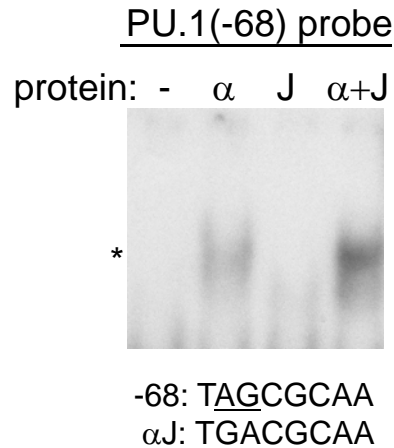
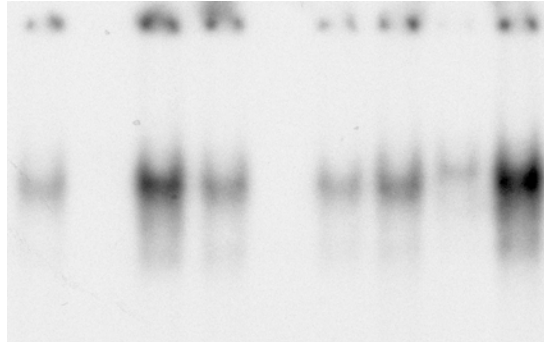


**Figure S1.** c-Jun and c-Fos expressed in 293T cells were mixed at a 1:1 ratio and incubated with radio-labelled JJ probe containing TGACGTCA. No antisera, c-Jun antisera, or c-Fos antisera was then added and samples were subjected to gel electrophoresis and autoradiography. Arrows denote super-shift bands, indicating cooperative c-Jun:c-Fos binding.



**Figure S2.** A radiolabeled oligonucleotide centered at -68 in the murine PU.1 promoter was subjected to gel shift assay with no protein (-) or with *in vitro* translated C/EBP $\alpha$  ( $\alpha$ ), c-Jun (J), or C/EBP $\alpha$  + c-Jun ( $\alpha$ +J, 1:8 mole ratio). The sequence of the PU.1(-68) site, which is identical in the human PU.1 promoter, is compared to the  $\alpha$ J consensus (below). Note synergistic binding of C/EBP $\alpha$  and c-Jun to this site functional in the PU.1 promoter.

probe: TGATGCAA TGTTGCAA TGACGCAA  
protein:  $\alpha$  J  $\alpha$ +J  $\alpha$  J  $\alpha$ +J  $\alpha$  J  $\alpha$ +J



**Figure S3.** *In vitro* translated, myc-tagged C/EBP $\alpha$  ( $\alpha$ ), c-Jun (J), or C/EBP $\alpha$ +c-Jun ( $\alpha$ +J, at a 1:8 ratio) were used in gel shift reactions with the consensus  $\alpha$ J probe containing TGACGCAA (right lanes) or with these base pairs replaced by TGATGCAA or TGTTGCAA (left or center lanes). Note synergistic binding to either TGACGCAA or TGATGCAA and stronger C/EBP $\alpha$  + c-Jun binding to TGACGCAA.

**Table S1** – Human genes harboring TGACGCAA between -2 kb to + 1 kb

<b>Chromosome</b>	<b>Strand</b>	<b>Position</b>	<b>Gene name</b>	<b>Descriptive name</b>
1	+	15676474	ELA2B	elastase family member 2B
1	-	19409404	ZUBR1	ubiquitin protein ligase 3 component
1	+	148305958	VPS45A	vacuolar protein sorting 45A
1	-	926141	HES4	hairy and enhancer of split 4 (Drosophila)
1	+	1387682	ATAD3C	ATPase family, AAA domain containing 3C
1	-	3808366	C1orf174	chromosome 1 open reading frame 174
1	-	10948419	C1orf127	chromosome 1 open reading frame 127
1	-	10974173	LOC390996	cofilin-1-like
1	+	10994630	TARDBP	TAR DNA binding protein
1	-	11083561	EXOSC10	exosome component 10
1	+	12629080	AADACL4	arylacetamide deacetylase-like 4
1	-	15723467	CASP9	caspace 9, apoptosis-related cysteine peptidase
1	+	15724122	DNAJC16	DnaJ (Hsp40) homolog, subfamily C, member 16
1	+	15957378	FBLIM1	filamin binding LIM protein 1
1	+	21640433	NBPF3	neuroblastoma breakpoint family, member 3
1	+	22852461	C1QB	complement component 1, q subcomponent, B chain
1	-	23394575	HTR1D	5-hydroxytryptamine (serotonin) receptor 1D
1	+	23890547	RPL11	ribosomal protein L11
1	-	25165925	RUNX3	runt-related transcription factor 3
1	+	26221388	EXTL1	exostoses (multiple)-like 1
1	-	33274200	AK2	adenylate kinase 2
1	+	36462460	THRAP3	thyroid hormone receptor associated protein 3
1	-	36702630	MRPS15	mitochondrial ribosomal protein S15
1	+	40495647	ZMPSTE24	zinc metallopeptidase (STE24 homolog, <i>S. cerevisiae</i> )
1	+	40689274	ZNF643	zinc finger protein 643
1	+	44216574	B4GALT2	UDP-Gal:betaGlcNAc beta 1,4- galactosyltransferase, 2
1	+	45821797	NASP	nuclear autoantigenic sperm protein (histone-binding)
1	-	46437708	POMGNT1	protein O-linked mannose b1,2-N-acetylglucosaminyl transferase
1	+	46579406	NSUN4	NOP2/Sun domain family, member 4
1	+	61892624	MGC34796	SPR pseudogene
1	+	61980282	INADL	InaD-like (Drosophila)
1	+	70650547	CTH	cystathionase (cystathionine gamma-lyase)
1	+	109067082	FNDC7	fibronectin type III domain containing 7
1	-	114855504	TRIM33	tripartite motif-containing 33
1	+	115198155	SYCP1	synaptonemal complex protein 1
1	-	116111949	CASQ2	calsequestrin 2 (cardiac muscle)
1	-	117467000	TRIM45	tripartite motif-containing 45
1	+	143806944	SEC22B	SEC22 vesicle trafficking protein homolog B ( <i>S. cerevisiae</i> )
1	+	147872464	FAM91A2	family with sequence similarity 91, member A2
1	-	148868387	ENSA	endosulfine alpha
1	+	152229806	RPS27	ribosomal protein S27
1	-	152866346	ADAR	adenosine deaminase, RNA-specific
1	-	154942749	CRABP2	cellular retinoic acid binding protein 2

