

Supplementary Table 1. Candidate cancer causing genes identified in wild type and *Blm*^{m3}-deficient tumors

AKXD strain	Tumor No.	Geno	CIS gene	Protein Classification/Function	Chr	Location	Distance	Orientation
AKXD-27	8146	+/+	<i>Ncoa2</i>	Nuclear receptor coactivator	1	3 prime	15.37kb	inv
AKXD-10	11400	ko/ko	<i>Ncoa2</i>	Nuclear receptor coactivator	1	3 prime	15.347kb	same
AKXD-27	8751	ko/ko	<i>Ncoa2</i>	Nuclear receptor coactivator	1	3 prime	14.414kb	inv
AKXD-27	8635	ko/ko	<i>Wnt6</i>	Secreted growth factor	1	5 prime	1.757kb	inv
AKXD-27	6645	+/+	<i>Wnt6</i>	Secreted growth factor	1	3 prime	7.511kb	same
AKXD-14	4301	ko/ko	<i>Wnt6</i>	Secreted growth factor	1	3 prime	9.556kb	inv
AKXD-10	14038	+/+	<i>Ptma</i>	prothymosin-alpha	1	5 prime	38.599kb	same
AKXD-27	6664	+/+	<i>Ptma</i>	prothymosin-alpha	1	5 prime	26.143kb	same
AKXD-14	3046	ko/ko	<i>Pigr</i>	Immunoglobulin receptor	1	3 prime	10.482kb	same
AKXD-14	3390	+/+	<i>Pigr</i>	Immunoglobulin receptor	1	3 prime	10.611kb	same
AKXD-27	7415	ko/ko	<i>Zfp281</i>	Zinc finger protein	1	3 prime	55.805 kb	inv
AKXD-10	14503	ko/ko	<i>Zfp281</i>	Zinc finger protein	1	3 prime	56.061 kb	same
AKXD-10	12182	+/+	<i>Sdccag8</i>	Colon cancer antigen	1	5 prime	0.137kb	inv
AKXD-14	3275	ko/ko	<i>Sdccag8</i>	Colon cancer antigen	1	intron 1	disrupt CDS	same
AKXD-10	11746	ko/ko	<i>BC031781</i>	Undefined	1	5 prime	2.129kb	inv
AKXD-27	7065	+/+	<i>BC031781</i>	Undefined	1	intron 1	disrupt CDS	inv
AKXD-27	7242	+/+	<i>Crry Cr2</i>	Complement receptor	1	intron 1 3 prime	disrupt CDS 8.929kb	inv inv
AKXD-14	3275	ko/ko	<i>Crry Cr2</i>	Complement receptor	1	intron 1 3 prime	disrupt CDS 8.734kb	same same
AKXD-10	11419	+/+	<i>Il2ra</i>	Cytokine receptor	2	5 prime	0.93kb	inv
AKXD-27	8145	ko/ko	<i>Il2ra</i>	Cytokine receptor	2	5 prime	0.106kb	same
AKXD-27	7101	+/+	<i>Il2ra</i>	Cytokine receptor	2	intron 1	disrupt CDS	same
AKXD-14	3304	+/+	<i>Notch1</i>	Transcription factor	2	exon 34	disrupt CDS	same
AKXD-27	7065	+/+	<i>Notch1</i>	Transcription factor	2	exon 34	disrupt CDS	same
AKXD-27	8751	ko/ko	<i>Notch1</i>	Transcription factor	2	exon 34	disrupt CDS	same
AKXD-27	7239	+/+	<i>Notch1</i>	Transcription factor	2	5 prime	9.939kb	same
AKXD-27	8352	ko/ko	<i>Cstad</i>	mitochondrial protein	2	3 prime	47.61kb	inv
AKXD-10	13835	+/+	<i>Cstad</i>	mitochondrial protein	2	3 prime	49.2kb	same
AKXD-27	7412	ko/ko	<i>Cstad</i>	mitochondrial protein	2	3 prime	83.547kb	same
AKXD-10	11582	ko/ko	<i>Fnbp1</i>	Protein binding protein	2	intron 6	disrupt CDS	inv
AKXD-27	7230	ko/ko	<i>Fnbp1</i>	Protein binding protein	2	intron 1	disrupt CDS	inv
AKXD-14	3127	+/+	<i>Fnbp1</i>	Protein binding protein	2	intron 1	disrupt CDS	inv
AKXD-10	14043	ko/ko	<i>Traf1</i>	Tnf receptor-associated protein	2	intron 2	not disrupt CDS	inv
AKXD-27	7102	ko/ko	<i>Traf1</i>	Tnf receptor-associated protein	2	intron 2	not disrupt CDS	same
AKXD-27	7412	ko/ko	<i>Traf1</i>	Tnf receptor-associated protein	2	intron 1	not disrupt CDS	inv
AKXD-10	13847	ko/ko	<i>Crb2</i>	Undefined	2	5 prime	19.328kb	inv
