

Oligo GEMArray[®] DNA Microarray: Human Breast Cancer Biomarkers

Catalog Number

OHS-402
EHS-402

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMArray[®] Breast Cancer Biomarkers Microarray profiles the expression of 264 genes useful as molecular markers in the prognosis and diagnosis of breast cancer. This array is designed with clinical researchers and research pathologists in mind. The genes in the diagnosis markers group are highly associated with breast cancer based on the published literature [1]. The genes in the prognosis markers group have been successfully used to predict the clinical outcome of breast cancer [5, 13, 14]. The gene content on the array is also grouped according to biological function to help track the underlying mechanisms of breast cancer progression. Use this array to study differential expression of known biomarkers among breast cancer biopsies or cell lines in your laboratory. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

Potential Diagnosis Markers

Cell Cycle:

Cell Cycle Arrest and Checkpoint: MYC, RB1, TP53.

Negative Regulation of the Cell Cycle: ATM, BAX, BRCA1, EGFR, ESR1, NME1, PTEN, RB1, TP53.

Regulation of the Cell Cycle: BCL2, BRCA2, CCND1, CCNE1, CDK4, FGF3, FGF8, IGF2, MAPK3, PCNA, PRKCA, TGFA, TGFB1, TGFB2, TGFB3, VEGF.

DNA Replication: CDK2, EGF, IGF1, PCNA.

Cell Growth and Proliferation:

Growth Factors and Cytokines: BMP6, CSF1, CSF3, EGF, FGF18, FGF3, FGF8, IGF1, IGF2, TGFA, TGFB1, TGFB2, TGFB3, TNF, VEGF.

Positive Regulation of Cell Proliferation: CDK2, CSF1, CSF3, EGF, FGF18, FGF3, IGF1, VEGF.

Negative Regulation of Cell Proliferation: BCL2, NME1, ODZ1, PLG.

Regulation of Cell Growth: ESR2, IGFBP3, TP53, TSG101,

Other Genes Involved in Cell Growth and Proliferation: AR, BRCA1, CDK4, EGFR, ERBB2, ERBB4, ESR1, MYC, PCNA, PRKD1, PRL.

Cell Differentiation: CSF1, IGFBP3, TP53.

Apoptosis:

Induction of Apoptosis: BAX, MX1, PRKCA, PRKCE, TP53.

Anti-apoptosis: AKT1, BAG3, BCL2, BCL2L1, PRKCZ, TGFB1, TNF.

Other Apoptosis Genes: BRCA1, IGFBP3, VEGF.

DNA Repair: ATM, BRCA1, BRCA2, PCNA, RAD51, TP53, XRCC3.

Angiogenesis Factors: FGF3, VEGF.

Product Specification Sheet

Cell Adhesion Molecules: CD34, CDH1, CTNNB1, ITGB3, PECAM1.

Extracellular Matrix (ECM) Molecules: ALB, BRCA1, BRCA2, COL4A2, CSF3, CTSD, EGF, ERBB2, FGF18, FGF3, FGF8, IGF1, IGF2, IGFBP3, INS, KLK13, MMP11, MMP9, ODZ1, PRL, SERPINE1, SHBG, TGFA, VEGF.

Protein Kinases: AKT1, ATM, CDK2, CDK4, EGFR, ERBB2, ERBB3, ERBB4, MAPK3, PDPK1, PRKCA, PRKCB1, PRKCD, PRKCE, PRKCG, PRKCZ, PRKD1, PRKD2, SRC, TYK2.

Protein Phosphatases: IGFBP3, PTEN.

Transcription Factors and Regulators: AR, BRCA1, BRCA2, CTNNB1, EGR3, ESR1, ESR2, FOS, JUN, MYC, NR4A1, PCNA, PGR, RB1, SP1, TNF, TP53, TSG101.

Proteases and Protease Inhibitors: CTSB, CTSC, CTSD, CTSE, CTSL2, KLK13, MMP11, MMP9, PCSK6, PLG, SERPINE1.

Other Potential Diagnostic Markers: ABCB1, ABCG2, AKAP1, CEACAM5, CYB5, CYC1, CYP19A1, GSTM1, GSTM3, KRT18, KRT19, MIB1, MUC1, MUC19, PALM2-AKAP2, VIM.

Potential Prognosis Markers

Cell Cycle:

Cell Cycle Arrest and Checkpoint: CCNE2.

Negative Regulation of the Cell Cycle: ESR1, EXT1.

Regulation of the Cell Cycle: BCL2, CCNB1, CCNB2, CDC25B, CENPF, MKI67, MYBL2, PCTK1, PSMD2, TGFB3, VEGF.

DNA Replication: MCM6, ORC6L, RFC4, RRM2.

Other Cell Cycle Genes: BIRC5, BUB1, CKS2, MAD2L1, SMC4L1, STK6.

Cell Growth and Proliferation:

Growth Factors and Cytokines: ESM1, FGF18, TGFB3, VEGF.

Positive Regulation of Cell Proliferation: CDC25B, FGF18, FLT1, VEGF.

Negative Regulation of Cell Proliferation: BCL2, BTG2.

Regulation of Cell Growth: CHPT1, ESM1, IGFBP5, WISP1.

Other Genes Involved in Cell Growth and Proliferation: BUB1, CKS2, ESR1, MAPRE2, MKI67.

Cell Differentiation: NDRG1.

Apoptosis:

Anti-Apoptosis: BAG1, BCL2, BIRC5, BNIP3, MYBL2.

Other Apoptosis Genes: RAD21, STK3, VEGF.

DNA Repair: BTG2, RAD21.

Angiogenesis Factors: FLT1, VEGF.

Cell Adhesion Molecules: WISP1.

Extracellular Matrix (ECM) Molecules: ADM, COL4A2, CP, ESM1, FGF18, FLT1, IGFBP5, MATN3, MMP11, MMP9, RBP3, TFRC, VEGF, WISP1.

Protein Kinases: BUB1, CCNE2, CDC42BPA, CKS2, FLT1, MELK, PCTK1, STK3, STK32B, STK6.

