

Oligo GEMArray[®] DNA Microarray:

Human Breast Cancer and Estrogen Receptor Signaling

Catalog Number

OHS-005
EHS-005

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMArray[®] Human Breast Cancer and Estrogen Receptor Signaling Microarray profiles the expression of 113 genes involved in breast cancer-related gene regulation. Genes related to estrogen receptor-dependent signal transduction are represented on this array as well. This array includes breast cancer-related genes that are involved in estrogen-independent signaling pathways. Useful marker genes that are preferentially expressed in breast cancer cells are also represented. The genes that are associated with breast cancer prognosis and the genes associated with cancer cells' response to chemotherapy are also included. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

Genes Directly Associated with Breast Cancer: AZGP1, CDKN1A, CLDN7, CLU, DST, ERBB2, FGF1, FLRT1, GABRP, GNAS, ID2, ITGA6, ITGB4, KLF5, KRT19, KRT86 (KRTHB6), LCN2, MARCKSL1, MT3, MUC1, PTGS2, RAC2, S100A2, SCGB1D2, SCGB2A1, SCGB2A2, SPRR1B, THBS1, THBS2, THBS4, TNFAIP2, TOB2.

Genes Associated with the Estrogen Receptor Signaling Pathway:

Estrogen Receptors: ESR1, ESR2.

Estrogen Receptor Binding: DDX54, NCOA6, NRIP1, NSD1, PHB2, PPARGC1B, RERG.

Other Genes Associated with the Estrogen Receptor Signaling Pathway: AR, ARID1A, BMPR1B, C3, CCND1, CD47, CTSD, EGLN2, GATA3, HSD17B1, HSPB1, KRT18, KRT19, PGR, SERPINA3, SLC7A5, STC2, SULT1E1, TFF1, TFF3.

Genes Associated with Breast Cancer Prognosis: BAD, BAG1, BCL2, CCNA1, CCNA2, CCND1, CCNE1, CCNE2, CDH1, CDKN1B, CDKN2A, COL6A1, CTNNB1, CTSB, EGFR, ERBB2, ESR1, ESR2, F3, FAS, FASLG, FOSL1, GATA3, GSN, IGFBP2, IGFBP5, IL2RA, IL6, IL6R, IL6ST, ITGA6, JUN, KLK5, KRT19, MAP2K7, MKI67, NGFB, NGFR, NME1, PGR, PLAU, PTEN, SERPINB5, SERPINE1, TGFA, THBS1, TIE1, TOB2, TOP2A, TP53, VEGF, VIM.

Genes Associated with the Response to Chemotherapy: BCL2, BCL2L2, CD44, COX17, CTSD, CYP19A1, DLC1, ESR1, ESR2, HMGB1, KIT, NFYB, PAPP, PGR, PPP1R15A, RPL27, VEGF.

Storage Conditions

Please check the kit components immediately after you receive this package. SuperArray is only responsible for missing items reported within two (2) business days of receipt.

GEMArray microarrays are shipped at ambient temperature enclosed in either a HybTube or ExpressPak Storage Box. They should be stored at -20°C upon receipt.

References

1. Jiang Y, et al. Discovery of differentially expressed genes in human breast cancer using subtracted cDNA libraries and cDNA microarrays. *Oncogene* 2002 Mar 28; **21** (14): 2270-82
2. Sotiriou C, et al. Gene expression profiles derived from fine needle aspiration correlate with response to systemic chemotherapy in breast cancer. *Breast Cancer Res.* 2002; **4** (3): R3.
3. Ahr A, et al. Molecular classification of breast cancer patients by gene expression profiling. *J Pathol.* 2001 Oct; **195** (3): 312-20.
4. Gruvberger S. Estrogen receptor status in breast cancer is associated with remarkably distinct gene expression patterns. *Cancer Res.* 2001 Aug 15; **61** (16): 5979-84.
5. Zajchowski DA, et al. Identification of gene expression profiles that predict the aggressive behavior of breast cancer cells. *Cancer Res.* 2001 Jul 1; **61** (13): 5168-78
6. Kim H, et al. Human kallikrein gene 5 (KLK5) expression is an indicator of poor prognosis in ovarian cancer. *Br J Cancer.* 2001 Mar 2; **84** (5): 643-50.
7. Umekita Y, et al. Co-expression of epidermal growth factor receptor and transforming growth factor-alpha predicts worse prognosis in breast-cancer patients. *Int J Cancer.* 2000 Nov 20; **89** (6): 484-7.
8. Hui R, et al. INK4a gene expression and methylation in primary breast cancer: overexpression of p16INK4a messenger RNA is a marker of poor prognosis. *Clin Cancer Res.* 2000 Jul; **6** (7): 2777-87.
9. Nelson NJ. Plasminogen activator proteins tested as prognostic markers. *J Natl Cancer Inst.* 2000 Jun 7; **92** (11): 866-8.
10. Karczewska A, et al. Expression of interleukin-6, interleukin-6 receptor, and glycoprotein 130 correlates with good prognoses for patients with breast carcinoma. *Cancer* 2000 May 1; **88** (9): 2061-71.
11. Lin SY, et al. Beta-catenin, a novel prognostic marker for breast cancer: its roles in cyclin D1 expression and cancer progression. *Proc Natl Acad Sci U S A.* 2000 Apr 11; **97** (INK4a gene expression and methylation in primary breast 8): 4262-6.
12. Martin KJ, et al. Linking gene expression patterns to therapeutic groups in breast cancer. *Cancer Res.* 2000 Apr 15; **60** (8): 2232-8.
13. Nacht M, et al. Combining serial analysis of gene expression and array technologies to identify genes differentially expressed in breast cancer. *Cancer Res.* 1999 Nov 1; **59** (21): 5464-70.