AKXD-14	4299	ko/ko	<i>Crb2</i>	Undefined	2	5 prime	18.511kb	same
AKXD-27	7244	ko/ko	<i>Crb2</i>	Undefined	2	5 prime	17.333kb	same
AKXD-27	7232	ko/ko	<i>Crb2</i>	Undefined	2	5 prime	17.295kb	same
AKXD-27	7380	ko/ko	<i>Hnrpa3</i>	RNA binding	2	5 prime	1.197kb	inv
AKXD-10	13738	ko/ko	<i>Hnrpa3</i>	RNA binding	2	5 prime	0.929kb	inv
AKXD-27	6965	ko/ko	<i>Slc43a1</i>	Solute carrier protein	2	intron 1	disrupt CDS	same
AKXD-27	6645	+/+	<i>Slc43a1</i>	Solute carrier protein	2	3 prime	5.591kb	same
AKXD-27	7232	ko/ko	<i>Sfp1</i>	Transcription factor	2	5 prime	18.398kb	inv
AKXD-10	11680	ko/ko	<i>Sfp1</i>	Transcription factor	2	5 prime	15.343kb	inv
AKXD-27	7389	ko/ko	<i>Sfp1</i>	Transcription factor	2	5 prime	13.934kb	inv
AKXD-27	7107	ko/ko	<i>Lmo2</i>	LIM domain protein	2	5 prime	68.389kb	inv
AKXD-27	7105	ko/ko	<i>Lmo2</i>	LIM domain protein	2	5 prime	68.048kb	inv
AKXD-14	3095	+/+	<i>Lmo2</i>	LIM domain protein	2	5 prime	36.352kb	inv
AKXD-27	6664	+/+	<i>Rasgrp1</i>	Ras GRP	2	intron 1	disrupt CDS	inv
AKXD-27	8888	+/+	<i>Rasgrp1</i>	Ras GRP	2	intron 1	disrupt CDS	inv
AKXD-27	7338	ko/ko	<i>Rasgrp1</i>	Ras GRP	2	5 prime	9.157kb	inv
AKXD-14	3276	+/+	<i>Rasgrp1</i>	Ras GRP	2	5 prime	56.339kb	inv
AKXD-14	3359	ko/ko	<i>Rasgrp1</i>	Ras GRP	2	5 prime	61.685kb	inv
AKXD-14	3203	+/+	<i>Rasgrp1</i>	Ras GRP	2	5 prime	77.487kb	inv
AKXD-10	13743	ko/ko	<i>Gabpb1</i>	Transcription factor	2	intron 1	not disrupt CDS	same
AKXD-14	3162	ko/ko	<i>Gabpb1</i>	Transcription factor	2	intron 1	not disrupt CDS	same
AKXD-27	8635	ko/ko	<i>Bcl2l</i>	Anti-apoptosis	2	intron 1	not disrupt CDS	same
AKXD-10	11766	+/+	<i>Bcl2l</i>	Anti-apoptosis	2	intron 1	not disrupt CDS	inv
AKXD-27	7425	ko/ko	<i>Hck</i>	Kinase	2	5 prime	42.01kb	inv
AKXD-27	8751	ko/ko	<i>Hck</i>	Kinase	2	5 prime	22.898kb	inv
AKXD-14	3196	+/+	<i>Hck</i>	Kinase	2	5 prime	16.151kb	inv
AKXD-14	3037	ko/ko	<i>Rnpc2 6820402O20Rik</i>	coactivator transcription factor	2	5 prime 5 prime	9.766kb 6.827kb	inv same
AKXD-27	8558	+/+	<i>Rnpc2 6820402O20Rik</i>	coactivator transcription factor	2	5 prime 5 prime	9.983kb 6.61kb	same inv
AKXD-10	11427	ko/ko	<i>Rnpc2 6820402O20Rik</i>	coactivator transcription factor	2	5 prime intron 1	17.292kb disrupt CDS	inv same
AKXD-14	4295	ko/ko	<i>Rbl1</i>	Cell cycle regulator	2	intron 1	disrupt CDS	inv
AKXD-10	11680	ko/ko	<i>Rbl1</i>	Cell cycle regulator	2	intron 1	disrupt CDS	same
AKXD-10	12171	+/+	<i>Ppp1r16b</i>	Protein phosphatase inhibitor	2	intron 1	not disrupt CDS	inv
AKXD-10	14038	+/+	<i>Ppp1r16b</i>	Protein phosphatase inhibitor	2	intron 2	not disrupt CDS	same
AKXD-10	12175	ko/ko	<i>Ppp1r16b</i>	Protein phosphatase inhibitor	2	intron 2	not disrupt CDS	inv
AKXD-27	7103	+/+	<i>Ppp1r16b</i>	Protein phosphatase inhibitor	2	intron 3	disrupt CDS	inv
AKXD-27	6996	+/+	<i>Cebpb1 Ptpn1</i>	Transcription factor Phosphatase	2	3 prime 5 prime	109.23kb 132.723kb	same same
AKXD-14	3361	+/+	<i>Cebpb1 Ptpn1</i>	Transcription factor Phosphatase	2	3 prime 5 prime	114.999kb 126.954kb	same same
AKXD-27	7379	ko/ko	<i>Cebpb1 Ptpn1</i>	Transcription factor Phosphatase	2	3 prime 5 prime	141.68kb 100.273kb	same same
