

Oligo GEMArray[®] DNA Microarray:

Rat Apoptosis

Catalog Number

ORN-012.2
ERN-012.2

Format:

HybTube (Standard protocol)
HybPlate (Higher throughput protocol)

Description

The Oligo GEMArray[®] Rat Apoptosis Microarray profiles the expression of 112 genes involved in apoptosis. This array includes TNF ligands and their receptors, members of the bcl-2 gene family and caspases. Also represented are members of the IAP, TRAF, CARD, and death domain gene families. Death effector domain family members, CIDE domain family members, and genes involved in the p53 and DNA damage response pathways are included. The array also represents genes involved in anti-apoptosis. Through a simple side-by-side hybridization experiment you can determine differential gene expression between your samples.

Functional Gene Groupings

TNF Ligand Family: Ltb, Tnf, Tnfsf10, Tnfsf12, Tnfsf13, Tnfsf14, Tnfsf115, Tnfsf5, Tnfsf6, Tnfsf9.

TNF Receptor Family: Ltbr, Ngfrap1, Tnfrsf10b, Tnfrsf11b, Tnfrsf12a, Tnfrsf1a, Tnfrsf1b, Tnfrsf21, Tnfrsf26, Tnfrsf4, Tnfrsf5, Tnfrsf6, Tnfrsf8.

Bcl-2 Family: Bad, Bag1, Bag3, Bak1, Bax, Bcl2, Bcl2a1, Bcl2l1, Bcl2l10, Bcl2l11, Becn1, Bid, Bid3, Biklk, Blk, Bnip1, Bnip2, Bnip3, Bnip3l, Bmf, Bok, Mcl1.

Caspase Family: Casp1, Casp2, Casp3, Casp4, Casp6, Casp7, Casp8, Casp8ap2, Casp9, Casp12, Casp14.

IAP Family: Api2 (Birc2), Birc1b, Birc3 (IAP1), Birc4 (XIAP), Birc5 (Survivin).

TRAF Family: Tank, Traf2, Traf3, Traf4, Traip.

CARD Family: Apaf1, Bcl10, Birc3, Birc4, Card6, Card10, Card11, Casp1, Casp2, Casp4, Casp9, Cradd, LOC64171 (Card9), Nol3, Pycard (Asc), Ripk1, Ripk2, Ripk3.

Death Domain Family: Cradd, Dap3, Dapk1, Dlk, Fadd, Myd88, Ripk1, Tnfrsf10b, Tnfrsf11b, Tnfrsf1a, Tnfrsf21, Tnfrsf6, Tradd.

Death Effector Domain Family: Casp8, Cflar, Fadd.

CIDE Domain Family: Cidea, Cideb, Dffa, Dffb.

p53 and DNA Damage-Induced Apoptosis: Akt1, Apaf1, Atm, Bad, Bax, Bcl2, Bcl2l1, Bid, Casp3, Casp6, Casp7, Casp9, Chek1, Chek2, Gadd45a, Tp53, Tp73, Trp53bp2, Trp53inp1, Trp63.

Anti-Apoptosis: Akt1, Api2 (Birc2), Atf5, Bag1, Bag3, Bcl2, Bcl2l1, Bcl2l10, Bcl2l2, Birc1b, Birc3, Birc4, Birc5, Bnip2, Bnip3, Casp2, Cflar, Dad1, Faim, Il10, Mapk8ip, Mcl1, Nfkb1, Polb, Prdx2, Prlr, Prok2, Rnf7, Sphk2, Tnf, Tnfrsf6, Tnfsf5.