1	+	158017071	DUSP23	dual specificity phosphatase 23
1	+	159354486	NIT1	nitrilase 1
1	+	161026985	HSD17B7	hydroxysteroid (17-beta) dehydrogenase 7
1	+	181871795	RGL1	ral guanine nucleotide dissociation stimulator-like 1
1	-	191343459	GLRX2	glutaredoxin 2
1	-	196011644	DENND1B	DENN/MADD domain containing 1B
1	-	201163009	KLHL12	kelch-like 12 (Drosophila)
1	+	204484381	CTSE	cathepsin E
1	+	209567456	TRAF5	TNF receptor-associated factor 5
1	+	234623784	EDARADD	EDAR-associated death domain
1	+	246149809	OR2T8	olfactory receptor, family 2, subfamily T, member 8
1	+	246178294	OR2L8	olfactory receptor, family 2, subfamily L, member 8
2	+	30523564	LYCAT	lysocardiolipid acetyltransferase 1
2	+	5751803	SOX11	SRY (sex determining region Y)-box 11
2	-	10507721	ODC1	ornithine decarboxylase 1
2	+	27202137	ABHD1	abhydrolase domain containing 1
2	+	46622972	RHOQ	ras homolog gene family, member Q
2	+	71058770	ANKRD53	ankyrin repeat domain 53
2	+	71147683	NAGK	N-acetylglucosamine kinase
2	-	75792114	C2orf3	chromosome 2 open reading frame 3
2	-	100293744	LONRF2	LON peptidase N-terminal domain and ring finger 2
2	+	127131333	GYPC	glycophorin C (Gerbich blood group)
2	-	169597350	ABCB11	ATP-binding cassette, sub-family B (MDR/TAP), member 11
2	+	170149047	PPIG	peptidylprolyl isomerase G (cyclophilin G)
2	+	171493187	GORASP2	golgi reassembly stacking protein 2, 55kDa
2	+	173128570	PDK1	pyruvate dehydrogenase kinase, isozyme 1
2	-	177837832	NFE2L2	nuclear factor (erythroid-derived 2)-like 2
2	-	188023089	CALCRL	calcitonin receptor-like
2	-	216009456	FN1	fibronectin 1
2	-	219882491	PTPRN	protein tyrosine phosphatase, receptor type, N
2	-	239987736	HDAC4	histone deacetylase 4
2	+	241903947	SEPT2	septin 2
3	+	129927606	RAB7	Ras family member
3	+	169751447	MIRN551B	micro-RNA 551B
3	+	9719887	CPNE9	copine family member IX
3	+	16281526	OXNAD1	oxidoreductase NAD-binding domain containing 1
3	+	42827188	CCBP2	chemokine binding protein 2
3	+	44780240	KIF15	kinesin family member 15
3	+	48931253	ARIH2	ariadne homolog 2 (Drosophila)
3	-	50311986	NAT6	N-acetyltransferase 6 (GCN5-related)
3	+	52254439	PPM1M	protein phosphatase, Mg <sup>2+</sup> /Mn <sup>2+</sup> dependent, 1M
3	+	62278839	C3orf14	chromosome 3 open reading frame 14
3	+	75791516	LOC643255	retinoic acid receptor responder protein 2-like
3	-	102878694	ZBTB11	zinc finger and BTB domain containing 11
3	+	124402373	SEC22A	SEC22 vesicle trafficking protein homolog A (S. cerevisiae)
3	+	138964839	SOX14	SRY (sex determining region Y)-box 14
3	-	171014521	LRRC34	leucine rich repeat containing 34
3	+	171424056	PRKCI	protein kinase C, iota

3	+	199163205	RPL35A	ribosomal protein L35a
4	+	123519977	Tenr	tenascin-R
4	-	659156	ATP5I	ATP synthase, H <sup>+</sup> transporting, mitochondrial Fo complex, E
4	+	39136977	LIAS	lipoic acid synthetase
4	+	39777109	N4BP2	NEDD4 binding protein 2
4	+	48528033	OCIAD1	OCIA domain containing 1
4	-	56198396	NMU	neuromedin U
4	-	68093207	CENPC1	centromere protein C 1
4	-	74154408	COX18	COX18 cytochrome c oxidase assembly homolog
4	+	81326015	PRDM8	PR domain containing 8
4	+	95347774	SMARCAD1	SWI/SNF-related, matrix-associated actin-dependent regulator of chromatin, subfamily a, containing DEAD/H box 1
4	+	109761117	RPL34	ribosomal protein L34
4	+	120029386	SYNPO2	synaptopodin 2
4	+	159812848	ETFDH	electron-transferring-flavoprotein dehydrogenase
5	-	137939314	HSPA9B	heat shock protein 9 (mortalin)
5	+	139997941	PRO1580	transmembrane coiled-coil protein 6
5	-	168129578	MIRN218-2	micro-RNA 218-2
5	-	178983359	HNRPH1	heterogeneous nuclear protein H1
5	+	14732096	FAM105B	family with sequence similarity 105, member B
5	-	35265733	PRLR	prolactin receptor
5	+	43227831	MGC42105	serine/threonine-protein kinase NIM1
5	+	44844683	MRPS30	mitochondrial ribosomal protein S30
5	+	76286090	CRHBP	corticotropin releasing hormone binding protein
5	-	79588899	SERINC5	serine incorporator 5
5	-	114627054	PGGT1B	protein geranylgeranyltransferase type I, beta subunit
5	-	115181025	CDO1	cysteine dioxygenase, type I
5	+	128329015	SLC27A6	solute carrier family 27 (fatty acid transporter), member 6
5	+	137830147	EGR1	early growth response 1
5	-	140663016	SLC25A2	solute carrier family 25 (mitochondrial ornithine transporter), 2
5	-	150060876	RBM22	RNA binding motif protein 22
5	-	157012080	SOX30	SRY (sex determining region Y)-box 30
6	+	17707160	FAM8A1	family with sequence similarity 8, member A1
6	-	26039532	SLC17A2	solute carrier family 17 (sodium phosphate), member 2
6	+	26349362	HIST1H4F	histone cluster 1, H4f
6	+	26705135	ABT1	activator of basal transcription 1
6	-	30266675	TRIM10	tripartite motif-containing 10
6	+	30693502	MRPS18B	mitochondrial ribosomal protein S18B
6	+	35335071	ZNF76	zinc finger protein 76 (expressed in testis)
6	+	36104109	MAPK14	mitogen-activated protein kinase 14
6	+	36517341	KCTD20	potassium channel tetramerisation domain containing 20
6	-	52736832	GSTA2	glutathione S-transferase alpha 2
6	-	52819449	GSTA5	glutathione S-transferase alpha 5
6	-	53122375	GCM1	glial cells missing homolog 1 (Drosophila)
6	+	64339422	PTP4A1	protein tyrosine phosphatase type IVA, member 1
6	-	82520909	FAM46A	family with sequence similarity 46, member A
6	+	83128302	TPBG	trophoblast glycoprotein
6	-	90119343	UBE2J1	ubiquitin-conjugating enzyme E2, J1 (UBC6 homolog, yeast)