Product Specification Sheet

Oligo GEArray® Human Breast Cancer and Estrogen Receptor Signaling Microarray

Array Layout:

RPS27A 1	AR 2	ARID1A 3	AZGP1 4	BAD 5	BAG1 6	BCL2 7	BCL2L2 8
BMPR1B 9	C3 10	CCNA1 11	CCNA2 12	CCND1 13	CCNE1 14	CCNE2 15	CD44 16
CD47 17	CDH1 18	CDKN1A 19	CDKN1B 20	CDKN2A 21	CLDN7 22	CLU 23	COL6A1 24
COX17 25	CTNBN1 26	CTSB 27	CTSD 28	CYP19A1 29	DDX54 30	DLC1 31	DST 32
EGFR 33	EGLN2 34	ERBB2 35	ESR1 36	ESR2 37	F3 38	FAS 39	FASLG 40
FGF1 41	FLRT1 42	FOSL1 43	GABRP 44	GATA3 45	GNAS 46	GSN 47	HMGB1 48
HSD17B1 49	HSPB1 50	ID2 51	IGFBP2 52	IGFBP5 53	IL2RA 54	IL6 55	IL6R 56
IL6ST 57	ITGA6 58	ITGB4 59	JUN 60	KIT 61	KLF5 62	KLK5 63	KRT18 64
KRT19 65	KRT86 66	LCN2 67	MAP2K7 68	MARCKSL1 69	MKI67 70	MT3 71	MUC1 72
NCOA6 73	NFYB 74	NGFB 75	NGFR 76	NME1 77	NRIP1 78	NSD1 79	PAPPA 80
PGR 81	PHB2 82	PLAU 83	PPARGC1B 84	PPP1R15A 85	PTEN 86	PTGS2 87	RAC2 88
RERG 89	RPL27 90	S100A2 91	SCGB1D2 92	SCGB2A1 93	SCGB2A2 94	SERPINA3 95	SERPINB5 96
SERPINE1 97	SLC7A5 98	SPRR1B 99	STC2 100	SULT1E1 101	TFF1 102	TFF3 103	TGFA 104
THBS1 105	THBS2 106	THBS4 107	TIE1 108	TNFAIP2 109	TOB2 110	TOP2A 111	TP53 112
VEGF 113	VIM 114	PUC18 115	Blank 116	Blank 117	AS1R2 118	AS1R1 119	AS1 120
GAPD 121	B2M 122	HSPCB 123	HSPCB 124	ACTB 125	ACTB 126	BAS2C 127	BAS2C 128

