

Oligo GEMArray[®] DNA Microarray: Mouse Cell Cycle

Catalog Number

OMM-020

Format:

HybTube (Standard protocol)

Description

The Oligo GEMArray[®] Mouse Cell Cycle Microarray profiles the expression of 84 genes key to cell cycle regulation. This array contains genes that both positively and negatively regulate the cell cycle, the transitions between the each of the phases, DNA replication, checkpoints and arrest. The array represents cyclin-dependent kinases (CDKs) and proteins that regulate CDKs including including cyclins, CDK inhibitors, CDK phosphatases, and CDK kinases. Genes essential for DNA damage and mitotic spindle checkpoints, as well as genes in the SCF and APC ubiquitin-conjugation complexes, are also featured on this array. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples with this array.

Functional Gene Groupings

G1 Phase and G1/S Transition: Camk2a, Camk2b, Camk2d, Camk2g, Gpr132, Itgb1, Mtbp, Myb, Nfatc1, Ppp2r3a, Ppp3ca, Rhou, Skp2, Taf10, Slfn1.

S Phase and DNA Replication; Mcm2, Mcm3, Mcm4, Mcm5, Mcm6, Mcm7, Mki67, Mre11a, Msh2, PcnA, Rad17, Rad50, Rad51, Sumo1, Zrf2.

G2 Phase and G2/M Transition: Chek1, Ppm1d, Zrf2.

M Phase: Brca2, Ccna1, Ccnb1, Cdc25a, Cdc25b, Cdk2, Nek2, Nek3, Npm2, Pes1, Prm1, Prm2, Rad21, Ran, Shc1, Smc11l1, Smc2l1, Stag1, Stag2, Terf1, Tnfsf5ip1, Wee1.

Cell Cycle Checkpoint and Cell Cycle Arrest: Ak1, Apbb1, Apbb2, Brca2, Casp3, Cdk5rap1, Cdk5rap3, Cdkn1a, Cdkn1b, Cdkn1c, Cdkn2a, Chek1, Cks1, Ddit3, Dst, Gadd45a, Gas1, Gas2, Hus1, Inha, Macf1, Mad2l1, Mdm2, Msh2, Notch2, Pkd1, Pkd2, Pmp22, Ppm1d, Rad9, Sesn2, Sesn3, Sfn, Slfn1, Smc11l1, Tsg101.

Regulation of the Cell Cycle: Abl1, Brca2, Ccna1, Ccna2, Ccnb1, Ccnb2, Ccnc, Ccnd1, Ccnd2, Ccnd3, Ccne1, Ccne2, Ccnf, Cdc37, Cdc45l, Cdk4, Cdkn1a, Cks1, E2f1, E2f2, E2f3, E2f4, E2f5, E2f6, Gadd45a, Itgb1, Rad9, Ran, Sfn, Shc1, Skp2, Tfdp1, Tnfsf5ip1.

Negative Regulation of the Cell Cycle: Apbb1, Apbb2, Atm, Brca1, Casp3, Cdkn2a, Cdkn2b, Cdkn2d, Gas1, Inha, Rbl1, Rbl2, Trp53, Trp63.