6	-	106880541	ATG5	ATG5 autophagy related 5 homolog ( <i>S. cerevisiae</i> )
6	-	149908936	PPIL4	peptidylprolyl isomerase (cyclophilin)-like 4
6	+	150326679	ULBP1	UL16 binding protein 1
6	+	168163141	KIF25	kinesin family member 25
6	-	168464220	DACT2	dapper, antagonist of beta-catenin, homolog 2 ( <i>Xenopus laevis</i> )
7	-	157586326	PTPRN2	protein tyrosine phosphatase, receptor type, N polypeptide 2
7	-	5503396	MIRN589	micro-RNA 589
7	-	6359567	PSCD3	plekstrin-homology, Sec7 coiled-coil domain 3
7	-	104877609	ATXN7L4	ataxin-like 4
7	-	126485401	MIRN592	micro-RNA 592
7	+	154699128	PRR8	RNA binding motif protein 33
7	-	981350	COX19	COX19 cytochrome c oxidase assembly homolog
7	-	6831980	C7orf28B	chromosome 7 open reading frame 28B
7	-	8268756	ICA1	islet cell autoantigen 1, 69kDa
7	-	19715197	TWISTNB	TWIST neighbor
7	+	27746264	TAX1BP1	Tax1 (human T-cell leukemia virus type I) binding protein 1
7	+	30036144	PLEKHA8	pleckstrin homology domain containing, family A (phosphoinositide binding specific) member 8
7	-	44662579	TMED4	transmembrane emp24 protein transport domain containing 4
7	-	65797867	SBDS	Shwachman-Bodian-Diamond syndrome
7	+	68404806	AUTS2	autism susceptibility candidate 2
7	+	75347358	RHBDD2	rhomboid domain containing 2
7	+	86619431	DMTF1	cyclin D binding myb-like transcription factor 1
7	-	91603694	CYP51A1	cytochrome P450, family 51, subfamily A, polypeptide 1
7	+	94731996	DYNC1I1	dynein, cytoplasmic 1, intermediate chain 1
7	+	97199133	TAC1	tachykinin, precursor 1
7	+	98844446	BUD31	BUD31 homolog ( <i>S. cerevisiae</i> )
7	+	98875964	CPSF4	cleavage and polyadenylation specific factor 4, 30kDa
7	+	129510778	MEST	mesoderm specific transcript homolog (mouse)
7	+	138164860	TTC26	tetratricopeptide repeat domain 26
7	-	138445055	ZC3HAV1	zinc finger CCCH-type, antiviral 1
7	+	141083813	SSBP1	single-stranded DNA binding protein 1
7	+	147733353	CUL1	cullin 1
7	-	157586326	PTPRN2	protein tyrosine phosphatase, receptor type, N polypeptide 2
8	+	8598475	CLDN23	claudin 23
8	+	12854729	C8orf79	chromosome 8 open reading frame 79
8	+	17148351	VPS37A	vacuolar protein sorting 37 homolog A ( <i>S. cerevisiae</i> )
8	+	27689753	ESCO2	establishment of cohesion 1 homolog 2 ( <i>S. cerevisiae</i> )
8	+	30135185	DCTN6	dynactin 6
8	+	38973582	ADAM9	ADAM metallopeptidase domain 9
8	+	86206615	LRRCC1	leucine rich repeat and coiled-coil domain containing 1
8	-	101805444	PABPC1	poly(A) binding protein, cytoplasmic 1
8	+	126173266	NSMCE2	non-SMC element 2, MMS21 homolog ( <i>S. cerevisiae</i> )
9	+	263151	DOCK8	dedicator of cytokinesis 8
9	+	5221356	INSL4	insulin-like 4 (placenta)
9	+	15541266	C9orf93	chromosome 9 open reading frame 93
9	-	25669751	TUSC1	tumor suppressor candidate 1
9	+	45622759	FAM27E2	family with sequence similarity 27, member E2

9	-	71565415	PTAR1	protein prenyltransferase alpha subunit repeat containing 1
9	-	139047180	FUT7	fucosyltransferase 7 (alpha (1,3) fucosyltransferase)
10	+	35933453	CX40.1	gap junction protein delta 4
10	-	134911657	MIRN202	micro-RNA 202
10	+	14920068	HSPA14	heat shock 70kDa protein 14
10	+	64562347	NRBF2	nuclear receptor binding factor 2
10	+	70152941	CCAR1	cell division cycle and apoptosis regulator 1
10	-	73786104	DNAJB12	DnaJ (Hsp40) homolog, subfamily B, member 12
10	+	81880315	PLAC9	placenta-specific 9
10	+	85889233	GHITM	growth hormone inducible transmembrane protein
10	+	88507295	BMPR1A	bone morphogenetic protein receptor, type IA
10	+	94341152	KIF11	kinesin family member 11
10	+	94440802	HHEX	hematopoietically expressed homeobox
10	+	99195122	ZDHHC16	zinc finger, DHHC-type containing 16
10	+	101282637	NKX2-3	NK2 transcription factor related, locus 3 (Drosophila)
10	-	113933520	GPAM	glycerol-3-phosphate acyltransferase, mitochondrial
10	+	118369664	PNLIPRP2	pancreatic lipase-related protein 2
11	+	73265812	WDR71	proteasome ATP-ase associated factor
11	-	1587097	KRTAP5-8	keratin associated protein 5-8
11	-	2138948	INS	insulin
11	+	4072079	RRM1	ribonucleotide reductase M1
11	+	5666461	TRIM22	tripartite motif-containing 22
11	+	8017193	TUB	tubby homolog (mouse)
11	-	10519352	RNF141	ring finger protein 141
11	-	14950575	CALCA	calcitonin-related polypeptide alpha
11	+	15051583	CALCB	calcitonin-related polypeptide beta
11	+	18245880	SAA1	serum amyloid A1
11	+	20577673	SLC6A5	solute carrier family 6 (neurotransmitter transporter, glycine), 5
11	+	47246010	MADD	MAP-kinase activating death domain
11	-	57055721	TIMM10	translocase of inner mitochondrial membrane 10 homolog
11	+	59028804	OR4D11	olfactory receptor, family 4, subfamily D, member 11
11	+	63498591	COX8A	cytochrome c oxidase subunit VIIIA (ubiquitous)
11	+	63842705	PRDX5	peroxiredoxin 5
11	-	64641939	ZNHIT2	zinc finger, HIT-type containing 2
11	-	64657853	SYVN1	synovial apoptosis inhibitor 1, synoviolin
11	+	65023597	MALAT1	metastasis associated lung adenocarcinoma transcript 1
11	-	65842530	CD248	CD248 molecule, endosialin
11	+	66952479	RPS6KB2	ribosomal protein S6 kinase, 70kDa, polypeptide 2
11	+	67533527	ALDH3B1	aldehyde dehydrogenase 3 family, member B1
11	-	71823360	CLPB	ClpB caseinolytic peptidase B homolog (E. coli)
11	-	82462123	RAB30	RAB30, member RAS oncogene family
11	+	95163646	CEP57	centrosomal protein 57kDa
11	-	102468144	DCUN1D5	DCN1, defective in cullin neddylation 1, domain containing 5
11	+	117948130	ARCN1	archain 1
11	-	122572400	ASAM	adipocyte-specific adhesion molecule
11	+	125678754	DCPS	decapping enzyme, scavenger
12	-	120504690	FBXL10	F box leucine zipper repeat 10
12	-	191926	SLC6A12	solute carrier family 6 (neurotransmitter transporter, GABA), 12



