

Oligo GEMArray[®] DNA Microarray: Human Angiogenesis

Catalog Number

OHS-024
EHS-024

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMArray[®] Human Angiogenesis Microarray profiles the expression of 113 genes involved in modulating the biological processes of angiogenesis. This array includes the growth factors and receptors that play a role in angiogenesis. Also included are the adhesion molecules and matrix proteins involved as well as proteases and their inhibitors. Cytokines and chemokines related to angiogenesis are contained in the array along with transcription factors and other related genes. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

Angiogenic Factors:

Growth Factors and Receptors: ANGPT1 (angiopoietin-1), ANGPT2 (angiopoietin-2), ANPEP, ECGF1, EREG, FGF1 (a-FGF), FGF2 (b-FGF), FGF6, FIGF (VEGFD), FLT1 (VEGFR2), JAG1, KDR, LAMA5, NPPB, NPR1, NRP1 (neuropilin-1), NRP2, PGF, PLXDC1, STAB1, STAB2, TNFRSF12A, TNNT1, VEGF, VEGFB, VEGFC.

Adhesion Molecules: ANGPTL3, BAI1, COL4A3, IL8, LAMA5, NRP1, NRP2, STAB1, STAB2, TNFRSF12A.

Proteases, Inhibitors, and Other Matrix Proteins: ANGPTL4, IL18, MMP19, PECAM1, PF4 (platelet factor 4), PROK2, SERPINF1 (PEDF), TNFAIP2.

Transcription Factors and Others: EPAS1, HAND2, SH2D2A, SPHK1, VG5Q.

Other Factors Involved in Angiogenesis:

Cytokines and Chemokines: CCL11, CCL2, CSF3, CXCL1, CXCL10, CXCL11, CXCL2, CXCL3, CXCL5, CXCL6, CXCL9, IFNA1, IFNB1, IFNG, IL10, IL12A, IL1B, IL6, MDK, PTN (pleiotrophin), TNF, TNFSF15 (VEGI).

Other Growth Factors and Receptors: EDG1, EFNA1, EFNA2 (ephrin-A2), EFNA3 (ephrin-A3), EFNA5 (ephrin-A5), EFNB2 (ephrin-B2), EGF, EPHB4 (ephrin B4), F2 (thrombin), FGFR3, HGF (scatter factor), IGF1, ITGB3, NUDT6, PDGFA, PDGFB, TEK (Tie-2), TGFA, TGFB1, TGFB2, TGFB3, TGFBR1, TIE.

Adhesion Molecules: CCL11, CCL2, CDH5 (VE-cadherin), COL18A1 (LOC51695 / endostatin), EDG1, ENG (endoglin), ITGAV (integrin α Vx), ITGB3, THBS1, THBS2.

Proteases, Inhibitors and Other Matrix Proteins: LECT1, LEP, MMP2, MMP9, PLAU (uPA), PLG, TIMP1, TIMP2, TIMP3.

Transcription Factors and Others: AKT1, HIF1A, HPSE (heparanase), ID1, ID3, NOTCH4, PTEN, PTGS1 (cox-1), PTGS2 (cos-2), RNASE4.

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. Carmeliet P. (2000) Mechanisms of Angiogenesis and Arteriogenesis. *Nature Medicine* **6**: 389-395.
2. Kerbel K. S. (2000) Tumor Angiogenesis: Past, Present and the Near Future. *Carcinogenesis* **21**: 505-515.
3. Carmeliet P, Jain R K. (2000) Angiogenesis in Cancer and Other Diseases. *Nature* **407**: 249-257.
4. Cines DB, Pollak ES, Buck CA, Loscalzo J, Zimmerman GA, McEver RP, Pober JS, Wick TM, Konkle BA, Schwartz BS, Barnathan ES, McCrae KR, Hug BA, Schmidt AM, Stern DM. (1998) Endothelial Cells in Physiology and in the Pathophysiology of Vascular Disorders. *Blood* **91**: 3527-61.
5. Oettgen P. (2001) Transcriptional Regulation of Vascular Development. *Circ Res.* **89**: 380-8.
6. Peale FV Jr, Gerritsen ME. (2001) Gene Profiling Techniques and their Application in Angiogenesis and Vascular Development. *J Pathol.* **195**: 7-19.
7. Vikkula M, Boon LM, Mulliken JB (2001) Molecular Genetics of Vascular Malformations. *Matrix Biol* **20**: 327-35.