Protein Phosphatases: CDC25B, MTMR2.

Transcription Factors and Regulators: BTG2, ESR1, EZH2, HMGB3, IVNS1ABP, KIAA1442, MCM6, MLLT10, MYBL2, PGR, PIR, SEC14L2, TBX3, TRIP13.

Proteases and Protease Inhibitors: BIRC5, CTSL2, GGH, MMP11, MMP9, PCSK6, PITRM1, RBP3, TFRC, UCHL5.

Product Specification Sheet

Other Potential Prognostic Markers: ACADS, ALDH4A1, ALDH6A1, AP2B1, ASNS, ASPM, BBC3, BM039, C20orf103, C20orf28, C20orf46, CA9, CD68, CENPA, CIRBP, CTPS, DCK, DEGS, DEPDC1, DKFZP434B168, DKFZp762E1312, DLG7, ECT2, EGLN1, EIF2C2, ERP70, EVL, FBP1, FBXO31, FBXO5, FGD6, FLJ10134, FLJ10156, FLJ10511, FLJ10901, FLJ12150, FLJ21924, FLJ22341, FUT8, GBE1, GCN1L1, GMPS, GNAZ, GPR126, GPSM2, GRB7, GSTM1, GSTM3, HRASLS, HRB, IHPK2, ITR, KIAA0882, KIAA1181, KIAA1217, KIAA1324, KIAA1683, KIF14, KIF21A, KIF3B, KNTC2, KRT18, LCHN, LGP2, LOC388134, LOC56901, LYRIC, M160, MCCC1, MGAT4A, MIR, MLF1IP, MRPL13, MS4A7, MYRIP, NMB, NMU, NUSAP1, ODZ3, OXCT, PALM2-AKAP2, PAQR3, PECL, PEX12, PFKP, PGK1, PIB5PA, PLEKHA1, PRAME, PRC1, PRO2000, PSMD7, PTSS1, PTPLB, QDPR, RAB27B, RAB6B, RAI2, RAMP, RASL11B, RPS4X, RRAGD, SACS, SCUBE2, SERF1A, SLC2A3, SLC7A1, Spc25, ST7, STMN1, STX1A, SYNCRIP, TK1, TMEFF1.

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.

GEArray 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. Hu, Y., et al., Analysis of genomic and proteomic data using advanced literature mining. *J Proteome Res*, 2003. 2(4): p. 405-12.
2. Golub, T.R., et al., Molecular classification of cancer: class discovery and class prediction by gene expression monitoring. *Science*, 1999. 286(5439): p. 531-7.
3. Perou, C.M., et al., Distinctive gene expression patterns in human mammary epithelial cells and breast cancers. *Proc Natl Acad Sci U S A*, 1999. 96(16): p. 9212-7.
4. Perou, C.M., et al., Molecular portraits of human breast tumours. *Nature*, 2000. 406(6797): p. 747-52.
5. van de Vijver, M.J., et al., A Gene-Expression Signature as a Predictor of Survival in Breast Cancer. *N Engl J Med*, 2002. 347(25): p. 1999-2009.
6. 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): p. R3.
7. Hedenfalk, I., et al., Molecular classification of familial non-BRCA1/BRCA2 breast cancer. *Proc Natl Acad Sci U S A*, 2003. 100(5): p. 2532-7.
8. Chang, J.C., et al., Gene expression profiling for the prediction of therapeutic response to docetaxel in patients with breast cancer. *Lancet*, 2003. 362(9381): p. 362-9.
9. Coradini, D. and M.G. Daidone, Biomolecular prognostic factors in breast cancer. *Curr Opin Obstet Gynecol*, 2004. 16(1): p. 49-55.
10. Wajapeyee, N. and K. Somasundaram, Pharmacogenomics in breast cancer: current trends and future directions. *Curr Opin Mol Ther*, 2004. 6(3): p. 296-301.
11. Dowsett, M., Designing the future shape of breast cancer diagnosis, prognosis and treatment. *Breast Cancer Res Treat*, 2004. 87 Suppl 1: p. S27-9.
12. Piccart, M.J., C. Sotiriou, and F. Cardoso, New data on chemotherapy in the adjuvant setting. *Breast*, 2003. 12(6): p. 373-8.
13. van 't Veer, L.J., et al., Gene expression profiling predicts clinical outcome of breast cancer. *Nature*, 2002. 415(6871): p. 530-6.
14. Paik, S., et al., A multigene assay to predict recurrence of tamoxifen-treated, node-negative breast cancer. *N Engl J Med*, 2004. 351(27): p. 2817-26.

Product Specification Sheet

Oligo GEArray[®] Breast Cancer Biomarkers Microarray

Array Layout:

