SuperArray
Bioscience Corporation

Product Specification Sheet

Oligo GEArray® DNA Microarray:

Mouse Cell Surface Markers

Catalog Number	Format:
OMM-055	HybTube (Standard protocol)

Description

This microarray uses cell surface markers as a means of characterizing the cell populations present in experimental samples. Biological specimens often contain mixed cell populations consisting of various leukocytes, endothelial and epithelial cells, as well as muscle cells, dendritic cells, adipocytes, and other cell types. The variation in cell populations among specimens poses a major obstacle to their comparative analysis. Traditionally these cell populations have been characterized by flow cytometry. Unfortunately, the number of markers available for flow cytometry limits this analysis to the characterization of only two to three cell types per specimen, often well below the number of cell populations truly present. This microarray provides researchers with the ability to identify the presence of over eleven different cell populations commonly found in biological specimens through a simple hybridization experiment. Cell population specific cell surface markers are represented as well as over fifty useful Cluster of Differentiation (CD) antigens for hematopathology studies. By normalizing gene expression levels of individual cell specific marker genes to that of a designated housekeeping gene, the relative amounts of each cell type in the specimen can be estimated and compared among specimens. This array has many applications including: 1) determination of the extent of leukocyte infiltration among cancer tissues; 2) characterization of cell populations isolated from patients with chronic inflammatory diseases such as atherosclerosis, asthma, inflammatory bowel disease, and arthritis; 3) determination of T and B cell lineage and clonality; 4) characterization of leukocyte populations for use in the prognosis of disease stage and progression; and 5) analysis of the composition of immune infiltrates and their association with organ rejection.

Functional Gene Groupings

B-cell Surface Markers:
Activated B-cells: Cd28, Cd38, Cd69, Cd80, Cd83, Cd86, Dpp4, Fcer2a, Il2ra, Tnfrsf8, Tnfsf7.

Mature B-cells: Cd19, Cd22, Cd24a, Cd37, Cd72, Cd79a, Cd79b, Cr2, Ii, Il1r2, Itga2, Itga3, Ms4a1, St6gal1, Tnfrsf5.

Other B-cell Surface Markers: Chst10, H2-Ea, H2-K1, Nt5e.

T Cell Surface Markers:
Cytotoxic T-cells: Cd8a, Cd8b1.

Helper T-cells: Cd4.

Activated T-cells: Alcam, Cd2, Cd38, Cd69, Cd83, Cd96, Ctla4, Dpp4, H2-Ea, Il12rb1, Il2ra, Tnfrsf4, Tnfrsf8, Tnfrsf9, Tnfsf5, Tnfsf7.

Other T-cell Surface Markers: Cd160, Cd28, Cd37, Cd3d, Cd3g, Cd3z, Cd5, Cd6, Cd7, Fas, Klrb1a, Klrd1, Nt5e, St6gal1.

Natural Killer (NK) Cell Surface Markers: Cd2, Cd244, Cd3z, Cd7, Cd96, Chst10, Fcgr3, Il12rb1, Klrb1a, Klrc1, Klrd1, Lag3, Ncam1.

Monocyte and Macrophage Surface Markers:
Activated Macrophages: Cd69, Eng, Fcer2a, Il2ra.

Other Monocyte and Macrophage Surface Markers: Adam8, C5r1, Cd14, Cd163, Cd33, Cd63, Cd68, Cd86, Chit1, Chst10, Csf1r, Dpp4, Fabp4, Fcgr1, H2-Ea, Icam2, Ii, Il1r2, Itga2, S100a8, Tnfrsf5, Tnfrsf8, Tnfsf7.

Endothelial Cell Surface Markers: Ace, Cd14, Cd34, Cdh5, Eng, Icam2, Mcam, Nos3, Pecam1, Procr, Sele, Selp, Tek, Thbd, Vcam1, Vwf.

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Smooth Muscle Cell Surface Markers: Acta2, Myh10, Myh11, Myh9, Myocd.

Dendritic Cell Surface Markers: Cd209e, Cd83, Cd86, Cr2, Fcer2a, Fscn1, Tnfrsf5.

Mast Cell Surface Markers: C5r1, Fcer1a, Fcer2a, Mcpt1, Mcpt5, Mcpt6, Mcpt7.

