsin D), ESR1, ESR2, GATA3, HSPB1 (HSP28), KRT18, KRT19 (Keratin 19), PGR, SERPINA3 (a1-antichmotrypsin), SLC7A5, STC2, TFF1 (pS2).

**Genes Associated with Breast Cancer Prognosis:** BAD, BAG1, BCL2, CCNA1, CCNA2, CCND1, CCNE1, CDH1 (E-cadherin), CDKN1B (p27Kip1), CDKN2A (p16INK4a), COL6A1, CTNNB1 (b-catenin), CTSB (cathepsin B), EGFR, ERBB2 (Her-2), ESR1, ESR2, FAS (TNFRSF6), FASLG (TNFSF6), FOSL1 (FRA-1), GATA3, GSN (Gelsolin), IGFBP2, IL2RA, IL6, IL6R, IL6ST (glycoprotein 130), ITGA6 (α6 integrin), JUN, KLK5, KRT19, MAP2K7, MKI67 (Ki-67), NGFB (NGF), NGFR, NME1 (NM23A), PGR, PLAU (uPA), PTEN, SERPINB5 (maspin), SERPINE1 (PAI-1), TGFA, THBS1 (thrombospondin-1), TIE1 (Tie-1), TOP2A (topoisomerase lia), TP53, VEGFA.

**Genes Associated with the Response to Chemotherapy:** BCL2, BCL2L2, CD44, CTSD (cathepsin D), CYP19A1, DLC1, ESR1, ESR2, HMGB1, KIT, NFYB, PAPP, PGR, RPL27, VEGFA.

**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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## Product Specification Sheet

### Array Layout: Human Breast Cancer and Estrogen Receptor Signaling PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	AR	BAD	BAG1	BCL2	BCL2L2	C3	CCNA1	CCNA2	CCND1	CCNE1	CD44	CDH1
B	CDKN1A	CDKN1B	CDKN2A	CLDN7	CLU	COL6A1	CTNNB1	CTSB	CTSD	CYP19A1	DLC1	EGFR
C	ERBB2	ESR1	ESR2	FAS	FASLG	FGF1	FLRT1	FOSL1	GABRP	GATA3	GNAS	GSN
D	HMGB1	HSPB1	ID2	IGFBP2	IL2RA	IL6	IL6R	IL6ST	ITGA6	ITGB4	JUN	KIT
E	KLF5	KLK5	KRT18	KRT19	MAP2K7	MKI67	MT3	MUC1	NFYB	NGFB	NGFR	NME1
F	PAPPA	PGR	PLAU	PTEN	PTGS2	RAC2	RPL27	SCGB1D2	SCGB2A1	SERPINA3	SERPINB5	SERPINE1
G	SLC7A5	SPRR1B	STC2	TFF1	TGFA	THBS1	THBS2	TIE1	TNFAIP2	TOP2A	TP53	VEGFA
H	B2M	HPRT1	RPL13A	GAPDH	ACTB	HGDC	RTC	RTC	RTC	PPC	PPC	PPC

### Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Hs.496240	NM_000044	AR	Androgen receptor (dihydrotestosterone receptor; testicular feminization; spinal and bulbar muscular atrophy; Kennedy disease)
A02	Hs.370254	NM_004322	BAD	BCL2-antagonist of cell death
A03	Hs.377484	NM_004323	BAG1	BCL2-associated athanogene
A04	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2
A05	Hs.410026	NM_004050	BCL2L2	BCL2-like 2
A06	Hs.529053	NM_000064	C3	Complement component 3
A07	Hs.417050	NM_003914	CCNA1	Cyclin A1
A08	Hs.85137	NM_001237	CCNA2	Cyclin A2
A09	Hs.523852	NM_053056	CCND1	Cyclin D1
A10	Hs.244723	NM_001238	CCNE1	Cyclin E1
A11	Hs.502328	NM_000610	CD44	CD44 molecule (Indian blood group)
A12	Hs.461086	NM_004360	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)
B01	Hs.370771	NM_000389	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
B02	Hs.238990	NM_004064	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)
B03	Hs.512599	NM_000077	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)
B04	Hs.513915	NM_001307	CLDN7	Claudin 7
B05	Hs.436657	NM_001831	CLU	Clusterin
B06	Hs.474053	NM_001848	COL6A1	Collagen, type VI, alpha 1
B07	Hs.476018	NM_001904	CTNNB1	Catenin (cadherin-associated protein), beta 1, 88kDa
B08	Hs.520898	NM_001908	CTSB	Cathepsin B
B09	Hs.121575	NM_001909	CTSD	Cathepsin D
B10	Hs.511367	NM_000103	CYP19A1	Cytochrome P450, family 19, subfamily A, polypeptide 1
B11	Hs.134296	NM_006094	DLC1	Deleted in liver cancer 1
B12	Hs.488293	NM_005228	EGFR	Epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)
C01	Hs.446352	NM_004448	ERBB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
C02	Hs.652547	NM_000125	ESR1	Estrogen receptor 1
C03	Hs.443150	NM_001437	ESR2	Estrogen receptor 2 (ER beta)
C04	Hs.244139	NM_000043	FAS	Fas (TNF receptor superfamily, member 6)
C05	Hs.2007	NM_000639	FASLG	Fas ligand (TNF superfamily, member 6)
C06	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)
C07	Hs.584876	NM_013280	FLRT1	Fibronectin leucine rich transmembrane protein 1
C08	Hs.283565	NM_005438	FOSL1	FOS-like antigen 1
C09	Hs.26225	NM_014211	GABRP	Gamma-aminobutyric acid (GABA) A receptor, pi
C10	Hs.524134	NM_002051	GATA3	GATA binding protein 3
C11	Hs.125898	NM_080425	GNAS	GNAS complex locus
C12	Hs.522373	NM_000177	GSN	Gelsolin (amyloidosis, Finnish type)
D01	Hs.434102	NM_002128	HMGB1	High-mobility group box 1
D02	Hs.520973	NM_001540	HSPB1	Heat shock 27kDa protein 1
D03	Hs.180919	NM_002166	ID2	Inhibitor of DNA binding 2, dominant negative helix-loop-helix protein
D04	Hs.438102	NM_000597	IGFBP2	Insulin-like growth factor binding protein 2, 36kDa