RPS27A 1	RPS27A 2	ABCB1 3	ABCG2 4	ACADS 5	ADM 6	AKAP1 7	AKT1 8	ALB 9	GAPDH 10	GAPDH 11	GAPDH 12
RPS27A 13	ALDH4A1 14	ALDH6A1 15	AP2B1 16	AR 17	ASNS 18	ASPM 19	ATM 20	BAG1 21	BAG3 22	BAX 23	BBC3 24
BCL2 25	BCL2L1 26	BIRC5 27	BM039 28	BMP6 29	BNIP3 30	BRCA1 31	BRCA2 32	BTG2 33	BUB1 34	C20orf103 35	C20orf28 36
C20orf46 37	CA9 38	CCNB1 39	CCNB2 40	CCND1 41	CCNE1 42	CCNE2 43	CD34 44	CD68 45	CDC25B 46	CDC42BPA 47	CDH1 48
CDK2 49	CDK4 50	CEACAM5 51	CENPA 52	CENPF 53	CHPT1 54	CIRBP 55	CKS2 56	COL4A2 57	CP 58	CSF1 59	CSF3 60
CTNNB1 61	CTPS 62	CTSB 63	CTSC 64	CTSD 65	CTSE 66	CTS2L 67	CYB5 68	CYC1 69	CYP19A1 70	DCK 71	DEGS1 72
DEPDC1 73	DKFZP434B168 74	DKFZp762E1312 75	DLG7 76	ECT2 77	EGF 78	EGFR 79	EGLN1 80	EGR3 81	EIF2C2 82	ERBB2 83	ERBB3 84
ERBB4 85	ERP70 86	ESM1 87	ESR1 88	ESR2 89	EVL 90	EXT1 91	EZH2 92	FBP1 93	FBXO31 94	FBXO5 95	FGD6 96
FGF18 97	FGF3 98	FGF8 99	FLJ10134 100	FLJ10156 101	ARMC1 102	FLJ10901 103	GSDMDC1 104	FLJ21924 105	RHBDL6 106	FLT1 107	FOS 108
FUT8 109	GBE1 110	GCN1L1 111	GGH 112	GMPS 113	GNAZ 114	GPR126 115	GPSM2 116	GRB7 117	GSTM1 118	GSTM3 119	HMGB3 120
HRASLS 121	HRB 122	IGF1 123	IGF2 124	IGFBP3 125	IGFBP5 126	IHPK2 127	INS 128	ITGB3 129	ITR 130	IVNS1ABP 131	JUN 132
KIAA0882 133	KIAA1181 134	KIAA1217 135	KIAA1324 136	KIAA1442 137	KIAA1683 138	KIF14 139	KIF21A 140	KIF3B 141	KLK13 142	KNTC2 143	KRT18 144
KRT19 145	LCHN 146	LGP2 147	LOC388134 148	LOC56901 149	LYRIC 150	M160 151	MAD2L1 152	MAPK3 153	MAPRE2 154	MATN3 155	MCCC1 156
MCM6 157	MELK 158	MGAT4A 159	MIB1 160	MIR 161	MK167 162	MLF1IP 163	MLLT10 164	MMP11 165	MMP9 166	MRPL13 167	MS4A7 168
MTMR2 169	MUC1 170	MUC19 171	MX1 172	MYBL2 173	MYC 174	MYRIP 175	NDRG1 176	NMB 177	NME1 178	NMU 179	NR4A1 180
NUSAP1 181	ODZ1 182	ODZ3 183	ORC6L 184	OXCT1 185	PALM2- AKAP2 186	PAQR3 187	PCNA 188	PCSK6 189	PCTK1 190	PDPK1 191	PECAM1 192
PECI 193	PEX12 194	PFKP 195	PGK1 196	PGR 197	PIB5PA 198	PIR 199	PITRM1 200	PLEKHA1 201	PLG 202	PRAME 203	PRC1 204
PRKCA 205	PRKCB1 206	PRKCD 207	PRKCE 208	PRKCG 209	PRKCZ 210	PRKD1 211	PRKD2 212	PRL 213	ATAD2 214	PSMD2 215	PSMD7 216
PTDSS1 217	PTEN 218	PTPLB 219	QDPR 220	RAB27B 221	RAB6B 222	RAD21 223	RAD51 224	RAI2 225	RAMP 226	RASL11B 227	RB1 228
RBP3 229	RFC4 230	RPS4X 231	RRAGD 232	RRM2 233	SACS 234	SCUBE2 235	SEC14L2 236	SERF1A 237	SERPINE1 238	SHBG 239	SLC2A3 240
SLC7A1 241	SMC4L1 242	SP1 243	Spc25 244	SRC 245	ST7 246	STK3 247	STK32B 248	STK6 249	STMN1 250	STX1A 251	SYNCRIP 252
HSPCB 253	TBX3 254	TFRC 255	TGFA 256	TGFB1 257	TGFB2 258	TGFB3 259	TK1 260	TMEFF1 261	TNF 262	Pol1 263	PUC18 264
B2M 265	Blank 266	Blank 267	TP53 268	TRIP13 269	TSG101 270	TYK2 271	18SrRNA 272	AS1R3 273	AS1R2 274	AS1R1 275	AS1 276
B2M 277	B2M 278	ACTB 279	UCHL5 280	VEGF 281	VIM 282	WISP1 283	XRCC3 284	BAS2C 285	BAS2C 286	BAS2C 287	BAS2C 288