AKXD-10	11580	+/+	<i>Atp9a</i>	ATPase	2	5 prime	1.877kb	inv
AKXD-14	3302	ko/ko	<i>Atp9a</i>	ATPase	2	5 prime	1.877kb	inv
AKXD-10	11770	ko/ko	<i>Zfp217</i>	Zinc finger protein	2	5 prime	7.41kb	same
AKXD-10	11976	ko/ko	<i>Zfp217</i>	Zinc finger protein	2	5 prime	12.502kb	same
AKXD-27	8138	ko/ko	<i>Tmepai</i>	Protein binding protein	2	5 prime	129.414kb	inv
AKXD-27	6686	+/+	<i>Tmepai</i>	Protein binding protein	2	5 prime	132.082kb	same
AKXD-14	4153	+/+	<i>Rgs19</i>	Signaling protein	2	intron 1	not disrupt CDS	same
AKXD-27	7221	ko/ko	<i>Rgs19</i>	Signaling protein	2	intron 1	not disrupt CDS	same
AKXD-27	7376	ko/ko	<i>Evi1</i>	Transcription factor	3	5 prime	12.506kb	same
AKXD-27	8408	ko/ko	<i>Evi1</i>	Transcription factor	3	5 prime	13.445kb	same
AKXD-14	3390	+/+	<i>3110045G13Rik</i>	Undefined	3	intron 1	not disrupt CDS	inv

AKXD-14	3196	+/+	3110045G13Rik	Undefined	3	5 prime	17.404kb	inv
AKXD-27	8498	ko/ko	Shc1	Intracellular signalling	3	intron 1	not disrupt CDS	same
AKXD-27	7069	ko/ko	Shc1	Intracellular signalling	3	3 prime	6.285kb	same
AKXD-27	6634	ko/ko	Rfx5	DNA binding	3	5 prime	1.791kb	same
AKXD-27	8145	ko/ko	Rfx5	DNA binding	3	5 prime	1.573kb	inv
AKXD-10	12182	+/+	Rfx5	DNA binding	3	5 prime	0.241 kb	same
AKXD-14	3376	+/+	Rfx5	DNA binding	3	exon 1	disrupt CDS	same
AKXD-14	4302	+/+	Notch2	Transcription factor	3	5 prime	80.316kb	inv
AKXD-27	7424	ko/ko	Notch2	Transcription factor	3	5 prime	51.805kb	same
AKXD-10	11824	ko/ko	Notch2	Transcription factor	3	5 prime	41.094kb	inv
AKXD-10	12186	+/+	Notch2	Transcription factor	3	5 prime	39.221kb	inv
AKXD-27	6911	+/+	Notch2	Transcription factor	3	5 prime	33.905kb	inv
AKXD-10	13844	ko/ko	Notch2	Transcription factor	3	5 prime	33.688kb	inv
AKXD-10	11979	ko/ko	Notch2	Transcription factor	3	5 prime	33.684kb	inv
AKXD-10	11976	ko/ko	Notch2	Transcription factor	3	5 prime	31.568kb	inv
AKXD-10	11825	+/+	Notch2	Transcription factor	3	5 prime	20.675kb	inv
AKXD-14	3031	ko/ko	Notch2	Transcription factor	3	5 prime	18.607kb	inv
AKXD-10	11668	ko/ko	Notch2	Transcription factor	3	5 prime	0.62kb	inv
AKXD-14	3361	+/+	Psm5	Hydrolase, protein degradation	3	intron 1	disrupt CDS	inv
AKXD-10	11814	+/+	Psm5	Hydrolase, protein degradation	3	intron 1	disrupt CDS	inv
AKXD-27	7242	+/+	Nfkb1	Transcriptional repressor	3	intron 14	disrupt CDS	same
AKXD-14	3020	+/+	Nfkb1	Transcriptional repressor	3	5 prime	0.144kb	same
AKXD-10	14043	ko/ko	Nfkb1	Transcriptional repressor	3	5 prime	0.87kb	inv
AKXD-27	6648	ko/ko	Nfkb1	Transcriptional repressor	3	5 prime	0.91kb	inv
AKXD-10	11664	ko/ko	Nfkb1	Transcriptional repressor	3	5 prime	1.227kb	inv
AKXD-14	3055	+/+	Rg9mtd2	Methyltransferase domain	3	intron 1	not disrupt CDS	same
AKXD-10	13746	+/+	Rg9mtd2	Methyltransferase domain	3	intron 1	not disrupt CDS	same
AKXD-27	6634	ko/ko	Bach2	Transcriptional regulation	4	5 prime	14.141kb	inv
AKXD-10	11977	+/+	Bach2	Transcriptional regulation	4	5 prime	10.379 kb	same
AKXD-10	12180	+/+	Bach2	Transcriptional regulation	4	intron 2	not disrupt CDS	inv