Fibroblast (Stromal) Cell Surface Markers: Alcam, Cd34, Col1a1, Col1a2, Col3a1, Ph-4.

Epithelial Cell Surface Markers: Cd1d1, Krt1-10, Krt1-13, Krt1-17, Krt1-18, Krt1-19, Krt2-4, Krt2-5, Krt2-6a, Krt2-8, Muc1, Tacstd1.

Adipocyte Surface Markers: Adipoq, Fabp4, Retn.

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^{o}C upon receipt.

References

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7. Baeten D, Demetter P, Cuvelier CA, Kruithof E, Van Damme N, De Vos M, Veys EM, De Keyser F. Macrophages expressing the scavenger receptor CD163: a link between immune alterations of the gut and synovial inflammation in spondyloarthropathy. J Pathol. 2002 Mar;196(3):343-50.
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11. T Petruschke and H Hauner. Tumor necrosis factor-alpha prevents the differentiation of human adipocyte precursor cells and causes delipidation of newly developed fat cells. Journal of Clinical Endocrinology & Metabolism, Vol 76, 742-747.
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Array Layout:

Gapd 1	Ace 2	Acta2 3	Adam8 4	Adipoq 5	Alcam 6	C5r1 7	Cd14 8
Cd160 9	Cd163 10	Cd19 11	Cd1d1 12	Cd2 13	Cd209e 14	Cd22 15	Cd244 16
Cd24a 17	Cd28 18	Cd33 19	Cd34 20	Cd37 21	Cd38 22	Cd3d 23	Cd3g 24
Cd3z 25	Cd4 26	Cd5 27	Cd6 28	Cd63 29	Cd68 30	Cd69 31	Cd7 32
Cd72 33	Cd79a 34	Cd79b 35	Cd80 36	Cd83 37	Cd86 38	Cd8a 39	Cd8b1 40
Cd96 41	Cdh5 42	Chit1 43	Chst10 44	Col1a1 45	Col1a2 46	Col3a1 47	Cr2 48
Csf1r 49	Ctla4 50	Dpp4 51	Eng 52	Fabp4 53	Fas 54	Fcer1a 55	Fcer2a 56
Fcgr1 57	Fcgr3 58	Fscn1 59	H2-Ea 60	H2-K1 61	Icam2 62	Ii 63	Il12rb1 64
Il1r2 65	Il2ra 66	Itga2 67	Itga3 68	Klrb1a 69	Klrc1 70	Klrd1 71	Krt1-10 72
Krt1-13 73	Krt1-17 74	Krt1-18 75	Krt1-19 76	Krt2-4 77	Krt2-5 78	Krt2-6a 79	Krt2-8 80
Lag3 81	Mcam 82	Mcpt1 83	Mcpt5 84	Mcpt6 85	Mcpt7 86	Ms4a1 87	Muc1 88
Myh10 89	Myh11 90	Myh9 91	Myocd 92	Ncam1 93	Nos3 94	Nt5e 95	Pecam1 96
Ph-4 97	Procr 98	Retn 99	S100a8 100	Sele 101	Selp 102	St6gal1 103	Tacstd1 104
Tek 105	Thbd 106	Tnfrsf4 107	Tnfrsf5 108	Tnfrsf8 109	Tnfrsf9 110	Tnfsf5 111	Tnfsf7 112
Vcam1 113	Vwf 114	PUC18 115	Blank 116	Blank 117	AS1R2 118	AS1R1 119	AS1 120
Rps27a 121	B2m 122	Hspcb 123	Hspcb 124	Ppia 125	Ppia 126	BAS2C 127	BAS2C 128

