

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

### Rat Breast Cancer and Estrogen Receptor Signaling

**Catalog Number**

PARN-005A

PARN-005C

PARN-005D

PARN-005E

PARN-005F

PARN-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 Rat 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, Gabrp, Gnas, Id2, Itga6 (α6 integrin), Itgb4 (β4 integrin), Klf5 (GC Box BP), Krt1-19, Lcn2 (NGAL/lipocalin 2), LOC299339 (Tnfaip2), Mt3 (metallothionein-III), Muc1 (mucin), Ptgs2 (COX-2), Rac2 (p21Rac2), Thbs1, Thbs2, Tob2.

**Genes Associated with the Estrogen Receptor Signaling Pathway:** Ar, C3 (Complement component 3), Ccnd1, Cd47 (Itgp), Ctsd (cathepsin D), Esr1, Esr2, Gata3, Hspb1 (Hsp25), Krt1-18, Krt1-19, Pgr, Slc7a5, Stc2, Tff1 (pS2).

**Genes Associated with Breast Cancer Prognosis:** Bad, Bag1, Bcl2, Ccna1, Ccna2, Ccnd1, Ccne1, Ccne2, Cdh1 (E-cadherin), Cdkn1b (p27Kip1), Cdkn2a (p16INK4a), Col6a1, Ctnnb1 (b-catenin), Ctsb (cathepsin B), Egfr, Erbb2 (Her-2), Esr1, Esr2, Fosl1 (FRA-1), Gata3, Gsn (Gelsolin), Igfbp2, Il2ra, Il6, Il6ra, Il6st (glycoprotein 130), Itga6 (α6 integrin), Jun, Kb21 (Krt2-19), Krt1-19, Map2k7 (c-Jun), Mki67 (Ki-67), Ngfb, Ngfr, Nme1 (NM23A), Pgr, Plau (uPA), Pten, Serpinb5 (maspin), Serpine1 (PAI-1), Tgfa, Thbs1 (thrombospondin-1), Tie1 (Tie-1), Tnfrsf6, Faslg (Tnfsf6), Tob2, Top2a (topoisomerase IIA), Tp53, Vegfa, Vim (vimentin).

**Genes Associated with the Response to Chemotherapy:** Bcl2, Bcl2l2, Cd44, Cyp19a1, Dlc1, Esr1, Esr2, Hmgb1, Kit, Nfyb, Pappa, 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: Rat 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	Ccne2	Cd44
B	Cd47	Cdh1	Cdkn1a	Cdkn1b	Cdkn2a	Cldn7	Clu	Col6a1	Ctnnb1	Ctsb	Ctsd	Cyp19a1
C	Dlc1	Egfr	ErbB2	Esr1	Esr2	Fgf1	Fos1	Gabrp	Gata3	Gnas	Gsn	Hmgb1
D	Hspb1	Id2	Igfbp2	Il2ra	Il6	Il6ra	Il6st	Itga6	Itgb4	Jun	Kb21	Kit
E	Klf5	Krt1-18	Krt1-19	Lcn2	LOC299339	Map2k7	Mki67	Mt3	Muc1	Nfyb	Ngfb	Ngfr
F	Nme1	Pappad	Pgr	Plau	Pten	Ptgs2	Rac2	Rpl27	Serpib5	Serpine1	Slc7a5	Stc2
G	Tff1	Tgfa	Thbs1	Thbs2	Tie1	Tnfrsf6	Faslg	Tob2	Top2a	Tp53	Vegfa	Vim
H	Rplp1	Hprt	Rpl13a	Ldha	Actb	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

### Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Rn.9813	NM_012502	Ar	Androgen receptor
A02	Rn.36696	NM_022698	Bad	Bcl2-associated death promoter
A03	Rn.16320	XM_216377	Bag1_predicted	Bcl2-associated athanogene 1 (predicted)
A04	Rn.9996	NM_016993	Bcl2	B-cell leukemia/lymphoma 2
A05	Rn.44267	NM_021850	Bcl2l2	Bcl2-like 2
A06	Rn.11378	NM_016994	C3	Complement component 3
A07	Rn.102823	NM_001011949	Ccna1	Cyclin A1
A08	Rn.13094	NM_053702	Ccna2	Cyclin A2
A09	Rn.22279	NM_171992	Ccnd1	Cyclin D1
A10	Rn.15455	XM_574426	Ccne1	Cyclin E
A11	Rn.99690	XM_342804	Ccne2	Cyclin E 2
A12	Rn.1120	NM_012924	Cd44	CD44 antigen
B01	Rn.7409	NM_019195	Cd47	CD47 antigen (Rh-related antigen, integrin-associated signal transducer)
B02	Rn.1303	NM_031334	Cdh1	Cadherin 1
B03	Rn.10089	NM_080782	Cdkn1a	Cyclin-dependent kinase inhibitor 1A
B04	Rn.29897	NM_031762	Cdkn1b	Cyclin-dependent kinase inhibitor 1B
B05	Rn.48717	NM_031550	Cdkn2a	Cyclin-dependent kinase inhibitor 2A
B06	Rn.32259	NM_031702	Cldn7	Claudin 7
B07	Rn.1780	NM_053021	Clu	Clusterin
B08	Rn.107165	XM_215375	Col6a1_predicted	Procollagen, type VI, alpha 1 (predicted)
B09	Rn.112601	NM_053357	Ctnnb1	Catenin (cadherin associated protein), beta 1
B10	Rn.100909	NM_022597	Ctsb	Cathepsin B
B11	Rn.11085	NM_134334	Ctsd	Cathepsin D
B12	Rn.21402	NM_017085	Cyp19a1	Cytochrome P450, family 19, subfamily a, polypeptide 1
C01	Rn.7255	XM_341444	Dlc1	Deleted in liver cancer 1
C02	Rn.37227	NM_031507	Egfr	Epidermal growth factor receptor
C03	Rn.93966	NM_017003	ErbB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)
C04	Rn.10595	NM_012689	Esr1	Estrogen receptor 1
C05	Rn.37460	NM_012754	Esr2	Estrogen receptor 2 beta
C06	Rn.88013	NM_012846	Fgf1	Fibroblast growth factor 1
C07	Rn.11306	NM_012953	Fos1	Fos-like antigen 1
C08	Rn.21401	NM_031029	Gabrp	Gamma-aminobutyric acid A receptor, pi
C09	Rn.92350	NM_133293	Gata3	GATA binding protein 3
C10	Rn.31	NM_001024823	Gnas	GNAS complex locus
C11	Rn.103770	NM_001004080	Gsn	Gelsolin
C12	Rn.4121	NM_012963	Hmgb1	High mobility group box 1
D01	Rn.3841	NM_031970	Hspb1	Heat shock 27kDa protein 1
D02	Rn.3272	NM_013060	Id2	Inhibitor of DNA binding 2
D03	Rn.6813	NM_013122	Igfbp2	Insulin-like growth factor binding protein 2
D04	Rn.9872	NM_013163	Il2ra	Interleukin 2 receptor, alpha chain
D05	Rn.9873	NM_012589	Il6	Interleukin 6
D06	Rn.1716	NM_017020	Il6ra	Interleukin 6 receptor, alpha

