

Amplification Products for PCR and RT-PCR

Dual Quantitative RT-PCR

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- ◆ Cost Effective
- ◆ Quantitative
- ◆ Co-amplification with a housekeeping gene
- ◆ Avoid Sample-to-sample variation
- ◆ Minimize Contamination
- ◆ Maximize Outcome in a single tube

Dual Quantitative RT-PCR improves upon current RT-PCR technology by providing a relatively quantitative analysis of gene expression. Dual Quantitative RT-PCR kit was developed and based on proprietary, patented multiplex PCR (MPCR) technology. The duality of the kit derives from the dual amplification of one target specific gene alongside a well-defined housekeeping gene. To compensate for differences in quality between various RNA samples, the amount of product from the gene of interest is normalized against the product from the constant endogenous control gene. The user need only to select a proper housekeeping gene whose expression level does not change in response to treatment. The following housekeeping genes are available :

Gene	Amplicon Size	Temperature	GenBank Accession #
18S (S)	489 bp	58°C	X03205
b-Actin (B)	474 bp	58°C	X00351
GAPDH (G)	563 bp	58°C	M33197
L32 (L)	143 bp	58°C	X03342
Phospholipase A2 (P)	483 bp	58°C	M86400
Transferrin Receptor (T)	484 bp	58°C	M11507

Cat.#	Species	AmpGene	GenBank	cDNA
T53100	Human	Angiopoietin-1	U83508.1	Yes
T53110	Human	Angiopoietin-2	NM_001147	Yes
T53120	Human	ApaF1	AF013263	Yes
T53140	Human	BAD	AF031523, U66879	Yes
T53150	Human	Bax-alpha gene	L22473	Yes
T53180	Human	Bcl-2	M14745	Yes
T53210	Human	Casp-1	M87507	Yes
T53220	Human	Casp-2	U13021(S), U13022 (L)	Yes
T53230	Human	Casp-3	U13737	Yes
T53240	Human	Casp-4	U25804	Yes
T53250	Human	Casp-5	U28015	Yes
T53260	Human	Casp-6	U20536	Yes
T53270	Human	Casp-7	U37448	Yes
T53280	Human	Casp-8	NM_001228	Yes
T53290	Human	Casp-9	U56390	Yes
T53300	Human	Casp-10	U60519	Yes
T53420	Human	CCR-1	L10918, L09230	Yes
T53430	Human	CCR-2a	D29984	Yes
T53440	Human	CCR-2b	U95626	Yes
T53450	Human	CCR-3	U28694	Yes
T53460	Human	CCR-4	X85740	Yes
T53470	Human	CCR-5	U54994, U57840	Yes
T53480	Human	CCR-6	U45984	Yes
T53490	Human	CCR-7	L08176	Yes
T53500	Human	CCR-8	U45983	Yes
T53510	Human	CCR-11	U45982	Yes
T53610	Human	CD3	NM_000732.1	Yes
T53620	Human	CD4	M12807.1	Yes
T53630	Human	CD8	NM_001768.1	Yes
T53640	Human	CD14	M86511.1	Yes
T53650	Human	CD19	M21097.1	Yes
T53660	Human	CD45	Y00062.1	Yes
T53670	Human	CXCR-1 & 2	M68932	Yes
T53680	Human	CXCR-3	X95876	Yes
T53690	Human	CXCR-4	L06797	Yes
T53740	Human	EGFR	X00588	Yes
T53750	Human	Fadd	U24231	Yes
T53760	Human	FAK	L13616	Yes
T53770	Human	FAS	M67454	Yes
T53780	Human	Fas Ligand Gene	D38122, U08137	Yes
T53810	Human	basic fibroblast growth factor	NM_002006	Yes
T53830	Human	FOS gene	V01512, K00650	Yes
T53840	Human	GM-CSF Receptor	M73832	Yes



Fig 1. Competitor vs. Dual Quantitative RT-PCR. Competitor RT-PCR amplification with 1: 2, 1:3, 1:4, 1:5, 1:6, 1:7, 1:8 and 1:9 ration of competitor. Lane 1-8 : amplicons of 1:2 to 1:9 competitor
M : 100 bp DNA M.W. Marker
9 : Dual Quantitative RT-PCR
10 : Amplicon of single housekeeping gene
11 : Amplicon of single target specific gene

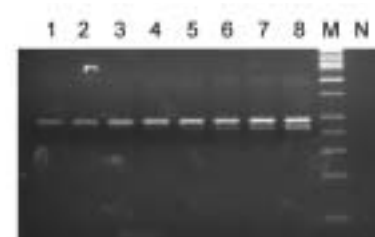


Fig 2. Amplicons of various cycle numbers. Dual RT-PCR amplification with 106 housekeeping gene and 102 target specific gene were analyzed every two cycles. Lane 1-8 : amplicons of cycle 16-30
M : 100 bp DNA M.W. Marker
N : Negative control