Oligo GEArray[®] Human Breast Cancer Biomarkers Microarray

Gene Table

Position	UniGene	GenBank	Symbol	Description	Gene Name
1	Hs.546292	NM_002954	RPS27A	Ribosomal protein S27a	CEP80/HUBCEP80
2	Hs.546292	NM_002954	RPS27A	Ribosomal protein S27a	CEP80/HUBCEP80
3	Hs.489033	NM_000927	ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), member 1	ABC20/CD243
4	Hs.480218	NM_004827	ABCG2	ATP-binding cassette, sub-family G (WHITE), member 2	ABC15/ABCP
5	Hs.507076	NM_000017	ACADS	Acyl-Coenzyme A dehydrogenase, C-2 to C-3 short chain	ACAD3/SCAD
6	Hs.441047	NM_001124	ADM	Adrenomedullin	AM
7	Hs.463506	NM_003488	AKAP1	A kinase (PRKA) anchor protein 1	AKAP/AKAP121
8	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1	PKB/PRKBA
9	Hs.418167	NM_000477	ALB	Albumin	PRO083/PRO1341
10	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	G3PD/GAPD
11	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	G3PD/GAPD
12	Hs.544577	NM_002046	GAPDH	Glyceraldehyde-3-phosphate dehydrogenase	G3PD/GAPD
13	Hs.546292	NM_002954	RPS27A	Ribosomal protein S27a	CEP80/HUBCEP80
14	Hs.77448	NM_003748	ALDH4A1	Aldehyde dehydrogenase 4 family, member A1	ALDH4/ALDH4A1
15	Hs.293970	NM_005589	ALDH6A1	Aldehyde dehydrogenase 6 family, member A1	MMSADHA
16	Hs.514819	NM_001282	AP2B1	Adaptor-related protein complex 2, beta 1 subunit	ADTB2/AP2-BETA
17	Hs.496240	NM_000044	AR	Androgen receptor (dihydrotestosterone receptor; testicular feminization; spinal and bulbar muscular atrophy; Kennedy disease)	AIS/DHTR
18	Hs.489207	NM_183356	ASNS	Asparagine synthetase	TS11
19	Hs.121028	NM_018136	ASPM	Asp (abnormal spindle)-like microcephaly associated (Drosophila)	ASPCALMBP1
20	Hs.435561	NM_000051	ATM	Ataxia telangiectasia mutated (includes complementation groups A, C and D)	AT1/ATA
21	Hs.377484	NM_004323	BAG1	BCL2-associated athanogene	BAG-1
22	Hs.523309	NM_004281	BAG3	BCL2-associated athanogene 3	BAG-3/BIS
23	Hs.159428	NM_004324	BAX	BCL2-associated X protein	BAX ZETA
24	Hs.467020	NM_014417	BBC3	BCL2 binding component 3	JFY1/PUMA
25	Hs.150749	NM_000633	BCL2	B-cell CLL/lymphoma 2	BCL-2
26	Hs.516966	NM_138578	BCL2L1	BCL2-like 1	BCL-X/BCL-XL
27	Hs.514527	NM_001168	BIRC5	Baculoviral IAP repeat-containing 5 (survivin)	API4/EPR-1
28	Hs.283532	NM_018455	BM039	Uncharacterized bone marrow protein BM039	BM039
29	Hs.285671	NM_001718	BMP6	Bone morphogenetic protein 6	VGR/VGR1
30	Hs.79428	NM_004052	BNIP3	BCL2/adenovirus E1B 19kDa interacting protein 3	Nip3
31	Hs.194143	NM_007294	BRCA1	Breast cancer 1, early onset	BRCA1/IRIS
32	Hs.34012	NM_000059	BRCA2	Breast cancer 2, early onset	FACD/FAD
33	Hs.519162	NM_006763	BTG2	BTG family, member 2	PC3/TIS21
34	Hs.469649	NM_004336	BUB1	BUB1 budding uninhibited by benzimidazoles 1 homolog (yeast)	BUB1A/BUB1L
35	Hs.22920	NM_012261	C20orf103	Chromosome 20 open reading frame 103	C20ORF103
36	Hs.72620	NM_015417	C20orf28	Chromosome 20 open reading frame 28	C20ORF28
37	Hs.516834	NM_018354	C20orf46	Chromosome 20 open reading frame 46	C20ORF46
38	Hs.63287	NM_001216	CA9	Carbonic anhydrase IX	MN
39	Hs.23960	NM_031966	CCNB1	Cyclin B1	CCNB
40	Hs.194698	NM_004701	CCNB2	Cyclin B2	HST17299
41	Hs.523852	NM_053056	CCND1	Cyclin D1 (PRAD1; parathyroid adenomatosis 1)	BCL1/CYCLIN D1
42	Hs.244723	NM_001238	CCNE1	Cyclin E1	CCNE
43	Hs.408658	NM_004702	CCNE2	Cyclin E2	CYCE2
44	Hs.374990	NM_001773	CD34	CD34 antigen	CD34
45	Hs.246381	NM_001251	CD68	CD68 antigen	SCARD1
46	Hs.153752	NM_004358	CDC25B	Cell division cycle 25B	CDC25B
47	Hs.35433	NM_003607	CDC42BPA	CDC42 binding protein kinase alpha (DMPK-like)	MRCK/MRCKA
48	Hs.461086	NM_004360	CDH1	Cadherin 1, type 1, E-cadherin (epithelial)	ARC-1/CDHE
49	Hs.19192	NM_001798	CDK2	Cyclin-dependent kinase 2	P33/CDK2
50	Hs.95577	NM_000075	CDK4	Cyclin-dependent kinase 4	CMM3/PSK-3
51	Hs.220529	NM_004363	CEACAM5	Carcinoembryonic antigen-related cell adhesion molecule 5	CD66E/CEA
52	Hs.1594	NM_001809	CENPA	Centromere protein A, 17kDa	CENPA
53	Hs.497741	NM_016343	CENPF	Centromere protein F, 350/400kDa (mitosis)	CENF/MITOSIN
54	Hs.293077	NM_020244	CHPT1	Choline phosphotransferase 1	CPT/CTPT1
55	Hs.501309	NM_001280	CIRBP	Cold inducible RNA binding protein	CIRP
56	Hs.83758	NM_001827	CKS2	CDC28 protein kinase regulatory subunit 2	CKSHS2
57	Hs.508716	NM_001846	COL4A2	Collagen, type IV, alpha 2	FLJ22259
58	Hs.550470	NM_000096	CP	Ceruloplasmin (ferroxidase)	Ceruloplasmin
59	Hs.173894	NM_000757	CSF1	Colony stimulating factor 1 (macrophage)	MCSF
60	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)	G-CSF/GCSF
61	Hs.476018	NM_001904	CTNBN1	Catenin (cadherin-associated protein), beta 1, 88kDa	CTNBN
62	Hs.473087	NM_001905	CTPS	CTP synthase	CTPS
63	Hs.520898	NM_001908	CTSB	Cathepsin B	APPS/CP5B
64	Hs.128065	NM_001814	CTSC	Cathepsin C	CPPI/DPP1
65	Hs.546248	NM_001909	CTSD	Cathepsin D (lysosomal aspartyl protease)	CP5D
66	Hs.1355	NM_001910	CTSE	Cathepsin E	CTSE
67	Hs.87417	NM_001333	CTSL2	Cathepsin L2	CATL2/CTSU
68	Hs.465413	NM_001914	CYB5	Cytochrome b-5	MCB5
69	Hs.289271	NM_001916	CYC1	Cytochrome c-1	Cytochrome C
70	Hs.511367	NM_000103	CYP19A1	Cytochrome P450, family 19, subfamily A, polypeptide 1	ARO/ARO1
71	Hs.709	NM_000788	DCK	Deoxycytidine kinase	DCK
72	Hs.299878	NM_003676	DEGS1	Degenerative spermatocyte homolog 1, lipid desaturase (Drosophila)	DEGS/DES-1
73	Hs.445098	NM_017779	DEPDC1	DEP domain containing 1	SDP35
74	Hs.369285	NM_015434	DKFZP434B168	DKFZP434B168 protein	DKFZP434B168
75	Hs.532968	NM_018410	DKFZp762E1312	Hypothetical protein DKFZp762E1312	HFLEG1
76	Hs.77695	NM_014750	DLG7	Discs, large homolog 7 (Drosophila)	DLG1/HURP
77	Hs.518299	NM_018098	ECT2	Epithelial cell transforming sequence 2 oncogene	FLJ10461
78	Hs.419815	NM_001963	EGF	Epidermal growth factor (beta-urogastrone)	URG
79	Hs.488293	NM_005228	EGRF	Epidermal growth factor receptor (erythroblastic leukemia viral (v-erb-b) oncogene)	ERBB/ERBB1
80	Hs.444450	NM_022051	EGLN1	Egl nine homolog 1 (C. elegans)	HIFH2/PHD2
81	Hs.534313	NM_004430	EGR3	Early growth response 3	PILOT
82	Hs.449415	NM_012154	EIF2C2	Eukaryotic translation initiation factor 2C, 2	AGO2/Q10
83	Hs.446352	NM_004448	ERBB2	V-erb-b2 erythroblastic leukemia viral oncogene homolog 2, neuro/glioblastoma derived	C-ERB B2/HER-2

