

TaqMan® Human Apoptosis Array

This array is part of a collection of TaqMan® Gene Signature Arrays that enable analysis of hundreds of TaqMan® Gene Expression Assays on a micro fluidic card with minimal effort.

Apoptosis, or programmed cell death, is a process fundamental to human biology and human disease. It is crucial in the development and homeostasis of a multicellular organism. For example, the importance of apoptosis has been demonstrated during embryogenesis, lymphocyte development and function, and response to DNA damage or stress. Although the body has several apoptotic pathways designed to eliminate malignant cells, the mutations that occur frequently render them ineffective. Defects in the regulation of immune cell apoptosis can result in autoimmune or malignant disease. Therapies that may induce apoptosis in cancer cells have potential for treating numerous types of cancer.

There are two distinct but convergent signaling pathways that initiate apoptosis in mammals [Strasser, 2005]. 1) The BCL-2-family-regulated pathway is regulated by the interactions of pro- and anti-apoptotic members of the BCL-2 family. 2) The death-receptor pathway is activated by ligations of proteins known as death receptors, such as CD95 or members of the TNFR (tumor-necrosis factor receptor) family that have an intracellular death domain or caspase recruitment domains (CARD). When the two signaling pathways converge, cell death is mediated by caspases. Expression levels of antiapoptotic proteins such as Bcl-2, Bcl-XL, and A1 appear to be regulated by the transcription factor NF- κ B [Heckman, 2002; Karin, 2002]. Besides inducing the expression of pro-survival Bcl-2 members, NF- κ B additionally transactivates a number of other antiapoptotic genes, such as the IAPs (inhibitors of apoptosis proteins) [Takahashi, 1998].

The TaqMan Human Apoptosis Array contains assays for 93 human genes in addition to three endogenous controls (18S, ACTB, GAPDH). The 93 genes are categorized in multiple target classes or pathways.

Target Class or Pathway

BCL-2 Family-regulated pathway

Death-receptor-regulated pathway

TNF Receptor pathway

Fas signalling pathway (CD95)

Caspase family

NF- κ B signalling pathway

p53 activation

IAP family

IAP inhibitor

CARD family

Kinases

References:

Strasser, A. The role of BH3-only proteins in the immune system. *Nat Rev Immunol* 2005;5:189–200.

Karin, M. and Lin, A. (2002). NF- κ B at the crossroads of life and death. *Nat Immunol* 3(3): 221–7.

Heckman, C.A., Mehew, J.W., and Boxer, L.M. (2002). NF- κ B activates Bcl-2 expression in t(14;18) lymphoma cells. *Oncogene* 21(24): 3898–908.

Takahashi, R., Deveraux, Q., Tamm, I., Welsh, K., Assa-Munt, N., Salvesen, G.S. and Reed, J.C. (1998). A single BIR domain of XIAP sufficient for inhibiting caspases. *J Biol Chem* 273(14): 7787–90.

Gene Signature Array Name	# of Targets/Controls	Format	Pack Size	Part Number
Human Apoptosis Array	93/3	Format 96a	4 arrays/pack	4378701

