

# Oligo GEMArray<sup>®</sup> DNA Microarray: Human Cancer

## Catalog Number

OHS-802  
EHS-802

## Format:

HybTube (Standard protocol)  
HybPlate (Higher throughput protocol)

## Description

The Oligo GEMArray<sup>®</sup> Human Cancer Microarray profiles the expression of 440 genes that include members of several different pathways frequently altered during the progression of cancer. This array allows you to examine specific aspects of tumor progression. The genes represented by this array include but are not limited to tumor suppressors, oncogenes, signal transduction molecules, growth factors, growth factor receptors, and angiogenesis factors. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

## Functional Gene Groupings

### **Apoptosis:**

Anti-Apoptosis: AKT1, BCL2, BRAF, CCL2, FOXO1A, HDAC1, IER3, IGF1R, MYBL2, NFKB1, NOTCH2, PEA15, RELA, SEMA4D, TGFB1, TNF, TNFRSF6, VHL.

Caspase Activation: F2R, STAT1, TNFRSF10A, TNFRSF10B.

Induction of Apoptosis Resulting From DNA Damage Response Signal Transduction: ABL1, TP53, TP73.

Induction of Apoptosis: DCC, NME3, BAX, NOTCH2, TNFRSF10A, TNFRSF10B, TNFRSF6, TRADD.

Induction of Apoptosis by Signals: Intracellular and Extracellular, by Death Domain, and by Hormones: BTK, TIMP3, BAX, FASTK, SIVA TP53, CDKN1A, CUL1, TNFRSF10A, TNFRSF10B.

Regulation of Apoptosis: BAX, BCL2, BRCA1, PEA15, TNFRSF10B, TNFRSF6.

Factors Involved in Other Aspects of Apoptosis: BRCA1, E2F1, FASTK, IL1B, RAF1, RIPK1, SIVA, TNFRSF1A, TNFRSF1B, TNFSF7, TP53BP2, TRADD, BAX, BCL2, F2R, IER3, NFKB1, PEA15, TNF, TNFRSF10A, TNFRSF10B, TNFRSF6, TP53, TP73.

Other Apoptosis-Related Genes: VDAC1, BAX, VDAC1.

### **Cell Cycle:**

Cell Cycle Arrest: CGRRF1, MYC, PA2G4, TBRG4, CDKN1A, CDKN1B, CDKN1C, CDKN2A, CDKN2B, CDKN2D, CUL1, MAPK12, NOTCH2.

Cell Cycle Checkpoint: RB1, BRCA1, CDKN2A, TP53.

Factors Involved in Other Aspects of the Cell Cycle: ATM, CCND1, CCND2, CCND3, CCNE1, CDC20, CDK4, CDK5, CDKN1B, CDKN1C, CDKN2A, CDKN2B, CDKN2D, CHAF1A, E2F3, MAPK12, MAPK13, MCM2, PLK2, RBBP4, RBL2, SEPT6, TAF1, TFDP1, TFDP2, CDKN1A, CUL1, E2F1, TP53BP2.

Regulation of the Cell Cycle: APC, ING1, KLK10, MCC, MSH2, NF1, NF2, NME1, NME2, PTCH, PTEN, RAP1A, WT1, ATM, BAX, BRCA1, CDKN1C, CDKN2A, CDKN2B, CDKN2D, DCC, MAPK12, RB1, RBL2, TP53, TP73, VHL, AXL, BRCA2, CDC25A, CDC25B, CDK9, CDKL1, CLK1, CSK, E2F5, FRAP1, GSPT1, IFITM1, KRAS2, LCK, MAPRE1, NRAS, PCNA, PCTK1, PCTK2, PDGFA, PDGFB, PIK3CB, PTMA, PTN, SFN, TGFA, VEGF, WEE1, ABL1, APC, ATM, BCL2, CCND1, CCND2, CCND3, CCNE1, CDC20, CDK4, CDKN1A, CDKN1B, E2F1, E2F3, F2R, IGF1R, IL1B, MYBL2, RAP1A, RB1, STAT1, TFDP1, TFDP2, TGFB1, TP53BP2, VHL.

### **Cell Growth and Differentiation:**

Cell Differentiation and Cell Fate: NOTCH1, NOTCH4, NRG1, SKI, SKIL, NOTCH2.

## Product Specification Sheet

**Cell Growth and Maintenance:** ABL1, ABL2, ARHGEF5, AXL, BCL2, BRAF, CFBF, CCND1, CDK4, CSF1R, DEK, ETV1, ETV6, FES, FGFR1, FGR, FOS, FOXO1A, GNAS, IER3, IGFBP3, IGFBP4, IGFBP5, JUN, KIT, KRAS2, LCK, LYN, MAP3K8, MAS1, MDM2, MET, MLLT3, MYB, MYC, MYCN, NF1, NFKB2, NOTCH2, NPM1, NRAS, PDGFA, PDGFB, PHB, PIM1, RAF1, RARA, RARB, REL, RET, RHOA, RHOB, RHOC, SEMA3C, SKI, SKIL, SMO, SRC, TGFB1, VEGF, WNT1, WNT3, YES1.

**Cell Proliferation:** CDC25, CCYR61, EGFR, ERBB2, ERBB4, GAS6, HDGF, KITLG, LRPAP1, MT3, OSM, PDGFRA, TGFBI, CDC25A, CDK4, CDK5, CDK9, CLK1, CSF1R, E2F1, FES, GSPT1, IGFBP4, IL1B, MAPRE1, MAS1, MET, MYC, PA2G4, PCNA, PDGFA, PDGFB, PTCH, PTN, RAF1, SFN, TFDP1, TGFA, TGFB1, NFSF7, VEGF.

**Growth Factors:** GDF15, HDGF, IL1B, KITLG, NRG1, PDGFA, PDGFB, PTN, TGFA, TGFB1, VEGF.

**Regulation of Cell Proliferation, Differentiation, Growth, and Volume:** BCL2, BRCA1, CAPN1, CAPNS1, CDC25B, CDC2L5, CDK10, CDKN1A, CDKN1B, CDKN1C, CDKN2A, CDKN2B, CDKN2D, CGRRF1, CLNS1A, CUL1, CYR61, DLG3, FOSL1, IFITM1, IGF1R, IGFBP3, IGFBP4, IGFBP5, IL1B, MDM2, MDM4, MT3, NF1, NF2, NME1, NME2, NOTCH2, NOTCH4, OSM, PTN, RBBP4, SOCS1, SOCS3, TBRG4, TGFB2, TIMP1, TOB1, TSG101, VEGF, VHL.

### **Cell Motility:**

**Cell Migration and Motility:** FN1, GNA13, HMMR, NEO1, RAC1, SPINT2, STAT3, THBS1, TPBG, F2R.

**Cell-Cell Adhesion:** CD44, ICAM1.

**Cell-Matrix Adhesion:** ILK, ITGA3, ITGA6, ITGB4, NID, CD44.

**Metalloendopeptidases (MMPs) and MMP inhibitors:** ACY1, ANPEP, MME, MMP1, MMP14, MMP17, MMP2, PA2G4, TIMP1, TIMP3.

### **Signal Transduction:**

**Cell Surface Receptor-Linked Signal Transduction:** CBLB, CD59, FZD2, FZD5, FZD9, MYD88, STC1, CCL2, FGFR1, IFITM1, PDGFA, PDGFRA, SMO.

**Frizzled and Frizzled-2 Signaling Pathways:** DVL1, DVL3, TLE1, FZD9, WNT2, WNT2B, WNT5A, WNT1, WNT3.

**G-Protein Coupled Receptor (GPCR) Protein Signaling Pathway:** CRHR1, GNB2, GPR39, NMBR, PIK3CG, RGS19, AKT1, CCL2, F2R, FZD2, FZD5, FZD9, GNA13, GNAS, MAS1, PIK3CB, SMO.

**Insulin Receptor Signaling Pathway:** PDPK1, IGF1R.

**Integrin-Mediated Signaling Pathway:** ILK, ITGA3, ITGA6, ITGB4.

**Intracellular Signaling Cascade:** FKBP8, GRB2, JAK1, PRKAR1A, RASGRF1, SHB, STAT2, STAT5B, ZAP70, ABL1, ABL2, BRAF, BTK, CBLB, CSK, DVL1, DVL3, FES, FGR, LCK, LYN, RAC1, RAF1, SOCS1, SOCS3, SRC, STAT1, STAT3, YES1.

**JAK-STAT Cascade:** CCL2, SOCS1, STAT1, STAT2, STAT3, STAT5B.

**Notch Signaling Pathway:** NOTCH2, NOTCH4.

**RAS Protein Signal Transduction:** GRB2, LCK, NF1.

**Rho Protein Signal Transduction:** ARHGAP5, RHOD, RHOA, RHOB.

**Small GTPase-Mediated Signal Transduction:** ACK1, RAB5A, SIAH2, KRAS2, NRAS, RAC1, RAP1A, RASGRF1, RGS19, RHOA, RHOB, RHOC, RHOD.