AKXD-27	8160	+/+	Bach2	Transcriptional regulation	4	intron 2	not disrupt CDS	inv
AKXD-10	11680	ko/ko	Bach2	Transcriptional regulation	4	intron 2	not disrupt CDS	inv
AKXD-27	7092	ko/ko	Bach2	Transcriptional regulation	4	intron 2	not disrupt CDS	inv
AKXD-27	7415	ko/ko	Bach2	Transcriptional regulation	4	intron 3	not disrupt CDS	inv
AKXD-27	8610	ko/ko	Fancg	Fanconi Anemia group G	4	exon 4	disrupt CDS	inv
AKXD-14	4301	ko/ko	Fancg	Fanconi Anemia group G	4	intron 2	disrupt CDS	same
AKXD-27	7405	+/+	Pax5	Transcription factor	4	5 prime	1.108kb	same
AKXD-10	11591	ko/ko	Pax5	Transcription factor	4	5 prime	3.685kb	same
AKXD-27	8634	ko/ko	Anp32b	Nuclear phosphoprotein	4	intron 1	disrupt CDS	inv
AKXD-10	11976	ko/ko	Anp32b	Nuclear phosphoprotein	4	intron 1	disrupt CDS	same
AKXD-27	6896	+/+	Coro2a	Actin binding protein	4	intron 3	disrupt CDS	same
AKXD-14	3285	ko/ko	Coro2a	Actin binding protein	4	5 prime	16.159kb	inv
AKXD-10	11824	ko/ko	Jak1	Kinase	4	5 prime	27.329kb	inv
AKXD-27	8161	+/+	Jak1	Kinase	4	5 prime	32.878kb	inv
AKXD-27	7415	ko/ko	Ppap2b	Phosphatase	4	3 prime	19.865kb	inv
AKXD-27	7251	+/+	Ppap2b	Phosphatase	4	3 prime	53.818 kb	inv
AKXD-27	6648	ko/ko	Ppap2b	Phosphatase	4	3 prime	55.054kb	same
AKXD-27	8442	ko/ko	Usp24	Ubiquitin protease	4	5 prime	2.501kb	inv
AKXD-27	7232	ko/ko	Usp24	Ubiquitin protease	4	intron 1	disrupt CDS	same
AKXD-10	13847	ko/ko	Cdkn2c	Cdk4 inhibitor	4	intron 1	disrupt CDS	inv
AKXD-27	7221	ko/ko	Cdkn2c	Cdk4 inhibitor	4	intron 1	disrupt CDS	inv
AKXD-14	3041	ko/ko	Hivep3	HIV enhancer binding protein	4	intron 1	not disrupt CDS	inv
AKXD-27	7221	ko/ko	Hivep3	HIV enhancer binding protein	4	intron 1	not disrupt CDS	inv
AKXD-27	7213	ko/ko	Hivep3	HIV enhancer binding protein	4	intron 2	not disrupt CDS	same
AKXD-14	3290	ko/ko	Laptn5	Lysosome membrane protein	4	5 prime	4.53kb	same
AKXD-27	7099	ko/ko	Laptn5	Lysosome membrane protein	4	5 prime	0.364kb	same
AKXD-27	7107	ko/ko	Laptn5	Lysosome membrane protein	4	intron 1	disrupt CDS	inv
AKXD-27	7425	ko/ko	Arid1a	Chromatin remodeling	4	5 prime	34.017kb	same
AKXD-10	11976	ko/ko	Arid1a	Chromatin remodeling	4	5 prime	34.38kb	inv
AKXD-10	11395	ko/ko	Arid1a	Chromatin remodeling	4	5 prime	51.779 kb	inv
AKXD-27	7221	ko/ko	Cd52	Membrane protein	4	5 prime	2.542kb	inv
AKXD-14	3110	ko/ko	Cd52	Membrane protein	4	5 prime	4.804kb	same
AKXD-27	6661	+/+	Cd52	Membrane protein	4	5 prime	6.803kb	same
AKXD-10	11673	ko/ko	D4Wsu53e	Undefined	4	5 prime	3.498kb	inv
AKXD-14	4149	ko/ko	D4Wsu53e	Undefined	4	exon 1	not disrupt CDS	inv
AKXD-27	8751	ko/ko	Runx3	Transcription factor	4	5 prime	72.418kb	inv
AKXD-14	3132	+/+	Runx3	Transcription factor	4	5 prime	49.401kb	inv
AKXD-14	3132	+/+	Cnr2	Cell receptor	4	5 prime	20.664kb	inv
AKXD-14	3276	+/+	Cnr2	Cell receptor	4	5 prime	19.19kb	inv
AKXD-27	7232	ko/ko	Cnr2	Cell receptor	4	5 prime	19.14kb	same
AKXD-10	11819	ko/ko	Cnr2	Cell receptor	4	5 prime	18.417kb	inv
AKXD-14	3166	ko/ko	Cnr2	Cell receptor	4	intron 1	not disrupt CDS	inv
AKXD-27	8559	+/+	Dhrs3	Oxidoreductase	4	exon 1	not disrupt CDS	same
AKXD-14	3108	ko/ko	Dhrs3	Oxidoreductase	4	intron 1	disrupt CDS	same