Gene Table

Position	UniGene	GenBank	Symbol	Description	Gene Name
1	Hs.311640	NM_002954	RPS27A	Ribosomal protein S27a	CEP80/HUBCEP80
2	Hs.496240	NM_000044	AR	Androgen receptor (dihydrotestosterone receptor; testicular feminization; spinal and bulbar muscular atrophy; Kennedy disease)	AIS/DHTR
3	Hs.468972	NM_006015	ARID1A	AT rich interactive domain 1A (SWI-like)	B120/BAF250
4	Hs.546239	NM_001185	AZGP1	Alpha-2-glycoprotein 1, zinc	ZAZG/ZAG
5	Hs.370254	NM_004322	BAD	BCL2-antagonist of cell death	BBC2/BCL2L8
6	Hs.377484	NM_004323	BAG1	BCL2-associated athanogene	BAG-1
7	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2	Bcl-2
8	Hs.410026	NM_004050	BCL2L2	BCL2-like 2	BCL-W/BCLW
9	Hs.480321	NM_001203	BMPR1B	Bone morphogenetic protein receptor, type IB	ALK-6/ALK6
10	Hs.529053	NM_000064	C3	Complement component 3	ASP/CPAMD1
11	Hs.417050	NM_003914	CCNA1	Cyclin A1	Cyclin A1
12	Hs.85137	NM_001237	CCNA2	Cyclin A2	CCN1/CCNA
13	Hs.523852	NM_053056	CCND1	Cyclin D1	BCL1/D11S287E
14	Hs.244723	NM_001238	CCNE1	Cyclin E1	CCNE
15	Hs.567387	NM_057735	CCNE2	Cyclin E2	CYCE2
16	Hs.459142	NM_000610	CD44	CD44 antigen (Indian blood group)	CDW44/ECMR-III
17	Hs.446414	NM_001777	CD47	CD47 antigen (Rh-related antigen, integrin-associated signal transducer)	IAP/MER6
18	Hs.461086	NM_004360	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)	Arc-1/CDHE
19	Hs.370771	NM_000389	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)	CAP20/CDKN1
20	Hs.238990	NM_004064	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kip1)	CDKN4/KIP1
21	Hs.512599	NM_000077	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p16, inhibits CDK4)	ARF/CDK4I
22	Hs.513915	NM_001307	CLDN7	Claudin 7	CEPTRL2/CEPTRL2
23	Hs.438657	NM_001831	CLU	Clusterin (complement lysis inhibitor, SP-40,40, sulfated glycoprotein 2, testosterone-repressed prostate message 2, apolipoprotein J)	AAG4/APOJ
24	Hs.474053	NM_001848	COL6A1	Collagen, type VI, alpha 1	OPLL
25	Hs.534383	NM_005694	COX17	COX17 cytochrome c oxidase assembly homolog (S. cerevisiae)	MGC104397/MGC117386
26	Hs.476018	NM_001904	CTNBN1	Catenin (cadherin-associated protein), beta 1, 88kDa	CTNBN
27	Hs.520898	NM_001908	CTSB	Cathepsin B	APPS/CP5B
28	Hs.121575	NM_001909	CTSD	Cathepsin D (lysosomal aspartyl peptidase)	CPSD
29	Hs.511367	NM_000103	CYP19A1	Cytochrome P450, family 19, subfamily A, polypeptide 1	ARO/ARO1
30	Hs.506861	NM_024072	DDX54	DEAD (Asp-Glu-Ala-Asp) box polypeptide 54	DP97
31	Hs.134296	NM_006094	DLC1	Deleted in liver cancer 1	ARHGAP7/HIP
32	Hs.485616	NM_015548	DST	Dystonin	BP240/BPA
33	Hs.488293	NM_005228	EGFR	Epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene homolog, avian)	ERBB/ERBB1
34	Hs.515417	NM_017555	EGLN2	Egl nine homolog 2 (C. elegans)	DKFZp434E026/EIT6
35	Hs.446352	NM_004448	ERBB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived oncogene homolog (avian)	HER-2/HER-2
36	Hs.208124	NM_000125	ESR1	Estrogen receptor 1	DKFZp686N23123/ER
37	Hs.443150	NM_001437	ESR2	Estrogen receptor 2 (ER beta)	Sp152/ER-BETA
38	Hs.62192	NM_001993	F3	Coagulation factor III (thromboplastin, tissue factor)	CD142/TF
39	Hs.244139	NM_000043	FAS	Fas (TNF receptor superfamily, member 6)	ALPS1A/APO-1
40	Hs.2007	NM_000639	FASLG	Fas ligand (TNF superfamily, member 6)	APT1/LG1/CD178
41	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)	AFGF/ECGF
42	Hs.558469	NM_013280	FLRT1	Fibronectin leucine rich transmembrane protein 1	MGC21624
43	Hs.283565	NM_005438	FOSL1	FOS-like antigen 1	FRA1/fra-1
44	Hs.26225	NM_014211	GABRP	Gamma-aminobutyric acid (GABA) A receptor, pi	MGC126386