**Wnt Receptor Signaling Pathway:** CSNK1G2, CTNNB1, FRZB, TCF7L2, APC, DVL1, DVL3, FZD2, FZD5, FZD9, TLE1, WNT1, WNT2, WNT2B, WNT3, WNT5A.

**Other Cancer-Related Genes:** AARS, ABCB1, ABCC4, ABI2, ACP2, ADSL, AK1, AKR1C2, ALB, ANXA5, ANXA7, AP2M1, ARID4A, ASNS, ATF4, ATP5B, ATP5O, BARD1, BHLHB2, BLMH, CANX, CAP1, CAV1, CCT5, CD24, CEBPG, CENPC1, CIB1, CKMT1, CLK2, CLK3, CLTC, COL1A1, COL6A3, COX6C, COX7A2, CRAT, CTNNA1, CTPS, CTSC, CTSD, DCN, DDX10, DHCR7, DHRS2, DHX8, EGR1, EIF5, EPHA2, ERBB3, ERCC3, ETV3, FBN1, FBN2, FOSL2, FOXG1A, FTL, G22P1, GCN5L2, GNB2L1, GSK3A, GTF2I, HPRT1, HRB, HSPA4, HSPA5, HSPA8, HSPB1, HSPH1, HYAL1, HYOU1, ID1, ID2, IDUA, IGF2R, IRF3, JARID1A, JUNB, JUND, K-ALPHA-1, KPNA2, KRT18, KRT2A, KRT9, LAMB1, LAMP2, LCN2, LEP, LITAF, LTF, LZTR1, MADH1, MAP2K2, MAPKAPK3, MARS, MCM4, MGST1, MICB, MNDA, MSH6, MYBL1, MYCL1, MYL9, MYLK, NINJ1, NQO1, NR1D1, NR2F1, NR2F6, NSEP1, PABPC1, PCTK3, PFDN4, PFDN5, PGAM1, PIK3CA, PKM2, PKMYT1, PPARD, PPARG, PPIH,

## Product Specification Sheet

PPP1CA, PPP2R5A, PRDX2, PRDX4, PRKCBP1, PRNP, PRSS15, PSMA1, PTGS1, PTPRN, RAD50, RALBP1, REA, RELB, RFC2, RPN2, RPS6KB1, RRM1, SARS, SELENBP1, SEPP1, SERPINH1, SFPQ, SFRS7, SHH, SLC16A1, SLC1A4, SLC20A1, SMPD1, SNAI2, SND1, SNRPB2, SOD1, SORT1, SPRY2, SRPX, TBL3, TCF1, TFAP2C, TGFBR3, TIE, TJP1, TK1, TNK1, TP53I3, TPT1, TRAM1, TRRAP, TUFM, TXNRD1, TYRO3, UBC, UBE2L6, UCHL1, USP7, VIL2, XRCC1, YWHAB, YWHAZ, ZNF9.

### 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  $-20^{\circ}\text{C}$  upon receipt.

### References

1. van Es JH, Barker N, Clevers H. You Wnt some, you lose some: oncogenes in the Wnt signaling pathway. *Curr Opin Genet Dev.* 2003 Feb; **13**(1):28-33.
2. Giles RH, van Es JH, Clevers H. Caught up in a Wnt storm: Wnt signaling in cancer. *Biochim Biophys Acta.* 2003 Jun **5**;1653(1):1-24.
3. van Gijn ME, Daemen MJ, Smits JF, Blankesteyn WM. The wnt-frizzled cascade in cardiovascular disease. *Cardiovasc Res.* 2002 Jul; **55** (1): 16-24.
4. Pandur P, Maurus D, Kuhl M. Increasingly complex: new players enter the Wnt signaling network. *Bioessays.* 2002 Oct; **24** (10): 881-4.
5. Goodwin AM, D'Amore PA. Wnt signaling in the vasculature. *Angiogenesis.* 2002;5(1-2):1-9.
6. Moon RT, Bowerman B, Boutros M, Perrimon N. The promise and perils of Wnt signaling through beta-catenin. *Science.* 2002 May 31; **296**(5573):1644-6.
7. Pandur P, Maurus D, Kuhl M. Increasingly complex: new players enter the Wnt signaling network. *Bioessays.* 2002 Oct; **24**(10):881-4.
8. Malbon CC, Wang H, Moon RT. Wnt signaling and heterotrimeric G-proteins: strange bedfellows or a classic romance? *Biochem Biophys Res Commun.* 2001 Sep 28; **287** (3): 589-93.