Kit Components :

- Premixed target specific primers
- Premixed internal HKG primers
- Positive control of target and housekeeping genes
- Optimized Dual PCR buffer (including chemicals, enhancer, stabilizer and dNTPs)
- ddH₂O
- Instruction Manual

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T53870	Human	ICAM-1	J03132	Yes
T53900	Human	Interferon Alpha	V00544	Yes
T53910	Human	Interferon Beta	M25460	Yes
T53920	Human	Interferon Gamma	M29383	Yes
T53980	Human	IL-1, beta	M15330	Yes
T53990	Human	IL-2	V00564	Yes
T54000	Human	IL-3	M14743	Yes
T54010	Human	IL-4	M13982	Yes
T54020	Human	IL-5	X04688	Yes
T54030	Human	IL-6	M14584	Yes
T54040	Human	IL-8	Y00787	Yes
T54050	Human	IL-10	M57627	Yes
T54060	Human	IL-10	M57627	Yes
T54070	Human	IL-13	X69079	Yes
T54080	Human	IL-12, P35 subunit	M65271, M38443	Yes
T54090	Human	IL-12, p40 subunit	M65272, M38444	Yes
T54370	Human	MCP-1	S71513	Yes
T54380	Human	MCP-2	NM_005623	Yes
T54390	Human	MMP-1	U41078	Yes
T54400	Human	MMP-2	J03210	Yes
T54410	Human	MMP-3	J03209	Yes
T54420	Human	MMP-7	BC003635	Yes
T54430	Human	MMP-9	J05070	Yes
T54440	Human	MMP-13	X75308	Yes
T54450	Human	c-myc	V00568, J00120	Yes
T54480	Human	NF-AT Factor	U85428	Yes
T54490	Human	NF kappa-b Factor, P65	M62399	Yes
T54500	Human	NF-ATc Factor	U08015	Yes
T54510	Human	Endothelial cNOS	M93718	Yes
T54520	Human	Inducible NOS	U05810	Yes
T54530	Human	Brain cNOS	D16408	Yes
T54560	Human	OCT-2 Factor	X53468	Yes
T54570	Human	Rantes	NM_002985	Yes
T54580	Human	SDF-1a	L36034	Yes
T54590	Human	SGP-2	M25915; D14077	Yes
T54610	Human	Alpha-Tubulin Gene	K00558	Yes
T54620	Human	TGF-a	M31172	Yes
T54630	Human	TGF-b1	X02812	Yes
T54640	Human	TGF-b2	M19154	Yes
T54650	Human	TGF-b3	J03241	Yes
T54660	Human	TGF-b Receptor	L07594	Yes
T54690	Human	TIE	L06139.1	Yes
T54700	Human	TIE-2	AB021221, AF214570	Yes
T54710	Human	Toll-like receptor 1	U88540	Yes
T54720	Human	Toll-like receptor 2	U88878	Yes
T54730	Human	Toll-like receptor 3	U88879	Yes
T54740	Human	Toll-like receptor 4	U88880	Yes
T54750	Human	Toll-like receptor 5	U88881	Yes
T54760	Human	TNF-alpha	M10988	Yes
T54770	Human	TNF-Alpha Receptor I	M63121, M75861	Yes
T54780	Human	TNF-Alpha Receptor II	M55994, M38549	Yes
T54820	Human	TCR-a	U51444.1	Yes
T54830	Human	Tradd	L41690	Yes
T54840	Human	Trail	U37518	Yes
T54850	Human	Tryptase	M33494	Yes
T54860	Human	G-prot. V28	U20350	Yes
T54870	Human	VEGF	AF063657	Yes
T54880	Human	VEGF	AF035121	Yes
T54890	Human	VEGF-C	AB021221, AF214570	Yes
T54900	Human	VEGF receptor flk-1	X68203.1	Yes
T54910	Human	VEGF receptor flt-1	NM_005424.1	Yes
T54920	Human	VEGF receptor flt4	NM_005429.1	Yes
T54940	Human	IL-1, alpha	M15329	Yes
T53130	Mouse	Apaf1	NM_009684.1	Yes
T53160	Mouse	Bax-alpha gene	L22472	Yes
T53190	Mouse	Bcl-2	M16506	Yes
T53310	Mouse	Casp-1	L28095	Yes
T53320	Mouse	Casp-2	NM_007610.1	Yes
T53330	Mouse	Casp-3	U54803, D86352	Yes
T53340	Mouse	Casp-8	AF067834.1	Yes
T53350	Mouse	Casp-9	NM_015733	Yes
T53520	Mouse	CCR-1	L10918, L09230	Yes
T53530	Mouse	CCR-2	D29984	Yes
T53540	Mouse	CCR-3	U28694	Yes
T53550	Mouse	CCR-4	X85740	Yes
T53560	Mouse	CCR-5	U57840	Yes