Product Specification Sheet

Oligo GEArray® Human Angiogenesis Microarray

Array Layout:

RPS27A 1	AKT1 2	ANGPT1 3	ANGPT2 4	ANGPT1.3 5	ANGPT1.4 6	ANPEP 7	BAI1 8
CCL11 9	CCL2 10	CDH5 11	COL18A1 12	COL4A3 13	CSF3 14	CXCL1 15	CXCL10 16
CXCL11 17	CXCL2 18	CXCL3 19	CXCL5 20	CXCL6 21	CXCL9 22	ECGF1 23	EDG1 24
EFNA1 25	EFNA2 26	EFNA3 27	EFNA5 28	EFNB2 29	EGF 30	ENG 31	EPAS1 32
EPHB4 33	EREG 34	F2 35	FGF1 36	FGF2 37	FGF6 38	FGFR3 39	FIGF 40
FLT1 41	HAND2 42	HGF 43	HIF1A 44	HPSE 45	ID1 46	ID3 47	IFNA1 48
IFNB1 49	IFNG 50	IGF1 51	IL10 52	IL12A 53	IL18 54	IL1B 55	IL6 56
IL8 57	ITGAV 58	ITGB3 59	JAG1 60	KDR 61	LAMA5 62	LECT1 63	LEP 64
MDK 65	MMP19 66	MMP2 67	MMP9 68	NOTCH4 69	NPPB 70	NPR1 71	NRP1 72
NRP2 73	NUDT6 74	PDGFA 75	PDGFB 76	PECAM1 77	PF4 78	PGF 79	PLAU 80
PLG 81	PLXDC1 82	PROK2 83	PTEN 84	PTGS1 85	PTGS2 86	PTN 87	ANG 88
SERPINF1 89	SH2D2A 90	SPHK1 91	STAB1 92	STAB2 93	TEK 94	TGFA 95	TGFB1 96
TGFB2 97	TGFB3 98	TGFBR1 99	THBS1 100	THBS2 101	TIE1 102	TIMP1 103	TIMP2 104
TIMP3 105	TNF 106	TNFAIP2 107	TNFRSF12A 108	TNFSF15 109	TNNT1 110	VEGF 111	VEGFB 112
VEGFC 113	AGGF1 114	PUC18 115	Blank 116	Blank 117	AS1R2 118	AS1R1 119	AS1 120
GAPDH 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.546292	NM_002954	RPS27A	Ribosomal protein S27a	CEP80/HUBCEP80
2	Hs.525622	NM_005163	AKT1	V-akt murine thymoma viral oncogene homolog 1	PKB/PRKBA
3	Hs.369675	NM_001146	ANGPT1	Angiopoietin 1	AGP1/AGPT
4	Hs.553484	NM_001147	ANGPT2	Angiopoietin 2	AGPT2/ANG2
5	Hs.209153	NM_014495	ANGPTL3	Angiopoietin-like 3	ANGPT5
6	Hs.9613	NM_016109	ANGPTL4	Angiopoietin-like 4	ANGPTL2/ARP4
7	Hs.1239	NM_001150	ANPEP	Alanyl (membrane) aminopeptidase (aminopeptidase N, aminopeptidase M, microsomal aminopeptidase, CD13, p150)	CD13/GP150
8	Hs.194654	NM_001702	BAI1	Brain-specific angiogenesis inhibitor 1	BAI1
9	Hs.54460	NM_002986	CCL11	Chemokine (C-C motif) ligand 11	SCYA11
10	Hs.303649	NM_002982	CCL2	Chemokine (C-C motif) ligand 2	GDCF-2/HC11
11	Hs.76206	NM_001795	CDH5	Cadherin 5, type 2, VE-cadherin (vascular epithelium)	7B4
12	Hs.517356	NM_030582	COL18A1	Collagen, type XVIII, alpha 1	KNO
13	Hs.471525	NM_000091	COL4A3	Collagen, type IV, alpha 3 (Goodpasture antigen)	TUMSTATIN
14	Hs.2233	NM_000759	CSF3	Colony stimulating factor 3 (granulocyte)	G-CSF/GCSF
15	Hs.789	NM_001511	CXCL1	Chemokine (C-X-C motif) ligand 1 (melanoma growth stimulating activity, alpha)	GRO1/MGSA