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Position	UniGene	GenBank	Symbol	Description
D07	Rn.12138	NM_001008725	Il6st	Interleukin 6 signal transducer
D08	Rn.161799	XM_215984	Itga6	Integrin, alpha 6
D09	Rn.198908	NM_013180	Itgb4	Integrin beta 4
D10	Rn.93714	NM_021835	Jun	Jun oncogene
D11	Rn.162019	NM_001008814	Kb21	Type II keratin Kb21
D12	Rn.54004	NM_022264	Kit	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog
E01	Rn.8954	NM_053394	Klf5	Kruppel-like factor 5
E02	Rn.121997	NM_053976	Krt1-18	Keratin complex 1, acidic, gene 18
E03	Rn.9359	NM_199498	Krt1-19	Keratin complex 1, acidic, gene 19
E04	Rn.11303	NM_130741	Lcn2	Lipocalin 2
E05	Rn.34387	XM_216791	LOC299339	Similar to Tumor necrosis factor, alpha-induced protein 2 (Primary response gene B94
E06	Rn.162081	NM_001025425	Map2k7	Mitogen activated protein kinase kinase 7
E07	Rn.73551	XM_225460	Mki67_predicted	Antigen identified by monoclonal antibody Ki-67 (predicted)
E08	Rn.11325	NM_053968	Mt3	Metallothionein 3
E09	Rn.64144	XM_342281	Muc1	Mucin 1, transmembrane
E10	Rn.90077	NM_031553	Nfyb	Nuclear transcription factor-Y beta
E11	Rn.22168	XM_227525	Ngfb	Nerve growth factor, beta (mapped)
E12	Rn.10980	NM_012610	Ngfr	Nerve growth factor receptor (TNFR superfamily, member 16)
F01	Rn.6236	NM_138548	Nme1	Expressed in non-metastatic cells 1
F02	Rn.38908	XM_233037	Pappa_predicted	Pregnancy-associated plasma protein A (predicted)
F03	Rn.10303	NM_022847	Pgr	Progesterone receptor
F04	Rn.6064	NM_013085	Plau	Plasminogen activator, urokinase
F05	Rn.22158	NM_031606	Pten	Phosphatase and tensin homolog
F06	Rn.44369	NM_017232	Ptgs2	Prostaglandin-endoperoxide synthase 2
F07	Rn.2863	NM_001008384	Rac2	RAS-related C3 botulinum substrate 2
F08	Rn.1254	NM_022514	Rpl27	Ribosomal protein L27
F09	Rn.25752	NM_057108	Serpinb5	Serine (or cysteine) peptidase inhibitor, clade B, member 5
F10	Rn.29367	NM_012620	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1
F11	Rn.32261	NM_017353	Slc7a5	Solute carrier family 7 (cationic amino acid transporter, y+ system), member 5
F12	Rn.44823	NM_022230	Stc2	Stanniocalcin 2
G01	Rn.10715	NM_057129	Tff1	Trefoil factor 1
G02	Rn.9952	NM_012671	Tgfa	Transforming growth factor alpha
G03	Rn.185771	NM_001013062	Thbs1	Thrombospondin 1
G04	Rn.165619	XM_214778	Thbs2	Thrombospondin 2
G05	Rn.13171	XM_233462	Tie1	Tyrosine kinase with immunoglobulin-like and EGF-like domains 1
G06	Rn.162521	NM_139194	Tnfrsf6	Tumor necrosis factor receptor superfamily, member 6
G07	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
G08	Rn.18247	NM_001007146	Tob2	Transducer of ERBB2, 2
G09	Rn.90996	NM_022183	Top2a	Topoisomerase (DNA) 2 alpha
G10	Rn.54443	NM_030989	Tp53	Tumor protein p53
G11	Rn.1923	NM_031836	Vegfa	Vascular endothelial growth factor A
G12	Rn.2710	NM_031140	Vim	Vimentin
H01	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H02	Rn.47	NM_012583	Hprt	Hypoxanthine guanine phosphoribosyl transferase
H03	Rn.92211	NM_173340	Rpl13a	Ribosomal protein L13A
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.94978	NM_031144	Actb	Actin, beta
H06	N/A	U26919	RGDC	Rat 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