Gene Table

Position	UniGene	GenBank	Symbol	Description	Gene Name
1	Mm.333399	NM_008084	Gapd	Glyceraldehyde-3-phosphate dehydrogenase	GAPDH
2	Mm.754	NM_009598	Ace	Angiotensin converting enzyme	Ace
3	Mm.213025	NM_007392	Acta2	Actin, alpha 2, smooth muscle, aorta	Acta2
4	Mm.15969	NM_007403	Adam8	A disintegrin and metalloprotease domain 8	Adam8
5	Mm.3969	NM_009605	Adipoq	Adiponectin, C1Q and collagen domain containing	Acdc/Acrp30
6	Mm.288282	NM_009655	Alcam	Activated leukocyte cell adhesion molecule	Alcam
7	Mm.247623	NM_007577	C5r1	Complement component 5, receptor 1	C5r1
8	Mm.3460	NM_009841	Cd14	CD14 antigen	CD14
9	Mm.34693	NM_018767	Cd160	CD160 antigen	Cd160
10	Mm.37426	NM_053094	Cd163	CD163 antigen	Cd163
11	Mm.4360	NM_009844	Cd19	CD19 antigen	CD19
12	Mm.1894	NM_007639	Cd1d1	CD1d1 antigen	Cd1d
13	Mm.22842	NM_013486	Cd2	CD2 antigen	LFA-2
14	Mm.52281	NM_130905	Cd209e	Cd209e antigen	Cd209e
15	Mm.260994	NM_009845	Cd22	CD22 antigen	CD22
16	Mm.2299	NM_018729	Cd244	CD244 natural killer cell receptor 2B4	Cd244
17	Mm.29742	NM_009846	Cd24a	CD24a antigen	Cd24a
18	Mm.255003	NM_007642	Cd28	CD28 antigen	TP44
19	Mm.140157	NM_021293	Cd33	CD33 antigen	Cd33
20	Mm.29798	NM_133654	Cd34	CD34 antigen	Cd34
21	Mm.3689	NM_007645	Cd37	CD37 antigen	Cd37
22	Mm.249873	NM_007646	Cd38	CD38 antigen	CD38
23	Mm.4527	NM_013487	Cd3d	CD3 antigen, delta polypeptide	Cd3d
24	Mm.335106	NM_009850	Cd3g	CD3 antigen, gamma polypeptide	CD3G antigen
25	Mm.217308	NM_031162	Cd3z	CD3 antigen, zeta polypeptide	CD3Z antigen
26	Mm.2209	NM_013488	Cd4	CD4 antigen	Cd4
27	Mm.779	NM_007650	Cd5	CD5 antigen	CD5
28	Mm.290897	NM_009852	Cd6	CD6 antigen	Cd6
29	Mm.371552	NM_007653	Cd63	Cd63 antigen	Cd63
30	Mm.15819	NM_009853	Cd68	CD68 antigen	CD68
31	Mm.74745	XM_132882	Cd69	CD69 antigen	CD69
32	Mm.4100	NM_009854	Cd7	CD7 antigen	Cd7
33	Mm.188157	NM_007654	Cd72	CD72 antigen	Cd72
34	Mm.1355	NM_007655	Cd79a	CD79A antigen (immunoglobulin-associated alpha)	Iga
35	Mm.2987	NM_008339	Cd79b	CD79B antigen	CD79B
36	Mm.89474	NM_009855	Cd80	CD80 antigen	B7-1
37	Mm.57175	NM_009856	Cd83	CD83 antigen	Cd83
38	Mm.1452	NM_019388	Cd86	CD86 antigen	B7-2
39	Mm.1858	XM_132621	Cd8a	CD8 antigen, alpha chain	Lyt-2
40	Mm.333148	NM_009858	Cd8b1	CD8 antigen, beta chain 1	Cd8b/Ly-3
41	Mm.29204	NM_032465	Cd96	CD96 antigen	1700109I12Rik