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
84	Hs.118681	NM_001982	ERBB3	V-erb-b2 erythroblastic leukemia viral oncogene homolog 3 (avian)	C-ERBB-3
85	Hs.390729	NM_005235	ERBB4	V-erb-a erythroblastic leukemia viral oncogene homolog 4 (avian)	HER4
86	Hs.93659	NM_004911	ERP70	Protein disulfide isomerase-associated 4	ERP72/PDIA4
87	Hs.129944	NM_007036	ESM1	Endothelial cell-specific molecule 1	ESM1
88	Hs.208124	NM_000125	ESR1	Estrogen receptor 1	ER/ERA
89	Hs.443150	NM_001437	ESR2	Estrogen receptor 2 (ER beta)	SP152/ER-BETA
90	Hs.125867	NM_016337	EVL	Enh/Vasp-like	RNB6
91	Hs.492618	NM_000127	EXT1	Exostosin (multiple) 1	EXT
92	Hs.444082	NM_004456	EZH2	Enhancer of zeste homolog 2 (Drosophila)	ENX-1/EZH1
93	Hs.494496	NM_000507	FBP1	Fructose-1,6-bisphosphatase 1	FBP
94	Hs.549198	NM_024735	FBXO31	F-box protein 31	FBX14/FBX31
95	Hs.520506	NM_012177	FBXO5	F-box only protein 5	EM1/FBX5
96	Hs.506381	NM_018351	FGD6	FYVE, RhoGEF and PH domain containing 6	ZFYVE24
97	Hs.87191	NM_003862	FGF18	Fibroblast growth factor 18	FGF-18/ZFGF5
98	Hs.37092	NM_005247	FGF3	Fibroblast growth factor 3 (murine mammary tumor virus integration site (v-int-2))	HBGF-3/INT2
99	Hs.57710	NM_006119	FGF8	Fibroblast growth factor 8 (androgen-induced)	AIGF/HBGF-8
100	Hs.126598	NM_018004	FLJ10134	Hypothetical protein FLJ10134	DERP77/MEM45A
101	Hs.404323	NM_019013	FLJ10156	Hypothetical protein FLJ10156	FAM64A
102	Hs.269542	NM_018120	ARMC1	Armadillo repeat containing 1	ARCP
103	Hs.518997	NM_018265	FLJ10901	Hypothetical protein FLJ10901	FLJ10901
104	Hs.118983	NM_024736	GSDMDC1	Gasdermin domain containing 1	DF5L/FKSG10
105	Hs.369368	NM_024774	FLJ21924	Hypothetical protein FLJ21924	FLJ21924
106	Hs.464157	NM_024599	RHBDL6	Rhomboid, veinlet-like 6 (Drosophila)	RHBDL5
107	Hs.507621	NM_002019	FLT1	Fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)	FLT/VEGFR1
108	Hs.25647	NM_005252	FOS	V-fos FBJ murine osteosarcoma viral oncogene homolog	c-Fos
109	Hs.118722	NM_178157	FUT8	Fucosyltransferase 8 (alpha (1,6) fucosyltransferase)	MGC26465
110	Hs.436062	NM_000158	GBE1	Glucan (1,4-alpha-), branching enzyme 1 (glycogen branching enzyme, Andersen)	GBE
111	Hs.298716	NM_006836	GCN1L1	GCN1 general control of amino-acid synthesis 1-like 1 (yeast)	GCN1/GCN1L
112	Hs.78619	NM_003878	GGH	Gamma-glutamyl hydrolase (conjugase, folypolyglutamylyl hydrolase)	GH
113	Hs.546324	NM_003875	GMPS	Guanine monophosphate synthetase	GMPS
114	Hs.551502	NM_002073	GNAZ	Guanine nucleotide binding protein (G protein), alpha z polypeptide	GNAZ
115	Hs.318894	NM_020455	GPR126	G protein-coupled receptor 126	DREG/PS1TP2
116	Hs.489353	NM_013296	GPSM2	G-protein signalling modulator 2 (AGS3-like, C. elegans)	LGN/PINS
117	Hs.86859	NM_005310	GRB7	Growth factor receptor-bound protein 7	LOC390009
118	Hs.301961	NM_000561	GSTM1	Glutathione S-transferase M1	GST1/GSTM1-1
119	Hs.2006	NM_000849	GSTM3	Glutathione S-transferase M3 (brain)	GST5/GSTB
120	Hs.19114	NM_005342	HMG3	High-mobility group box 3	HMG2/HMG4
121	Hs.36761	NM_020386	HRASL5	HRAS-like suppressor	A-C1/H-REV107
122	Hs.443507	NM_004504	HRB	HIV-1 Rev binding protein	RAB/RIP
123	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)	IGF1
124	Hs.549043	NM_000612	IGF2	Insulin-like growth factor 2 (somatomedin A)	IGF-II
125	Hs.450230	NM_000598	IGFBP3	Insulin-like growth factor binding protein 3	BP-53/IBP3
126	Hs.369982	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5	IBP5
127	Hs.476221	NM_016291	IHPK2	Inositol hexaphosphate kinase 2	IP6K2/PIUS
128	Hs.89832	NM_000207	INS	Insulin	PROINSULIN
129	Hs.218040	NM_000212	ITGB3	Integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	CD61/GP3A
130	Hs.159422	NM_180989	ITR	Intimal thickness-related receptor	ITR
131	Hs.497183	NM_006469	IVNS1ABP	Influenza virus NS1A binding protein	HSPC068/ND1
132	Hs.525704	NM_002228	JUN	V-jun sarcoma virus 17 oncogene homolog (avian)	AP1
133	Hs.480819	NM_015130	KIAA0882	KIAA0882 protein	KIAA0882
134	Hs.509163	NM_020462	KIAA1181	KIAA1181 protein	ERGIC-32/ERIC32
135	Hs.445885	NM_019590	KIAA1217	KIAA1217	DKFZP761L0424
136	Hs.262811	NM_020775	KIAA1324	Maba1	LOC388327
137	Hs.471955	XM_044921	KIAA1442	KIAA1442 protein	KIAA1442
138	Hs.313471	NM_025249	KIAA1683	KIAA1683	KIAA1683
139	Hs.3104	XM_375825	KIF14	Kinesin family member 14	DKFZP564B1023
140	Hs.374201	NM_017641	KIF21A	Kinesin family member 21A	CFEOM1/FEOM1
141	Hs.369670	NM_004798	KIF3B	Kinesin family member 3B	HH0048
142	Hs.165296	NM_015596	KLK13	Kallikrein 13	KLK-L4/KLKL4
143	Hs.414407	NM_006101	KNTC2	Kinetochore associated 2	HEC/HEC1
144	Hs.406013	NM_000224	KRT18	Keratin 18	CYK18/K18
145	Hs.514167	NM_002276	KRT19	Keratin 19	CK19/K19
146	Hs.233044	XM_379938	LCHN	LCHN protein	PRO2561
147	Hs.55918	NM_024119	LGP2	Likely ortholog of mouse D11gip2	D11LGP2E
148	Hs.33333	XM_373633	LOC388134	LOC400390 (LOC388134), mRNA	LOC388134
149	Hs.221447	NM_020142	LOC56901	NADH:ubiquinone oxidoreductase MLRQ subunit homolog	NUOMS
150	Hs.377155	NM_178812	LYRIC	LYRIC/3D3	3D3/AEG1
151	Hs.49636	NM_174941	M160	Scavenger receptor cysteine-rich type 1 protein M160	CD163B
152	Hs.533185	NM_002358	MAD2L1	MAD2 mitotic arrest deficient-like 1 (yeast)	HSMAD2/MAD2
153	Hs.861	NM_002746	MAPK3	Mitogen-activated protein kinase 3	ERK1/P44ERK1
154	Hs.532824	NM_014268	MAPRE2	Microtubule-associated protein, RP/EB family, member 2	EB1/EB2
155	Hs.6985	NM_002381	MATN3	Matrinin 3	EDM5/HOA
156	Hs.47649	NM_020166	MCDC1	Methylcrotonyl-Coenzyme A carboxylase 1 (alpha)	MCC-B/MCCA
157	Hs.444118	NM_005915	MCM6	MCM6 minichromosome maintenance deficient 6 (MIS5 homolog, S. pombe) (S. cerevisiae)	MCG40308/MIS5
158	Hs.184339	NM_014791	MELK	Maternal embryonic leucine zipper kinase	HPK38
159	Hs.177576	NM_012214	MGAT4A	Hypothetical protein MGC52110	MGAT4A
160	Hs.140903	NM_020774	MIB1	Mindbomb homolog 1 (Drosophila)	DIP-1/MIB
161	Hs.499489	NM_145021	MIR	C-mir, cellular modulator of immune recognition	C-MIR/MARCH-VIII
162	Hs.80976	NM_002417	MKI67	Antigen identified by monoclonal antibody Ki-67	Ki-67/KiA
163	Hs.481307	NM_024629	MLF1IP	MLF1 interacting protein	KLIP1
164	Hs.30385	NM_004641	MLLT10	Myeloid/lymphoid or mixed-lineage leukemia (trithorax homolog, Drosophila);	10/AF10
165	Hs.143751	NM_005940	MMP11	Matrix metalloproteinase 11 (stromelysin 3)	SL-3/ST3
166	Hs.297413	NM_004994	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	GELB/CLG4B
167	Hs.333823	NM_014078	MRPL13	Mitochondrial ribosomal protein L13	L13/L13MT
168	Hs.530735	NM_021201	MS4A7	Membrane-spanning 4-domains, subfamily A, member 7	4SPAN2/CD20L4
169	Hs.181326	NM_201281	MTMR2	Myotubularin related protein 2	CMT4B/CMT4B1
170	Hs.89603	NM_182741	MUC1	Mucin 1, transmembrane	CD227/EMA
171	Hs.244017	XM_370689	MUC19	Mucin 19	FLJ35746
172	Hs.517307	NM_002462	MX1	Myxovirus (influenza virus) resistance 1, interferon-inducible protein p78 (mouse)	IFI-78K/IFI78
173	Hs.179718	NM_002466	MYBL2	V-myb myeloblastosis viral oncogene homolog (avian)-like 2	BMYB