AKXD-27	7389	ko/ko	Tnfrsf8	Tnf receptor superfamily	4	5 prime	0.419kb	inv
AKXD-14	3387	ko/ko	Tnfrsf8	Tnf receptor superfamily	4	5 prime	0.617kb	inv
AKXD-27	7107	ko/ko	Dnb5	Sugar transporter	4	3 prime	60.488kb	inv
AKXD-10	11395	ko/ko	Dnb5	Sugar transporter	4	3 prime	57.355kb	inv
AKXD-27	8913	ko/ko	Prdm16	Transcription factor	4	intron 2	disrupt CDS	inv
AKXD-14	4313	ko/ko	Prdm16	Transcription factor	4	intron 2	disrupt CDS	same
AKXD-27	7107	ko/ko	Prdm16	Transcription factor	4	intron 1	disrupt CDS	same
AKXD-27	7105	ko/ko	Prdm16	Transcription factor	4	intron 1	disrupt CDS	same
AKXD-14	3285	ko/ko	Tnfrsf14	Tnf receptor superfamily	4	intron 1	disrupt CDS	inv
AKXD-10	11819	ko/ko	Tnfrsf14	Tnf receptor superfamily	4	5 prime	0.219kb	inv
AKXD-27	7069	ko/ko	Cdk6	Kinase	5	5 prime	2.747kb	same
AKXD-27	6661	+/+	Cdk6	Kinase	5	5 prime	2.305kb	inv
AKXD-27	8637	ko/ko	Srpk2	Kinase	5	5 prime	33.519kb	inv

AKXD-14	3367	+/+	Srpk2	Kinase	5	5 prime	35.233kb	inv
AKXD-27	8751	ko/ko	Centd1	Undefined	5	intron 1	not disrupt CDS	same
AKXD-14	3134	ko/ko	Centd1	Undefined	5	5 prime	0.538kb	inv
AKXD-10	11680	ko/ko	Klf3	Transcriptional regulation	5	5 prime	1.202kb	inv
AKXD-14	3128	+/+	Klf3	Transcriptional regulation	5	5 prime	1.202kb	inv
AKXD-27	8574	+/+	Kdr	Cell receptor	5	3 prime	107.928kb	inv
AKXD-27	6992	+/+	Kdr	Cell receptor	5	3 prime	107.928kb	inv
AKXD-27	6895	ko/ko	Kdr	Cell receptor	5	3 prime	107.921kb	inv
AKXD-14	4153	+/+	Gfi1	Transcription factor	5	intron 5	disrupt CDS	same
AKXD-10	11825	+/+	Gfi1	Transcription factor	5	5 prime	0.059kb	inv
AKXD-14	4149	ko/ko	Gfi1	Transcription factor	5	5 prime	0.224kb	same
AKXD-14	3116	ko/ko	Gfi1	Transcription factor	5	5 prime	0.334kb	inv
AKXD-27	7099	ko/ko	Gfi1	Transcription factor	5	5 prime	0.451kb	inv
AKXD-27	7242	+/+	Gfi1	Transcription factor	5	5 prime	0.807kb	inv
AKXD-10	11766	+/+	Gfi1	Transcription factor	5	5 prime	1.041kb	same
AKXD-14	3381	ko/ko	Gfi1	Transcription factor	5	5 prime	1.041kb	same
AKXD-27	6895	ko/ko	Gfi1	Transcription factor	5	5 prime	1.617kb	inv
AKXD-14	3110	ko/ko	Gfi1	Transcription factor	5	5 prime	1.945kb	inv
AKXD-14	3296	ko/ko	Gfi1	Transcription factor	5	5 prime	2.004kb	inv
AKXD-10	11398	+/+	Gfi1	Transcription factor	5	5 prime	2.009kb	inv
AKXD-14	3280	ko/ko	Gfi1	Transcription factor	5	5 prime	3.258kb	inv
AKXD-27	8559	+/+	Gfi1	Transcription factor	5	5 prime	7.049kb	inv
AKXD-27	7422	ko/ko	Gfi1	Transcription factor	5	5 prime	7.866kb	inv
AKXD-14	3053	+/+	Gfi1	Transcription factor	5	5 prime	14kb	inv
AKXD-27	6899	ko/ko	Gfi1	Transcription factor	5	5 prime	15.268kb	inv
AKXD-14	3390	+/+	Gfi1	Transcription factor	5	5 prime	25.098kb	inv
AKXD-27	7213	ko/ko	Gfi1	Transcription factor	5	5 prime	30.781kb	inv
AKXD-27	7103	+/+	Gfi1	Transcription factor	5	5 prime	49.027kb	inv
AKXD-27	8637	ko/ko	Prkab1	Kinase	5	intron 1	disrupt CDS	same
AKXD-27	8888	+/+	Prkab1	Kinase	5	5 prime	0.744kb	inv
AKXD-14	3100	+/+	Ppp1cc 9130017A15Rik	Phosphatase Phosphatase	5	3 prime 5 prime	33.429kb 75.443kb	inv inv
AKXD-14	3277	+/+	Ppp1cc 9130017A15Rik	Phosphatase Phosphatase	5	3 prime 5 prime	34.002kb 74.87kb	same same