16	Hs.413924	NM_001565	CXCL10	Chemokine (C-X-C motif) ligand 10	C7/CRG-2
17	Hs.518814	NM_005409	CXCL11	Chemokine (C-X-C motif) ligand 11	B-R1/H174
18	Hs.75765	NM_002089	CXCL2	Chemokine (C-X-C motif) ligand 2	CINC-2A/GRO2
19	Hs.89690	NM_002090	CXCL3	Chemokine (C-X-C motif) ligand 3	CINC-2B/GRO3
20	Hs.89714	NM_002994	CXCL5	Chemokine (C-X-C motif) ligand 5	ENA-78/SCYB5
21	Hs.164021	NM_002993	CXCL6	Chemokine (C-X-C motif) ligand 6 (granulocyte chemotactic protein 2)	CKA-3/GCP-2
22	Hs.77367	NM_002416	CXCL9	Chemokine (C-X-C motif) ligand 9	CMK/CRG-10
23	Hs.546251	NM_001953	ECGF1	Endothelial cell growth factor 1 (platelet-derived)	HPD-ECGF/PDECGF
24	Hs.154210	NM_001400	EDG1	Endothelial differentiation, sphingolipid G-protein-coupled receptor, 1	CHEDG1/D1S3362
25	Hs.516664	NM_182685	EFNA1	Ephrin-A1	B61/ECKLG
26	Hs.532655	NM_001405	EFNA2	Homo sapiens ephrin-A2	NKX2-6/ELF-1
27	Hs.516656	NM_004952	EFNA3	Ephrin-A3	EFL2/EHK1-L
28	Hs.128518	NM_001962	EFNA5	Ephrin-A5	AF1/EFL5
29	Hs.149239	NM_004093	EFNB2	Ephrin-B2	EPLG5/HTK-L
30	Hs.419815	NM_001963	EGF	Epidermal growth factor (beta-urogastrone)	URG
31	Hs.76753	NM_000118	ENG	Endoglin (Osler-Rendu-Weber syndrome 1)	CD105/END
32	Hs.468410	NM_001430	EPAS1	Endothelial PAS domain protein 1	HIF2A/HLF
33	Hs.437008	NM_004444	EPHB4	EPH receptor B4	HTK/MYK1
34	Hs.115263	NM_001432	EREG	Epiregulin	ER
35	Hs.76530	NM_000506	F2	Coagulation factor II (thrombin)	PT
36	Hs.483635	NM_000800	FGF1	Fibroblast growth factor 1 (acidic)	AFGF/ECGF
37	Hs.284244	NM_002006	FGF2	Fibroblast growth factor 2 (basic)	BFGF/FGFB
38	Hs.166015	NM_020996	FGF6	Fibroblast growth factor 6	HBGF-6/HST2
39	Hs.1420	NM_000142	FGFR3	Fibroblast growth factor receptor 3 (achondroplasia, thanatophoric dwarfism)	ACH/CEK2
40	Hs.11392	NM_004469	FIGF	C-fos induced growth factor (vascular endothelial growth factor D)	VEGF-D/VEGFD
41	Hs.507621	NM_002019	FLT1	Fms-related tyrosine kinase 1 (vascular endothelial growth factor/vascular permeability factor receptor)	FLT/VEGFR1
42	Hs.388245	NM_021973	HAND2	Heart and neural crest derivatives expressed 2	DHAND/DHAND2
43	Hs.396530	NM_000601	HGF	Hepatocyte growth factor (hepatoietin A; scatter factor)	F-TCF/HGFB
44	Hs.509554	NM_001530	HIF1A	Hypoxia-inducible factor 1, alpha subunit (basic helix-loop-helix transcription factor)	HIF-1ALPHA

