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TaqMan® Human, Mouse, and Rat Endogenous Control Arrays

These arrays are 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.

Real-time PCR analysis of gene expression using the delta-delta C_T (comparative-C_T) method requires the use of a gene target endogenous to the sample being studied. The endogenous control gene can be used to normalize the variability in the experiment due to inaccurate pipetting and different amounts of input cDNA in each well. It is important to find a proper endogenous control that is invariably expressed in the different samples being compared. The easiest way to find the proper control is to perform a real-time PCR experiment on an endogenous control array to determine which genes are expressed similarly in all samples.

TaqMan® Endogenous Control Arrays are designed to simplify the selection of endogenous controls for gene expression studies in human, mouse, or rat. Each species-specific array contains both commonly used housekeeping genes and genes that exhibit minimal differential expression across 16 different tissues.

Genes represented in each of the arrays for human, mouse, and rat.

Human	Mouse	Rat
18S rRNA	18S rRNA	18S rRNA
ACTB	actb	Actb
B2M	b2m	Arbp
GAPD	gapdh	B2m
GUSB	gusb	Gapdh
HMBS	hmbs	Gusb
HPRT1	hprt1	Hmbs
IPO8	ipo8	Hprt
PGK1	pgk1	Pgk1
POLR2A	polr2a	Ppia
PPIA	ppia	Ppib
RPLPO	rplp2	Rplp2
TBP	tbp	Tbp
TFRC	tfrc	Tfrc
UBC	ubc	Ubc
YWHAZ	ywhaz	Ywhaz

TaqMan® Gene Signature Arrays

Gene Signature Array Name	# of Targets/Controls	Format	Pack Size	Part Number
Human Endogenous Control Array	16	Format 16	2 arrays/pack	4367563
Mouse Endogenous Control Array	16	Format 16	2 arrays/pack	4378702
Rat Endogenous Control Array	16	Format 16	2 arrays/pack	4378704

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

Human Endogenous Control Array

	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
A	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	1
B	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
C	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	2
D	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
E	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	3
F	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
G	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	4
H	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
I	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	5
J	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
K	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	6
L	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
M	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	7
N	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	
O	18S	18S	18S	ACTB	ACTB	ACTB	B2M	B2M	B2M	GAPD	GAPD	GAPD	GUSB	GUSB	GUSB	HMBS	HMBS	HMBS	HPRT1	HPRT1	HPRT1	IPO8	IPO8	IPO8	8
P	PGK1	PGK1	PGK1	POLR2A	POLR2A	POLR2A	PPIA	PPIA	PPIA	RPLPO	RPLPO	RPLPO	TBP	TBP	TBP	TFRC	TFRC	TFRC	UBC	UBC	UBC	YWHAZ	YWHAZ	YWHAZ	

Mouse Endogenous Control Array

	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
A	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	1
B	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
C	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	2
D	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
E	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	3
F	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
G	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	4
H	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
I	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	5
J	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
K	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	6
L	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
M	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	7
N	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	
O	tfrc	tfrc	tfrc	tbp	tbp	tbp	hprt1	hprt1	hprt1	18S	18S	18S	gusb	gusb	gusb	b2m	b2m	b2m	pgk1	pgk1	pgk1	gapdh	gapdh	gapdh	8
P	ppia	ppia	ppia	actb	actb	actb	rplp2	rplp2	rplp2	ipo8	ipo8	ipo8	polr2a	polr2a	polr2a	ubc	ubc	ubc	ywhaz	ywhaz	ywhaz	hmbs	hmbs	hmbs	

Rat Endogenous Control Array

	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
A	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	1
B	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
C	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	2
D	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
E	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	3
F	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
G	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	4
H	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
I	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	5
J	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
K	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	6
L	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
M	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	7
N	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	
O	Actb	Actb	Actb	Arbp	Arbp	Arbp	B2m	B2m	B2m	18S	18S	18S	Gapdh	Gapdh	Gapdh	Gusb	Gusb	Gusb	Ppia	Ppia	Ppia	Ppib	Ppib	Ppib	8
P	Hprt	Hprt	Hprt	Tbp	Tbp	Tbp	Hmbs	Hmbs	Hmbs	Ywhaz	Ywhaz	Ywhaz	Pgk1	Pgk1	Pgk1	Rplp2	Rplp2	Rplp2	Tfrc	Tfrc	Tfrc	Ubc	Ubc	Ubc	

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