AKXD-14	3302	ko/ko	BC065090 (Fbx110)	Jumonji domain, F-box	5	intron 3	disrupt CDS	same
AKXD-14	3275	ko/ko	BC065090 (Fbx110)	Jumonji domain, F-box	5	intron 2	disrupt CDS	same
AKXD-27	7422	ko/ko	BC065090 (Fbx110)	Jumonji domain, F-box	5	exon 1	not disrupt CDS	same
AKXD-14	3037	ko/ko	Sbds	Undefined	5	5 prime	0.855kb	same
AKXD-27	7420	+/+	Sbds	Undefined	5	5 prime	1.017kb	same
AKXD-10	11411	ko/ko	Aps	Signalling, adaptor protein	5	3 prime	3.426kb	same
AKXD-27	7102	ko/ko	Aps	Signalling, adaptor protein	5	intron 1	not disrupt CDS	same
AKXD-10	11977	+/+	Lfng	Signalling, notch regulator	5	5 prime	9.454kb	inv
AKXD-10	14106	+/+	Lfng	Signalling, notch regulator	5	5 prime	1.448kb	inv
AKXD-10	14150	ko/ko	Lfng	Signalling, notch regulator	5	5 prime	0.619kb	inv
AKXD-10	12186	+/+	Lfng	Signalling, notch regulator	5	5 prime	0.572kb	inv
AKXD-14	3290	ko/ko	Lfng	Signalling, notch regulator	5	3 prime	2.7kb	same
AKXD-10	12002	ko/ko	AA881470 lqce	Undefined Undefined	5	5 prime 5 prime	0.94kb 1.704kb	same inv
AKXD-14	3046	ko/ko	AA881470 lqce	Undefined Undefined	5	intron 1 5 prime	not disrupt CDS 3.336kb	inv same
AKXD-27	8560	ko/ko	Actb	Actin cytoskeleton	5	3 prime	7.688kb	inv
AKXD-10	11664	ko/ko	Actb	Actin cytoskeleton	5	5 prime	1.859kb	same
AKXD-27	6648	ko/ko	Actb	Actin cytoskeleton	5	5 prime	22.692kb	inv
AKXD-14	3106	+/+	Flt3	Kinase	5	intron 20	disrupt CDS	inv
AKXD-14	3381	ko/ko	Flt3	Kinase	5	intron 20	disrupt CDS	inv
AKXD-14	3302	ko/ko	Ubl3	Ubiquitin-like protein	5	exon 1	not disrupt CDS	same
AKXD-10	11423	ko/ko	Ubl3	Ubiquitin-like protein	5	5 prime	2.948kb	same
AKXD-27	7389	ko/ko	Ubl3	Ubiquitin-like protein	5	5 prime	46.431 kb	same
AKXD-27	7420	+/+	Phf14	Transcriptional regulation	6	5 prime	0.389kb	inv
AKXD-27	8916	ko/ko	Phf14	Transcriptional regulation	6	5 prime	0.389kb	inv
AKXD-10	13738	ko/ko	AB041803	Undefined	6	3 prime	77.422kb	same
AKXD-14	3197	ko/ko	AB041803	Undefined	6	3 prime	76.545kb	inv
AKXD-10	11402	+/+	Jmjd1a	Jumonji domain	6	5 prime	12.092kb	inv
AKXD-10	11395	ko/ko	Jmjd1a	Jumonji domain	6	5 prime	12.314kb	inv
AKXD-14	3283	ko/ko	Vamp8	Endosome protein	6	3 prime	3.673kb	inv
AKXD-27	6625	ko/ko	Vamp8	Endosome protein	6	exon 1	disrupt CDS	same
AKXD-14	3100	+/+	Irak2	Kinase	6	intron 4	disrupt CDS	same
AKXD-27	7422	ko/ko	Irak2	Kinase	6	3 prime	1.467kb	same
AKXD-27	6641	ko/ko	Zfp239	Zinc finger protein	6	3 prime	6.369kb	same
AKXD-14	4151	ko/ko	Zfp239	Zinc finger protein	6	3 prime	22.128kb	inv
AKXD-10	11746	ko/ko	Zfp239	Zinc finger protein	6	3 prime	32.569kb	same
AKXD-27	8309	ko/ko	Cecr5	Hydrolase	6	5 prime	86.131kb	inv
AKXD-14	3387	ko/ko	Cecr5	Hydrolase	6	5 prime	112.032kb	inv
AKXD-10	12002	ko/ko	Bid	Apoptosis regulator	6	intron 1	not disrupt CDS	inv
AKXD-27	8146	+/+	Bid	Apoptosis regulator	6	5 prime	16.876kb	same
AKXD-27	8172	+/+	Hcph	Phosphatase	6	intron 3	disrupt CDS	inv
AKXD-27	7102	ko/ko	Hcph	Phosphatase	6	intron 2	disrupt CDS	inv
AKXD-27	7379	ko/ko	2810406C15Rik	Chromosome condensation	6	intron 21	disrupt CDS	inv
