

RT² Profiler™ PCR Array:

Rat Apoptosis

Catalog Number

PARN-012A

PARN-012C

PARN-012D

PARN-012E

PARN-012F

PARN-012G

For Real-Time Instruments:

ABI Standard Blocks; Bio-Rad iCycler, MyiQ, and (MJ Research) Chromo 4; and Stratagene Mx3005p, Mx3000p

ABI 7500 and 7900HT FAST 96-Well Blocks, ABI StepOnePlus

Bio-Rad (MJ Research) Opticon and Opticon 2, Stratagene Mx4000

ABI 7900HT 384-Well Block

Roche LightCycler 480 96-well Block

Roche LightCycler 480 384-well Block

Description

The Rat Apoptosis RT² Profiler PCR Array profiles the expression of 84 key genes involved in apoptosis, or programmed cell death. The array includes the TNF ligands and their receptors; members of the bcl-2, caspase, IAP, TRAF, CARD, death domain, death effector domain, and CIDE families; as well as genes involved in the p53 and ATM pathways. Using real-time PCR, you can easily and reliably analyze expression of a focused panel of genes related to apoptosis with this array.

Functional Gene Groupings

TNF Ligand Family: Lta, Tnf, Tnfsf10, Tnfsf12, Cd40lg (Tnfsf5), Faslg (Tnfsf6).

TNF Receptor Family: Ltbr, Tnfrsf10b, Tnfrsf11b, Tnfrsf1a, Tnfrsf1b, Tnfrsf5, Tnfrsf6.

Bcl-2 Family: Bad (Bbc2), Bag1, Bak1, Bax, Bcl2, Bcl2a1, Bcl2l1, Bcl2l2, Bcl2l11, Bclaf1, Bid, Bid3 (Hrk), Bik, Bnip1, Bnip2, Bnip3, Bok, Mcl1.

Caspase Family: Casp1, Casp2, Casp3, Casp6, Casp7, Casp8, Casp8ap2, Casp9, Casp4 (Casp11), Casp12, Casp14.

IAP Family: Birc1b, Birc3, Birc4, Birc5.

TRAF Family: Traf1, Traf2, Traf3, Traf4.

CARD Family: Apaf1, Bcl10, Birc3, Birc4, Card6, Card10, Casp1, Casp2, Casp9, Casp4 (Casp11), Cradd, Nol3, Pycard (Asc), Ripk2.

Death Domain Family: Cradd, Dapk1, Fadd, Tnfrsf6, Tnfrsf10b (TRAIL-R), Tnfrsf11b, Tnfrsf1a, Tradd.

Death Effector Domain Family: Casp8, Cflar (Cash), Fadd.

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

p53 and DNA Damage-Induced Apoptosis: Apaf1, Bad (Bbc2), Bax, Bcl2, Bcl2l1, Bid, Casp3, Casp6, Casp7, Casp9, Gadd45a, Tp53 (p53), Trp53bp2, Trp63, Trp73.

Anti-Apoptosis: Api5, Aven, Bag1, Bcl2, Bcl2l1, Bcl2l2, Birc1b, Birc3, Birc4, Birc5, Bnip1, Bnip2, Bnip3, Casp2, Cflar, Dad1, Faim, Il10, Lhx4, Mapk8ip, Mcl1, Nfkb1, Polb, Prdx2, Prlr, Prok2, Sphk2, Tnf, Tnfrsf6, Cd40lg (Tnfsf5).

Storage Conditions

Please check the kit components immediately after you receive this package. We are only responsible for missing items reported within two (2) business days of receipt.

Product Specification Sheet

Storage Conditions: PCR Arrays are shipped at ambient temperature. Keep plates at -20 °C for long-term storage.

NOTE: Be sure that you have the correct PCR Array format for your instrument before starting the experiment.

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

Array Layout: Rat Apoptosis RT² Profiler™ PCR Array

	1	2	3	4	5	6	7	8	9	10	11	12
A	Apaf1	Api5	Aven	Bad	Bag1	Bak1	Bax	Bcl10	Bcl2	Bcl2a1	Bcl2l1	Bcl2l11
B	Bcl2l2	Bclaf1	Bid	Bid3	Bik	Birc1b	Birc3	Birc4	Birc5	Bnip1	Bnip2	Bnip3
C	Bok	Card10	Card6	Casp1	Casp4	Casp12	Casp14	Casp2	Casp3	Casp6	Casp7	Casp8
D	Casp8ap2	Casp9	Cflar	Cidea	Cideb	Cradd	Dad1	Dapk1	Dffa	Dffb	Fadd	Faim
E	Gadd45a	Il10	Lhx4	Lta	Ltbr	Mapk8ip	Mcl1	Nfkb1	Nol3	Polb	Prdx2	Prlr
F	Prok2	Pycard	Ripk2	Sphk2	Tnf	Tnfrsf10b	Tnfrsf11b	Tnfrsf1a	Tnfrsf1b	Tnfrsf5	Tnfrsf6	Tnfrsf10
G	Tnfrsf12	Cd40lg	Faslg	Tp53	Tradd	Traf1	Traf2	Traf3	Traf4	Trp53bp2	Trp63	Trp73
H	Rplp1	Hprt	Rpl13a	Ldha	Actb	RGDC	RTC	RTC	RTC	PPC	PPC	PPC