12	+	438632	B4GALNT3	beta-1,4-N-acetyl-galactosaminyl transferase 3
12	+	4253173	CCND2	cyclin D2
12	+	6951117	EMG1	nucleolar protein homolog ( <i>S. cerevisiae</i> )
12	-	10216112	OLR1	oxidized low density lipoprotein (lectin-like) receptor 1
12	-	45506308	SLC38A4	solute carrier family 38, member 4
12	-	46585649	VDR	vitamin D (1,25- dihydroxyvitamin D3) receptor
12	+	46804138	PFKM	phosphofructokinase, muscle
12	-	47652131	WNT10B	wingless-type MMTV integration site family, member 10B
12	+	49186944	DIP2B	DIP2 disco-interacting protein 2 homolog B ( <i>Drosophila</i> )
12	+	56424646	TSPAN31	tetraspanin 31
12	+	64869184	IRAK3	interleukin-1 receptor-associated kinase 3
12	+	67919591	CPSF6	cleavage and polyadenylation specific factor 6, 68kDa
12	-	87499940	KITLG	KIT ligand
12	-	91063858	BTG1	B-cell translocation gene 1, anti-proliferative
12	-	119451366	COQ5	coenzyme Q5 homolog, methyltransferase ( <i>S. cerevisiae</i> )
12	-	120781528	HPD	4-hydroxyphenylpyruvate dioxygenase
12	+	121826169	CCDC62	coiled-coil domain containing 62
12	+	129921311	RAN	RAN, member RAS oncogene family
12	+	132268133	ZNF268	zinc finger protein 268
13	-	22841606	SACS	spastic ataxia of Charlevoix-Saguenay (sacsin)
13	+	26723415	RPL21	ribosomal protein L21
13	-	49597713	DLEU2	deleted in lymphocytic leukemia 2 (non-protein coding)
13	-	51601780	NEK5	NIMA (never in mitosis gene a)-related kinase 5
14	+	20223991	RNASE4	ribonuclease, RNase A family, 4
14	-	22892648	SLC22A17	solute carrier family 22, member 17
14	-	56346976	OTX2	orthodenticle homeobox 2
14	+	76858215	GSTZ1	glutathione transferase zeta 1
14	-	89490328	C14orf143	chromosome 14 open reading frame 143
14	-	94856352	CLMN	calmin (calponin-like, transmembrane)
14	-	105712364	IGHV1-18	immunoglobulin heavy variable 1-18
15	+	70668314	MIRN630	micro-RNA 630
15	+	73726836	SH3PX3	SH3 and PX3 domain containing 3
15	-	20585864	NIPA2	non imprinted in Prader-Willi/Angelman syndrome 2
15	+	22752518	SNURF	SNRPN upstream reading frame
15	-	27349344	NDNL2	necdin-like 2
15	+	38650218	RPUSD2	RNA pseudouridylate synthase domain containing 2
15	+	38673447	CASC5	cancer susceptibility candidate 5
15	+	39032694	CHAC1	ChaC, cation transport regulator homolog 1 ( <i>E. coli</i> )
15	+	42791835	B2M	beta-2-microglobulin
15	+	48505562	USP8	ubiquitin specific peptidase 8
15	+	61583851	USP3	ubiquitin specific peptidase 3
15	+	70553659	ARIH1	ariadne homolog, ubiquitin-conjugating enzyme E2 binding 1
15	+	73827715	LOC391532	peptidyl-prolyl cis-trans isomerase A-like
15	+	74415851	ISL2	ISL LIM homeobox 2
15	+	91245143	CHD2	chromodomain helicase DNA binding protein 2
16	+	1231892	TPSAB1	tryptase alpha/beta 1
16	-	14631636	PARN	poly(A)-specific ribonuclease (deadenylation nuclease)
16	+	18986793	COQ7	coenzyme Q7 homolog, ubiquinone (yeast)

16	+	45477676	GPT2	glutamic pyruvate transaminase (alanine aminotransferase) 2
16	+	66252213	PARD6A	par-6 partitioning defective 6 homolog alpha (C. elegans)
16	-	67921683	PDF	peptide deformylase (mitochondrial)
16	-	74137898	CHST5	carbohydrate (N-acetylglucosamine 6-O) sulfotransferase 5
16	-	79811644	PKD1L2	polycystic kidney disease 1-like 2
16	+	87398686	CDT1	chromatin licensing and DNA replication factor 1
16	+	88156045	RPL13	ribosomal protein L13
17	+	2442224	PAFAH1B1	platelet-activating factor acetylhydrolase 1b,regulatory subunit1
17	-	4554188	PELP1	proline, glutamate and leucine rich protein 1
17	-	7248382	C17orf61	chromosome 17 open reading frame 61
17	+	16225083	UBB	ubiquitin B
17	+	23875732	FOXN1	forkhead box N
17	-	25586935	SLC6A4	solute carrier family 6 neurotransmitter transporter, serotonin, 4
17	+	27288880	SUZ12	suppressor of zeste 12 homolog (Drosophila)
17	+	37099137	EIF1	eukaryotic translation initiation factor 1
17	-	39499580	LSM12	LSM12 homolog (S. cerevisiae)
17	-	44161100	HOXB13	homeobox B13
17	+	44263857	CALCOCO2	calcium binding and coiled-coil domain 2
17	-	57361008	INTS2	integrator complex subunit 2
17	-	59314112	GH2	growth hormone 2
17	-	59328759	CSH1	chorionic somatomammotropin hormone 1 (placental lactogen)
17	-	59351346	GH1	growth hormone 1
17	+	63144333	NOL11	nucleolar protein 11
17	-	63965562	WIPI1	WD repeat domain, phosphoinositide interacting 1
17	+	72648363	SEC14L1	SEC14-like 1 (S. cerevisiae)
17	-	75428287	CBX4	chromobox homolog 4
17	-	77412254	P4HB	prolyl 4-hydroxylase, beta polypeptide
17	-	77479282	MAFG	v-maf musculoaponeurotic fibrosarcoma oncogene homolog G
18	+	3236409	MRCL3	myosin regulatory light chain
18	+	147017	USP14	ubiquitin specific peptidase 14 tRNA-guanine transglycosylase
18	+	10443430	APCDD1	adenomatosis polyposis coli down-regulated 1
18	+	11840149	CHMP1B	chromatin modifying protein 1B
18	-	12057986	LOC646044	single stranded DNA binding protein 4 pseudogene
18	+	12936960	SEH1L	SEH1-like (S. cerevisiae)
18	-	17537831	ABHD3	abhydrolase domain containing 3
18	+	18767269	RBBP8	retinoblastoma binding protein 8
18	-	23018593	CHST9	carbohydrate (N-acetylgalactosamine 4-O) sulfotransferase 9
18	-	39111497	SYT4	synaptotagmin IV
18	+	50049617	POLI	polymerase (DNA directed) iota
19	+	1220381	CIRBP	cold inducible RNA binding protein
19	+	1335163	NDUFS7	NADH dehydrogenase (ubiquinone) Fe-S protein 7, 20kDa
19	+	2221860	OAZ1	ornithine decarboxylase antizyme 1
19	-	2734392	SGTA	small glutamine-rich tetratricopeptide repeat TPR-containing $\alpha$
19	-	3509154	C19orf28	chromosome 19 open reading frame 28
19	+	4354038	CHAF1A	chromatin assembly factor 1, subunit A (p150)
19	-	6688731	GPR108	G protein-coupled receptor 108
19	-	7914574	TIMM44	translocase of inner mitochondrial membrane 44 homolog