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. Nurse, P. (2000) A Long Twentieth Century Of The Cell Cycle And Beyond. *Cell* **100**: 71-80.
2. Sherr, C. J. and Roberts, J. M. (1999) CDK Inhibitors: Positive And Negative Regulators Of G1-Phase Progression. *Genes & Development* **13**: 1501-12.
3. Harbour, J. W. and Dean, D. C. (2000) Rb Function In Cell-Cycle Regulation And Apoptosis. *Nature Cell Biology* **2**: E65-7.
4. Deshaies, R. J. (1995) The Self-Destructive Personality Of A Cell Cycle In Transition. *Current Biology* **7**: 781-789.
5. Gardner R. D. and Burke D. J. (2000) The Spindle Checkpoint: Two Transition, Two Pathways. *Trends in Cell Biology* **10**: 154-8.
6. Dasika, G. K., Lin, S. C., Zhao, S., Sung, P., Tomkinson, A., and Lee, E. Y. (1999) DNA Damage-Induced Cell Cycle Checkpoints And DNA Strand Break Repair In Development And Tumorigenesis. *Oncogene* **18**: 7883-99.
7. Amati, B. and Vlach, J. (1999) Kip1 Meets SKP2: New Links in Cell-Cycle Control. *Nature Cell Biology* **1**: E91-3.
8. Muller, H. and Helin, K. (2000) The E2F Transcription Factors: Key Regulators of Cell Proliferation. *Biochim. Biophys. Acta* **1470**: M1-12.
9. Bottazzi, M. E. and Assoian, R. K. (1997) The Extracellular Matrix And Mitogenic Growth Factors Control G1 Phase Cyclins And Cyclin-Dependent Kinase Inhibitors. *Trends in Cell Biology* **7**: 348-352.
10. Sherr C. J. and Weber J. D. (2000) The ARF/p53 Pathway. *Curr Opin Genet. Dev* **10**: 94-99.

Product Specification Sheet

Oligo GEArray[®] Mouse Cell Cycle Microarray

Array Layout:

Gapd 1	Abi1 2	Ak1 3	Apbb1 4	Apbb2 5	Atm 6	Brca1 7	Brca2 8
Camk2a 9	Camk2b 10	Camk2d 11	Camk2g 12	Casp3 13	Ccna1 14	Ccna2 15	Ccnb1 16
Ccnb2 17	Ccnc 18	Ccnd1 19	Ccnd2 20	Ccnd3 21	Ccne1 22	Ccne2 23	Ccnf 24
Cdc25a 25	Cdc25b 26	Cdc37 27	Cdc45l 28	Cdk2 29	Cdk4 30	Cdk5rap1 31	Cdk5rap3 32
Cdkn1a 33	Cdkn1b 34	Cdkn1c 35	Cdkn2a 36	Cdkn2b 37	Cdkn2d 38	Chek1 39	Cks1 40
Ddit3 41	Dst 42	E2f1 43	E2f2 44	E2f3 45	E2f4 46	E2f5 47	E2f6 48
Gadd45a 49	Gas1 50	Gas2 51	Gpr132 52	Hus1 53	Inha 54	Itgb1 55	Macf1 56
Mad2l1 57	Mcm2 58	Mcm3 59	Mcm4 60	Mcm5 61	Mcm6 62	Mcm7 63	Mdm2 64
Mki67 65	Mre11a 66	Msh2 67	Mtbp 68	Myb 69	Nek2 70	Nek3 71	Nfatc1 72
Notch2 73	Npm2 74	Pcna 75	Pes1 76	Pkd1 77	Pkd2 78	Pmp22 79	Ppm1d 80
Ppp2r3a 81	Ppp3ca 82	Prm1 83	Prm2 84	Rad17 85	Rad21 86	Rad50 87	Rad51 88
Rad9 89	Ran 90	Rbl1 91	Rbl2 92	Rhou 93	Sesn2 94	Sesn3 95	Sfn 96
Shc1 97	Skp2 98	Slnf1 99	Smc111 100	Smc211 101	Stag1 102	Stag2 103	Sumo1 104
Taf10 105	Terf1 106	Tfdp1 107	Tnfsf5ip1 108	Trp53 109	Trp63 110	Tsg101 111	Wee1 112
Zrf2 113	Blank 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.1318	NM_009594	Abi1	V-abl Abelson murine leukemia oncogene 1	p-abl
3	Mm.29189	NM_021515	Ak1	Adenylate kinase 1	Ak1
4	Mm.38469	NM_009685	Apbb1	Amyloid beta (A4) precursor protein-binding, family B, member 1	Apbb1
5	Mm.5159	NM_009686	Apbb2	Amyloid beta (A4) precursor protein-binding, family B, member 2	Apbb2
6	Mm.5088	NM_007499	Atm	Ataxia telangiectasia mutated homolog (human)	ATM
7	Mm.244975	NM_009764	Brca1	Breast cancer 1	BRCA1
8	Mm.236256	NM_009765	Brca2	Breast cancer 2	BRCA2
9	Mm.131530	NM_177407	Camk2a	Calcium/calmodulin-dependent protein kinase II alpha	Camk2a
10	Mm.4857	NM_007595	Camk2b	Calcium/calmodulin-dependent protein kinase II, beta	Camk II
11	Mm.255822	NM_023813	Camk2d	Calcium/calmodulin-dependent protein kinase II, delta	Camk2d
12	Mm.235182	NM_178597	Camk2g	Calcium/calmodulin -dependent protein kinase II gamma	Camk2g
13	Mm.34405	NM_009810	Casp3	Caspase 3, apoptosis related cysteine protease	Caspase-3
14	Mm.4815	NM_007628	Ccna1	Cyclin A1	Cyclin A1
15	Mm.4189	NM_009828	Ccna2	Cyclin A2	Cyclin A2
16	Mm.260114	NM_172301	Ccnb1	Cyclin B1	Cyclin B1
17	Mm.22592	NM_007630	Ccnb2	Cyclin B2	Cyclin B2
18	Mm.278584	NM_016746	Ccnc	Cyclin C	Cyclin C
19	Mm.273049	NM_007631	Ccnd1	Cyclin D1	Cyclin D1
20	Mm.333406	NM_009829	Ccnd2	Cyclin D2	Cyclin D2
21	Mm.246520	NM_007632	Ccnd3	Cyclin D3	Cyclin D3
22	Mm.16110	NM_007633	Ccne1	Cyclin E1	Ccne1
23	Mm.35867	NM_009830	Ccne2	Cyclin E2	Cyclin E2
24	Mm.77695	NM_007634	Ccnf	Cyclin F	Cyclin F
25	Mm.307103	NM_007658	Cdc25a	Cell division cycle 25 homolog A (S. cerevisiae)	CDC25a
26	Mm.38444	NM_023117	Cdc25b	Cell division cycle 25 homolog B (S. cerevisiae)	Cdc25B
27	Mm.32331	NM_016742	Cdc37	Cell division cycle 37 homolog (S. cerevisiae)	CDC37
28	Mm.1248	NM_009862	Cdc45l	Cell division cycle 45 homolog (S. cerevisiae)-like	Cdc45L
29	Mm.111326	NM_016756	Cdk2	Cyclin-dependent kinase 2	Cdk 2L
30	Mm.6839	NM_009870	Cdk4	Cyclin-dependent kinase 4	Cdk 4
31	Mm.289427	NM_025876	Cdk5rap1	CDK5 regulatory subunit associated protein 1	Cdk5rap1
32	Mm.28297	NM_030248	Cdk5rap3	CDK5 regulatory subunit associated protein 3	Cdk5rap3
33	Mm.195663	NM_007669	Cdkn1a	Cyclin-dependent kinase inhibitor 1A (P21)	p21Waf1/p21cip
34	Mm.2958	NM_009875	Cdkn1b	Cyclin-dependent kinase inhibitor 1B (P27)	p27Kip1
35	Mm.168789	NM_009876	Cdkn1c	Cyclin-dependent kinase inhibitor 1C (P57)	p57Kip2
36	Mm.4733	NM_009877	Cdkn2a	Cyclin-dependent kinase inhibitor 2A	p16Ink4a
37	Mm.269426	NM_007670	Cdkn2b	Cyclin-dependent kinase inhibitor 2B (p15, inhibits CDK4)	p15INK4b
38	Mm.29020	NM_009878	Cdkn2d	Cyclin-dependent kinase inhibitor 2D (p19, inhibits CDK4)	p19
39	Mm.16753	NM_007691	Chek1	Checkpoint kinase 1 homolog (S. pombe)	chk1
40	Mm.3049	NM_016904	Cks1	CDC28 protein kinase 1	CKS1p9
41	Mm.110220	NM_007837	Ddit3	DNA-damage inducible transcript 3	GADD153