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Position	UniGene	GenBank	Symbol	Description	Gene Name
42	Mm.21767	NM_009868	Cdh5	Cadherin 5	Cadherin 5
43	Mm.328268	NM_027979	Chit1	Chitinase 1 (chitotriosidase)	Chit1
44	Mm.260054	NM_145142	Chst10	Carbohydrate sulfotransferase 10	HNK-1ST
45	Mm.277735	NM_007742	Col1a1	Procollagen, type I, alpha 1	Cola1
46	Mm.277792	NM_007743	Col1a2	Procollagen, type I, alpha 2	CoL1A2
47	Mm.249555	NM_009930	Col3a1	Procollagen, type III, alpha 1	COL3A1
48	Mm.235387	NM_007758	Cr2	Complement receptor 2	Cr2
49	Mm.22574	NM_007779	Csf1r	Colony stimulating factor 1 receptor	c-fms (MC-SF-R)
50	Mm.390	NM_009843	Ctla4	Cytotoxic T-lymphocyte-associated protein 4	Cd152
51	Mm.1151	NM_010074	Dpp4	Dipeptidylpeptidase 4	Dpp4
52	Mm.225297	NM_007932	Eng	Endoglin	Endoglin
53	Mm.582	NM_024406	Fabp4	Fatty acid binding protein 4, adipocyte	Fabp4
54	Mm.1626	NM_007987	Fas	Fas (TNF receptor superfamily member)	Fas
55	Mm.5266	NM_010184	Fcer1a	Fc receptor, IgE, high affinity I, alpha polypeptide	Fcr-5
56	Mm.1233	NM_013517	Fcer2a	Fc receptor, IgE, low affinity II, alpha polypeptide	CD23
57	Mm.150	NM_010186	Fcgr1	Fc receptor, IgG, high affinity I	Fcgr1
58	Mm.22119	NM_010188	Fcgr3	Fc receptor, IgG, low affinity III	CD16
59	Mm.289707	NM_007984	Fscn1	Fascin homolog 1, actin bundling protein (Strongylocentrotus) purpuratus)	Fscn1
60	Mm.15680	NM_010381	H2-Ea	Histocompatibility 2, class II antigen E alpha	HLA-DR
61	Mm.16771	XM_207061	H2-K1	Hypothetical gene supported by AK032594	HLA-A/H2-K
62	Mm.394	NM_010494	Icam2	Intercellular adhesion molecule 2	ICAM-2
63	Mm.276499	NM_010545	Ii	Ia-associated invariant chain	Cd74
64	Mm.731	NM_008353	Il12rb1	Interleukin 12 receptor, beta 1	IL-12R[b]
65	Mm.1349	NM_010555	Il1r2	Interleukin 1 receptor, type II	IL-1R2
66	Mm.915	NM_008367	Il2ra	Interleukin 2 receptor, alpha chain	CD25
67	Mm.5007	NM_008396	Itga2	Integrin alpha 2	LFA1b/Cd49b
68	Mm.57035	NM_013565	Itga3	Integrin alpha 3	Cd49c
69	Mm.16729	NM_010737	Klrb1a	Killer cell lectin-like receptor subfamily B member 1A	Klrb1a
70	Mm.56899	NM_010652	Klrc1	Killer cell lectin-like receptor subfamily C, member 1	Klrc1
71	Mm.8186	NM_010654	Klrd1	Killer cell lectin-like receptor, subfamily D, member 1	Klrd1
72	Mm.22662	XM_283025	Krt1-10	Keratin complex 1, acidic, gene 10	Krt1-10
73	Mm.4646	NM_010662	Krt1-13	Keratin complex 1, acidic, gene 13	Krt1-13
74	Mm.14046	NM_010663	Krt1-17	Keratin complex 1, acidic, gene 17	Krt1-17
75	Mm.22479	NM_010664	Krt1-18	Keratin complex 1, acidic, gene 18	Krt1-18
76	Mm.273177	NM_008471	Krt1-19	Keratin complex 1, acidic, gene 19	Krt1-19
77	Mm.46425	NM_008475	Krt2-4	Keratin complex 2, basic, gene 4	Krt2-4
78	Mm.22657	NM_027011	Krt2-5	Keratin complex 2, basic, gene 5	Krt2-5
79	Mm.302399	NM_008476	Krt2-6a	Keratin complex 2, basic, gene 6a	Krt2-6a
80	Mm.358618	NM_031170	Krt2-8	Keratin complex 2, basic, gene 8	Krt2-8
81	Mm.4528	NM_008479	Lag3	Lymphocyte-activation gene 3	Lag3
82	Mm.275003	NM_023061	Mcam	Melanoma cell adhesion molecule	Mcam