## Product Specification Sheet

### Oligo GEArray<sup>®</sup> Human Cancer Microarray

#### Array Layout:

RPS27A 1	RPS27A 2	AARS 3	ABCB1 4	ABCC4 5	ABI2 6	ABL1 7	ABL2 8	ACK1 9	ACP2 10	ACY1 11	ADSL 12	AK1 13	GAPD 14	GAPD 15	GAPD 16
RPS27A 17	AKR1C2 18	AKT1 19	ALB 20	ANPEP 21	ANXA5 22	ANXA7 23	AP2M1 24	APC 25	ARHA 26	ARHB 27	ARHC 28	ARHD 29	ARHGAP5 30	ARHGFE5 31	Blank 32
ARID4A 33	ASNS 34	ATF4 35	ATM 36	ATP5B 37	ATP5O 38	AXL 39	BARD1 40	BAX 41	BCL2 42	BHLHB2 43	BLMH 44	BRAF 45	BRCA1 46	BRCA2 47	BTK 48
CANX 49	CAP1 50	CAPN1 51	CAPNS1 52	CAV1 53	CBFB 54	CBLB 55	CCL2 56	CCND1 57	CCND2 58	CCND3 59	CCNE1 60	CCT5 61	CD24 62	CD44 63	CD59 64
CDC20 65	CDC25A 66	CDC25B 67	CDC25C 68	CDC2L5 69	CDK10 70	CDK4 71	CDK5 72	CDK9 73	CDKL1 74	CDKN1A 75	CDKN1B 76	CDKN1C 77	CDKN2A 78	CDKN2B 79	CDKN2D 80
CEBPG 81	CENPC1 82	CGRRF1 83	CHAF1A 84	CIB1 85	CKMT1 86	CLK1 87	CLK2 88	CLK3 89	CLNS1A 90	CLTC 91	COL1A1 92	COL6A3 93	COX6C 94	COX7A2 95	Crat 96
CRHR1 98	CSF1R 99	CSK 100	CSNK1G2 101	CTNNA1 102	CTNNB1 103	CTPS 104	CTSC 105	CTSD 106	CUL1 107	CYR61 108	DCC 109	DCN 110	DDX10 111	DEK 112	DHCR7 112
DHRS2 113	DHX8 114	DLG3 115	DVL1 116	DVL3 117	E2F1 118	E2F3 119	E2F5 120	EGFR 121	EGR1 122	EIF5 123	EPHA2 124	ERBB2 125	ERBB3 126	ERBB4 127	ERCC3 128
ETV1 129	ETV3 130	ETV6 131	F2R 132	FASTK 133	FBN1 134	FBN2 135	FES 136	FGFR1 137	FGR 138	FKBP8 139	FN1 140	FOS 141	FOSL1 142	FOSL2 143	FOXG1A 144
FOXO1A 145	FRAP1 146	FRZB 147	FTL 148	FZD2 149	FZD5 150	FZD9 151	G22P1 152	GAS6 153	GCN5L2 154	GDF15 155	GNA13 156	GNAS 157	GNB2 158	GNB2L1 159	AS1 160
GPR39 161	GRB2 162	GSK3A 163	B2M 164	GSPT1 165	GTF2I 166	H2AFZ 167	HADHA 168	HDAC1 169	HDFG 170	HLA-C 171	HLA-G 172	HMGA1 173	HMGB1 174	HMG2 175	AS1 176
HMMR 177	HRB 178	HSPA4 179	HSPA5 180	B2M 181	HSPA8 182	HSPB1 183	HSPH1 184	HYAL1 185	HYOU1 186	ICAM1 187	ID1 188	ID2 189	IDUA 190	IER3 191	AS1R1 192
IFITM1 193	IGF1R 194	IGF2R 195	IGFBP3 196	IGFBP4 197	B2M 198	IGFBP5 199	IL1B 200	ILK 201	ING1 202	IRF3 203	ITGA3 204	ITGA6 205	ITGB4 206	JAK1 207	AS1R2 208
JARID1A 209	JUN 210	JUNB 211	JUND 212	K-ALPHA- 213	KIAA1026 214	KIT 215	KITLG 216	KLK10 217	KPNA2 218	KRAS2 219	KRT18 220	KRT2A 221	KRT9 222	LAMB1 223	AS1R3 224
LAMP2 225	LCK 226	LCN2 227	LEP 228	LITAF 229	LRPAP1 230	LTF 231	LYN 232	LZTR1 233	MADH1 234	MAP2K2 235	MAP3K8 236	MAPK12 237	MAPK13 238	MAPKAPK 239	MAPRE1 240
MARS 241	MAS1 242	MCC 243	MCM2 244	MCM4 245	MDM2 246	MDM4 247	MET 248	MGST1 249	MICB 250	MLL3 251	MME 252	MMP1 253	MMP14 254	MMP17 255	MMP2 256
MNDA 257	MSH2 258	MSH6 259	MT3 260	MYB 261	MYBL1 262	MYBL2 263	MYC 264	MYCL1 265	MYCN 266	MYD88 267	MYL9 268	MYLK 269	NEO1 270	NF1 271	NF2 272
NFKB1 273	NFKB2 274	NID 275	NINJ1 276	NMBR 277	NME1 278	NME2 279	NME3 280	NOTCH1 281	NOTCH2 282	NOTCH4 283	NPM1 284	NQO1 285	NR1D1 286	NR2F1 287	NR2F6 288
NRAS 289	NRG1 290	NSEP1 291	OSM 292	PA2G4 293	PABPC1 294	PCNA 295	PCTK1 296	PCTK2 297	PCTK3 298	PDGFA 299	PDGFB 300	PDGFRA 301	PDPK1 302	PEA15 303	PFDN4 304
PFDN5 305	PGAM1 306	PHB 307	PIK3CA 308	PIK3CB 309	PIK3CG 310	PIM1 311	PKM2 312	PKMYT1 313	PLK2 314	PPARD 315	PPARG 316	PPP2R5A 317	PRDX2 318	PRDX4 319	PRKAR1A 320
PRKCBP1 321	PRNP 322	PRSS15 323	PSMA1 324	PTCH 325	PTEN 326	PTGS1 327	PTMA 328	PTN 329	PTPRN 330	RAB5A 331	RAC1 332	RAD50 333	RAF1 334	RALBP1 335	RAP1A 336
RARA 337	RARB 338	RASGRF1 339	RB1 340	RBBP4 341	RBL2 342	REA 343	REL 344	RELA 345	RELB 346	RET 347	RFC2 348	RGS19 349	RIPK1 350	RPN2 351	RPS6KB1 352
RRM1 353	SARS 354	SELENBP1 355	SEMA3C 356	SEMA4D 357	SEPP1 358	SEPT6 359	SERPINH 360	SFN 361	SFPQ 362	HSPCB 363	SFRS7 364	SHB 365	SHH 366	SIAH2 367	SIVA 368
SKI 369	SKIL 370	SLC16A1 371	SLC1A4 372	SLC20A1 373	SMO 374	SMPD1 375	SNAI2 376	SND1 377	HSPCB 378	SNRPB2 379	SOCS1 380	SOCS3 381	SOD1 382	SORT1 383	SPINT2 384
SPRY2 385	SRC 386	SRPX 387	STAT1 388	STAT2 389	STAT3 390	STAT5B 391	STC1 392	HSPCB 393	TAF1 394	TBL3 395	TBRG4 396	TCF1 397	TCF7L2 398	TFAP2C 399	TFDP1 400
TFDP2 401	TGFA 402	TGFB1 403	TGFB2 404	TGFB3 405	TGFB4 406	THBS1 407	HSPCB 408	TIE 409	TIMP1 410	TIMP3 411	TJP1 412	TK1 413	TLE1 414	TNF 415	TNFRSF1 416
TNFRSF1 417	TNFRSF1 418	TNFRSF1 419	TNFRSF6 420	TNFRSF7 421	TNK1 422	TOB1 423	TP53 424	TP53BP2 425	TP53I3 426	TP73 427	TPBG 428	TPT1 429	TRADD 430	TRAM1 431	TRRAP 432
ACTB 433	TSG101 434	TUFM 435	TXNRD1 436	TYRO3 437	UBC 438	UBE2L6 439	UCHL1 440	USP7 441	VDAC1 442	VEGF 443	VHL 444	PUC18 445	Pol1 446	Luc1 447	Luc2 448
ACTB 449	Blank 450	Blank 451	VIL2 452	WEE1 453	WNT1 454	WNT2 455	WNT2B 456	WNT3 457	WNT5A 458	WT1 459	18SrRNA 460	PPIH 461	M6PR 462	NONO 463	LDHA 464
ACTB 465	ACTB 466	ACTB 467	XRCC1 468	XRCC4 469	XRCC5 470	YES1 471	YWHAB 472	YWHAZ 473	ZAP70 474	ZNF9 475	BAS2C 476	BAS2C 477	BAS2C 478	BAS2C 479	BAS2C 480