19	-	12807634	RTBDN	retbindin
19	-	14448645	PTGER1	prostaglandin E receptor 1 (subtype EP1), 42kDa
19	+	16468648	C19orf44	chromosome 19 open reading frame 44
19	-	17660968	UNC13A	unc-13 homolog A ( <i>C. elegans</i> )
19	+	40321874	FXYD1	FXYD domain containing ion transport regulator 1
19	+	40337949	FXYD5	FXYD domain containing ion transport regulator 5
19	+	46595495	BCKDHA	branched chain keto acid dehydrogenase E1, alpha polypeptide
19	-	50373391	TRAPPC6A	trafficking protein particle complex 6A
19	+	50662833	FOSB	FBJ murine osteosarcoma viral oncogene homolog B
19	-	51082642	IRF2BP1	interferon regulatory factor 2 binding protein 1
19	+	52452101	CCDC9	coiled-coil domain containing 9
19	+	52532711	GPR77	G protein-coupled receptor 77
19	+	54682616	RPL13A	ribosomal protein L13a
19	+	55071733	TBC1D17	TBC1 domain family, member 17
19	+	55571526	NR1H2	nuclear receptor subfamily 1, group H, member 2
19	-	56000178	C19orf48	chromosome 19 open reading frame 48
19	-	63558553	A1BG	alpha-1-B glycoprotein
20	+	47986226	ZNF313	zinc finger protein 313
20	-	56861104	SANG	GMAS anti-sense RNA
20	+	4649580	PRND	prion protein 2 (dublet)
20	+	29870345	MYLK2	myosin light chain kinase 2
20	-	47965707	SPATA2	spermatogenesis associated 2
20	+	48242385	CEBPB	CCAAT/enhancer binding protein (C/EBP), beta
20	+	51024317	TSHZ2	teashirt zinc finger homeobox 2
20	+	61394227	COL20A1	collagen, type XX, alpha 1
21	+	43269339	PKNOX1	PBX/knotted 1 homeobox 1
21	-	45551494	C21orf93	chromosome 21 open reading frame 93
21	+	46567204	PCNT	pericentrin
22	+	18399691	MIRN185	micro-RNA 185
22	+	17273697	DGCR6	DiGeorge syndrome critical region gene 6
22	+	20754721	IGLVIV-65	immunoglobulin lambda variable (IV)-65 pseudogene
22	+	23282654	SNRPD3	small nuclear ribonucleoprotein D3 polypeptide 18kDa
22	-	27406974	TTC28	tetratricopeptide repeat domain 28
22	-	28169672	RFPL1S	RFPL1 antisense RNA (non-protein coding)
22	+	28807621	HORMAD2	HORMA domain containing 2
22	+	36287888	CDC42EP1	CDC42 effector protein (Rho GTPase binding) 1
22	+	36333649	GGA1	golgi-associated, $\gamma$ adaptin ear containing, ARF binding protein 1
23	+	46961058	PCTK1	cdk16 PCTAIRE protein kinase
23	-	53271184	SMCX	lysine demethylase 5C
23	+	110811055	GLT28D1	UDP-N-acetylglucosamine transferase
23	+	1349570	CSF2RA	colony stimulating factor 2 receptor, $\alpha$ (GM-CSFR $\alpha$ )
23	+	22927832	DDX53	DEAD (Asp-Glu-Ala-Asp) box polypeptide 53
23	-	23954325	KLHL15	kelch-like 15 ( <i>Drosophila</i> )
23	-	48743147	GRIPAP1	GRIP1 associated protein 1
23	-	54086351	PHF8	PHD finger protein 8
23	+	72699345	CHIC1	cysteine-rich hydrophobic domain 1
23	+	95825596	DIAPH2	diaphanous homolog 2 ( <i>Drosophila</i> )

23	-	101073824	ZMAT1	zinc finger, matrin-type 1
23	-	102829992	MORF4L2	mortality factor 4 like 2
23	+	119621756	MCTS1	malignant T cell amplified sequence 1
23	+	151616064	MAGEA6	melanoma antigen family A, 6
24	+	1349570	CSF2RA	colony stimulating factor 2 receptor, $\alpha$ (GM-CSFR $\alpha$ )
24	+	14679252	VCY	variable charge, Y-linked

