

Supporting Information

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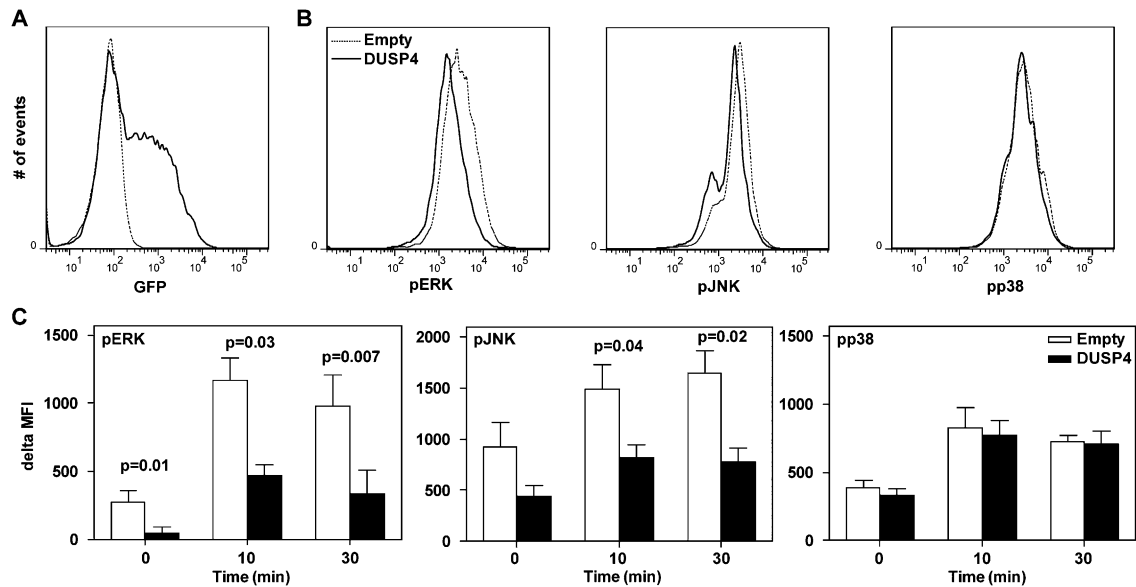


Fig. S1. Activation-induced MAPK phosphorylation in T cells transfected with *dual-specific phosphatase 4 (DUSP4)*. CD4 T cells were transfected with the pEGFP-N1 vector expressing *DUSP4* and stimulated by anti-CD3 cross-linking. (A) The histogram of GFP expression shows transfection efficiency. The solid line represents DUSP4-pEGFP-N1-transfected cells, and the dotted line represents untransfected cells. (B and C) ERK, JNK, and p38 phosphorylation was determined by Phosflow at indicated time points. (B) A representative histogram of GFP-gated cells and (C) bar graphs summarizing the results from four experiments are shown.