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. Green, DR. (2000) Apoptotic Pathways: Paper Wraps Stone Blunts Scissors. *Cell* **102**: 1-4.
2. Salvesen GS, Dixit VM. (1999) Caspase Activation: The Induced-Proximity Model. *PNAS* **96**: 10964-7.
3. Nagata S (1999) Fas Ligand-Induced Apoptosis. *Annu Rev Genet* **33**: 29-55.
4. Budihardjo I, Oliver H, Lutter M, Luo X, Wang X. (1999) Biochemical Pathways Of Caspase Activation During Apoptosis. *Annu Rev Cell Dev Biol* **15**: 269-90.
5. Ekert PG, Silke J, Vaux DL (1999) Caspase Inhibitors. *Cell Death Differ* **6**(11): 1081-6.
6. Lutz RJ (2000) Role Of The BH3 (Bcl-2 Homology 3) Domain In The Regulation Of Apoptosis And Bcl-2-Related Proteins. *Biochem Soc Trans* **28** (2): 51-6.
7. Inoue Ji, Ishida T, Tsukamoto N, Kobayashi N, Naito A, Azuma S, Yamamoto T. (2000) Tumor Necrosis Factor Receptor-Associated Factor (TRAF) Family: Adapter Proteins That Mediate Cytokine Signaling. *Exp Cell Res* **254**(1): 14-24.
8. Deveraux QL, Stennicke HR, Salvesen GS, Reed JC (1999) Endogenous Inhibitors Of Caspases. *J Clin Immunol* **19**(6): 388-98.
9. Orlinick JR, Chao MV. (1998) TNF-Related Ligands And Their Receptors. *Cell Signal* **10**(8): 543-51.
10. Schulze-Osthoff K, Ferrari D, Los M, Wesselborg S, Peter ME (1998) Apoptosis Signaling By Death Receptors. *Eur J Biochem* **254**(3): 439-59.
11. Singh A, Ni J, Aggarwal BB (1998) Death Domain Receptors And Their Role In Cell Demise. *J Interferon Cytokine Res* **18**(7): 439-50.

Product Specification Sheet

Oligo GEArray[®] Rat Apoptosis Microarray

Array Layout:

Ppia 1	Akt1 2	Apaf1 3	Api2 4	Atf5 5	Atm 6	Bad 7	Bag1 8
Bag3 9	Bak1 10	Bax 11	Bcl10 12	Bcl2 13	Bcl2a1 14	Bcl2l1 15	Bcl2l10 16
Bcl2l11 17	Bcl2l2 18	Becn1 19	Bid 20	Bid3 21	Biklk 22	Birc1b 23	Birc3 24
Birc4 25	Birc5 26	Blk 27	Bmf 28	Bnip1 29	Bnip2 30	Bnip3 31	Bnip3l 32
Bok 33	Card10 34	Card11 35	Card6 36	Casp1 37	Casp12 38	CASP14 39	Casp2 40
Casp3 41	Casp4 42	Casp6 43	Casp7 44	Casp8 45	Casp8ap2 46	Casp9 47	Cflar 48
Chek1 49	Chek2 50	Cidea 51	Cideb 52	Cradd 53	Dad1 54	Dap3 55	Dapk1 56
Dffa 57	Dffb 58	Dlk 59	Fadd 60	Faim 61	Gadd45a 62	Ii10 63	LOC64171 64
Ltb 65	Ltbr 66	Mapk8ip 67	Mcl1 68	Myd88 69	Nfkb1 70	Ngfrap1 71	Nol3 72
Polb 73	Prdx2 74	Prlr 75	Prok2 76	Pycard 77	Ripk1 78	Ripk2 79	Ripk3 80
Rnf7 81	Sphk2 82	Tank 83	Tnf 84	Tnfai3 85	Tnfrsf10b 86	Tnfrsf11b 87	Tnfrsf12a 88
Tnfrsf1a 89	Tnfrsf1b 90	Tnfrsf21 91	Tnfrsf26 92	Tnfrsf4 93	Tnfrsf5 94	Tnfrsf6 95	Tnfrsf8 96
Tnfsf10 97	Tnfsf12 98	Tnfsf13 99	Tnfsf14 100	Tnfsf15 101	Tnfsf5 102	Tnfsf6 103	Tnfsf9 104
Tp53 105	Tp73 106	Tradd 107	Traf2 108	Traf3 109	Traf4 110	Traip 111	Trp53bp2 112
Trp53inp1 113	Trp63 114	PUC18 115	Blank 116	Blank 117	AS1R2 118	AS1R1 119	AS1 120
Rpl32 121	Ldha 122	Aldoa 123	Aldoa 124	Gapd 125	Gapd 126	BAS2C 127	BAS2C 128