**Table S2** – Murine genes harboring TGACGCAA between -2 kb to + 1 kb

<b>Chromosome</b>	<b>Strand</b>	<b>Position</b>	<b>Gene name</b>	<b>Descriptive name</b>
1	-	13581123	Tram1	translocating chain-associating membrane protein 1
1	-	31007370	Ptp4a1	protein tyrosine phosphatase 4a1
1	-	58504274	Ppil3	peptidylprolyl isomerase (cyclophilin)-like 3
1	-	59727670	Sumo1	SMT3 suppressor of mif two 3 homolog 1 (yeast)
1	-	75260897	Ptpn	protein tyrosine phosphatase, receptor type, N
1	+	89652506	Atg16l1	autophagy-related 16-like 1 (yeast)
1	-	90102345	Dnajb3	DnaJ (Hsp40) homolog, subfamily B, member 3
1	+	93217598	Espnl	espin-like
1	+	94831268	Capn10	calpain 10
1	+	135260016	Etnk2	ethanolamine kinase 2
1	+	152239944	Tpr	translocated promoter region
1	+	154801990	Nmnat2	nicotinamide nucleotide adenylyltransferase 2
1	+	157005699	Stx6	syntaxin 6
1	+	162126017	Mrps14	mitochondrial ribosomal protein S14
1	+	172975039	Trnag-gcc	transfer RNA glycine (anticodon GCC)
1	-	172988946	Fcgr3	Fc receptor, IgG, low affinity III
1	+	174243466	Igsf8	immunoglobulin superfamily, member 8
1	-	193221461	Ppp2r5a	protein phosphatase 2, regulatory subunit B $\alpha$ form
1	-	195099239	G0s2	G0/G1 switch gene 2
2	+	3430310	Armet1	astrocyte-derived neurotrophic factor
2	+	25127990	Anapc2	anaphase promoting complex subunit 2
2	-	25430870	Phpt1	phosphohistidine phosphatase 1
2	+	30092968	Lrrc8a	leucine rich repeat containing 8A
2	+	31493916	Prdm12	PR domain containing 12
2	+	69485184	Bbs5	Bardet-Biedl syndrome 5 (human)
2	+	84887993	Tnks1bp1	tankyrase 1 binding protein 1
2	-	88842151	Olf1215	olfactory receptor 1215
2	-	91865599	Creb3l1	cAMP responsive element binding protein 3-like 1
2	-	118375435	Bmf	BCL2 modifying factor
2	+	118872623	Casc5	cancer susceptibility candidate 5
2	+	119176732	Chac1	ChaC, cation transport regulator-like 1 (E. coli)
2	-	122202893	Trnah-gug	transfer RNA histidine(anticodon GUG)
2	+	128954057	Chchd5	coiled-coil-helix-coiled-coil-helix domain
2	+	129024441	Slc20a1	solute carrier family 20, member 1
2	-	130410102	Avp	arginine vasopressin
2	+	136327800	BC034902	cDNA sequence BC034902
2	+	142902995	Otor	otoraplin
2	+	150574797	Entpd6	ectonucleoside triphosphate diphosphohydrolase 6
2	+	153115986	Kif3b	kinesin family member 3B
2	-	174122772	Nespas	neuroendocrine secretory protein antisense
3	-	129534318	Nola1	nucleolar protein family A, member 1
3	+	28790431	Gm1527	predicted gene 1527
3	+	35964895	Acad9	acyl-Coenzyme A dehydrogenase family, member 9

3	-	58496032	Siah2	seven in absentia 2
3	-	58934599	P2ry14	purinergic receptor P2Y, G-protein coupled, 14
3	+	59886165	Sucnr1	succinate receptor 1
3	+	83039206	Dchs2	dachsous 2 (Drosophila)
3	-	87864218	Apoa1bp	apolipoprotein A-I binding protein
3	-	94945940	Tnfaip8l2	tumor necrosis factor, alpha-induced protein 8-like 2
3	+	96256784	Trnah-gug	transfer RNA histidine(anticodon GUG)
3	-	96261699	Trnah-gug	transfer RNA histidine(anticodon GUG)
3	-	110054982	Prmt6	protein arginine N-methyltransferase 6
3	-	122939124	Synpo2	synaptopodin 2
4	+	138936523	Zubr1	ubiquitin protein ligase 3 component
4	+	15809315	Calb1	calbindin 1
4	+	32744113	Mdn1	midasin homolog (yeast)
4	-	35792052	Lingo2	leucine rich repeat and Ig domain containing 2
4	+	43970949	Glipr2	GLI pathogenesis-related 2
4	+	62021653	Slc31a1	solute carrier family 31, member 1
4	-	88368719	Klh19	kelch-like 9 (Drosophila)
4	+	101390661	Lepr	leptin receptor
4	-	125880047	Thrap3	thyroid hormone receptor associated protein 3
4	+	126354897	Psmb2	proteasome (prosome, macropain) subunit, beta type 2
4	-	127005587	Gjb3	gap junction protein, beta 3
4	+	139464530	Gm1667	predicted gene 1667
4	-	147413235	Clcn6	chloride channel 6
4	+	151851822	Nphp4	nephronophthisis 4 (juvenile) homolog (human)
5	+	75471978	Gsh2	GS homeobox domain protein
5	-	139845477	Mirn339	micro-RNA 339
5	-	24348516	Rheb	Ras homolog enriched in brain
5	+	31411281	Dnajc5g	DnaJ (Hsp40) homolog, subfamily C, member 5 gamma
5	-	31595153	Ift172	intraflagellar transport 172 homolog (Chlamydomonas)
5	+	35925604	Acox3	acyl-Coenzyme A oxidase 3, pristanoyl
5	-	65483400	Tmem156	transmembrane protein 156
5	-	73128892	Txk	TXK tyrosine kinase
5	+	98610539	Prdm8	PR domain containing 8
5	+	104182457	Aff1	AF4/FMR2 family, member 1
5	-	111211505	Pus1	pseudouridine synthase 1
5	+	111759697	Pitpnb	phosphatidylinositol transfer protein, beta
5	+	112705517	Tpst2	protein-tyrosine sulfotransferase 2
5	+	115729678	Coq5	coenzyme Q5 homolog, methyltransferase (yeast)
5	+	124562049	Ogfod2	2-oxoglutarate and iron-dependent oxygenase domain 2
5	+	129525578	Ran	RAN, member RAS oncogene family
5	+	135844351	Nsun5	NOL1/NOP2/Sun domain family, member 5
5	+	145901199	Bud31	BUD31 homolog (yeast)
5	-	147397795	Gpr12	G-protein coupled receptor 12
5	-	148707344	Slc46a3	solute carrier family 46, member 3
6	-	27886679	Mirn592	micro-RNA 592
6	-	30120397	Mirn96	micro-RNA 96
6	+	7504865	Tac1	tachykinin 1
6	+	42751442	Olf451-ps1	olfactory receptor 451, pseudogene 1