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T53570	Mouse	CCR-6	AB009369	Yes
T53580	Mouse	CCR-7	L31580	Yes
T53590	Mouse	CCR-8	Z98206	Yes
T53600	Mouse	CCR-9	Y12879	Yes
T53700	Mouse	CXCR-1 & 2	L23637	Yes
T53710	Mouse	CXCR-3	AF045146	Yes
T53720	Mouse	CXCR-4	U59760	Yes
T53730	Mouse	CXCR-5	X71788	Yes
T53790	Mouse	Fas gene	M83649	Yes
T53800	Mouse	Fas Ligand Gene	U58995	Yes
T53850	Mouse	GM-CSF	X03221	Yes
T53930	Mouse	Interferon Gamma	K00083	Yes
T53960	Mouse	IkB beta factor	U19799	Yes
T54930	Mouse	IL-1, alpha	X01450	Yes
T54100	Mouse	IL-1, beta	M15131	Yes
T54110	Mouse	IL-2	X01772	Yes
T54120	Mouse	IL-2	K02292, M16761	Yes
T54130	Mouse	IL-3	K01850	Yes
T54140	Mouse	IL-4	M25892	Yes
T54150	Mouse	IL-5	X06270	Yes
T54160	Mouse	IL-6	J03783	Yes
T54170	Mouse	IL-10	M37897	Yes
T54180	Mouse	IL-13	M23504	Yes
T54190	Mouse	IL-15	AJ012587	Yes
T54200	Mouse	IL-18	E17139.1	Yes
T54210	Mouse	IL-12, P35 subunit	M86672	Yes
T54220	Mouse	IL-12, p40 subunit	M86671	Yes
T54460	Mouse	c-myc	X01023	Yes
T54540	Mouse	NOS (Inducible)	M87039	Yes
T54600	Mouse	SGP-2	M25915; D14077	Yes
T54670	Mouse	TGF-b	M13177	Yes
T54790	Mouse	TNF-alpha	M13049	Yes
T53170	Rat	Bax-alpha gene	U49729	Yes
T53200	Rat	Bcl-2	L14680	Yes
T53360	Rat	Casp-1	NM_012762.1	Yes
T53370	Rat	Casp-2	AF136231.1	Yes
T53380	Rat	Casp-3	U84410	Yes
T53390	Rat	Casp-6	AF025670.1	Yes
T53400	Rat	Casp-8	AF279308.1	Yes
T53410	Rat	Casp-9	AF262319.1	Yes
T53820	Rat	basic Fibroblast growth factor	X07285.1	Yes
T53860	Rat	GM-CSF	U00620	Yes
T53880	Rat	ICAM-1	D00913	Yes
T53940	Rat	Interferon Gamma	AF010466	Yes
T53970	Rat	IkabB Factor, RL/IF-1 Gene	X63594;	Yes
T54230	Rat	IL-1, beta	M98820	Yes
T54241	Rat	IL-2	M22899	Yes
T54250	Rat	IL-4	X16058	Yes
T54260	Rat	IL-5	X54419	Yes
T54270	Rat	IL-6	M26744	Yes
T54280	Rat	IL-10	L02926	Yes
T54300	Rat	IL-12, p40 subunit	U16674	Yes
T54290	Rat	IL-13	L26913	Yes
T54470	Rat	c-myc	Y00396.1	Yes
T54550	Rat	NOS - Inducible)	NM_012611	Yes
T54680	Rat	TGF-b1	X52498	Yes
T54800	Rat	TNF-alpha	X66539	Yes
T53890	Dog	ICAM-1	L31625	Yes
T54340	Dog	IL-1, beta	Z70047	Yes
T54350	Dog	IL-6	U12234	Yes
T54360	Dog	IL-10	U33843	Yes
T54810	Dog	TNF-alpha	Z70046	Yes
T53950	Pig	IFN-r	S63967	Yes
T54310	Pig	IL-2	X58428	Yes
T54320	Pig	IL-4	L12991	Yes
T54330	Pig	IL-10	L20001	Yes
FL0200	Chlamydia	cryptic plasmid	X06707	
FL0180	HPV	L1 Region	K02178, J04353	

For order, please precise the housekeeping gene code, GAPDH, 18S, T-Transferrin Receptor, P-Phospholipase A2, L32.