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
174	Hs.202453	NM_002467	MYC	v-myc myelocytomatosis viral oncogene homolog (avian)	C-MYC
175	Hs.371395	NM_015460	MYRIP	Myosin VIIA and Rab interacting protein	SLAC2-C/SLAC2C
176	Hs.372914	NM_006096	NDRG1	N-myc downstream regulated gene 1	CAP43/CMT4D
177	Hs.386470	NM_021077	NMB	Neurodin B	MGC17211
178	Hs.118638	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed in	AWD/GAAD
179	Hs.418367	NM_006681	NMU	Neurodin U	NMU
180	Hs.524430	NM_002135	NR4A1	Nuclear receptor subfamily 4, group A, member 1	GFRP1/HMR
181	Hs.511093	NM_016359	NUSAP1	Nuclear and spindle associated protein 1	ANKT/BM037
182	Hs.23796	NM_014253	ODZ1	Odz, odd Oz/ten-m homolog 1(Drosophila)	ODZ3/TEN-M1
183	Hs.130438	XM_371717	ODZ3	Odd Oz/Ten-m homolog 3	TEN-M3
184	Hs.49760	NM_014321	ORC6L	Origin recognition complex, subunit 6 homolog-like (yeast)	ORC6
185	Hs.278277	NM_000436	OXCT1	3-oxoacid CoA transferase 1	OXCT/SCOT
186	Hs.259461	NM_007203	PALM2-AKAP2	PALM2-AKAP2 protein	AKAP2
187	Hs.368305	NM_177453	PAQR3	Progesterin and adipoQ receptor family member III	PAQR3
188	Hs.147433	NM_182649	PCNA	Proliferating cell nuclear antigen	MGC8367
189	Hs.498494	NM_002570	PCSK6	Proprotein convertase subtilisin/kexin type 6	PACE4/SPC4
190	Hs.496068	NM_033018	PCTK1	PCTAIRE protein kinase 1	PCTAIRE
191	Hs.459691	NM_002613	PDPK1	3-phosphoinositide dependent protein kinase-1	PKD1/PKB-LIKE
192	Hs.514412	NM_000442	PECAM1	Platelet/endothelial cell adhesion molecule (CD31 antigen)	CD31/PECAM-1
193	Hs.15250	NM_006117	PECI	Peroxisomal D3,D2-enoyl-CoA isomerase	ACBD2/DRS1
194	Hs.270532	NM_000286	PEX12	Peroxisomal biogenesis factor 12	PEX12
195	Hs.26010	NM_002627	PFKP	Phosphofructokinase, platelet	PFK-C/PFKF
196	Hs.78771	NM_000291	PGK1	Phosphoglycerate kinase 1	MIG10/PGKA
197	Hs.368072	NM_000926	PGR	Progesterone receptor	NR3C3/PR
198	Hs.517549	NM_014422	PIB5PA	Phosphatidylinositol (4,5) bisphosphate 5-phosphatase, A	INPP5/PIPP
199	Hs.495728	NM_003662	PIR	Pinin	PIR
200	Hs.528300	NM_014889	PITRM1	Pitriysin metalloproteinase 1	HMP1/MP1
201	Hs.287830	NM_021622	PLEKHA1	Pleckstrin homology domain containing, family A (phosphoinositide binding specific)	TAPP1
202	Hs.143436	NM_000301	PLG	Plasminogen	LOC401270
203	Hs.30743	NM_006115	PRAME	Preferentially expressed antigen in melanoma	MAPE/OIP4
204	Hs.459362	NM_003981	PRC1	Protein regulator of cytokinesis 1	MGC1671
205	Hs.531704	NM_002737	PRKCA	Protein kinase C, alpha	PKC-ALPHA/PKCA
206	Hs.460355	NM_002738	PRKCB1	Protein kinase C, beta 1	PKC-BETA/PKCB
207	Hs.155342	NM_006254	PRKCD	Protein kinase C, delta	MAY1/NPKC-DELTA
208	Hs.97432	NM_005400	PRKCE	Protein kinase C, epsilon	NPKC-EPSILON
209	Hs.2890	NM_002739	PRKCG	Protein kinase C, gamma	PKC-GAMMA/PKCC
210	Hs.496255	NM_002744	PRK CZ	Protein kinase C, zeta (PRK CZ), mRNA	PKCZ
211	Hs.508999	NM_002742	PRKD1	Protein kinase D1	MU/PKC-MU
212	Hs.466987	NM_016457	PRKD2	Protein kinase D2	HSPC187/PKD2
213	Hs.1905	NM_000948	PRL	Prolactin	PRL
214	Hs.370834	NM_014109	ATAD2	ATPase family, AAA domain containing 2	PRO2000
215	Hs.518464	NM_002808	PSMD2	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 2	P97/S2
216	Hs.440604	NM_002811	PSMD7	Proteasome (prosome, macropain) 26S subunit, non-ATPase, 7 (Mov34 homolog)	MOV34/P40
217	Hs.292579	NM_014754	PTDSS1	Phosphatidylserine synthase 1	PSSA
218	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	B2S/MHAM
219	Hs.477367	NM_198402	PTPLB	Protein tyrosine phosphatase-like (proline instead of catalytic arginine), member b	PTPLB
220	Hs.75438	NM_000320	QDPR	Quinoid dihydropteridine reductase	DHPR/PKU2