83	Mm.201549	NM_008570	Mcpt1	Mast cell protease 1	Mcpt1
84	Mm.1252	NM_010780	Mcpt5	Mast cell protease 5	Mcpt5
85	Mm.7409	NM_010781	Mcpt6	Mast cell protease 6	MCPT6
86	Mm.3301	NM_031187	Mcpt7	Mast cell protease 7	Mcpt7
87	Mm.4046	NM_007641	Ms4a1	Membrane-spanning 4-domains, subfamily A, member 1	CD20
88	Mm.16193	NM_013605	Muc1	Mucin 1, transmembrane	MUCI
89	Mm.218233	NM_175260	Myh10	Myosin, heavy polypeptide 10, non-muscle	Myh10
90	Mm.250705	NM_013607	Myh11	Myosin, heavy polypeptide 11, smooth muscle	Myh11 (SM-MHC)
91	Mm.29677	NM_181327	Myh9	Myosin, heavy polypeptide 9, non-muscle	Myh9
92	Mm.32257	NM_145136	Myocd	Myocardin	Myocd
93	Mm.4974	NM_010875	Ncam1	Neural cell adhesion molecule 1	NCAM
94	Mm.258415	NM_008713	Nos3	Nitric oxide synthase 3, endothelial cell	NOS3
95	Mm.244235	NM_011851	Nt5e	5' nucleotidase, ecto	Nt5e
96	Mm.343951	NM_008816	Pecam1	Platelet/endothelial cell adhesion molecule	PECAM1
97	Mm.226534	NM_028944	Ph-4	RIKEN cDNA 4933406E20 gene	Ph-4
98	Mm.3243	NM_011171	Procr	Protein C receptor, endothelial	Procr
99	Mm.1181	NM_022984	Retn	Resistin	Retn
100	Mm.21567	NM_013650	S100a8	S100 calcium binding protein A8 (calgranulin A)	Calgranulin A
101	Mm.5245	NM_011345	Sele	Selectin, endothelial cell	E-selectin
102	Mm.3337	NM_011347	Selp	Selectin, platelet	P-selectin
103	Mm.149029	NM_145933	St6gal1	Beta galactoside alpha 2,6 sialyltransferase 1	Siat1
104	Mm.4259	XM_147278	Tacstd1	Tumor-associated calcium signal transducer 1	Tacstd1
105	Mm.14313	NM_013690	Tek	Endothelial-specific receptor tyrosine kinase	Tie-2
106	Mm.24096	NM_009378	Thbd	Thrombomodulin	Thbd
107	Mm.13885	NM_011659	Tnfrsf4	Tumor necrosis factor receptor superfamily, member 4	OX40
108	Mm.271833	NM_011611	Tnfrsf5	Tumor necrosis factor receptor superfamily, member 5	Cd40
109	Mm.12810	NM_009401	Tnfrsf8	Tumor necrosis factor receptor superfamily, member 8	CD30
110	Mm.244187	NM_011612	Tnfrsf9	Tumor necrosis factor receptor superfamily, member 9	4-1BB
111	Mm.4861	NM_011616	Tnfsf5	Tumor necrosis factor (ligand) superfamily, member 5	CD40L
112	Mm.42228	NM_011617	Tnfsf7	Tumor necrosis factor (ligand) superfamily, member 7	CD27L/CD70
113	Mm.76649	NM_011693	Vcam1	Vascular cell adhesion molecule 1	VCAM-1
114	Mm.22339	NM_011708	Vwf	Von Willebrand factor homolog	Vwf
115	N/A	L08752	PUC18	PUC18 Plasmid DNA	pUC18
116	Blank	Blank	Blank	Blank	0
117	Blank	Blank	Blank	Blank	0
118	N/A	N/A	AS1R2	Artificial Sequence 1 Related 2 (80% identity)(48/60)	N/A
119	N/A	N/A	AS1R1	Artificial Sequence 1 Related 1 (90% identity)(56/60)	N/A
120	N/A	N/A	AS1	Artificial Sequence 1	N/A
121	Mm.180003	NM_024277	Rps27a	Ribosomal protein S27a	Rps27a
122	Mm.163	NM_009735	B2m	Beta-2 microglobulin	B2m
123	Mm.2180	NM_008302	Hspcb	Heat shock protein 1, beta	Hsp84
124	Mm.2180	NM_008302	Hspcb	Heat shock protein 1, beta	Hsp84
125	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophlinA
126	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophlinA
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

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