AKXD-27	6686	+/+	2810406C15Rik	Chromosome condensation	6	intron 1	not disrupt CDS	inv
AKXD-10	11556	+/+	Ltbr	Cytokine receptor	6	5 prime	0.329kb	inv
AKXD-10	14443	+/+	Ltbr	Cytokine receptor	6	5 prime	0.344kb	inv
AKXD-27	7379	ko/ko	Ltbr	Cytokine receptor	6	5 prime	7.206kb	inv
AKXD-10	11767	+/+	Tnfrsf1a	Tnf receptor superfamily	6	5 prime	5.764kb	same
AKXD-10	11977	+/+	Tnfrsf1a	Tnf receptor superfamily	6	exon 8	disrupt CDS	inv
AKXD-27	7424	ko/ko	Ccnd2	Cell cycle regulation	6	5 prime	0.395kb	inv
AKXD-14	3132	+/+	Ccnd2	Cell cycle regulation	6	5 prime	1.075kb	inv
AKXD-27	8559	+/+	Ccnd2	Cell cycle regulation	6	5 prime	2.027kb	inv
AKXD-27	7233	+/+	Ccnd2	Cell cycle regulation	6	5 prime	2.089kb	inv
AKXD-27	6992	+/+	Ccnd2	Cell cycle regulation	6	5 prime	2.151kb	inv
AKXD-27	8161	+/+	Ccnd2	Cell cycle regulation	6	5 prime	2.151kb	inv
AKXD-14	3098	ko/ko	Ccnd2	Cell cycle regulation	6	5 prime	29.998kb	same

AKXD-14	3302	ko/ko	D130058E03	Undefined	6	5 prime	22.523kb	inv
AKXD-14	3296	ko/ko	D130058E03	Undefined	6	5 prime	22.956kb	inv
AKXD-10	13743	ko/ko	A630024B12Rik	Sugar binding protein	6	5 prime	9.612kb	inv
AKXD-14	5039	ko/ko	A630024B12Rik	Sugar binding protein	6	5 prime	6.49kb	same
AKXD-10	11984	ko/ko	5730419I09Rik	Undefined	6	5 prime	44.88 kb	same
AKXD-27	7371	ko/ko	5730419I09Rik	Undefined	6	5 prime	67.862 kb	same
AKXD-27	8758	ko/ko	Napa	Protein transporter	7	5 prime	53.207kb	inv
AKXD-27	7420	+/+	Napa	Protein transporter	7	5 prime	43.53kb	inv
AKXD-10	11427	ko/ko	Pou2f2	Transcription factor	7	exon 3	disrupt CDS	same
AKXD-27	7105	ko/ko	Pou2f2	Transcription factor	7	intron 1	disrupt CDS	inv
AKXD-27	6641	ko/ko	Pou2f2	Transcription factor	7	intron 1	disrupt CDS	same
AKXD-27	6634	ko/ko	Pou2f2	Transcription factor	7	intron 1	disrupt CDS	inv
AKXD-10	13739	ko/ko	Plekhg2 Zfp36	Common site/zinc finger protein	7	5 prime 5 prime	8.099kb 1.448kb	same same
AKXD-10	12171	+/+	Plekhg2 Zfp36	Common site/zinc finger protein	7	5 prime 5 prime	9.089kb 2.438kb	inv inv
AKXD-10	11580	+/+	Plekhg2 Zfp36	Common site/zinc finger protein	7	5 prime 5 prime	9.491kb 2.84kb	inv inv
AKXD-14	3046	ko/ko	1810054O13Rik	Undefined	7	intron 1	disrupt CDS	inv
AKXD-10	14503	ko/ko	1810054O13Rik	Undefined	7	intron 2	disrupt CDS	inv
AKXD-14	3304	+/+	Chd2	DNA binding protein	7	5 prime	16.848kb	inv
AKXD-10	11395	ko/ko	Chd2	DNA binding protein	7	5 prime	18.371kb	same
AKXD-14	3100	+/+	Chd2	DNA binding protein	7	5 prime	55.064kb	inv
AKXD-10	13835	+/+	Chd2	DNA binding protein	7	5 prime	55.193kb	inv
AKXD-27	7065	+/+	Akap13	Kinase anchor protein	7	5 prime	27.274kb	inv
AKXD-27	8756	ko/ko	Akap13	Kinase anchor protein	7	5 prime	24.388kb	same
AKXD-10	11567	ko/ko	Il16	Cytokine	7	intron 15	disrupt CDS	inv
AKXD-14	3197	ko/ko	Il16	Cytokine	7	intron 15	disrupt CDS	inv
AKXD-27	7105	ko/ko	Me3	Mitochondrial protein	7	intron 7	disrupt CDS	inv
AKXD-10	12223	+/+	Me3	Mitochondrial protein	7	intron 12	disrupt CDS	inv
AKXD-10	11411	ko/ko	LOC209380	Undefined	7	5 prime	88.696kb	same
AKXD-10	11980	ko/ko	LOC209380	Undefined	7	5 prime	89.922kb	same
AKXD-10	11679	ko/ko	Rras2	Ras protein	7	5 prime	77.406kb	inv