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
45	Hs.44227	NM_006665	HPSE	Heparanase	HPA/HPR1
46	Hs.504609	NM_002165	ID1	Inhibitor of DNA binding 1, dominant negative helix-loop-helix protein	ID
47	Hs.76884	NM_002167	ID3	Inhibitor of DNA binding 3, dominant negative helix-loop-helix protein	HEIR-1
48	Hs.37026	NM_024013	IFNA1	Interferon, alpha 1	IFL/IFN
49	Hs.93177	NM_002176	IFNB1	Interferon, beta 1, fibroblast	IFB/IFF
50	Hs.856	NM_000619	IFNG	Interferon, gamma	IFG/IFI
51	Hs.160562	NM_000618	IGF1	Insulin-like growth factor 1 (somatomedin C)	IGFI
52	Hs.193717	NM_000572	IL10	Interleukin 10	CSIF/IL-10
53	Hs.673	NM_000882	IL12A	Interleukin 12A (natural killer cell stimulatory factor 1, cytotoxic lymphocyte maturation factor 1, p35)	CLMF/IL-12A
54	Hs.83077	NM_001562	IL18	Interleukin 18 (interferon-gamma-inducing factor)	IGIF/IL-18
55	Hs.126256	NM_000576	IL1B	Interleukin 1, beta	IL-1/IL1-BETA
56	Hs.512234	NM_000600	IL6	Interleukin 6 (interferon, beta 2)	BSF2/HGF
57	Hs.624	NM_000584	IL8	Interleukin 8	3-10C/AMCF-1
58	Hs.436873	NM_002210	ITGAV	Integrin, alpha V (vitronectin receptor, alpha polypeptide, antigen CD51)	CD51/MSK8
59	Hs.218040	NM_000212	ITGB3	Integrin, beta 3 (platelet glycoprotein IIIa, antigen CD61)	CD61/GP3A
60	Hs.224012	NM_000214	JAG1	Jagged 1 (Alagille syndrome)	AGS/AHD
61	Hs.479756	NM_002253	KDR	Kinase insert domain receptor (a type III receptor tyrosine kinase)	FLK1/VEGFR
62	Hs.473256	NM_005560	LAMA5	Laminin, alpha 5	LOC440772
63	Hs.421391	NM_007015	LECT1	Leukocyte cell derived chemotaxin 1	BRIC03/CHM-I
64	Hs.194236	NM_000230	LEP	Leptin (obesity homolog, mouse)	OB/OBS
65	Hs.82045	NM_002391	MDK	Midkine (neurite growth-promoting factor 2)	MK/NEGF2
66	Hs.154057	NM_002429	MMP19	Matrix metalloproteinase 19	MMP18/RASI-1
67	Hs.513617	NM_004530	MMP2	Matrix metalloproteinase 2 (gelatinase A, 72kDa gelatinase, 72kDa type IV collagenase)	CLG4/CLG4A
68	Hs.297413	NM_004994	MMP9	Matrix metalloproteinase 9 (gelatinase B, 92kDa gelatinase, 92kDa type IV collagenase)	GELB/CLG4B
69	Hs.436100	NM_004557	NOTCH4	Notch homolog 4 (Drosophila)	INT3/NOTCH3
70	Hs.219140	NM_002521	NPPB	Natriuretic peptide precursor B	BNP
71	Hs.490330	NM_000906	NPR1	Natriuretic peptide receptor A/guanylate cyclase A (atriuretic peptide receptor A)	ANPA/ANPRA
72	Hs.131704	NM_003873	NRP1	Neuropilin 1	NRP/VEGF165R
73	Hs.471200	NM_003872	NRP2	Neuropilin 2	NP2/NNP2
74	Hs.422889	NM_007083	NUDT6	Nudix (nucleoside diphosphate linked moiety X)-type motif 6	ASF/G2/BFGF
75	Hs.376032	NM_002607	PDGFA	Platelet-derived growth factor alpha polypeptide	PDGF-A/PDGF1
76	Hs.1976	NM_002608	PDGFB	Platelet-derived growth factor beta polypeptide (simian sarcoma viral (v-sis) oncogene homolog)	C-SIS/PDGF2
77	Hs.514412	NM_000442	PECAM1	Platelet/endothelial cell adhesion molecule (CD31 antigen)	CD31/PECAM-1
78	Hs.81564	NM_002619	PF4	Platelet factor 4 (chemokine (C-X-C motif) ligand 4)	CXCL4/SCYB4
79	Hs.252820	NM_002632	PGF	Placental growth factor, vascular endothelial growth factor-related protein	PLGF/PLGF-2
80	Hs.77274	NM_002658	PLAU	Plasminogen activator, urokinase	ATFU/PA
81	Hs.143436	NM_000301	PLG	Plasminogen	LOC401270