Product Specification Sheet

Position	UniGene	GenBank	Symbol	Description	Gene Name
42	Mm.25326	NM_134448	Dst	Dystonin	BPAG1
43	Mm.18036	NM_007891	E2f1	E2F transcription factor 1	E2F1
44	Mm.307932	NM_177733	E2f2	E2F transcription factor 2	E2F-2
45	Mm.268356	XM_127250	E2f3	E2F transcription factor 3	E2F-3
46	Mm.34554	NM_148952	E2f4	E2F transcription factor 4	E2F-4
47	Mm.153415	NM_007892	E2f5	E2F transcription factor 5	E2F-5
48	Mm.23296	NM_033270	E2f6	E2F transcription factor 6	E2F-6
49	Mm.1236	NM_007836	Gadd45a	Growth arrest and DNA-damage-inducible 45 alpha	Gadd45
50	Mm.22701	NM_008086	Gas1	Growth arrest specific 1	Gas1
51	Mm.207360	NM_008087	Gas2	Growth arrest specific 2	Gas2
52	Mm.20455	NM_019925	Gpr132	G protein-coupled receptor 132	G2a-pending
53	Mm.42201	NM_008316	Hus1	Hus1 homolog (S. pombe)	Hus1
54	Mm.1100	NM_010564	Inha	Inhibin alpha	INH4
55	Mm.263396	XM_134403	Itgb1	Integrin beta 1 (fibronectin receptor beta)	CD29
56	Mm.3350	XM_110503	Macf1	Microtubule-actin crosslinking factor 1	Macf1
57	Mm.290830	NM_019499	Mad21	MAD2 (mitotic arrest deficient, homolog)-like 1 (yeast)	MAD2
58	Mm.16711	NM_008564	Mcm2	Minichromosome maintenance deficient 2 mitotin (S. cerevisiae)	MCM2
59	Mm.4502	NM_008563	Mcm3	Minichromosome maintenance deficient 3 (S. cerevisiae)	MCM3
60	Mm.1500	NM_008565	Mcm4	Minichromosome maintenance deficient 4 homolog (S. cerevisiae)	CDC21
61	Mm.5048	NM_008566	Mcm5	Minichromosome maintenance deficient 5, cell division cycle 46 (S. cerevisiae)	Cdc46
62	Mm.4933	NM_008567	Mcm6	Minichromosome maintenance deficient 6 (MIS5 homolog, S. pombe) (S. cerevisiae)	Mcm6
63	Mm.241714	NM_008568	Mcm7	Minichromosome maintenance deficient 7 (S. cerevisiae)	Cdc47
64	Mm.22670	NM_010786	Mdm2	Transformed mouse 3T3 cell double minute 2	Mdm2
65	Mm.4078	XM_133912	Mki67	Antigen identified by monoclonal antibody Ki 67	Ki67/MK67
66	Mm.149071	NM_018736	Mre11a	Meiotic recombination 11 homolog A (S. cerevisiae)	MRE11
67	Mm.4619	NM_008628	Msh2	MutS homolog 2 (E. coli)	MSH2
68	Mm.61901	NM_134092	Mtbp	Mdm2, transformed 3T3 cell double minute p53 binding protein	Mtbp
69	Mm.52109	NM_033597	Myb	Myeloblastosis oncogene	Myb
70	Mm.33773	NM_010892	Nek2	NIMA (never in mitosis gene a)-related expressed kinase 2	Nek2
71	Mm.41413	NM_011848	Nek3	NIMA (never in mitosis gene a)-related expressed kinase 3	Nek3
72	Mm.329560	NM_016791	Nf1atc	Nuclear factor of activated T-cells, cytoplasmic, calcineurin-dependent 1	NF-Atc
73	Mm.254017	NM_010928	Notch2	Notch gene homolog 2 (Drosophila)	Notch2
74	Mm.347749	NM_181345	Npm2	Nucleophosmin/nucleoplasmin 2	Npm2
75	Mm.7141	NM_011045	Pcna	Proliferating cell nuclear antigen	PCNA
76	Mm.28659	NM_022889	Pes1	Pescadillo homolog 1, containing BRCT domain (zebrafish)	Pes1