221	Hs.25318	NM_004163	RAB27B	RAB27B, member RAS oncogene family	RAB27B
222	Hs.552596	NM_016577	RAB6B	RAB6B, member RAS oncogene family	RAB6B
223	Hs.81848	NM_006285	RAD21	RAD21 homolog (S. pombe)	HHR21/HR21
224	Hs.446554	NM_002875	RAD51	RAD51 homolog (RecA homolog, E. coli) (S. cerevisiae)	HRAD51/HSRAD51
225	Hs.446680	NM_021785	RAI2	Retinoic acid induced 2	RAI2
226	Hs.126774	NM_016448	RAMP	RA-regulated nuclear matrix-associated protein	L2DTL
227	Hs.8035	NM_023940	RASL11B	RAS-like, family 11, member B	MGC2827
228	Hs.408528	NM_000321	RB1	Retinoblastoma 1 (including osteosarcoma)	OSRC/RB
229	Hs.114762	NM_002900	RBP3	Retinol binding protein 3, interstitial	D10S64/D10S65
230	Hs.518475	NM_181573	RFC4	Replication factor C (activator 1) 4, 37kDa	A1/RFC37
231	Hs.446628	NM_001007	RPS4X	Ribosomal protein S4, X-linked	CCG2/DX5306
232	Hs.485938	NM_021244	RRAGD	Ras-related GTP binding D	RAGD
233	Hs.226390	NM_001034	RRM2	Ribonucleotide reductase M2 polypeptide	R2/RR2M
234	Hs.159492	NM_014363	SACS	Spastic ataxia of Charlevoix-Saguenay (sacsin)	ARSACS
235	Hs.523468	NM_020974	SCUBE2	Signal peptide, CUB domain, EGF-like 2	CEGB1/CEGF1
236	Hs.335614	NM_012429	SEC14L2	SEC14-like 2 (S. cerevisiae)	SPF/TAP
237	Hs.32567	NM_021967	SERF1A	Small EDRK-rich factor 1A (telomeric)	4F5/FAM2A
238	Hs.414795	NM_000602	SERPINE1	Serine (or cysteine) proteinase inhibitor, clade E (nexin, plasminogen activator inhibitor type 1), member 1	PAI/PAI-1
239	Hs.46319	NM_001040	SHBG	Sex hormone-binding globulin	ABP
240	Hs.419240	NM_006931	SLC2A3	Solute carrier family 2 (facilitated glucose transporter), member 3	GLUT3
241	Hs.14846	NM_003045	SLC7A1	Solute carrier family 7 (cationic amino acid transporter, y+ system), member 1	ATRC1/CAT-1
242	Hs.58992	NM_005496	SMC4L1	SMC4 structural maintenance of chromosomes 4-like 1 (yeast)	CAPC/HCAP-C
243	Hs.524461	NM_138473	SP1	Sp1 transcription factor	Sp1
244	Hs.421956	NM_020675	Spc25	Spindle pole body component 25 homolog (S. cerevisiae)	AD024/SPBC25
245	Hs.195659	NM_005417	SRC	v-src sarcoma (Schmidt-Ruppin A-2) viral oncogene homolog (avian)	ASV/C-SRC
246	Hs.368131	NM_018412	ST7	Suppression of tumorigenicity 7	ETS7Q/FAM4A1
247	Hs.492333	NM_006281	STK3	Serine/threonine kinase 3 (STE20 homolog, yeast)	KRS1/MST2
248	Hs.133062	NM_018401	STK32B	Serine/threonine kinase 32B	HSA250839/STK32
249	Hs.250822	NM_003600	STK6	Serine/threonine kinase 6	AIK/ARK1
250	Hs.209983	NM_005563	STMN1	Stathmin 1/oncoprotein 18	LAG/LAP18
251	Hs.488683	NM_004603	STX1A	Syntaxin 1A (brain)	STX1/HPC-1
252	Hs.485877	NM_006372	SYNCRIP	Synaptotagmin binding, cytoplasmic RNA interacting protein	pp68/NSAP1
253	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	BETA/D6S182
254	Hs.129895	NM_016569	TBX3	T-box 3 (lunar mammary syndrome)	TBX3/SOUMS
255	Hs.529618	NM_003234	TFR	Transferrin receptor (p90, CD71)	CD71/TFR
256	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha	TGFA
257	Hs.1103	NM_000660	TGFB1	Transforming growth factor, beta 1 (Camurati-Engelmann disease)	BETA 1/CED
258	Hs.133379	NM_003238	TGFB2	Transforming growth factor, beta 2	TGF b2
259	Hs.2025	NM_003239	TGFB3	Transforming growth factor, beta 3	TGF b3
260	Hs.515122	NM_003258	TK1	Thymidine kinase 1, soluble	TK2
261	Hs.336224	NM_003692	TMEFF1	Transmembrane protein with EGF-like and two follistatin-like domains 1	H7365/ORF
262	Hs.241570	NM_000594	TNF	Tumor necrosis factor (TNF superfamily, member 2)	DIF/TNF-ALPHA
263	N/A	N/A	Pol1	Escherichia coli K12 MG1655 section 351 of 400 of the complete genome	Pol1
264	N/A	L08752	PUC18	PUC18 Plasmid DNA	PUC18