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
45	Hs.524134	NM_002051	GATA3	GATA binding protein 3	HDR
46	Hs.125898	NM_080425	GNAS	GNAS complex locus	AHO/C20orf45
47	Hs.522373	NM_000177	GSN	Gelsolin (amyloidosis, Finnish type)	DKFZp313L0718
48	Hs.434102	NM_002128	HMGB1	High-mobility group box 1	DKFZp686A04236/HMG1
49	Hs.500159	NM_000413	HSD17B1	Hydroxysteroid (17-beta) dehydrogenase 1	EDH17B/EDHB17
50	Hs.520973	NM_001540	HSPB1	Heat shock 27kDa protein 1	CMT2F/DKFZp586P1322
51	Hs.180919	NM_002166	ID2	Inhibitor of DNA binding 2, dominant negative helix-loop-helix protein	GIG8/ID2A
52	Hs.438102	NM_000597	IGFBP2	Insulin-like growth factor binding protein 2, 36kDa	IBP2/IGF-BP53
53	Hs.369982	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5	IBP5
54	Hs.231367	NM_000417	IL2RA	Interleukin 2 receptor, alpha	CD25/IL2R
55	Hs.512234	NM_000600	IL6	Interleukin 6 (interferon, beta 2)	BSF2/HGF
56	Hs.135087	NM_000565	IL6R	Interleukin 6 receptor	CD126/IL-6R-1
57	Hs.532082	NM_002184	IL6ST	Interleukin 6 signal transducer (gp130, oncostatin M receptor)	CD130/CDw130
58	Hs.133397	NM_000210	ITGA6	Integrin, alpha 6	CD49f
59	Hs.370255	NM_000213	ITGB4	Integrin, beta 4	CD104
60	Hs.525704	NM_002228	JUN	V-jun sarcoma virus 17 oncogene homolog (avian)	AP1
61	Hs.479754	NM_000222	KIT	V-kit Hardy-Zuckerman 4 feline sarcoma viral oncogene homolog	C-Kiit/CD117
62	Hs.508234	NM_001730	KLF5	Kruppel-like factor 5 (intestinal)	BTEB2/CKLF
63	Hs.50915	NM_012427	KLK5	Kallikrein 5	KLK-L2/KLKL2
64	Hs.406013	NM_000224	KRT18	Keratin 18	CYK18/K18
65	Hs.514167	NM_002276	KRT19	Keratin 19	CK19/K19
66	Hs.278658	NM_002284	KRT86	Keratin, hair, basic, 6 (monilethrix)	Hb6/Hb1
67	Hs.204238	NM_005564	LCN2	Lipocalin 2 (oncogene 24p3)	NGAL
68	Hs.531754	NM_145185	MAP2K7	Mitogen-activated protein kinase kinase 7	Jnk2/MAPKK7
69	Hs.75061	NM_023009	MARCKSL1	MARCKS-like 1	F52/MACMARCKS
70	Hs.80976	NM_002417	MKI67	Antigen identified by monoclonal antibody Ki-67	KiA/Ki-67
71	Hs.73133	NM_005954	MT3	Metallothionein 3 (growth inhibitory factor (neurotrophic))	GIF/GIFB
72	Hs.89603	NM_001018016	MUC1	Mucin 1, transmembrane	CD227/EMA
73	Hs.368971	NM_014071	NCOA6	Nuclear receptor coactivator 6	AIB3/ASC2
74	Hs.84928	NM_006166	NFYB	Nuclear transcription factor Y, beta	CBF-A/CBF-B
75	Hs.2561	NM_002506	NGFB	Nerve growth factor, beta polypeptide	Beta-NGF/HSAN5
76	Hs.415768	NM_002507	NGFR	Nerve growth factor receptor (TNFR superfamily, member 16)	TNFRSF16/p75(NTR)
77	Hs.118638	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed in	AWD/GAAD
78	Hs.155017	NM_003489	NRIP1	Nuclear receptor interacting protein 1	RIP140
79	Hs.106861	NM_022455	NSD1	Nuclear receptor binding SET domain protein 1	ARA267/DKFZp666C163
80	Hs.494928	NM_002581	PAPPA	Pregnancy-associated plasma protein A, pappalysin 1	ASBAP2/DIFLA1
81	Hs.368072	NM_000926	PGR	Progesterone receptor	NR3C3/PR
82	Hs.504620	NM_007273	PHB2	Prohibitin 2	BAP/BCAP37
83	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase	ATF/UPA
84	Hs.483816	NM_133263	PPARGC1B	Peroxisome proliferative activated receptor, gamma, coactivator 1, beta	PERC/PGC-1(beta)
85	Hs.76556	NM_014330	PPP1R15A	Protein phosphatase 1, regulatory (inhibitor) subunit 15A	GADD34