Human Apoptosis Array

A	BIRC2	BAK1	BCL3	CASP1	CASP2	CASP5	CASP7	CASP8	CASP9	IKKBK	18S	LTB	MCL1	NFKB1	NFKB2	NFKBIB	NFKBIE	PMAIP1	RELB	TNFRSF1B	TNFRSF10A	CARD4	NALP1	CASP14	1
B	BCL2L13	TNFRSF21	HTRA2	TBK1	ESRRBL1	LRDD	CARD15	CARD9	NFKBIZ	BCL2L14	BIRC7	CARD6	BIRC8	DEDD2	APAF1	BIRC3	BIRC4	BIRC5	FAS	FASLG	BAD	BAX	BCL2	BCL2A1	2
C	BCL2L1	BCL2L2	BIK	BNIP3L	BOK	CASP3	CASP6	CASP10	DAPK1	HIP1	BIRC1	NFKBIA	RELA	TNF	IKBKG	PEA15	TRADD	RIPK1	HRK	TNFSF10	FADD	TNFRSF10B	CFLAR	DEDD	3
D	BCL2L10	BCL2L11	BBC3	PYCARD	DIABLO	BIRC6	GAPDH	ACTB	CHUK	REL	TNFRSF1A	RIPK2	IKBKE	BCAP31	ICEBERG	TA-NFKBH	BID	BNIP3	CASP4	LTA	TNFRSF25	CRADD	BCL10	CASP8AP2	4
E	BIRC2	BAK1	BCL3	CASP1	CASP2	CASP5	CASP7	CASP8	CASP9	IKKBK	18S	LTB	MCL1	NFKB1	NFKB2	NFKBIB	NFKBIE	PMAIP1	RELB	TNFRSF1B	TNFRSF10A	CARD4	NALP1	CASP14	5
F	BCL2L13	TNFRSF21	HTRA2	TBK1	ESRRBL1	LRDD	CARD15	CARD9	NFKBIZ	BCL2L14	BIRC7	CARD6	BIRC8	DEDD2	APAF1	BIRC3	BIRC4	BIRC5	FAS	FASLG	BAD	BAX	BCL2	BCL2A1	6
G	BCL2L1	BCL2L2	BIK	BNIP3L	BOK	CASP3	CASP6	CASP10	DAPK1	HIP1	BIRC1	NFKBIA	RELA	TNF	IKBKG	PEA15	TRADD	RIPK1	HRK	TNFSF10	FADD	TNFRSF10B	CFLAR	DEDD	7
H	BCL2L10	BCL2L11	BBC3	PYCARD	DIABLO	BIRC6	GAPDH	ACTB	CHUK	REL	TNFRSF1A	RIPK2	IKBKE	BCAP31	ICEBERG	TA-NFKBH	BID	BNIP3	CASP4	LTA	TNFRSF25	CRADD	BCL10	CASP8AP2	8
I	BIRC2	BAK1	BCL3	CASP1	CASP2	CASP5	CASP7	CASP8	CASP9	IKKBK	18S	LTB	MCL1	NFKB1	NFKB2	NFKBIB	NFKBIE	PMAIP1	RELB	TNFRSF1B	TNFRSF10A	CARD4	NALP1	CASP14	1
J	BCL2L13	TNFRSF21	HTRA2	TBK1	ESRRBL1	LRDD	CARD15	CARD9	NFKBIZ	BCL2L14	BIRC7	CARD6	BIRC8	DEDD2	APAF1	BIRC3	BIRC4	BIRC5	FAS	FASLG	BAD	BAX	BCL2	BCL2A1	2
K	BCL2L1	BCL2L2	BIK	BNIP3L	BOK	CASP3	CASP6	CASP10	DAPK1	HIP1	BIRC1	NFKBIA	RELA	TNF	IKBKG	PEA15	TRADD	RIPK1	HRK	TNFSF10	FADD	TNFRSF10B	CFLAR	DEDD	3
L	BCL2L10	BCL2L11	BBC3	PYCARD	DIABLO	BIRC6	GAPDH	ACTB	CHUK	REL	TNFRSF1A	RIPK2	IKBKE	BCAP31	ICEBERG	TA-NFKBH	BID	BNIP3	CASP4	LTA	TNFRSF25	CRADD	BCL10	CASP8AP2	4
M	BIRC2	BAK1	BCL3	CASP1	CASP2	CASP5	CASP7	CASP8	CASP9	IKKBK	18S	LTB	MCL1	NFKB1	NFKB2	NFKBIB	NFKBIE	PMAIP1	RELB	TNFRSF1B	TNFRSF10A	CARD4	NALP1	CASP14	5
N	BCL2L13	TNFRSF21	HTRA2	TBK1	ESRRBL1	LRDD	CARD15	CARD9	NFKBIZ	BCL2L14	BIRC7	CARD6	BIRC8	DEDD2	APAF1	BIRC3	BIRC4	BIRC5	FAS	FASLG	BAD	BAX	BCL2	BCL2A1	6
O	BCL2L1	BCL2L2	BIK	BNIP3L	BOK	CASP3	CASP6	CASP10	DAPK1	HIP1	BIRC1	NFKBIA	RELA	TNF	IKBKG	PEA15	TRADD	RIPK1	HRK	TNFSF10	FADD	TNFRSF10B	CFLAR	DEDD	7
P	BCL2L10	BCL2L11	BBC3	PYCARD	DIABLO	BIRC6	GAPDH	ACTB	CHUK	REL	TNFRSF1A	RIPK2	IKBKE	BCAP31	ICEBERG	TA-NFKBH	BID	BNIP3	CASP4	LTA	TNFRSF25	CRADD	BCL10	CASP8AP2	8
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Port

More arrays will be available soon! Register to receive new Gene Signature Array product announcements, or suggest an array at taqmanarray.appliedbiosystems.com

For Research Use Only. Not for use in diagnostic procedures.

Practice of the patented 5' Nuclease Process requires a license from Applied Biosystems. The purchase of TaqMan® Human Apoptosis Array includes an immunity from suit under patents specified in the product insert to use only the amount purchased for the purchaser's own internal research when used with the separate purchase of an Authorized 5' Nuclease Core Kit. No other patent rights are conveyed expressly, by implication, or by estoppel. For further information on purchasing licenses contact the Director of Licensing, Applied Biosystems, 850 Lincoln Centre Drive, Foster City, California 94404, USA.

The TaqMan® Array is covered by U.S. Patents Nos. 6,514,750, 6,942,837, 7,211,443, and 7,235,406. Micro Fluidic Card developed in collaboration with 3M Company.

© Copyright 2008. Applied Biosystems. All rights reserved. Applera, Applied Biosystems, and AB (Design) are registered trademarks of Applera Corporation or its subsidiaries in the US and/or certain other countries. TaqMan is a registered trademark of Roche Molecular Systems, Inc.

Printed in the USA, 03/2008 Publication 127MI52-02



Headquarters
 850 Lincoln Centre Drive | Foster City, CA 94404 USA
 Phone 650.638.5800 | Toll Free 800.345.5224
www.appliedbiosystems.com

International Sales
 For our office locations please call the division headquarters or refer to our Web site at
www.appliedbiosystems.com/about/offices.cfm