

# Oligo GEMArray<sup>®</sup> DNA Microarray: Mouse Breast Cancer and Estrogen Receptor Signaling

## Catalog Number

OMM-005  
EMM-005

## Format:

HybTube (Standard protocol)  
HybPlate (Higher throughput protocol)

## Description

The Oligo GEMArray<sup>®</sup> 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, Klif5, Krt1-19, Lcn2, Marcksl1, Mt3, Muc1, Ptgs2, Rac2, Sprr1b, Thbs1, Thbs2, Thbs4, Tnfaip2, Tob2.

### **Genes Associated with the Estrogen Receptor Signaling Pathway:**

Estrogen Receptors: Esr1, Esr2.

Estrogen Receptor Binding: Atp6v0a1, Ddx54, Ncoa6, Nsd1, Phb2.

Other Genes Associated with the Estrogen Receptor Signaling Pathway: Ar, Arid1a, Bmpr1b, C3, Ccnd1, Cd47, Ctsd, Egl2, Gata3, H2-Ke6, Hsd17b1, Hspb1, Krt1-18, Krt1-19, Nrip1, Pgr, Ppargc1b, Rbm14, Rbm9, Safb, Slc7a5, Stc2, Sult1e1, Taf7, 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, FasL, Fosl1, Gata3, Gsn, Igfbp2, Igfbp5, Il2ra, Il6, Il6ra, Il6st, Itga6, Jun, Klk1b4, Klk5, Krt1-19, Map2k7, Mki67, Ngfb, Ngfr, Nme1, Pgr, Plau, Pten, Serpinb5, Serpine1, Tgfa, Thbs1, Tie1, Tob2, Top2a, Trp53, Vegfa, Vim.

**Genes Associated with the Response to Chemotherapy:** Bcl2, Bcl2l2, Cd44, Cox17, Ctsd, Cyp19a1, Dlc1, Esr1, Esr2, Hmgb1, Kit, Myd116, Nfyb, Pappa, Pgr, Rpl27, Vegfa.