Gene Table

Position	UniGene	GenBank	Symbol	Description
A01	Rn.64522	NM_023979	Apaf1	Apoptotic peptidase activating factor 1
A02	Rn.103083	XM_342470	Api5_predicted	Apoptosis inhibitor 5 (predicted)
A03	Rn.145049	XM_230438	Aven_predicted	Apoptosis, caspase activation inhibitor (predicted)
A04	Rn.36696	NM_022698	Bad	Bcl2-associated death promoter
A05	Rn.16320	XM_216377	Bag1_predicted	Bcl2-associated athanogene 1 (predicted)
A06	Rn.14598	NM_053812	Bak1	BCL2-antagonist/killer 1
A07	Rn.10668	NM_017059	Bax	Bcl2-associated X protein
A08	Rn.13007	NM_031328	Bcl10	B-cell CLL/lymphoma 10
A09	Rn.9996	NM_016993	Bcl2	B-cell leukemia/lymphoma 2
A10	Rn.19770	NM_133416	Bcl2a1	B-cell leukemia/lymphoma 2 related protein A1
A11	Rn.10323	NM_031535	Bcl2l1	Bcl2-like 1
A12	Rn.82709	NM_022612	Bcl2l11	BCL2-like 11 (apoptosis facilitator)
B01	Rn.44267	NM_021850	Bcl2l2	Bcl2-like 2
B02	Rn.15652	XM_214967	Bclaf1	BCL2-associated transcription factor 1
B03	Rn.162782	NM_022684	Bid	BH3 interacting domain death agonist
B04	Rn.89639	NM_057130	Bid3	BH3 interacting (with BCL2 family) domain, apoptosis agonist
B05	Rn.38487	NM_053704	Bik	Bcl2-interacting killer
B06	Rn.92423	XM_226742	Birc1b	Baculoviral IAP repeat-containing 1b
B07	Rn.64578	NM_023987	Birc3	Baculoviral IAP repeat-containing 3
B08	Rn.91239	NM_022231	Birc4	Baculoviral IAP repeat-containing 4
B09	Rn.54471	NM_022274	Birc5	Baculoviral IAP repeat-containing 5
B10	Rn.16757	NM_080897	Bnip1	BCL2/adenovirus E1B 19kDa-interacting protein 1
B11	Rn.13297	XM_217191	Bnip2_predicted	BCL2/adenovirus E1B 19kDa-interacting protein 1, NIP2 (predicted)
B12	Rn.2060	NM_053420	Bnip3	BCL2/adenovirus E1B 19 kDa-interacting protein 3
C01	Rn.44461	NM_017312	Bok	Bcl-2-related ovarian killer protein
C02	Rn.138066	XM_243622	Card10_predicted	Caspase recruitment domain family, member 10 (predicted)
C03	Rn.104526	XM_226804	Card6_predicted	Caspase recruitment domain family, member 6 (predicted)
C04	Rn.37508	NM_012762	Casp1	Caspase 1
C05	Rn.16195	NM_053736	Casp4	Caspase 4, apoptosis-related cysteine peptidase
C06	Rn.81078	NM_130422	Casp12	Caspase 12
C07	Rn.198773	XM_234878	Casp14_predicted	Caspase 14 (predicted)
C08	Rn.1438	NM_022522	Casp2	Caspase 2
C09	Rn.10562	NM_012922	Casp3	Caspase 3, apoptosis related cysteine protease
C10	Rn.88160	NM_031775	Casp6	Caspase 6
C11	Rn.53995	NM_022260	Casp7	Caspase 7
C12	Rn.54474	NM_022277	Casp8	Caspase 8
D01	Rn.198715	XM_232860	Casp8ap2_predicted	Caspase 8 associated protein 2 (predicted)
D02	Rn.32199	NM_031632	Casp9	Caspase 9
D03	Rn.55946	NM_057138	Cflar	CASP8 and FADD-like apoptosis regulator