77	Mm.290442	NM_013630	Pkd1	Polycystic kidney disease 1 homolog	Pkd1
78	Mm.6442	NM_008861	Pkd2	Polycystic kidney disease 2	Pkd2
79	Mm.1237	NM_008885	Pmp22	Peripheral myelin protein	Pmp22
80	Mm.45609	NM_016910	Ppm1d	Protein phosphatase 1D magnesium-dependent, delta isoform	Wip1
81	Mm.271249	XM_356255	Ppp2r3a	Protein phosphatase 2 (formerly 2A), regulatory subunit B, alpha	Ppp2r3a
82	Mm.331389	XM_131226	Ppp3ca	Protein phosphatase 3, catalytic subunit, alpha isoform	Ppp3ca
83	Mm.42733	NM_013637	Ppm1	Protamine 1	Ppm1
84	Mm.541	NM_008933	Ppm2	Protamine 2	Ppm2
85	Mm.248489	NM_011233	Rad17	RAD17 homolog (S. pombe)	RAD17
86	Mm.182628	NM_009009	Rad21	RAD21 homolog (S. pombe)	Rad21
87	Mm.4888	NM_009012	Rad50	RAD50 homolog (S. cerevisiae)	RAD50
88	Mm.231	NM_011234	Rad51	RAD51 homolog (S. cerevisiae)	RAD51
89	Mm.277629	NM_011237	Rad9	RAD9 homolog (S. pombe)	RAD9
90	Mm.297440	NM_009391	Ran	RAN, member RAS oncogene family	Ran
91	Mm.244671	NM_011249	Rb1	Retinoblastoma-like 1 (p107)	Rb-1 p107
92	Mm.235580	NM_011250	Rb2	Retinoblastoma-like 2	Rb-2 p130
93	Mm.168257	NM_133955	Rhou	Ras homolog gene family, member U	Arhu/Wrch1
94	Mm.23608	NM_144907	Sesn2	Sestrin 2	Sesn2
95	Mm.44590	NM_030261	Sesn3	Sestrin 3	Sesn3
96	Mm.44482	NM_018754	Sfn	Stratifin	Mme1
97	Mm.86595	NM_011368	Shc1	Src homolog 2 domain-containing transforming protein C1	Shc/p66
98	Mm.35584	NM_013787	Skp2	S-phase kinase-associated protein 2 (p45)	Skp2
99	Mm.10948	NM_011407	Slnf1	Schlafen 1	Slnf1
100	Mm.26412	NM_019710	Smc11	SMC (structural maintenance of chromosomes 1)-like 1 (S. cerevisiae)	Smc11
101	Mm.2999	NM_008017	Smc21	SMC2 structural maintenance of chromosomes 2-like 1 (yeast)	Smc21
102	Mm.42135	NM_009282	Stag1	Stromal antigen 1	Stag1
103	Mm.290422	NM_021465	Stag2	Stromal antigen 2	Stag2
104	Mm.259278	NM_009460	Sumo1	SMT3 suppressor of mif two 3 homolog 1 (yeast)	Ubf1/sentrin
105	Mm.285771	NM_020024	Taf10	TAF10 RNA polymerase II, TATA box binding protein (TBP)-associated factor	Taf10
106	Mm.4306	NM_009352	Terf1	Telomeric repeat binding factor 1	Terf1
107	Mm.925	NM_009361	Tfdp1	Transcription factor Dp 1	DP1
108	Mm.150701	NM_134138	Tnfsf5ip1	Tumor necrosis factor superfamily, member 5-induced protein 1	Tnfsf5ip1
109	Mm.222	NM_011640	Trp53	Transformation related protein 53	p53
110	Mm.20894	NM_011641	Trp63	Transformation related protein 63	p51B / TP63
111	Mm.241334	NM_021884	Tsg101	Tumor susceptibility gene 101	Tsg101
112	Mm.287173	NM_009516	Wee1	Wee 1 homolog (S. pombe)	Wee1
113	Mm.266312	NM_009583	Zrf2	Zuotin related factor 2	Zrf2
114	Blank	Blank	Blank	Blank	0
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	CyclophilinA
126	Mm.5246	NM_008907	Ppia	Peptidylprolyl isomerase A	CyclophilinA
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