## Product Specification Sheet

### Oligo GEArray<sup>®</sup> Human Cancer Microarray

#### Gene Table:

Position	UniGene	GenBank	Symbol	Description
1	Hs_311640	NM_002954	RPS27A	Ribosomal protein S27a
2	Hs_311640	NM_002954	RPS27A	Ribosomal protein S27a
3	Hs_315137	NM_001605	AARS	Alanine-tRNA synthetase
4	Hs_21330	NM_000927	ABCB1	ATP-binding cassette, sub-family B (MDR/TAP), memb
5	Hs_30791	NM_005845	ABCC4	ATP-binding cassette, sub-family C (CFTR/MRP), mem
6	Hs_387906	NM_005759	ABL2	Ab1-interactor 2
7	Hs_446504	NM_005157	ABL1	V-abl Abelson murine leukemia viral oncogene homol
8	Hs_159472	NM_005158	ABL2	V-abl Abelson murine leukemia viral oncogene homol
9	Hs_528296	NM_005781	ACK1	Activated Cdc42-associated kinase 1
10	Hs_75589	NM_001610	ACP2	Acid phosphatase 2, lysosomal
11	Hs_334707	NM_000666	ACY1	Aminoacylase 1
12	Hs_75527	NM_000026	ADSL	Adenylosuccinate lyase
13	Hs_76240	NM_000476	AK1	Adenylate kinase 1
14	Hs_169476	NM_002046	GAPD	Glyceraldehyde-3-phosphate dehydrogenase
15	Hs_169476	NM_002046	GAPD	Glyceraldehyde-3-phosphate dehydrogenase
16	Hs_169476	NM_002046	GAPD	Glyceraldehyde-3-phosphate dehydrogenase
17	Hs_311640	NM_002954	RPS27A	Ribosomal protein S27a
18	Hs_201967	NM_001354	AKR1C2	Aldo-keto reductase family 1, member C2 (dihydrodi
19	Hs_368861	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1
20	Hs_418167	NM_000477	ALB	Albumin
21	Hs_1239	NM_001150	ANPEP	Alanine (membrane) aminopeptidase (aminopeptidase N
22	Hs_145741	NM_001154	ANXA5	Annexin A5
23	Hs_386741	NM_004034	ANXA7	Annexin A7
24	Hs_433892	NM_004068	AP2M1	Adaptor-related protein complex 2, mu 1 subunit
25	Hs_75081	NM_000038	APC	Adenomatosis polyposis coli
26	Hs_77273	NM_001664	ARHA	Ras homolog gene family, member A
27	Hs_406064	NM_004040	ARHR	Ras homolog gene family, member B
28	Hs_179735	NM_175744	ARHC	Ras homolog gene family, member C
29	Hs_15114	NM_014579	ARHD	Ras homolog gene family, member D
30	Hs_409546	NM_001173	ARHGAP5	Rho GTPase activating protein 5
31	Hs_334	NM_005435	ARHGEF5	Rho guanine nucleotide exchange factor (GEF) 5
32	Bk	Blank	Blank	Blank
33	Hs_380994	NM_002892	ARID4A	AT rich interactive domain 4A (RBP1-like)
34	Hs_446546	NM_183356	ASNS	Asparagine synthetase
35	Hs_181243	NM_001675	ATF4	Activating transcription factor 4 (tax-responsive
36	Hs_526394	NM_000051	ATM	Ataxia telangiectasia mutated (includes complement
37	Hs_406510	NM_001686	ATP5B	ATP synthase, H+ transporting, mitochondrial F1 co
38	Hs_409140	NM_001697	ATP5O	ATP synthase, H+ transporting, mitochondrial F1 co
39	Hs_83341	NM_001699	AXI	AXI receptor tyrosine kinase
40	Hs_54089	NM_000465	BARD1	BRCA1 associated RING domain 1
41	Hs_159428	NM_004324	BAX	BCL2-associated X protein
42	Hs_79241	NM_000633	BCL2	B-cell CLL/lymphoma 2
43	Hs_171825	NM_003670	BHLHB2	Basic helix-loop-helix domain containing, class B,
44	Hs_387183	NM_000386	BLMH	Bleomycin hydrolase
45	Hs_162967	NM_004333	BRAF	V-raf murine sarcoma viral oncogene homolog B1
46	Hs_194143	NM_007294	BRCA1	Breast cancer 1, early onset
47	Hs_34012	NM_000059	BRCA2	Breast cancer 2, early onset
48	Hs_159494	NM_000061	BTX	Burton acamman globulinemia tyrosine kinase
49	Hs_155560	NM_001746	CANX	Calnexin
50	Hs_104125	NM_006367	CAP1	CAP, adenylate cyclase-associated protein 1 (yeast
51	Hs_356161	NM_005186	CAPN1	Calpain 1, (mu)/beta large subunit
52	Hs_389469	NM_001749	CAPN3	Calpain, small subunit 1
53	Hs_74034	NM_001753	CAV1	Caveolin 1, caveolae protein, 22kDa
54	Hs_179881	NM_001755	CBFB	Cave-binding factor, beta subunit
55	Hs_436886	NM_170662	CBLB	Cas-Bcr-M (murine) ecotropic retroviral transformin
56	Hs_303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2
57	Hs_371468	NM_005306	CCND1	Cyclin D1 (PRAD1)
58	Hs_376071	NM_001759	CCND2	Cyclin D2
59	Hs_83173	NM_001760	CCND3	Cyclin D3
60	Hs_244723	NM_001238	CCNE1	Cyclin E1
61	Hs_1600	NM_012073	CCT5	Chaperonin containing TCP1, subunit 5 (epsilon)
62	Hs_375108	NM_013230	CD24	CD24 antigen (small cell lung carcinoma cluster 4
63	Hs_306278	NM_000610	CD44	CD44 antigen (homing function and Indian blood gro
64	Hs_278573	NM_000611	CD59	CD59 antigen p18-20 (antigen identified by monoclo
65	Hs_82906	NM_001255	CDC20	CDC20 cell division cycle 20 homolog (S. cerevisia
66	Hs_1634	NM_001789	CDC25A	Cell division cycle 25A
67	Hs_153752	NM_004358	CDC25B	Cell division cycle 25B
68	Hs_656	NM_001790	CDC25C	Cell division cycle 25C
69	Hs_404501	NM_003718	CDC2L5	Cell division cycle 2-like 5 (cholinesterase-relat
70	Hs_77313	NM_003674	CDK10	Cyclin-dependent kinase (CDC2-like) 10
71	Hs_95577	NM_000075	CDK4	Cyclin-dependent kinase 4
72	Hs_168071	NM_004935	CDK5	Cyclin-dependent kinase 5
73	Hs_150423	NM_001261	CDK9	Cyclin-dependent kinase 9 (CDC2-related kinase)
74	Hs_380788	NM_004196	CDKL1	Cyclin-dependent kinase-like 1 (CDC2-related kinas
75	Hs_370771	NM_000389	CDKN1A	Cyclin-dependent kinase inhibitor 1A (p21, Cip1)
76	Hs_238990	NM_004064	CDKN1B	Cyclin-dependent kinase inhibitor 1B (p27, Kin1)
77	Hs_403170	NM_000976	CDKN1C	Cyclin-dependent kinase inhibitor 1C (p27, Kin2)
78	Hs_421349	NM_058195	CDKN2A	Cyclin-dependent kinase inhibitor 2A (melanoma, p1
79	Hs_72901	NM_004936	CDKN2B	Cyclin-dependent kinase inhibitor 2B (p15, inhibit
80	Hs_435051	NM_001800	CDKN2D	Cyclin-dependent kinase inhibitor 2D (p19, inhibit
81	Hs_2227	NM_001806	CEBPG	CCAAT/enhancer binding protein (C/EBP), gamma
82	Hs_388457	NM_001812	CENPC1	Centromere protein C, 1
83	Hs_59106	NM_006568	CGRRF1	Cell growth regulator with ring finger domain 1
84	Hs_79018	NM_005483	CHAF1A	Chromatin assembly factor 1, subunit A (p150)
85	Hs_135471	NM_006384	CIB1	Calcium and integrin binding 1 (calmyrin)
86	Hs_425633	NM_020890	CKMT1	Creatine kinase, mitochondrial 1 (ubiquitous)
87	Hs_433732	NM_004071	CLK1	CDC-like kinase 1
88	Hs_73986	NM_001291	CLK2	CDC-like kinase 2
89	Hs_511790	NM_001292	CLK3	CDC-like kinase 3
90	Hs_417369	NM_001293	CLNS1A	Chloride channel, nucleotide-sensitive, 1A
91	Hs_187416	NM_004859	CLTC	Clastrin, heavy polypeptide (Hc)
92	Hs_172928	NM_000088	COL1A1	Collagen, type I, alpha 1
93	Hs_233240	NM_004369	COL6A3	Collagen, type VI, alpha 3
94	Hs_351875	NM_004374	COX6C	Cytochrome c oxidase subunit VIc
95	Hs_70312	NM_001865	COX7A2	Cytochrome c oxidase subunit VIIa polypeptide 2 (l

# Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
96	Hs.12068	NM_000755	Craf	Carnitine acetyltransferase
97	Hs.417628	NM_004382	CRHR1	Corticotropin releasing hormone receptor 1
98	Hs.174142	NM_005211	CSE1R	Colonv stimulating factor 1 receptor, formerly McD
99	Hs.77793	NM_004383	CSK	C-src tyrosine kinase
100	Hs.181390	NM_001319	CSNK1G2	Casein kinase 1, gamma 2
101	Hs.254321	NM_001903	CTNNA1	Catenin (cadherin-associated protein), alpha 1, 10
102	Hs.410086	NM_001904	CTNNA1	Catenin (cadherin-associated protein), beta 1, 88k
103	Hs.251871	NM_001905	CTPS	CTP synthase
104	Hs.128065	NM_001814	CTSC	Cathepsin C
105	Hs.343475	NM_001909	CTSD	Cathepsin D (lysosomal aspartyl protease)
106	Hs.348153	NM_003592	CUL1	Cullin 1
107	Hs.8867	NM_001554	CYR61	Cysteine-rich angiogenic inducer 61
108	Hs.172562	NM_005215	DCC	Deleted in colorectal carcinoma
109	Hs.156316	NM_001920	DCN	Decorin
110	Hs.41706	NM_004398	DDX10	DEAD (Asp-Glu-Ala-Asp) box polypeptide 10
111	Hs.110713	NM_003472	DFK	DFK oncogene (DNA binding)
112	Hs.11806	NM_001360	DHCR7	7-dehydrocholesterol reductase
113	Hs.272499	NM_182908	DHRS2	Dehydrogenase/reductase (SDR family) member 2
114	Hs.171872	NM_004941	DHX8	DEAH (Asp-Glu-Ala-His) box polypeptide 8
115	Hs.11101	NM_021120	DLG3	Discs large homolog 3 (neuroendocrine cell, Drosop)
116	Hs.74375	NM_004421	DVL1	Dishevelled, dish homolog 1 (Drosophila)
117	Hs.381928	NM_004423	DVL3	Dishevelled, dish homolog 3 (Drosophila)
118	Hs.96055	NM_005225	E2F1	E2F transcription factor 1
119	Hs.1189	NM_001949	E2F3	E2F transcription factor 3
120	Hs.447905	NM_001951	E2F5	E2F transcription factor 5, p130-binding
121	Hs.77432	NM_005228	EGFR	Epidermal growth factor receptor (erythroblastic)
122	Hs.326035	NM_001964	EGR1	Early growth response 1
123	Hs.433702	NM_183004	EIF5	Eukaryotic translation initiation factor 5
124	Hs.171596	NM_004431	EPHA2	EphA2
125	Hs.446352	NM_004448	ERBB2	V-erb-b2 erythroblastic leukemia viral oncogene ho
126	Hs.306251	NM_001982	ERBB3	V-erb-b2 erythroblastic leukemia viral oncogene ho
127	Hs.1939	NM_005235	ERBB4	V-erb-a erythroblastic leukemia viral oncogene hom
128	Hs.77929	NM_000122	ERCC3	Excision repair cross-complementing rodent repair
129	Hs.150011	NM_004956	ETV1	Ets variant gene 1
130	Hs.352672	NM_005240	ETV3	Ets variant gene 3
131	Hs.171262	NM_001987	ETV6	Ets variant gene 6 (TEL oncogene)
132	Hs.128087	NM_001992	F2R	Coagulation factor II (thrombin) receptor
133	Hs.75087	NM_006712	FASTK	FAST kinase
134	Hs.750	NM_000138	FBN1	Fibrillin 1 (Marfan syndrome)
135	Hs.79432	NM_001999	FBN2	Fibrillin 2 (congenital contractural arachnoidactyl
136	Hs.7636	NM_002005	FES	Feline sarcoma oncogene
137	Hs.748	NM_000604	EGFR1	Fibroblast growth factor receptor 1 (fms-related)
138	Hs.1422	NM_005248	EGR	Gardner-Rasheed feline sarcoma viral (v-fgr) onco
139	Hs.173464	NM_012181	FKBP8	FK506 binding protein 8, 38kDa
140	Hs.418138	NM_002026	FN1	Fibronectin 1
141	Hs.25647	NM_005252	FOS	V-fos, FBJ murine osteosarcoma viral oncogene homol
142	Hs.283565	NM_005438	FOSL1	FOS-like antigen 1
143	Hs.301612	NM_005253	FOSL2	FOS-like antigen 2
144	Hs.169277	X74143	FOXG1A	Forkhead box G1A
145	Hs.170133	NM_002015	FOXO1A	Forkhead box O1A (rhabdomyosarcoma)
146	Hs.338207	NM_004958	FRAP1	FK506 binding protein 12-rapamycin associated prot
147	Hs.128453	NM_001463	FRZB	Frizzled-related protein
148	Hs.433670	NM_000146	FTL	Ferritin, light polypeptide
149	Hs.142912	NM_001466	FZD2	Frizzled homolog 2 (Drosophila)
150	Hs.152251	NM_003468	FZD5	Frizzled homolog 5 (Drosophila)
151	Hs.488671	NM_003508	FZD9	Frizzled homolog 9 (Drosophila)
152	Hs.169744	NM_001469	G22P1	Thyroid autoantigen 70kDa (Ku antigen)
153	Hs.437710	NM_000820	GAS6	Growth arrest-specific 6
154	Hs.101067	NM_021078	GCN5L2	GCN5 general control of amino acid synthesis 5-like
155	Hs.296638	NM_004864	GDF15	Growth differentiation factor 15
156	Hs.9691	NM_006572	GNA13	Guanine nucleotide binding protein (G protein), al
157	Hs.157307	NM_080425	GNAS	GNAS complex locus
158	Hs.185172	NM_005273	GNB2	Guanine nucleotide binding protein (G protein), be
159	Hs.5662	NM_006098	GNB2L1	Guanine nucleotide binding protein (G protein), be
160	N/A	N/A	AS1	Artificial Sequence 1
161	Hs.512073	NM_001508	GPR39	G protein-coupled receptor 39
162	Hs.411366	NM_002086	GRB2	Growth factor receptor-bound protein 2
163	Hs.435970	NM_019884	GSK3A	Glycogen synthase kinase 3 alpha
164	Hs.48516	NM_004048	B2M	Beta-2-microglobulin
165	Hs.2707	NM_002094	GSP1	G1 to S phase transition 1
166	Hs.408507	NM_001518	GTF2I	General transcription factor II, i
167	Hs.118192	NM_002106	H2AFZ	H2A histone family, member 7
168	Hs.75860	NM_000182	HADHA	Hydroxyacyl-Coenzyme A dehydrogenase/3-ketoacyl-Co
169	Hs.88556	NM_004964	HDAC1	Histone deacetylase 1
170	Hs.89525	NM_004944	HDGF	Hepatoma-derived growth factor (high-mobility grou
171	Hs.274485	NM_002117	HLA-C	Major histocompatibility complex class I, C
172	Hs.512152	NM_002127	HLA-G	HLA-G histocompatibility antigen class I, G
173	Hs.57301	NM_145904	HMGA1	High mobility group AT-hook 1
174	Hs.434102	NM_002128	HMGB1	High mobility group box 1
175	Hs.181163	NM_005517	HMG2	High mobility group nucleosomal binding domain 2
176	N/A	N/A	AS1	Artificial Sequence 1
177	Hs.72550	NM_012484	HMMR	Hyaluronan-mediated motility receptor (RHAMM)
178	Hs.528387	NM_004504	HRB	HIV-1 Rev binding protein
179	Hs.90093	NM_002154	HSPA4	Heat shock 70kDa protein 4
180	Hs.310769	NM_005347	HSPA5	Heat shock 70kDa protein 5 (glucocorticoid-regulated prot
181	Hs.48516	NM_004048	B2M	Beta-2-microglobulin
182	Hs.180414	NM_006597	HSPA8	Heat shock 70kDa protein 8
183	Hs.76067	NM_001540	HSPB1	Heat shock 27kDa protein 1
184	Hs.36927	NM_006644	HSPH1	Heat shock 105kDa/110kDa protein 1
185	Hs.75619	NM_007312	HYAL1	Hyaluronoglucosaminidase 1
186	Hs.277704	NM_006389	HYU1	Hypoxia un-regulated 1
187	Hs.386467	NM_000201	ICAM1	Intercellular adhesion molecule 1 (CD54), human rh
188	Hs.410900	NM_002165	ID1	Inhibitor of DNA binding 1, dominant negative heli
189	Hs.180919	NM_002166	ID2	Inhibitor of DNA binding 2, dominant negative heli
190	Hs.89560	NM_000203	IDUA	Iduronidase, alpha-L
191	Hs.76095	NM_003897	IFB3	Immediate early response 3
192	N/A	N/A	AS1R1	Artificial Sequence 1 Related 1 (90% identity)/56/
193	Hs.458414	NM_003641	IFITM1	Interferon induced transmembrane protein 1 (9-27)
194	Hs.239176	NM_000875	IGF1R	Insulin-like growth factor 1 receptor
195	Hs.76473	NM_000876	IGF2R	Insulin-like growth factor 2 receptor
196	Hs.450230	NM_000598	IGFBP3	Insulin-like growth factor binding protein 3
197	Hs.1516	NM_001552	IGFBP4	Insulin-like growth factor binding protein 4
198	Hs.48516	NM_004048	B2M	Beta-2-microglobulin
199	Hs.512226	NM_000599	IGFBP5	Insulin-like growth factor binding protein 5
200	Hs.126256	NM_000576	IL1B	Interleukin 1, beta

# Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
201	Hs.6196	NM_004517	ILK	Integrin-linked kinase
202	Hs.46700	NM_005537	ING1	Inhibitor of growth family member 1
203	Hs.75254	NM_001571	IRF3	Interferon regulatory factor 3
204	Hs.265829	NM_002204	ITGA3	Integrin alpha 3 (antigen CD49C, alpha 3 subunit)
205	Hs.212296	NM_000210	ITGA6	Integrin alpha 6
206	Hs.85266	NM_000213	ITGB4	Integrin beta 4
207	Hs.436004	NM_002227	JAK1	Janus kinase 1 (a protein tyrosine kinase)
208	N/A	N/A	AS1R2	Artificial Sequence 1 Related 2 (80% identity)(48/
209	Hs.76272	NM_005056	JARID1A	Luminal_AT rich interactive domain 1A (RBBP2-like
210	Hs.78465	NM_002228	JUN	V-jun sarcoma virus 17 oncogene homolog (avian)
211	Hs.25292	NM_002229	JUNB	Jun B proto-oncogene
212	Hs.2780	NM_005354	JUND	Jun D proto-oncogene
213	Hs.446608	NM_006082	K-ALPHA-1	Tubulin alpha ubiquitous
214	Hs.368823	XM_048825	KIAA1026	KIAA1026 protein
215	Hs.81665	NM_000222	KIT	V-kit Hardv-Zuckerman 4 feline sarcoma viral onco
216	Hs.1048	NM_003994	KITLG	KIT ligand
217	Hs.275464	NM_002776	KLK10	Kallikrein 10
218	Hs.252712	NM_002266	KPNA2	Karvoverhin alpha 2 (RAG cohort 1, importin alpha
219	Hs.412107	NM_004985	KRAS2	V-Ki-ras2 Kirsten rat sarcoma 2 viral oncogene hom
220	Hs.406013	NM_000224	KRT18	Keratin 18
221	Hs.707	NM_000423	KRT2A	Keratin 2A (epidermal, ichthyosis bullosa of Siemen
222	Hs.2783	NM_000226	KRT3	Keratin 3 (epidermal, olivine, palmoplantar, keratoderma)
223	Hs.122645	NM_002291	LAMB1	Laminin beta 1
224	N/A	N/A	AS1R3	Artificial Sequence 1 Related 3 (70% identity)(43/
225	Hs.232432	NM_002294	LAMP2	Lysosomal-associated membrane protein 2
226	Hs.1765	NM_005356	LCK	Lymphocyte-specific protein tyrosine kinase
227	Hs.204238	NM_005564	LCN2	Lipocalin 2 (oncogene 24n3)
228	Hs.194236	NM_000230	LEP	Leptin (obesity homolog, mouse)
229	Hs.76507	NM_004862	LITAF	Lipopolysaccharide-induced TNF factor
230	Hs.75140	NM_002337	LRPAP1	Low density lipoprotein receptor-related protein a
231	Hs.437457	NM_002343	LTF	Lactotransferrin
232	Hs.80887	NM_002350	LYN	V-yes-1 Yamaguchi sarcoma viral related oncogene h
233	Hs.78788	NM_006767	LZTR1	Leucine-zipper-like transcriptional regulator 1
234	Hs.388294	NM_005900	MADH1	MAD, mothers against decapentaplegic homolog 1 (Dr
235	Hs.366546	NM_030662	MAP2K2	Mitogen-activated protein kinase kinase 2
236	Hs.432453	NM_005204	MAP3K8	Mitogen-activated protein kinase kinase kinase 8
237	Hs.432642	NM_002969	MAPK12	Mitogen-activated protein kinase 12
238	Hs.178695	NM_002754	MAPK13	Mitogen-activated protein kinase 13
239	Hs.234521	NM_004635	MAPKAPK3	Mitogen-activated protein kinase-activated protein
240	Hs.408754	NM_012325	MAPRF1	Microtubule-associated protein, RP/EB family, memb
241	Hs.355867	NM_004990	MARS	Methionine-tRNA synthetase
242	Hs.99900	NM_002377	MAS1	MAS1 oncogene
243	Hs.409515	NM_002387	MCC	Mutated in colorectal cancers
244	Hs.57101	NM_004526	MCM2	MCM2, minichromosome maintenance deficient 2, mitot
245	Hs.460184	NM_005914	MCM4	MCM4, minichromosome maintenance deficient 4 (S, re
246	Hs.212217	NM_002392	MDM2	Mdm2, transformed 3T3 cell double minute 2, p53 bi
247	Hs.432374	NM_002393	MDM4	Mdm4, transformed 3T3 cell double minute 4, p53 bi
248	Hs.419124	NM_000245	MET	Met proto-oncogene (hepatocyte growth factor recan
249	Hs.389700	NM_020300	MGST1	Microsomal glutathione S-transferase 1
250	Hs.211580	NM_005931	MICB	MHC class I polypeptide-related sequence B
251	Hs.404	NM_004529	MLLT3	Mveloid/lymphoid or mixed-lineage leukemia (tritho
252	Hs.307734	NM_000902	MMF	Membrane metallo-endopeptidase (neutral endopeptid
253	Hs.83169	NM_002421	MMP1	Matrix metalloproteinase 1 (interstitial collagena
254	Hs.2399	NM_004995	MMP14	Matrix metalloproteinase 14 (membrane-inserted)
255	Hs.159581	NM_016155	MMP17	Matrix metalloproteinase 17 (membrane-inserted)
256	Hs.367877	NM_004530	MMP2	Matrix metalloproteinase 2 (gelatinase A, 72kDa ge
257	Hs.153837	NM_002432	MNDA	Mveloid cell nuclear differentiation antigen
258	Hs.440394	NM_000251	MSH2	MutS homolog 2, colon cancer, nonpolyposis type 1
259	Hs.445052	NM_000179	MSH6	MutS homolog 6 (E. coli)
260	Hs.73133	NM_005954	MT3	Metallothionein 3 (growth inhibitory factor (neuro
261	Hs.407830	NM_005375	MYB	V-myb, mveloblastosis viral oncogene homolog (avian
262	Hs.300592	NM_034274	MYB1	V-myb, mveloblastosis viral oncogene homolog (avian
263	Hs.179718	NM_002466	MYB2	V-myb, mveloblastosis viral oncogene homolog (avian
264	Hs.202453	NM_002467	MYC	V-myc, mvelocytomatosis viral oncogene homolog (avi
265	Hs.437922	NM_005376	MYC1	V-myc, mvelocytomatosis viral oncogene homolog 1, I
266	Hs.25960	NM_005378	MYCN	V-myc, mvelocytomatosis viral related oncogene, neu
267	Hs.82116	NM_002468	MYD88	Mveloid differentiation primary response gene (88)
268	Hs.433814	NM_006097	MYI9	Mvosin, light polypeptide 9, regulatory
269	Hs.386078	NM_005965	MYI1K	Mvosin, light polypeptide kinase
270	Hs.386613	NM_002499	NF01	Neonatin homolog 1 (chicken)
271	Hs.83207	NM_000287	NF1	Neurofibromin 1 (neurofibromatosis, von Recklingha
272	Hs.902	NM_000289	NF2	Neurofibromin 2 (bilateral acoustic neuroma)
273	Hs.160557	NM_003998	NFKB1	Nuclear factor of kappa light polypeptide gene enh
274	Hs.73090	NM_002502	NFKB2	Nuclear factor of kappa light polypeptide gene enh
275	Hs.356624	NM_002508	NID	Nidogen (enactin)
276	Hs.11342	NM_004148	NIN1	Ninurin 1
277	Hs.444732	NM_002511	NMBR	Neuromedin B receptor
278	Hs.118638	NM_000269	NME1	Non-metastatic cells 1, protein (NM23A) expressed
279	Hs.433416	NM_002512	NME2	Non-metastatic cells 2, protein (NM23B) expressed
280	Hs.81687	NM_002513	NME3	Non-metastatic cells 3, protein expressed in
281	Hs.311559	NM_017617	NOTCH1	Notch homolog 1, translocation-associated (Drosoph
282	Hs.8121	NM_024408	NOTCH2	Notch homolog 2 (Drosophila)
283	Hs.436100	NM_004557	NOTCH4	Notch homolog 4 (Drosophila)
284	Hs.411098	NM_199185	NPM1	Nucleophosmin (nucleolar phosphoprotein B23, numat
285	Hs.406515	NM_000903	NOO1	NAD(P)H dehydrogenase, quinone 1
286	Hs.276916	NM_021724	NR1D1	Nuclear receptor subfamily 1, group D, member 1
287	Hs.361748	NM_005654	NR2F1	Nuclear receptor subfamily 2, group F, member 1
288	Hs.239752	NM_005234	NR2F6	Nuclear receptor subfamily 2, group F, member 6
289	Hs.260523	NM_002524	NRAS	Neuroblastoma RAS viral (v-ras) oncogene homolog
290	Hs.172816	NM_013957	NRG1	Neuregulin 1
291	Hs.74497	NM_004559	NSEP1	Nuclease sensitive element binding protein 1
292	Hs.248156	NM_020530	OSM	Oncostatin M
293	Hs.374491	NM_006191	PA2G4	Proliferation-associated 2G4, 38kDa
294	Hs.387904	NM_002568	PABPC1	Poly(A) binding protein, cytoplasmic 1
295	Hs.78996	NM_182649	PICNA	Proliferating cell nuclear antigen
296	Hs.471834	NM_033018	PCTK1	PCTAIRE protein kinase 1
297	Hs.258536	NM_002585	PCTK2	PCTAIRE protein kinase 2
298	Hs.445402	AK126879	PCTK3	PCTAIRE protein kinase 3
299	Hs.376032	NM_002607	PDGFA	Platelet-derived growth factor alpha polypeptide
300	Hs.1976	NM_002608	PDGFB	Platelet-derived growth factor beta polypeptide (s
301	Hs.74615	NM_006206	PDGFRA	Platelet-derived growth factor receptor, alpha pol
302	Hs.154729	NM_002613	PDPK1	3-phosphoinositide dependent protein kinase-1
303	Hs.194673	NM_003768	PFA15	Phosphoprotein enriched in astrocytes 15
304	Hs.91161	NM_002623	PFDN4	Prefoldin 4
305	Hs.288856	NM_002624	PFDN5	Prefoldin 5

# Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
306	Hs_447492	NM_002629	PGAM1	Phosphoglycerate mutase 1 (brain)
307	Hs_75323	NM_002634	PHB	Prohibitin
308	Hs_85701	NM_006218	PIK3CA	Phosphoinositide-3-kinase_catalytic_alpha_polypeptide
309	Hs_239818	NM_006219	PIK3CB	Phosphoinositide-3-kinase_catalytic_beta_polypeptide
310	Hs_32942	NM_002649	PIK3CG	Phosphoinositide-3-kinase_catalytic_gamma_polypeptide
311	Hs_81170	NM_002648	PIM1	Pim-1 oncogene
312	Hs_198281	NM_002654	PKM2	Pyruvate kinase_muscle
313	Hs_77783	NM_182687	PKMYT1	Membrane-associated tyrosine- and threonine-specific kinase
314	Hs_398157	NM_006622	PLK2	Plk-like kinase 2 (Drosophila)
315	Hs_106415	NM_006238	PPARD	Peroxisome proliferative activated receptor_delta
316	Hs_387667	NM_015869	PPARG	Peroxisome proliferative activated receptor_gamma
317	Hs_155079	NM_006243	PPP2R5A	Protein phosphatase 2_regulatory_subunit_B_(B56)
318	Hs_432121	NM_005809	PRDX2	Peroxisiredoxin 2
319	Hs_83383	NM_006406	PRDX4	Peroxisiredoxin 4
320	Hs_280342	NM_002734	PRKAR1A	Protein kinase_cAMP-dependent_regulatory_type_I
321	Hs_181930	NM_183048	PRKCBP1	Protein kinase_C_binding_protein_1
322	Hs_438582	NM_183079	PRNP	Prion protein (p27-30) (Creutzfeldt-Jakob disease)
323	Hs_350265	NM_004793	PRSS15	Protease_serine_15
324	Hs_82159	NM_002786	PSMA1	Proteasome (prosome; macropain) subunit_alpha_type_1
325	Hs_159526	NM_000264	PTCH	Patched homolog (Drosophila)
326	Hs_253309	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple cancer types)
327	Hs_98474	NM_000962	PTGS1	Prostaglandin-endoperoxide synthase 1 (cyclooxygenase 1)
328	Hs_459927	NM_002823	PTMA	Prothymosin_alpha (gene sequence 28)
329	Hs_44	NM_002825	PTN	Platypotin (heparin binding growth factor 8_neu)
330	Hs_89655	NM_002846	PTPRN	Protein tyrosine phosphatase_receptor_type_N
331	Hs_73957	NM_004162	RAB5A	RAB5A_member_RAS_oncogene_family
332	Hs_413812	NM_006908	RAC1	Ras-related G3 botulinum toxin substrate 1 (rho fa)
333	Hs_41587	NM_005732	RAD50	RAD50 homolog (S_cerevisiae)
334	Hs_257266	NM_002880	RAF1	V-raf-1 murine leukemia viral oncogene homolog 1
335	Hs_75447	NM_006788	RAI1BP1	Rai1 binding protein_1
336	Hs_865	NM_002884	RAP1A	RAP1A_member_of_RAS_oncogene_family
337	Hs_361071	NM_000964	RARA	Retinoic acid receptor_alpha
338	Hs_436538	NM_000965	RARB	Retinoic acid receptor_beta
339	Hs_221811	NM_153815	RASGEF1	Ras protein-specific guanine nucleotide-releasing factor 1
340	Hs_408528	NM_000321	RB1	Retinoblastoma 1 (including osteosarcoma)
341	Hs_168003	NM_005610	RBBP4	Retinoblastoma binding protein 4
342	Hs_283604	NM_005611	RBI2	Retinoblastoma-like 2 (p130)
343	Hs_444499	NM_007273	REA	Repressor of estrogen receptor activity
344	Hs_44313	NM_002908	REI1	V-rel reticuloendotheliosis viral oncogene homolog 1
345	Hs_132594	NM_021975	REI2	V-rel reticuloendotheliosis viral oncogene homolog 2
346	Hs_307905	NM_006509	REI3	V-rel reticuloendotheliosis viral oncogene homolog 3
347	Hs_350321	NM_000323	RET	Ret proto-oncogene (multiple endocrine neoplasia type 2)
348	Hs_139226	NM_181471	RETC	Replication factor C (activator 1) 2_40kDa
349	Hs_422336	NM_005873	RGS19	Regulator of G-protein signaling 19
350	Hs_390758	NM_003804	RIPK1	Receptor (TNFRSF)-interacting serine-threonine kinase 1
351	Hs_406532	NM_002951	RIP2	Receptor (TNFRSF)-interacting serine-threonine kinase 2
352	Hs_86858	NM_003161	RPS6KB1	Ribosomal protein S6 kinase_70kDa_polypeptide_1
353	Hs_383396	NM_001033	RM1	Ribonucleotide reductase_M1_polypeptide
354	Hs_444261	NM_006513	SARS	SarbecoVirus surface glycoprotein
355	Hs_334841	NM_003944	SELENBP1	Selenium binding protein 1
356	Hs_171921	NM_006379	SEMA3C	Sema domain immunoglobulin domain (Ig)_short_hairpin
357	Hs_511748	NM_006378	SEMA4D	Sema domain immunoglobulin domain (Ig)_transmembrane
358	Hs_275775	NM_005410	SEPP1	Selenoprotein P_plasma_1
359	Hs_90998	NM_015129	SEPT6	Septin 6
360	Hs_475668	NM_001235	SERPINH1	Serine (or cysteine) proteinase inhibitor_clade_H
361	Hs_184510	NM_006142	SFN	Stratifin
362	Hs_180610	NM_005066	SFPQ	Splicing factor proline/glutamine rich (polypyrimidine)
363	Hs_74335	NM_007355	HSPCB	Heat shock 90kDa protein_1_beta
364	Hs_309090	NM_006276	SFRS7	Splicing factor_arginine/serine-rich_7_35kDa
365	Hs_379206	NM_003028	SHB	SHB (Src homology 2 domain containing) adaptor protein
366	Hs_121539	NM_000193	SHH	Sonic hedgehog homolog (Drosophila)
367	Hs_20191	NM_005067	SIAMF	Seven in absentia homolog 2 (Drosophila)
368	Hs_112058	NM_006427	SIVA	CD27-binding (Siva) protein
369	Hs_2969	NM_003036	SKI	V-ski sarcoma viral oncogene homolog (avian)
370	Hs_272108	NM_005414	SKIL	SKI-like
371	Hs_75231	NM_003051	SLC16A1	Solute carrier family 16 (monocarboxylic acid transporters)
372	Hs_323878	NM_003038	SLC1A4	Solute carrier family 1 (neutral amino acid transporters)
373	Hs_110855	NM_005415	SLC20A1	Solute carrier family 20 (ribosphate transporters)
374	Hs_437946	NM_005631	SMO	Smoothed homolog (Drosophila)
375	Hs_77813	NM_006543	SMPD1	Sphingomyelin phosphodiesterase 1 acid lysosomal
376	Hs_360174	NM_003068	SNAI2	Snail homolog 2 (Drosophila)
377	Hs_511400	NM_014390	SNF1	Sin3 histone deacetylase domain containing 1
378	Hs_74335	NM_007355	HSPCB	Heat shock 90kDa protein_1_beta
379	Hs_280378	NM_003092	SNRPB	Small nuclear ribonucleoprotein polypeptide B
380	Hs_50640	NM_003745	SOC1	Suppressor of cytokine signaling 1
381	Hs_436943	NM_003955	SOC3	Suppressor of cytokine signaling 3
382	Hs_443914	NM_000454	SOD1	Superoxide dismutase 1_soluble (amyotrophic lateral sclerosis 1)
383	Hs_394609	NM_002959	SORT1	Sortilin 1
384	Hs_31439	NM_021102	SPINT2	Serine protease inhibitor_Kunitz type_2
385	Hs_18676	NM_005842	SPRY2	Sprouty homolog 2 (Drosophila)
386	Hs_436015	NM_005417	SRC	V-src sarcoma (Schmidt-Ruppin A-2) viral oncogene
387	Hs_15154	NM_006307	SRPX	Sushi-repeat-containing protein_X-linked
388	Hs_21486	NM_007315	STAT1	Signal transducer and activator of transcription 1
389	Hs_72988	NM_005419	STAT2	Signal transducer and activator of transcription 2
390	Hs_421342	NM_003150	STAT3	Signal transducer and activator of transcription 3
391	Hs_434992	NM_012448	STAT5B	Signal transducer and activator of transcription 5
392	Hs_25590	NM_003155	STC1	Stanniocalcin 1
393	Hs_74335	NM_007355	HSPCB	Heat shock 90kDa protein_1_beta
394	Hs_1179	NM_004606	TAF1	TAF1 RNA polymerase II_TATA box binding protein (TBP)
395	Hs_114416	NM_006453	TBI3	Transducin (beta)-like 3
396	Hs_231411	NM_004749	TBRG4	Transforming growth factor beta regulator 4
397	Hs_528674	NM_000545	TGFB	Transforming growth factor_beta
398	Hs_214039	NM_000756	TGFB2	Transforming growth factor_beta_2 (T-cell specific_HMGB2)
399	Hs_440411	NM_003222	TFAP2C	Transcription factor AP-2_nammaplacental enhancer
400	Hs_78353	NM_007114	TFEB	Transcription factor_Dlx-2
401	Hs_379018	NM_006286	TFE2L2	Transcription factor_Dlx-2/E2F_dimerization partner
402	Hs_170009	NM_003236	TGFA	Transforming growth factor_alpha
403	Hs_1103	NM_000660	TGFB1	Transforming growth factor_beta_1 (Camurati-Engelmann)
404	Hs_421496	NM_000358	TGFB3	Transforming growth factor_beta-induced_68kDa
405	Hs_82028	NM_003242	TGFB2	Transforming growth factor_beta_receptor_II (TGFBR2)
406	Hs_342874	NM_003243	TGFB3	Transforming growth factor_beta_receptor_III (bet)
407	Hs_164226	NM_003246	THBS1	Thrombospondin_1
408	Hs_74335	NM_007355	HSPCB	Heat shock 90kDa protein_1_beta
409	Hs_78824	NM_005424	TIE	Tyrosine kinase with immunoglobulin and epidermal growth factor domains
410	Hs_446641	NM_003254	TIMP1	Tissue inhibitor of metalloproteinase 1 (nevroid)

# Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description
411	Hs_245188	NM_000362	TIMP3	Tissue inhibitor of metalloproteinase 3 (Spry3/ fu
412	Hs_74614	NM_175610	TJP1	Tight junction protein 1 (zona occludens 1)
413	Hs_164457	NM_003258	TK1	Thymidine kinase 1, soluble
414	Hs_406491	NM_005077	TLE1	Transducin-like enhancer of split 1 (E(s)1) homolo
415	Hs_241570	NM_000594	TNF	Tumor necrosis factor (TNF superfamily, member 2)
416	Hs_401745	NM_003944	TNFRSF10A	Tumor necrosis factor receptor superfamily, member
417	Hs_51233	NM_003942	TNFRSF10B	Tumor necrosis factor receptor superfamily, member
418	Hs_159	NM_001065	TNFRSF1A	Tumor necrosis factor receptor superfamily, member
419	Hs_256278	NM_001066	TNFRSF1B	Tumor necrosis factor receptor superfamily, member
420	Hs_82359	NM_152877	TNFRSF6	Tumor necrosis factor receptor superfamily, member
421	Hs_99899	NM_001252	TNFSF7	Tumor necrosis factor (ligand) superfamily, member
422	Hs_203420	NM_003985	TNK1	Tyrosine kinase, non-receptor, 1
423	Hs_178137	NM_005749	TOB1	Transducer of ERBB2, 1
424	Hs_408312	NM_000546	TP53	Tumor protein p53 (Li-Fraumeni syndrome)
425	Hs_44585	NM_005426	TP53BP2	Tumor protein p53 binding protein, 2
426	Hs_50649	NM_004881	TP53I3	Tumor protein p53 inducible protein, 3
427	Hs_192132	NM_005427	TP73	Tumor protein p73
428	Hs_82128	NM_006670	TPBG	Trophoblast glycoprotein
429	Hs_374596	NM_003295	TPT1	Tumor protein, translationally controlled, 1
430	Hs_89862	NM_003789	TRADD	TNFRSF1A-associated via death domain
431	Hs_4147	NM_014294	TRAM1	Translocation associated membrane protein, 1
432	Hs_203952	NM_003496	TRAP	Transformation/transcription domain-associated pro
433	Hs_426930	NM_001101	ACTB	Actin, beta
434	Hs_444556	NM_006292	TS1101	Tumor susceptibility gene 101
435	Hs_12084	NM_003321	TUFM	Tu translation elongation factor, mitochondrial
436	Hs_434367	NM_003330	TXNRD1	Thioredoxin reductase, 1
437	Hs_381282	NM_006293	TYRO3	TYRO3 protein tyrosine kinase, 3
438	Hs_183704	NM_021009	UBC	Ubiquitin, C
439	Hs_425777	NM_004223	UBE2L6	Ubiquitin-conjugating enzyme E2L6
440	Hs_76118	NM_004181	UCHL1	Ubiquitin carboxyl-terminal esterase L1 (ubiquitin
441	Hs_386939	NM_003470	USP7	Ubiquitin specific protease 7 (herpes virus-associ
442	Hs_404814	NM_003374	VDAC1	Voltage-dependent anion channel, 1
443	Hs_73793	NM_003376	VEGF	Vascular endothelial growth factor
444	Hs_421597	NM_000551	VHL	Von Hippel-Lindau syndrome
445	N/A	L08752	PUC18	PUC18 Plasmid DNA
446	N/A	AE000461	Pol1	Escherichia coli K12, MG1655, section 351 of 400 of the complete genome
447	N/A	N/A	Luc1	Luciferase probe 1
448	N/A	N/A	Luc2	Luciferase probe 2
449	Hs_426930	NM_001101	ACTB	Actin, beta
450	Bk	Blank	Blank	Blank
451	Bk	Blank	Blank	Blank
452	Hs_403997	NM_003379	VIL2	Villin 2 (ezrin)
453	Hs_249441	NM_003390	WEE1	WEE1 homolog (S. pombe)
454	Hs_248164	NM_005430	WNT1	Wingless-type MMTV integration site family, member
455	Hs_89791	NM_003391	WNT2	Wingless-type MMTV integration site family, member
456	Hs_259575	NM_004185	WNT2B	Wingless-type MMTV integration site family, member
457	Hs_224667	NM_030753	WNT3	Wingless-type MMTV integration site family, member
458	Hs_152213	NM_003392	WNT5A	Wingless-type MMTV integration site family, member
459	Hs_1145	NM_000378	WT1	Wilms tumor, 1
460	N/A	AF375055	18S rRNA	Homo sapiens 18S ribosomal RNA
461	Hs_9880	NM_006347	PPIH	Peptidyl prolyl isomerase H (cyclophilin H)
462	Hs_134084	NM_002355	M6PR	Mannose-6-phosphate receptor (cation dependent)
463	Hs_355861	NM_007363	NONO	Non-POU domain containing, octamer-binding
464	Hs_2795	NM_005566	LDHA	Lactate dehydrogenase A
465	Hs_426930	NM_001101	ACTB	Actin, beta
466	Hs_426930	NM_001101	ACTB	Actin, beta
467	Hs_426930	NM_001101	ACTB	Actin, beta
468	Hs_98493	NM_006297	XRCC1	X-ray repair complementing defective repair in Chi
469	Hs_150930	NM_003401	XRCC4	X-ray repair complementing defective repair in Chi
470	Hs_257082	NM_021141	XRCC5	X-ray repair complementing defective repair in Chi
471	Hs_194148	NM_005433	YES1	Y-ves-1/Yamauchi sarcoma viral oncogene homolog, 1
472	Hs_279920	NM_003404	YWHA8	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenas
473	Hs_386834	NM_003406	YWHAZ	Tyrosine 3-monooxygenase/tryptophan 5-monooxygenas
474	Hs_234569	NM_001079	ZAP70	Zeta-chain (TCR) associated protein kinase, 70kDa
475	Hs_2110	NM_003418	ZNF9	Zinc finger protein 9 (a cellular retroviral nucle
476	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary s
477	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary s
478	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary s
479	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary s
480	N/A	N/A	BAS2C	Biotinylated Artificial Sequence 2 Complementary s

Oligo GEArray<sup>®</sup> Human Cancer Microarray

**Related Products**

Product	Cat No.
<b>Oligo GEArray Reagent Kit</b> Reagents for target synthesis, hybridization, and detection of 12 arrays	GA-034
<b>GEArray Express Thermoshaker</b> Hybridization and Washing of up to 16 arrays (2 plates) Hybridization and Washing of up to 32 arrays (4 plates)	GXE-TS2 GXE-TS4
<b>GEArray Express Multi-Chamber HybPlates</b> Four (4) plates and seals for hybridization and washing up to 32 arrays	GA-035
<b>ArrayGrade™ Total RNA Isolation Kit</b> Reagents for preparation of Total RNA from 12 samples	GA-013
<b>ArrayGrade™ FFPE RNA Isolation Kit</b> Reagents for RNA preparation from 12 FFPE samples	GA-023
<b>TrueLabeling-AMP™ 2.0 Kit</b> cRNA Target Synthesis and Labeling Reagents for 12 arrays	GA-030
<b>TrueLabeling-PicoAMP™ Kit</b> Small RNA sample cRNA target Synthesis & Labeling for 12 arrays	GA-130
<b>ArrayGrade™ cRNA Cleanup Kit</b> Purify cRNA Target for 12 arrays	GA-012
<b>GEAhyb Hybridization Solution</b> Hybridization and Washing of 16 arrays	H-01
<b>Chemiluminescent Detection Kit</b> Detection of biotinylated cRNA target on 12+ arrays	D-01
<b>RNASafer™ RNA Stabilization Reagent</b> RNA Sample Preparation / Storage (100 ml)	GA-008
<b>Human XpressRef™ Reference Universal Total RNA</b> RNA Reference Control (100 µg, enough for 12+ arrays)	GA-004