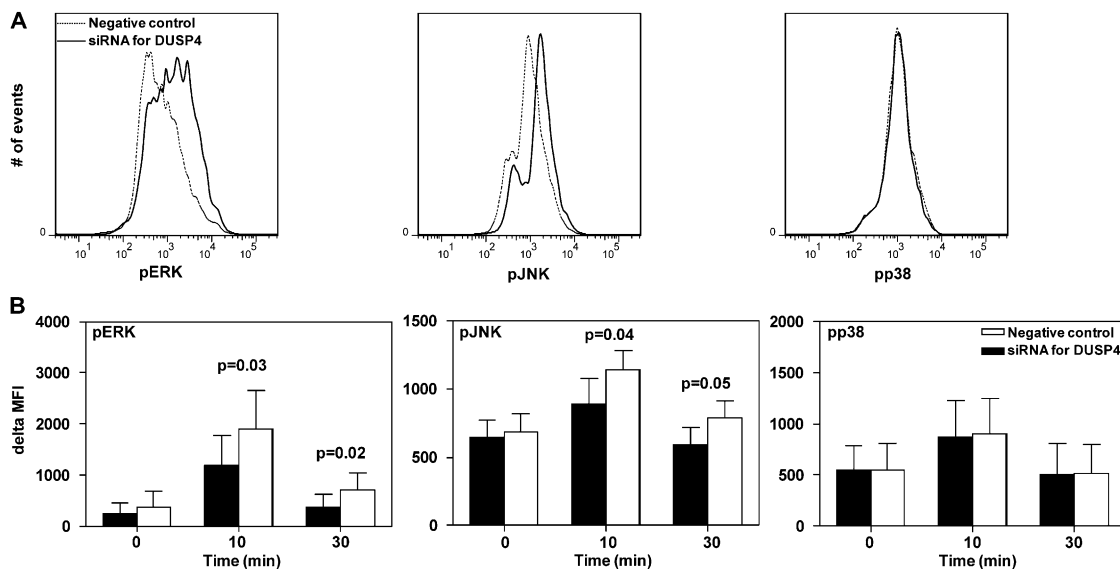


Fig. S2. Effect of DUSP4 silencing after T-cell activation on MAPK phosphorylation. CD4 T cells transfected with DUSP4-specific (closed bars) or control (open bars) siRNAs were stimulated by CD3/CD28 cross-linking for 48 h and then restimulated by CD3 cross-linking. ERK, JNK, and p38 phosphorylation was assessed by Phosflow at indicated time points after restimulation. Results are shown as (A) representative histograms and (B) bar graphs summarizing four experiments with cells from one young and three older adults.

Table S1. Age-dependent gene expression in CD4 memory T-cell responses: Genes differentially expressed at 40 and 72 h after T-cell activation

Expression with age increased		Expression with age decreased	
Accession no.	Gene	Accession no.	Gene
AL035604	—	NM_018678.1	C14orf117
BG251521	—	NM_001889	CRYZ
AF098951	ABCG2	NM_000104 and AU144855	CYP1B1
NM_001144	AMFR	NM_001415	EIF2S3
NM_001674	ATF3	BC000751	EIF5A
NM_000051	ATM	NM_006144	GZMA
BC000006	ATP1B1	AI761561	HK2
NM_012108	BRDG1	NM_018402	IL26
AL535380	BTG1	U10485	LRMP
BE962354	C10orf61	BF038366	MAC30
NM_022831	C1orf80	AL096842	MTUS1
BE465032	C6orf62	AI457120	PPAT
NM_005508	CCR4	NM_007319	PSEN1
NM_001874	cpm	NM_004161	RAB1A
AI373676	CSPG6	BG289967	RAD21
NM_006419	CXCL13	AB032261	SCD
U73531	CXCR6	NM_006924	SFRS1
NM_000110	DPYD	AU154486	SMC2L1
NM_001394	DUSP4	BE866412	ST13
NM_001776 and U87967	ENTPD1	NM_003201	TFAM
AV717590	FLJ34077	NM_006815	TMED2
NM_014710	GPRASP1	AF113682	TMPO
AK024258	HBS1L		
X00452	HLA-DQA1		
AI819238	ID2		
AL049265	IL6ST		
NM_000590	IL9		
M34455	INDO		
NM_002301	LDHC		
BG256504	LOC23117		
AI582773	LOC440996		
NM_004994	MMP9		
BF217861	MT1E		
BF246115 and M10943	MT1F		
NM_005951	MT1H		
NM_005952 and NM_005952	MT1X		
NM_005953	MT2A		
AL523380	MTF2		
AJ005683	NFAT5		
U01351	NR3C1		
NM_006186 and S77154	NR4A2		
AB007923	PDE4DIP		
AA576961	PHLDA1		
AF065214	PLA2G4C		
NM_002674	PMCH		
AL037339	PTK2		
NM_014241	PTPLA		
NM_012413	QPCT		
NM_014059	RGC32		
BF304996	RGS16		
AA541630	RUNX3		
W84482	RYBP		
NM_013352	SART2		
AI971258	SIAH1		
AI972416	SLC30A1/Znt1		
NM_003563	SPOP		
NM_003254	TIMP1		
NM_003807	TNFSF14		
NM_006398	UBD		
NM_023926	ZNF447		

Table S2. Primer sequences for real-time PCR

Gene	Forward primer sequence (5'-3')	Reverse primer sequence (5'-3')
Human DUSP4	TGGCAATAAGGACTCCGAATA	GGATCTGTGGGTTTCATCACT
Human CD40L	GCCAGTTTGAAGGCTTTGTG	ACTTATGACATGTGCCGCAA
Human IL-4	CACCGAGTTGACCGTAACAG	AGTGTCTTTCATGGTGCC
Human ICOS	CCATAGGATGTGCAGCCTTTG	GGTCGTGCACACTGGATGAA
Human CD69	TCTCAATGCCATCAGACA	GACAGCAAGAGTAGCACC
Human IL-17A	CACTGCTACTGCTGCTGA	TTCCGGTTATGGATGTTT
Human IL-21	AAACCACCTTCCACAAATGC	AGAGGACAGATGCTGATGAATC
Human E47	TGTGCCAACTGCACCTCAA	GGGATTCAGGTTCCGCTCTC
Human EGR-1	AGCCCTACGAGCACCTGAC	GTTTGCTGGGGTAACTGGT
18s ribosomal RNA	AGGAATCCCAAGTAAGTGCG	GCCTCACTAAACCATCCAA