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Position	UniGene	GenBank	Symbol	Description
D04	Rn.8171	XM_214551	Cidea_predicted	Cell death-inducing DNA fragmentation factor, alpha subunit-like effector A (predicted)
D05	Rn.145275	XM_344410	Cideb_predicted	Cell death-inducing DNA fragmentation factor, alpha subunit-like effector B (predicted)
D06	Rn.85739	XM_235061	Cradd	CASP2 and RIPK1 domain containing adaptor with death domain (predicted)
D07	Rn.7262	NM_138910	Dad1	Defender against cell death 1
D08	Rn.23108	XM_225138	Dapk1_predicted	Death associated protein kinase 1 (predicted)
D09	Rn.6514	NM_053679	Dffa	DNA fragmentation factor, alpha subunit
D10	Rn.67077	NM_053362	Dffb	DNA fragmentation factor, beta subunit
D11	Rn.16183	NM_152937	Fadd	Fas (TNFRSF6)-associated via death domain
D12	Rn.106419	NM_080895	Faim	Fas apoptotic inhibitory molecule
E01	Rn.10250	NM_024127	Gadd45a	Growth arrest and DNA-damage-inducible 45 alpha
E02	Rn.9868	NM_012854	Il10	Interleukin 10
E03	Rn.48080	XM_341135	Lhx4_predicted	LIM homeobox protein 4 (predicted)
E04	Rn.160577	NM_080769	Lta	Lymphotoxin A
E05	Rn.19329	NM_001008315	Ltbr	Lymphotoxin B receptor
E06	Rn.44266	NM_053777	Mapk8ip	Mitogen activated protein kinase 8 interacting protein
E07	Rn.4067	NM_021846	Mcl1	Myeloid cell leukemia sequence 1
E08	Rn.2411	XM_342346	Nfkb1	Nuclear factor of kappa light chain gene enhancer in B-cells 1, p105
E09	Rn.86956	NM_053516	Nol3	Nucleolar protein 3 (apoptosis repressor with CARD domain)
E10	Rn.9346	NM_017141	Polb	Polymerase (DNA directed), beta
E11	Rn.2511	NM_017169	Prdx2	Peroxisiredoxin 2
E12	Rn.9757	NM_012630	Prlr	Prolactin receptor
F01	Rn.82766	NM_138852	Prok2	Prokineticin 2
F02	Rn.7817	NM_172322	Pycard	PYD and CARD domain containing
F03	Rn.102179	XM_342810	Ripk2	Receptor (TNFRSF)-interacting serine-threonine kinase 2
F04	Rn.41053	NM_001012066	Sphk2	Sphingosine kinase 2
F05	Rn.2275	NM_012675	Tnf	Tumor necrosis factor (TNF superfamily, member 2)
F06	Rn.105558	XM_344431	Tnfrsf10b_predicted	Tumor necrosis factor receptor superfamily, member 10b (predicted)
F07	Rn.9792	NM_012870	Tnfrsf11b	Tumor necrosis factor receptor superfamily, member 11b (osteoprotegerin)
F08	Rn.11119	NM_013091	Tnfrsf1a	Tumor necrosis factor receptor superfamily, member 1a
F09	Rn.83633	NM_130426	Tnfrsf1b	Tumor necrosis factor receptor superfamily, member 1b
F10	Rn.25180	NM_134360	Tnfrsf5	Tumor necrosis factor receptor superfamily, member 5
F11	Rn.162521	NM_139194	Tnfrsf6	Tumor necrosis factor receptor superfamily, member 6
F12	Rn.83627	NM_145681	Tnfsf10	Tumor necrosis factor (ligand) superfamily, member 10
G01	Rn.3211	NM_001001513	Tnfsf12	Tumor necrosis factor ligand superfamily member 12
G02	Rn.44218	NM_053353	Cd40lg	CD40 ligand
G03	Rn.9725	NM_012908	Faslg	Fas ligand (TNF superfamily, member 6)
G04	Rn.54443	NM_030989	Tp53	Tumor protein p53
G05	Rn.18545	XM_341671	Tradd	TNFRSF1A-associated via death domain
G06	Rn.136874	AI406530	Traf1	Transcribed locus, strongly similar to NP_033447.2 Tnf receptor-associated factor 1 [Mus musculus]
G07	Rn.105232	XM_231032	Traf2_predicted	Tnf receptor-associated factor 2 (predicted)
G08	Rn.53951	XM_343113	Traf3_predicted	Tnf receptor-associated factor 3 (predicted)
G09	Rn.3219	XM_220640	Traf4_predicted	Tnf receptor associated factor 4 (predicted)
G10	Rn.50333	XM_223012	Trp53bp2_predicted	Transformation related protein 53 binding protein 2 (predicted)
G11	Rn.42907	NM_019221	Trp63	Transformation related protein 63
G12	Rn.103860	XM_342992	Trp73_predicted	Transformation related protein 73 (predicted)
H01	Rn.973	NM_001007604	Rplp1	Ribosomal protein, large, P1
H02	Rn.47	NM_012583	Hprt	Hypoxanthine guanine phosphoribosyl transferase
H03	Rn.92211	NM_173340	Rpl13a	Ribosomal protein L13A
H04	Rn.107896	NM_017025	Ldha	Lactate dehydrogenase A
H05	Rn.94978	NM_031144	Actb	Actin, beta
H06	N/A	U26919	RGDC	Rat Genomic DNA Contamination
H07	N/A	SA_00104	RTC	Reverse Transcription Control
H08	N/A	SA_00104	RTC	Reverse Transcription Control
H09	N/A	SA_00104	RTC	Reverse Transcription Control
H10	N/A	SA_00103	PPC	Positive PCR Control
H11	N/A	SA_00103	PPC	Positive PCR Control
H12	N/A	SA_00103	PPC	Positive PCR Control