## 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** (11): 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

Position	UniGene	GenBank	Symbol	Description	Gene Name
48	Mm.21109	NM_146120	Gsn	Gelsolin	MGC28083
49	Mm.275452	NM_013543	H2-Ke6	H2-K region expressed gene 6	D17H6S112E/H-2Ke6
50	Mm.313345	NM_010439	Hmgb1	High mobility group box 1	Hmg1
51	Mm.188939	NM_010475	Hsd17b1	Hydroxysteroid (17-beta) dehydrogenase 1	17HSDB1/17beta-HSD
52	Mm.13849	NM_013560	Hspb1	Heat shock protein 1	27kDa/Hsp25
53	Mm.34871	NM_010496	Id2	Inhibitor of DNA binding 2	Ai255428/C78922
54	Mm.141936	NM_008342	Igfbp2	Insulin-like growth factor binding protein 2	Ai255832/Igfbp-2
55	Mm.309617	NM_010518	Igfbp5	Insulin-like growth factor binding protein 5	Ai256729/AW208790
56	Mm.915	NM_008367	Il2ra	Interleukin 2 receptor, alpha chain	CD25/Il2r
57	Mm.1019	NM_031168	Il6	Interleukin 6	Il-6
58	Mm.2856	NM_010559	Il6ra	Interleukin 6 receptor, alpha	CD126/IL-6R
59	Mm.4364	NM_010560	Il6st	Interleukin 6 signal transducer	5133400A03Rik/AA389424
60	Mm.225096	NM_008397	Itga6	Integrin alpha 6	5033401O06Rik/Ai115430
61	Mm.213873	NM_001005608	Itgb4	Integrin beta 4	AA407042/C230078O20
62	Mm.275071	NM_010591	Jun	Jun oncogene	AP-1/Junc
63	Mm.247073	NM_021099	Kit	Kit oncogene	Bs/CD117
64	Mm.30262	NM_009769	Klf5	Kruppel-like factor 5	4930520J07Rik/Bteb2
65	Mm.378974	NM_010915	Klk1b4	Kallikrein 1-related peptidase b4	Ngfa/mGk-4
66	Mm.20024	XM_893537	Klk5	Kallikrein 5	1110030O19Rik
67	Mm.22479	NM_010664	Krt1-18	Keratin complex 1, acidic, gene 18	Endo B/K18
68	Mm.273177	NM_008471	Krt1-19	Keratin complex 1, acidic, gene 19	AI663979/EndoC
69	Mm.9537	NM_008491	Lcn2	Lipocalin 2	24p3/AW212229
70	Mm.3906	NM_011944	Map2k7	Mitogen activated protein kinase kinase 7	5830412N11Rik/Junk2
71	Mm.2769	NM_010807	Marcks1	MARCKS-like 1	AL022768/AW215397
72	Mm.4078	XM_133912	Mki67	Antigen identified by monoclonal antibody Ki 67	D630048A14Rik/Ki-67
73	Mm.2064	NM_013603	Mt3	Metallothionein 3	Mt-3
74	Mm.16193	NM_013605	Muc1	Mucin 1, transmembrane	CD227/EMA
75	Mm.4048	NM_008654	Myd116	Myeloid differentiation primary response gene 116	9630030H21
76	Mm.27592	NM_019825	Ncoa6	Nuclear receptor coactivator 6	AIB3/ASC-2
77	Mm.245998	NM_010914	Nfyb	Nuclear transcription factor-Y beta	AA985999/Cbf-A
78	Mm.1259	NM_013609	Ngfb	Nerve growth factor, beta	NGFB
79	Mm.283893	NM_033217	Ngfr	Nerve growth factor receptor (TNFR superfamily, member 16)	LINGFR/Tnfrsf16
80	Mm.299813	NM_008704	Nme1	Expressed in non-metastatic cells 1, protein	AL024257/NM23A
81	Mm.74711	NM_173440	Nrip1	Nuclear receptor interacting protein 1	6030458L20Rik/430438I05Rik
82	Mm.12964	NM_008739	Nsd1	Nuclear receptor-binding SET-domain protein 1	Ai528500
83	Mm.317854	NM_021362	Pappa	Pregnancy-associated plasma protein A	8430414N03Rik/IGFBP-4ase
84	Mm.12798	NM_008829	Pgr	Progesterone receptor	9930019P03Rik/NR3C3
85	Mm.36241	NM_007531	Phb2	Prohibitin 2	AU044498/BAP
86	Mm.4183	NM_008873	Plau	Plasminogen activator, urokinase	u-PA/uPA
87	Mm.32269	NM_133249	Ppargc1b	Peroxisome proliferator activated receptor, gamma, coactivator 1 beta	4631412G21Rik/Perc
88	Mm.245395	NM_008960	Pten	Phosphatase and tensin homolog	2310035O07Rik/A130070J02Rik
89	Mm.292547	NM_011198	Ptgs2	Prostaglandin-endoperoxide synthase 2	COX2/Cox-2
90	Mm.1972	NM_009008	Rac2	RAS-related C3 botulinum substrate 2	Ai323601/Ai452260
91	Mm.276338	NM_019869	Rbm14	RNA binding motif protein 14	1300007E16Rik/Sytip
92	Mm.202774	NM_175387	Rbm9	RNA binding motif protein 9	2810460A15Rik/AA407676
93	Mm.340658	NM_011289	Rpl27	Ribosomal protein L27	MGC103134
94	Mm.255066	XM_128715	Safb	Scaffold attachment factor B	3110021E02Rik/5330423C17Rik
95	Mm.288618	NM_009257	Serpinh5	Serine (or cysteine) peptidase inhibitor, clade B, member 5	1110036M19Rik/Ai462524
96	Mm.250422	NM_008871	Serpine1	Serine (or cysteine) peptidase inhibitor, clade E, member 1	PAI-1/PAI1
97	Mm.27943	NM_011404	Slc7a5	Solute carrier family 7 (cationic amino acid transporter, y+ system), member 5	D0H16S474E/TA1
98	Mm.140151	NM_009265	Sprr1b	Small proline-rich protein 1B	SPRR1B
99	Mm.32506	NM_011491	Stc2	Stanniocalcin 2	Stc2/mustc2
100	Mm.89655	NM_023135	Sult1e1	Sulfotransferase family 1E, member 1	Stc
101	Mm.236009	NM_175770	Taf7	TAF7 RNA polymerase II, TATA box binding protein (TBP)-associated factor	55kDa/Ai607308
102	Mm.2854	NM_009362	Tff1	Trefoil factor 1	Bcei/PS2
103	Mm.4641	NM_011575	Tff3	Trefoil factor 3, intestinal	ITF/mITF
104	Mm.137222	NM_031199	Tgfa	Transforming growth factor alpha	wa-1/wa1
105	Mm.4159	NM_011580	Thbs1	Thrombospondin 1	TSP-1/TSP1
106	Mm.28688	NM_011581	Thbs2	Thrombospondin 2	TSP2/Thbs-2
107	Mm.20865	NM_011582	Thbs4	Thrombospondin 4	TSP-4
108	Mm.4345	NM_011587	Tie1	Tyrosine kinase receptor 1	D430008P04Rik/TIE
109	Mm.255332	NM_009396	Tnfrsf25	Tumor necrosis factor, alpha-induced protein 2	Tnfrsf25/tnfb94
110	Mm.323595	NM_020507	Tob2	Transducer of ERBB2, 2	2900090N22Rik/4930545K18Rik
111	Mm.4237	NM_011623	Top2a	Topoisomerase (DNA) II alpha	Top-2
112	Mm.222	NM_011640	Trp53	Transformation related protein 53	bbi/bfy
113	Mm.282184	NM_009505	Vegfa	Vascular endothelial growth factor A	VEGF-A/VEGF120
114	Mm.268000	NM_011701	Vim	Vimentin	MGC102095
115	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
116	Blank	Blank	Blank	Blank	
117	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	Mm.180003	NM_024277	Rps27a	Ribosomal protein S27a	Rps27a
122	Mm.163	NM_009735	B2m	Beta-2 microglobulin	BETA2-M/ILY-M11
123	Mm.2180	NM_008302	Hspcb	Heat shock protein 1, beta	90kDa/HSPB4
124	Mm.2180	NM_008302	Hspcb	Heat shock protein 1, beta	90kDa/HSPB4
125	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	2700098C05/CPHN
126	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	2700098C05/CPHN
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