6	-	52108902	Hoxa1	homeobox A1
6	+	64992597	Smarcad1	SWI/SNF-related, matrix-associated actin-dependent regulator of chromatin, subfamily a, containing DEAD/H box 1
6	+	70621498	Igk-V21-4	immunoglobulin kappa chain variable 21 (V21)-4
6	+	83691121	Atp6v1b1	ATPase, H <sup>+</sup> transporting, lysosomal V1 subunit B1
6	-	87995309	Rab7	RAB7, member RAS oncogene family
6	+	100781916	Ppp4r2	protein phosphatase 4, regulatory subunit 2
6	-	127101072	Ccnd2	cyclin D2
6	-	128477300	Pzp	pregnancy zone protein
6	-	129610681	Klrc2	killer cell lectin-like receptor subfamily C, member 2
6	+	136901472	Pde6h	phosphodiesterase 6H, cGMP-specific, cone, gamma
6	-	142520221	Kcnj8	potassium inwardly-rectifying channel, subfamily J, member 8
7	+	5031711	Epn1	epsin 1
7	-	6443287	Olf1347	olfactory receptor 1347
7	-	19895451	Fosb	FBJ osteosarcoma oncogene B
7	-	20268062	Apoc4	apolipoprotein C-IV
7	-	20301515	Tomm40	translocase of outer mitochondrial membrane 40 homolog
7	+	30645009	Zfp420	zinc finger protein 420
7	+	31348340	U2af114	U2 small nuclear RNA auxiliary factor 1-like 4
7	+	52105311	Akt1s1	AKT1 substrate 1 (proline-rich)
7	+	52973418	Rpl18	ribosomal protein L18
7	+	57165639	Slc6a5	solute carrier family 6 (neurotransmitter transporter, glycine), 5
7	+	74792764	Ttc23	tetratricopeptide repeat domain 23
7	-	80686043	Chd2	chromodomain helicase DNA binding protein 2
7	-	115987156	Olf1515-ps1	olfactory receptor 515, pseudogene 1
7	-	121779933	Calca	calcitonin/calcitonin-related polypeptide, alpha
7	-	126864313	Thumpd1	THUMP domain containing 1
7	+	134005961	Hirip3	HIRA interacting protein 3
7	-	134339632	Cd2bp2	CD2 antigen (cytoplasmic tail) binding protein 2
7	+	144086088	Mgmt	O-6-methylguanine-DNA methyltransferase
7	+	148066457	Psm13	proteasome (prosome, macropain) 26S subunit, non-ATPase, 13
7	-	152471315	Tpcn2	two pore segment channel 2
8	-	3947513	Cd209c	CD209c antigen
8	+	4612626	BC003267	cDNA sequence BC003267
8	-	9771853	Tmem28	transmembrane protein 28
8	-	46394087	Klkb1	kallikrein B, plasma 1
8	-	75016601	Slc35e1	solute carrier family 35, member E1
8	-	85856722	Elmod2	ELMO domain containing 2
8	+	96561014	Ogfod1	2-oxoglutarate and iron-dependent oxygenase domain 1
8	+	96910203	Herpud1	homocysteine-inducible, ER stress-inducible, ubiquitin-like domain member 1
8	+	107871021	Slc9a5	solute carrier family 9 (sodium/hydrogen exchanger), member 5
8	+	119680694	Gan	giant axonal neuropathy
9	+	37336304	Esam1	endothelial cell adhesion molecule 1
9	-	67086345	Mir190	micro-RNA 190
9	-	56776269	Sh3px3	SH3 and PX domain containing 3
9	-	122203265	Tmem16k	trans-membrane protein 16K
9	+	21171983	Ilf3	interleukin enhancer binding factor 3

9	-	36534215	Chek1	checkpoint kinase 1 homolog ( <i>S. pombe</i> )
9	-	37155189	Ccdc15	coiled-coil domain containing 15
9	+	37876183	Olf886-ps1	olfactory receptor 886, pseudogene 1
9	+	38137081	Olf25	olfactory receptor 25
9	+	43875009	Usp2	ubiquitin specific peptidase 2
9	-	45078789	Il10ra	interleukin 10 receptor, alpha
9	-	45793499	Pafah1b2	platelet-activating factor acetylhydrolase, isoform 1b, subunit 2
9	+	48909731	Tmprss5	transmembrane protease, serine 5 (spinesin)
9	+	57351432	Rpp25	ribonuclease P 25 subunit (human)
9	-	61795768	Kif23	kinesin family member 23
9	-	62659887	Fem1b	feminization 1 homolog b ( <i>C. elegans</i> )
9	-	66440805	Usp3	ubiquitin specific peptidase 3
9	+	69838191	Bnip2	BCL2/adenovirus E1B interacting protein 2
9	+	98855646	Foxl2	forkhead box L2
9	-	106101770	Ppm1m	protein phosphatase 1M
9	-	107240401	Hemk1	HemK methyltransferase family member 1
9	-	108481418	Wdr6	WD repeat domain 6
9	+	121619472	Deb1	differentially expressed in B16F10 1
10	-	127190008	Admr	G-protein coupled receptor 182
10	-	19571890	Slc35d3	solute carrier family 35, member D3
10	+	22363559	Slc2a12	solute carrier family 2 (facilitated glucose transporter), 12
10	+	23756699	Taar7e	trace amine-associated receptor 7E
10	+	23869829	Stx7	syntaxin 7
10	+	51743467	Vgl2	vestigial like 2 homolog ( <i>Drosophila</i> )
10	-	57254172	Serinc1	serine incorporator 1
10	+	80289185	Oaz1	ornithine decarboxylase antizyme 1
10	+	84218247	Rfx4	regulatory factor X, 4 (influences HLA class II expression)
10	+	87843045	Gnptab	N-acetylglucosamine-1-phosphate transferase
10	-	126508114	Tspan31	tetraspanin 31
10	+	126728649	Ddit3	DNA-damage inducible transcript 3
10	-	128360603	Bloc1s1	biogenesis of lysosome-related organelles complex-1, subunit 1
11	+	50191184	Hnrph1	heterogeneous nuclear riboprotein H1
11	+	105927258	Ccdc44	translational activator of mitochondrial cytochrome c oxidase 1
11	+	5421663	Xbp1	X-box binding protein 1
11	-	6130390	Npc1l1	NPC1-like 1
11	-	48672021	Trnal-aag	transfer RNA leucine (anticodon AAG)
11	+	59761726	Med9	mediator of RNA pol II transcription, subunit 9 homolog
11	-	70223551	Pelp1	proline, glutamic acid and leucine rich protein 1
11	+	76812003	Slc6a4	solute carrier family 6(neurotransmitter transporter, serotonin) 4
11	-	95171573	Myst2	MYST histone acetyltransferase 2
11	-	95937301	Atp5g1	ATP synthase, H <sup>+</sup> transporting, mitochondrial F0 complex, subunit c1 (subunit 9)
11	+	96055607	Hoxb13	homeobox B13
11	-	97632883	Trnac-gca	transfer RNA cysteine (anticodon GCA)
11	-	97849650	Plxdc1	plexin domain containing 1
11	-	98448749	Ormdl3	ORM1-like 3 ( <i>S. cerevisiae</i> )
11	-	101032753	Plekhh3	pleckstrin homology domain containing, family H, member 3
11	-	101163623	Becn1	beclin 1, autophagy related