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
265	Hs.534255	NM_004048	B2M	Beta-2-microglobulin	B2M
266	Blank	Blank	Blank	Blank	
267	Blank	Blank	Blank	Blank	
268	Hs.408312	NM_000546	TP53	Tumor protein p53 (Li-Fraumeni syndrome)	CYS51STOP/P53
269	Hs.436187	NM_004237	TRIP13	Thyroid hormone receptor interactor 13	16E1BP
270	Hs.523512	NM_006292	TSG101	Tumor susceptibility gene 101	TSG10
271	Hs.75516	NM_003331	TYK2	Tyrosine kinase 2	JTK1
272	N/A	X03205	18SRNA	Human 18S ribosomal RNA	18SRNA
273	N/A	N/A	AS1R3	Artificial Sequence 1 Related 3 (70% identity)(43/60)	
274	N/A	N/A	AS1R2	Artificial Sequence 1 Related 2 (80% identity)(48/60)	
275	N/A	N/A	AS1R1	Artificial Sequence 1 Related 1 (90% identity)(56/60)	
276	N/A	N/A	AS1	Artificial Sequence 1	
277	Hs.534255	NM_004048	B2M	Beta-2-microglobulin	B2M
278	Hs.534255	NM_004048	B2M	Beta-2-microglobulin	B2M
279	Hs.520640	NM_001101	ACTB	Actin, beta	b-Actin
280	Hs.145469	NM_015984	UCHL5	Ubiquitin carboxyl-terminal hydrolase L5	CGI-70/UCH37
281	Hs.73793	NM_003376	VEGF	Vascular endothelial growth factor	VEGFA
282	Hs.533317	NM_003380	VIM	Vimentin	FLJ36605
283	Hs.492974	NM_003882	WISP1	WNT1 inducible signaling pathway protein 1	CCN4/WISP11
284	Hs.549075	NM_005432	XRCC3	X-ray repair complementing defective repair in Chinese hamster cells 3	XRCC3
285	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	
286	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	
287	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	
288	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary sequence	