86	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	BZS/MHAM
87	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)	COX-2/COX2
88	Hs.517601	NM_002872	RAC2	Ras-related C3 botulinum toxin substrate 2 (rho family, small GTP binding protein Rac2)	EN-7/Gx
89	Hs.199487	NM_032918	RERG	RAS-like, estrogen-regulated, growth inhibitor	MGC15754
90	Hs.514196	NM_000988	RPL27	Ribosomal protein L27	RPL27
91	Hs.516484	NM_005978	S100A2	S100 calcium binding protein A2	CAN19/S100L
92	Hs.204096	NM_006551	SCGB1D2	Secretoglobulin, family 1D, member 2	LIPB/LPHB
93	Hs.97644	NM_002407	SCGB2A1	Secretoglobulin, family 2A, member 1	LPHC/MGB2
94	Hs.46452	NM_002411	SCGB2A2	Secretoglobulin, family 2A, member 2	MGB1/UGB2
95	Hs.510334	NM_001085	SERPINA3	Serpin peptidase inhibitor, clade A (alpha-1 antitrypsin, antitrypsin), member 3	AACT/ACT
96	Hs.55279	NM_002639	SERPINE5	Serpin peptidase inhibitor, clade B (ovalbumin), member 5	PI5/maspin
97	Hs.414795	NM_000602	SERPINE1	Serpin peptidase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	PAI/PAI-1
98	Hs.513797	NM_003486	SLC7A5	Solute carrier family 7 (cationic amino acid transporter, y+ system), member 5	4F2LC/CD98
99	Hs.1076	NM_003125	SPRR1B	Small proline-rich protein 1B (cornifin)	CORNIFIN/GADD33
100	Hs.233160	NM_003714	STC2	Stanniocalcin 2	STC-2/STCRP
101	Hs.479898	NM_005420	SULT1E1	Sulfotransferase family 1E, estrogen-preferring, member 1	EST/EST-1
102	Hs.162807	NM_003225	TFF1	Trefoil factor 1 (breast cancer, estrogen-inducible sequence expressed in)	BCIE/D21S21
103	Hs.82961	NM_003226	TFF3	Trefoil factor 3 (intestinal)	HITF/ITF
104	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha	TFGA
105	Hs.164226	NM_003246	THBS1	Thrombospondin 1	THBS/TSP
106	Hs.371147	NM_003247	THBS2	Thrombospondin 2	TSP2
107	Hs.211426	NM_003248	THBS4	Thrombospondin 4	TSP4
108	Hs.78824	NM_005424	TIE1	Tyrosine kinase with immunoglobulin-like and EGF-like domains 1	JTK14/TIE
109	Hs.525607	NM_006291	TNFAIP2	Tumor necrosis factor, alpha-induced protein 2	B94
110	Hs.474978	NM_016272	TOB2	Transducer of ERBB2, 2	TOB4/TOBL
111	Hs.156346	NM_001067	TOP2A	Topoisomerase (DNA) II alpha 170kDa	TOP2/TP2A
112	Hs.408312	NM_000546	TP53	Tumor protein p53 (Li-Fraumeni syndrome)	LFS1/TRP53
113	Hs.73793	NM_003376	VEGF	Vascular endothelial growth factor	VEGFA/VPF
114	Hs.533317	NM_003380	VIM	Vimentin	FLJ36605
115	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
116	Blank	Blank	Blank	Blank	Blank
117	Blank	Blank	Blank	Blank	Blank
118	N/A	N/A	AS1R2	Artificial Sequence 1 Related 2 (80% identity)(48/60)	N/A
119	N/A	N/A	AS1R1	Artificial Sequence 1 Related 1 (90% identity)(56/60)	N/A
120	N/A	N/A	AS1	Artificial Sequence 1	N/A
121	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	G3PD/GAPD
122	Hs.534255	NM_004048	B2M	Beta-2-microglobulin	B2M
123	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	D6S182/HSP90-BETA
124	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	D6S182/HSP90-BETA
125	Hs.520640	NM_001101	ACTB	Actin, beta	b-Actin
126	Hs.520640	NM_001101	ACTB	Actin, beta	b-Actin
127	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	N/A
128	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	N/A