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Position	UniGene	GenBank	Symbol	Description
D05	Hs.231367	NM_000417	IL2RA	Interleukin 2 receptor, alpha
D06	Hs.512234	NM_000600	IL6	Interleukin 6 (interferon, beta 2)
D07	Hs.591492	NM_000565	IL6R	Interleukin 6 receptor
D08	Hs.532082	NM_002184	IL6ST	Interleukin 6 signal transducer (gp130, oncostatin M receptor)
D09	Hs.133397	NM_000210	ITGA6	Integrin, alpha 6
D10	Hs.632226	NM_000213	ITGB4	Integrin, beta 4
D11	Hs.525704	NM_002228	JUN	Jun oncogene
D12	Hs.479754	NM_000222	KIT	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog
E01	Hs.508234	NM_001730	KLF5	Kruppel-like factor 5 (intestinal)
E02	Hs.50915	NM_012427	KLK5	Kallikrein-related peptidase 5
E03	Hs.406013	NM_000224	KRT18	Keratin 18
E04	Hs.514167	NM_002276	KRT19	Keratin 19
E05	Hs.531754	NM_145185	MAP2K7	Mitogen-activated protein kinase kinase 7
E06	Hs.80976	NM_002417	MKI67	Antigen identified by monoclonal antibody Ki-67
E07	Hs.73133	NM_005954	MT3	Metallothionein 3
E08	Hs.89603	NM_002456	MUC1	Mucin 1, cell surface associated
E09	Hs.84928	NM_006166	NFYB	Nuclear transcription factor Y, beta
E10	Hs.2561	NM_002506	NGFB	Nerve growth factor, beta polypeptide
E11	Hs.415768	NM_002507	NGFR	Nerve growth factor receptor (TNFR superfamily, member 16)
E12	Hs.118638	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed in
F01	Hs.643599	NM_002581	PAPPA	Pregnancy-associated plasma protein A, pappalysin 1
F02	Hs.368072	NM_000926	PGR	Progesterone receptor
F03	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase
F04	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple advanced cancers 1)
F05	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)
F06	Hs.517601	NM_002872	RAC2	Ras-related C3 botulinum toxin substrate 2 (rho family, small GTP binding protein Rac2)
F07	Hs.514196	NM_000988	RPL27	Ribosomal protein L27
F08	Hs.204096	NM_006551	SCGB1D2	Secretoglobulin, family 1D, member 2
F09	Hs.97644	NM_002407	SCGB2A1	Secretoglobulin, family 2A, member 1
F10	Hs.510334	NM_001085	SERPINA3	Serpin peptidase inhibitor, clade A (alpha-1 antiproteinase, antitrypsin), member 3
F11	Hs.55279	NM_002639	SERPINB5	Serpin peptidase inhibitor, clade B (ovalbumin), member 5
F12	Hs.414795	NM_000602	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1
G01	Hs.513797	NM_003486	SLC7A5	Solute carrier family 7 (cationic amino acid transporter, y+ system), member 5
G02	Hs.1076	NM_003125	SPRR1B	Small proline-rich protein 1B (cornifin)
G03	Hs.233160	NM_003714	STC2	Stanniocalcin 2
G04	Hs.162807	NM_003225	TFF1	Trefoil factor 1
G05	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha
G06	Hs.164226	NM_003246	THBS1	Thrombospondin 1
G07	Hs.371147	NM_003247	THBS2	Thrombospondin 2
G08	Hs.78824	NM_005424	TIE1	Tyrosine kinase with immunoglobulin-like and EGF-like domains 1
G09	Hs.525607	NM_006291	TNFAIP2	Tumor necrosis factor, alpha-induced protein 2
G10	Hs.156346	NM_001067	TOP2A	Topoisomerase (DNA) II alpha 170kDa
G11	Hs.408312	NM_000546	TP53	Tumor protein p53 (Li-Fraumeni syndrome)
G12	Hs.73793	NM_003376	VEGFA	Vascular endothelial growth factor A
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