Gene Table

Position	UniGene	GenBank	Symbol	Description	Gene Name
1	Rn.1463	NM_017101	Ppia	Peptidylprolyl isomerase A	Ppia
2	Rn.11422	NM_033230	Akt1	V-akt murine thymoma viral oncogene homolog 1	Akt1
3	Rn.64522	NM_023979	Apaf1	Apoptotic peptidase activating factor 1	Apaf1
4	Rn.43867	NM_021752	Api2	Baculoviral IAP repeat-containing 2	Api2
5	Rn.30491	NM_172336	Atf5	Activating transcription factor 5	Atf5
6	Rn.98962	XM_236275	Atm	Ataxia telangiectasia mutated homolog (human)	Atm
7	Rn.36696	NM_022698	Bad	Bcl2-associated death promoter	Bad
8	Rn.16320	BQ202444	Bag1	Similar to Bcl2-associated athanogene 1	Bag1
9	Rn.46304	BQ199808	Bag3	Bcl2-associated athanogene 3 (predicted)	Bag3
10	Rn.14598	NM_053812	Bak1	BCL2-antagonist/killer 1	Bak1
11	Rn.10668	NM_017059	Bax	Bcl2-associated X protein	Bax
12	Rn.13007	NM_031328	Bcl10	B-cell CLL/lymphoma 10	Bcl10
13	Rn.9996	NM_016993	Bcl2	B-cell leukemia/lymphoma 2	Bcl2
14	Rn.19770	NM_133416	Bcl2a1	B-cell leukemia/lymphoma 2 related protein A1	Bcl2a1
15	Rn.10323	NM_031535	Bcl2l1	Bcl2-like 1	Bcl2l1
16	Rn.67084	NM_053733	Bcl2l10	Bcl2-like 10	Bcl2l10
17	Rn.82709	NM_022612	Bcl2l11	BCL2-like 11 (apoptosis facilitator)	Bcl2l11
18	Rn.44267	NM_021850	Bcl2l2	Bcl2-like 2	Bcl2l2
19	Rn.2776	NM_053739	Becn1	Beclin 1 (coiled-coil, myosin-like BCL2-interacting protein)	Becn1
20	Rn.31142	NM_022684	Bid	Apoptotic death agonist BID	Bid
21	Rn.89639	NM_057130	Bid3	BH3 interacting (with BCL2 family) domain, apoptosis agonist	Bid3
22	Rn.38487	NM_053704	Biklk	Bcl2-interacting killer-like	Biklk
23	Rn.92423	XM_226742	Birc1b	Baculoviral IAP repeat-containing 1b	Birc1
24	Rn.64578	NM_023987	Birc3	Inhibitor of apoptosis protein 1	Birc2
25	Rn.91239	NM_022231	Birc4	Baculoviral IAP repeat-containing 4	Birc4/Api3
26	Rn.54471	NM_022274	Birc5	Baculoviral IAP repeat-containing 5	Birc5
27	Rn.20030	XM_344419	Blk	B lymphoid kinase (predicted)	MGC112647
28	Rn.72585	NM_139258	Bmf	Bcl-2 modifying factor	Bmf
29	Rn.16757	NM_080897	Bnip1	BCL2/adenovirus E1B 19kDa-interacting protein 1	Bnip1
30	Rn.13297	XM_217191	Bnip2	BCL2/adenovirus E1B 19kDa-interacting protein 1, NIP2 (predicted)	Nip2
31	Rn.2060	NM_053420	Bnip3	BCL2/adenovirus E1B 19 kDa-interacting protein 3	Bnip3
32	Rn.827	NM_080888	Bnip3l	BCL2/adenovirus E1B 19 kDa-interacting protein 3-like	Bnip3l
33	Rn.44461	NM_017312	Bok	Bcl-2-related ovarian killer protein	Bok
34	Rn.100922	XM_243622	Card10	Similar to BIMP1 (LOC315120), mRNA	LOC315120
35	Rn.7904	XM_221961	Card11	Similar to caspase recruitment domain family member 11 (LOC304314), mRNA	LOC304314
36	Rn.104526	XM_226804	Card6	Caspase recruitment domain family, member 6 (predicted)	Card6
37	Rn.37508	NM_012762	Casp1	Caspase 1	Casp1
38	Rn.81078	NM_130422	Casp12	Caspase 12	Casp12
39	N/A	XM_234878	CASP14	Similar to caspase-14	CASP14
40	Rn.1438	NM_022522	Casp2	Caspase 2	Casp2
41	Rn.10562	NM_012922	Casp3	Caspase 3	Casp3