11	+	101177526	Psme3	proteasome (prosome, macropain) 28 subunit, 3
11	+	102975990	Hexim1	hexamethylene bis-acetamide inducible 1
11	+	104091240	Mapt	microtubule-associated protein tau
11	-	114821292	Cd300c	CD300C antigen
11	-	115138610	Fdxr	ferredoxin reductase
11	-	115159544	Fads6	fatty acid desaturase domain family, member 6
11	-	115874603	Galk1	galactokinase 1
11	-	115949703	Wbp2	WW domain binding protein 2
11	-	118151660	Usp36	ubiquitin specific peptidase 36
12	-	16765513	Greb1	gene regulated by estrogen in breast cancer protein
12	+	25265786	Grhl1	grainyhead-like 1 (Drosophila)
12	-	32746804	Prkar2b	protein kinase, cAMP dependent regulatory, type II beta
12	+	34114483	Twistnb	TWIST neighbor
12	-	45311193	Dnajb9	DnaJ (Hsp40) homolog, subfamily B, member 9
12	+	45370124	Pnpla8	patatin-like phospholipase domain containing 8
12	+	80398606	Rad51l1	RAD51-like 1 ( <i>S. cerevisiae</i> )
12	-	104895549	Serpina6	serine (or cysteine) peptidase inhibitor, clade A, member 6
12	-	106103556	Clmn	calmin
12	-	112217337	Ankrd9	ankyrin repeat domain 9
12	-	120205547	Abcb5	ATP-binding cassette, sub-family B (MDR/TAP), member 5
13	+	47216964	Ibrdc2	E3 ubiquitin ligase ring finger protein 144B
13	+	64533487	Ccrk	cdk 20
13	-	21843839	Hist1h4k	histone cluster 1, H4k
13	+	23662983	Hist1h2bg	histone cluster 1, H2bg
13	-	27674730	Prl8a1	prolactin family 8, subfamily a, member 1
13	-	46823388	Nup153	nucleoporin 153
13	-	49404682	Fgd3	FYVE, RhoGEF and PH domain containing 3
13	+	49436797	Bicd2	bicaudal D homolog 2 (Drosophila)
13	-	53472788	Sptlc1	serine palmitoyltransferase, long chain base subunit 1
13	-	55122082	Hk3	hexokinase 3
13	-	65215717	Hiatl1	hippocampus abundant transcript-like 1
13	+	74100236	Zdhhc11	zinc finger, DHHC domain containing 11
13	-	96025354	Pde8b	phosphodiesterase 8B
14	+	8650243	Flnb	filamin, beta
14	-	9211975	Oit1	oncoprotein induced transcript 1
14	-	22569688	Dusp13	dual specificity phosphatase 13
14	-	46008714	Gnpnat1	glucosamine-phosphate N-acetyltransferase 1
14	-	47809174	Gch1	GTP cyclohydrolase 1
14	+	56660204	Mcpt2	mast cell protease 2
14	+	66914773	Trim35	tripartite motif-containing 35
14	-	69199130	Adamdec1	ADAM-like, decysin 1
14	+	70008517	Loxl2	lysyl oxidase-like 2
14	-	70921845	Bmp1	bone morphogenetic protein 1
14	+	73540979	Rcbtb2	regulator of chromosome condensation (RCC1) and BTB (POZ) domain containing protein 2
14	-	87541094	Diap3	diaphanous homolog 3 (Drosophila)
15	+	76541046	Lrrc14	leucine rich repeat containing 14
15	+	81846815	Xrcc6	X-ray repair complementing defective repair in hamster cells 6

15	+	85037285	Fbln1	fibulin 1
15	-	90510793	Cpne8	copine VIII
16	-	90285644	Sfrs15	serine/arginine-rich splicing factor 15
16	+	96582094	Jam4	tight junction adhesion Ig superfamily member
16	-	4560378	Tcfap4	transcription factor AP4
16	+	13819112	Ntan1	N-terminal Asn amidase
16	+	17406880	Snap29	synaptosomal-associated protein 29
16	+	20140914	Yeats2	YEATS domain containing 2
16	+	57120478	Tomm70a	translocase of outer mitochondrial membrane 70 homolog A
16	+	93711461	Dopey2	dopey family member 2
17	+	73457311	Lycat	lysocardiolipin acetyltransferase 1
17	+	7184026	Rnaset2b	ribonuclease T2B
17	+	7375317	Rps6ka2	ribosomal protein S6 kinase, polypeptide 2
17	-	15665772	Pdcd2	programmed cell death 2
17	+	26011992	Trnag-ccc	transfer RNA glycine (anticodon CCC)
17	+	26250835	Tmem8	transmembrane protein 8 (five membrane-spanning domains)
17	+	27053834	Kifc1	kinesin family member C1
17	-	33531699	Zfp101	zinc finger protein 101
17	+	35689562	Cdsn	corneodesmosin
17	-	36463885	H2-M10.1	histocompatibility 2, M region locus 10.1
17	+	46390861	Gm88	predicted gene 88
17	+	46818013	Mea1	male enhanced antigen 1
17	+	53618333	Rab5a	RAB5A, member RAS oncogene family
17	-	54437913	Slc5a7	solute carrier family 5 (choline transporter), member 7
17	+	56179749	Chaf1a	chromatin assembly factor 1, subunit A (p150)
17	-	66233635	Ralbp1	ralA binding protein 1
17	-	68353044	Arhgap28	Rho GTPase activating protein 28
17	-	85191338	Lrpprc	leucine-rich PPR-motif containing
17	+	87362220	Rhoq	ras homolog gene family, member Q
18	-	31607060	Syt4	synaptotagmin IV
18	+	35019360	Egr1	early growth response 1
18	+	36894677	Tmco6	transmembrane and coiled-coil domains 6
18	+	52776278	Zfp474	zinc finger protein 474
18	-	67021244	Mc4r	melanocortin 4 receptor
19	-	3912668	Ndufs8	NADH dehydrogenase (ubiquinone) Fe-S protein 8
19	-	4163359	Rps6kb2	ribosomal protein S6 kinase, polypeptide 2
19	-	4192623	Tbc1d10c	TBC1 domain family, member 10c
19	+	6058738	Fau	(FBR-MuSV) ubiquitously expressed (fox derived)
19	-	8787513	Slc3a2	solute carrier family 3 dibasic and neutral aminoacid transport 2
19	+	37758611	Cyp26c1	cytochrome P450, family 26, subfamily c, polypeptide 1
19	-	40346429	Pdlim1	PDZ and LIM domain 1 (elfin)
19	-	40662896	Aldh18a1	aldehyde dehydrogenase 18 family, member A1
19	-	43750560	Slc25a28	solute carrier family 25, member 28
19	-	61304831	Csf2ra	colony stimulating factor 2 receptor, alpha (GM-CSFRalpha)
20	+	7367575	Gripap1	GRIP1 associated protein 1
20	-	9240152	Dynlt3	dynein light chain Tctex-type 3
20	+	45462578	Xpnpep2	X-prolyl aminopeptidase P 2, membrane-bound
20	+	70473370	F8a	factor 8-associated gene A

20	+	71500136	Emd	emerin
20	+	91479480	Klhl15	kelch-like 15 (Drosophila)
20	-	99701525	Hdac8	histone deacetylase 8
20	-	105860338	Gm379	predicted gene 379
20	+	109424960	Apool	apolipoprotein O-like
20	+	132673518	Bex4	brain expressed gene 4
20	-	139830238	Chrdl1	chordin-like 1
20	+	147956506	Phf8	PHD finger protein 8
20	-	165626382	Amelx	amelogenin X chromosome
21	-	623085	Ddx3y	DEAD (Asp-Glu-Ala-Asp) box polypeptide 3, Y-linked

**Table S3** Ontogeny of Human Genes with  
TGACGCAA between -2 kb and +1 kb

Nucleic acid metabolic process  
Nucleic acid binding  
RNA binding  
Nucleus  
Gene expression  
Transport  
Localization  
Cellular localization  
Establishment of localization in cell  
Organelle part  
Cytoplasmic part  
Intracellular organelle part  
Biosynthetic process  
Macromolecule biosynthetic process  
Macromolecular complex