82	Hs.125036	NM_020405	PLXDC1	Plexin domain containing 1	TEM3/TEM7
83	Hs.528665	NM_021935	PROK2	Prokinectin 2	BV8/MIT1
84	Hs.500466	NM_000314	PTEN	Phosphatase and tensin homolog (mutated in multiple advanced cancers 1)	BZS/MHAM
85	Hs.201978	NM_000962	PTGS1	Prostaglandin-endoperoxide synthase 1 (prostaglandin G/H synthase and cyclooxygenase)	COX1/COX3
86	Hs.196384	NM_000963	PTGS2	Prostaglandin-endoperoxide synthase 2 (prostaglandin G/H synthase and cyclooxygenase)	COX-2/COX2
87	Hs.371249	NM_002825	PTN	Pleiotrophin (heparin binding growth factor 8, neurite growth-promoting factor 1)	HARP/HBGF8
88	Hs.283749	NM_001145	ANG	Angiogenin, ribonuclease, RNase A family, 5	ANG
89	Hs.532768	NM_002615	SERPINF1	Serine (or cysteine) proteinase inhibitor, clade F (alpha-2 antiplasmin, pigment epithelium derived factor), member 1	EPC-1/PEDF
90	Hs.103527	NM_003975	SH2D2A	SH2 domain protein 2A	F2771/TSAD
91	Hs.68061	NM_021972	SPHK1	Sphingosine kinase 1	SPHK
92	Hs.301989	NM_015136	STAB1	Stabilin 1	CLEVER-1/FEEL-1
93	Hs.408249	NM_017564	STAB2	Stabilin 2	FEEL-2/FELE-2
94	Hs.89640	NM_000459	TEK	TEK tyrosine kinase, endothelial (venous malformations, multiple cutaneous and mucosal)	CD202B/TIE-2
95	Hs.170009	NM_003236	TGFA	Transforming growth factor, alpha	TFGA
96	Hs.1103	NM_000660	TGFB1	Transforming growth factor, beta 1 (Camurati-Engelmann disease)	BETA 1/CED
97	Hs.133379	NM_003238	TGFB2	Transforming growth factor, beta 2	TGF b2
98	Hs.2025	NM_003239	TGFB3	Transforming growth factor, beta 3	TGF b3
99	Hs.494622	NM_004612	TGFBRI	Transforming growth factor, beta receptor I (activin A receptor type II-like kinase, 53kDa)	ACVRLK4/ALK-5
100	Hs.164226	NM_003246	THBS1	Thrombospondin 1	THBS/TSP
101	Hs.371147	NM_003247	THBS2	Thrombospondin 2	TSP2
102	Hs.78824	NM_005424	TIE1	Tyrosine kinase with immunoglobulin-like and EGF-like domains 1	JTK14/TIE
103	Hs.522632	NM_003254	TIMP1	Tissue inhibitor of metalloproteinase 1 (erythroid potentiating activity, collagenase inhibitor)	CLGI/EPA
104	Hs.104839	NM_003255	TIMP2	Tissue inhibitor of metalloproteinase 2	CSC-21K
105	Hs.297324	NM_000362	TIMP3	Tissue inhibitor of metalloproteinase 3 (Sorsby fundus dystrophy, pseudoinflammatory)	HSMRK222/K222TA2
106	Hs.241570	NM_000594	TNF	Tumor necrosis factor (TNF superfamily, member 2)	DIF/TNF-ALPHA
107	Hs.525607	NM_006291	TNFAIP2	Tumor necrosis factor, alpha-induced protein 2	B94
108	Hs.355899	NM_016639	TNFRSF12A	Tumor necrosis factor receptor superfamily, member 12A	FN14/TWEAKR
109	Hs.241382	NM_005118	TNFRSF15	Tumor necrosis factor (ligand) superfamily, member 15	TL1/TL1A
110	Hs.534085	NM_003283	TNNT1	Troponin T1, skeletal, slow	ANM
111	Hs.73793	NM_003376	VEGF	Vascular endothelial growth factor	VEGFA
112	Hs.78781	NM_003377	VEGFB	Vascular endothelial growth factor B	VEGFL/VRF
113	Hs.435215	NM_005429	VEGFC	Vascular endothelial growth factor C	FLT4-L/VRP
114	Hs.213393	NM_018046	AGGF1	Angiogenic factor with G patch and FHA domains 1	HSH4971/HUS84971
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	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	BETA/D6S182
124	Hs.509736	NM_007355	HSPCB	Heat shock 90kDa protein 1, beta	BETA/D6S182
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