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Position	UniGene	GenBank	Symbol	Description	Gene Name
42	Rn.16195	NM_053736	Casp4	Caspase 11	Casp11
43	Rn.88160	NM_031775	Casp6	Caspase 6	Casp6
44	Rn.53995	NM_022260	Casp7	Caspase 7	Casp7
45	Rn.54474	NM_022277	Casp8	Caspase 8	Casp8
46	Rn.9052	XM_232860	Casp8ap2	Midasin homolog (yeast) (predicted)	MDN1
47	Rn.32199	NM_031632	Casp9	Caspase 9	Casp9
48	Rn.28010	NM_057138	Cflar	CASP8 and FADD-like apoptosis regulator	Cflar
49	Rn.33267	NM_080400	Chek1	Checkpoint kinase 1 homolog (S. pombe)	Chek1
50	Rn.18487	NM_053677	Chek2	Protein kinase Chk2	Rad53
51	Rn.8171	XM_214551	Cidea	Cell death-inducing DNA fragmentation factor, alpha subunit-like effector A (predicted)	Cidea
52	Rn.145275	XM_344410	Cideb	Cell death-inducing DNA fragmentation factor, alpha subunit-like effector B (predicted)	Cidb
53	Rn.85739	XM_235061	Cradd	CASP2 and RIPK1 domain containing adaptor with death domain (predicted)	RAID
54	Rn.7262	NM_138910	Dad1	Defender against cell death 1	Dad1
55	Rn.144633	XM_215627	Dap3	Death associated protein 3 (predicted)	DAF3
56	Rn.23108	XM_225138	Dapk1	Similar to Dapk1 protein (LOC306722), mRNA	LOC306722
57	Rn.48799	NM_053679	Dffa	DNA fragmentation factor, alpha subunit	Dffa
58	Rn.67077	NM_053362	Dffb	DNA fragmentation factor, beta subunit	Dffb
59	Rn.98325	XM_217177	Dlk	Similar to Death-associated protein kinase 3 (DAP kinase 3) (DAP-like kinase) (Dlk) (ZIP-kinase)	LOC503215
60	Rn.16183	NM_152937	Fadd	Fas (TNFRSF6)-associated via death domain	Fadd
61	Rn.106419	NM_080895	Faim	Fas apoptotic inhibitory molecule	Faim
62	Rn.10250	NM_024127	Gadd45a	Growth arrest and DNA-damage-inducible 45 alpha	Gadd45a
63	Rn.9868	NM_012854	Il10	Interleukin 10	Il10
64	Rn.64486	NM_022303	LOC64171	Caspase recruitment domain protein 9	Card9
65	Rn.128906	NM_212507	Ltb	Lymphotoxin B	Ltb
66	Rn.19329	NM_001008315	Ltbr	Lymphotoxin B receptor (predicted)	Ltbr
67	Rn.44266	NM_053777	Mapk8ip	Mitogen activated protein kinase 8 interacting protein	Mapk8ip
68	Rn.4067	NM_021846	Mcl1	Myeloid cell leukemia sequence 1	Mcl1
69	Rn.37341	NM_198130	Myd88	Myeloid differentiation primary response gene 88	Myd88
70	Rn.2411	XM_342346	NfkB1	Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105	NfkB1
71	Rn.3126	NM_053401	Ngfrap1	Nerve growth factor receptor associated protein 1	Ngfrap1
72	Rn.86956	NM_053516	Nol3	Nucleolar protein 3 (apoptosis repressor with CARD domain)	Nol3
73	Rn.9346	NM_017141	Polb	Polymerase (DNA directed), beta	Polb
74	Rn.2511	NM_017169	Prdx2	Peroxiredoxin 2	Prdx2
75	Rn.9757	NM_012630	Ptir	Protactin receptor	Ptir
76	Rn.82766	NM_138852	Prok2	Homolog of mouse Bv8 (Bombina variegata 8 kDa): prokineticin 2 precursor	Bv8
77	Rn.7817	NM_172322	Pycard	Apoptosis-associated speck-like protein containing a CARD	Asc
78	Rn.73677	XM_225262	Ripk1	Similar to RIP (LOC306886), mRNA	LOC306886
79	Rn.102179	XM_342810	Ripk2	Similar to receptor-interacting protein 2 (LOC362491), mRNA	LOC362491
80	Rn.7110	NM_139342	Ripk3	Receptor-interacting serine-threonine kinase 3	Hcyp2
81	Rn.2768	XM_217235	Rnf7	Ring finger protein 7 (predicted)	Rnf7
82	Rn.41053	NM_001012066	Sphk2	Sphingosine kinase 2 (predicted)	N/A
83	Rn.89906	NM_145788	Tank	TRAF family member-associated Nf-kappa B activator	Tank
84	Rn.2275	NM_012675	Tnf	Tumor necrosis factor superfamily, member 2	Tnf
85	Rn.17607	XM_223535	Tnfaip3	TNFAIP3 interacting protein 2 (predicted)	Tnfaip3
86	Rn.105558	XM_344431	Tnfrsf10b	Similar to TRAIL receptor2 KILLER/DR5 homologue (LOC364420), mRNA	LOC364420
87	Rn.9792	NM_012870	Tnfrsf11b	Tumor necrosis factor receptor superfamily, member 11b (osteoprotegerin)	Tnfrsf11b
88	Rn.105040	NM_181086	Tnfrsf12a	Tumor necrosis factor receptor superfamily, member 12a	Tnfrsf12a
89	Rn.11119	NM_013091	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a	Tnfrsf1a
90	Rn.83633	NM_130426	Tnfrsf1b	Tumor necrosis factor receptor superfamily, member 1b	Tnfrsf1b
91	Rn.98293	XM_236992	Tnfrsf21	Tumor necrosis factor receptor superfamily, member 21 (predicted)	Tnfrsf21
92	Rn.137656	XM_341968	Tnfrsf26	Tumor necrosis factor receptor superfamily, member 26 (predicted)	Tnfrsf26
93	Rn.48883	NM_013049	Tnfrsf4	Tumor necrosis factor receptor superfamily, member 4	Tnfrsf4
94	Rn.25180	XM_230854	Tnfrsf5	Similar to T-cell differentiation antigen (LOC311635), mRNA	LOC311635
95	Rn.24581	NM_139194	Tnfrsf6	Fas receptor	LOC365454
96	Rn.11322	NM_019135	Tnfrsf8	Tumor necrosis factor receptor superfamily, member 8	Tnfrsf8
97	Rn.83627	NM_145681	Tnfrsf10	Tumor necrosis factor (ligand) superfamily, member 10	Tnfrsf10
98	Rn.3211	NM_001001513	Tnfrsf12	Tumor necrosis factor ligand superfamily member 12	TWEAK
99	Rn.19955	NM_001009623	Tnfrsf13	Tumor necrosis factor ligand superfamily, member 13	Tnfrsf13
100	N/A	XM_236794	Tnfrsf14	Similar to LIGHT protein (LOC301133)	Tnfrsf14
101	Rn.84873	NM_145765	Tnfrsf15	Tumor necrosis factor (ligand) superfamily, member 15	Tnfrsf15
102	Rn.44218	NM_053353	Tnfrsf5	Tumor necrosis factor (ligand) superfamily, member 5	Tnfrsf5/ CD40 ligand
103	Rn.9725	NM_012908	Tnfrsf6	Tumor necrosis factor (ligand) superfamily, member 6	Tnfrsf6
104	Rn.46783	NM_181384	Tnfrsf9	Tumor necrosis factor (ligand) superfamily, member 9	Tnfrsf9
105	Rn.54443	NM_030989	Tp53	Tumor protein p53	Tp53
106	Rn.103860	XM_342992	Tp73	Transformation related protein 73 (predicted)	LOC362675
107	Rn.18545	XM_341671	Tradd	TNFRSF1A-associated via death domain	Tradd
108	Rn.105232	XM_231032	Traf2	Tnf receptor-associated factor 2 (predicted)	Traf2
109	Rn.53951	XM_343113	Traf3	Similar to CD40 receptor associated factor 1 (LOC362788), mRNA	LOC362788
110	Rn.3219	XM_220640	Traf4	Similar to TNF receptor associated factor 4 (LOC303285), mRNA	LOC303285
111	Rn.8891	XM_345981	Traip	TRAF-interacting protein (predicted)	Traip
112	Rn.50333	XM_223012	Trp53bp2	Similar to ASPP2 protein (LOC305025), mRNA	LOC305025
113	Rn.48267	NM_181084	Trp53inp1	Transformation related protein 53 inducible nuclear protein 1	Trp53inp1
114	Rn.42907	NM_019221	Trp63	Transformation related protein 63	Trp63
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	Rn.110966	NM_013226	Rpl32	Ribosomal protein L32	Rpl32
122	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A	Ldha
123	Rn.1774	NM_012495	Aldoa	Aldolase A	Aldoa
124	Rn.1774	NM_012495	Aldoa	Aldolase A	Aldoa
125	Rn.91450	NM_017008	Gapd	Glyceraldehyde-3-phosphate dehydrogenase	Gapd
126	Rn.91450	NM_017008	Gapd	Glyceraldehyde-3-phosphate dehydrogenase	Gapd
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