AKXD-27	6686	+/+	Rras2	Ras protein	7	5 prime	107.102kb	same
AKXD-14	3197	ko/ko	Rras2	Ras protein	7	5 prime	108.835kb	inv
AKXD-14	3203	+/+	Rras2	Ras protein	7	5 prime	110.748kb	inv
AKXD-10	11401	ko/ko	Rras2	Ras protein	7	5 prime	112.29kb	inv
AKXD-27	8760	+/+	Rras2	Ras protein	7	5 prime	113.004kb	inv
AKXD-27	6965	ko/ko	Jmjd5	Jumonji domain	7	intron 1	not disrupt CDS	inv
AKXD-10	12218	ko/ko	Jmjd5	Jumonji domain	7	intron 1	not disrupt CDS	inv
AKXD-14	5046	ko/ko	Coro1a	Actin binding protein	7	exon 4	disrupt CDS	inv
AKXD-10	11582	ko/ko	Coro1a	Actin binding protein	7	intron 1	not disrupt CDS	inv
AKXD-10	12182	+/+	Stx4a	Protein transporter	7	5 prime	0.608kb	same
AKXD-10	11977	+/+	Stx4a	Protein transporter	7	5 prime	0.304kb	same
AKXD-14	5039	ko/ko	BC023151	Undefined	7	5 prime	0.328 kb	same
AKXD-14	3390	+/+	BC023151	Undefined	7	intron 2	disrupt CDS	inv
AKXD-27	7405	+/+	Hras	Ras protein	7	3 prime	21.187kb	same
AKXD-27	8635	ko/ko	Hras	Ras protein	7	3 prime	20.345kb	same
AKXD-27	7371	ko/ko	Ccnd1	Cell cycle regulation	7	exon 5	not disrupt CDS	same
AKXD-10	14443	+/+	Ccnd1	Cell cycle regulation	7	exon 5	not disrupt CDS	same
AKXD-27	8498	ko/ko	Ccnd1	Cell cycle regulation	7	5 prime	1.175kb	same
AKXD-14	3276	+/+	Ccnd1	Cell cycle regulation	7	5 prime	1.51kb	inv
AKXD-10	11558	ko/ko	Mef2b	Transcription enhancer factor	8	5 prime	0.981kb	inv
AKXD-10	11985	ko/ko	Mef2b	Transcription enhancer factor	8	intron 1	not disrupt CDS	inv
AKXD-10	12210	ko/ko	Mef2b	Transcription enhancer factor	8	intron 1	not disrupt CDS	inv
AKXD-10	14100	ko/ko	Ssbp4	DNA binding protein	8	intron 1	disrupt CDS	same
AKXD-27	8445	+/+	Ssbp4	DNA binding protein	8	intron 1	disrupt CDS	same
AKXD-27	8138	ko/ko	Ssbp4	DNA binding protein	8	5 prime	3.675kb	inv
AKXD-27	8763	+/+	Lyl1	Transcriptional regulation	8	intron 3	disrupt CDS	same
AKXD-14	3275	ko/ko	Lyl1	Transcriptional regulation	8	intron 3	disrupt CDS	same
AKXD-27	6995	+/+	Junb	Transcription factor	8	3 prime	1.692kb	same
AKXD-10	12169	ko/ko	Junb	Transcription factor	8	5 prime	10.276kb	inv
AKXD-27	8442	ko/ko	Zfp423	Transcription factor	8	exon 1	disrupt CDS	inv
AKXD-27	7403	+/+	Zfp423	Transcription factor	8	5 prime	0.395kb	inv
AKXD-27	6895	ko/ko	Zfp423	Transcription factor	8	5 prime	0.508kb	same
AKXD-27	7338	ko/ko	Rbl2	Cell cycle regulation	8	intron 4	disrupt CDS	inv
AKXD-10	13739	ko/ko	Rbl2	Cell cycle regulation	8	intron 5	disrupt CDS	inv
AKXD-14	3055	+/+	Nfatc3	Transcription factor	8	5 prime	5.314kb	same
AKXD-27	7221	ko/ko	Nfatc3	Transcription factor	8	intron 1	disrupt CDS	same
AKXD-27	6896	+/+	Icam1	Cell adhesion	9	5 prime	21.764kb	inv
AKXD-10	11985	ko/ko	Icam1	Cell adhesion	9	intron 1	disrupt CDS	same
AKXD-27	7380	ko/ko	Pde4a	Phosphodiesterase	9	intron 1	disrupt CDS	inv
AKXD-27	6664	+/+	Pde4a	Phosphodiesterase	9	intron 7	disrupt CDS	inv
AKXD-27	7338	ko/ko	Ubi7	Ubiquitin-like	9	5 prime	0.275kb	same
AKXD-14	3197	ko/ko	Ubi7	Ubiquitin-like	9	5 prime	0.175kb	same
AKXD-10	10092	ko/ko	Coro2b	Actin binding protein	9	intron 3	disrupt CDS	inv
AKXD-10	12210	ko/ko	Coro2b	Actin binding protein	9	intron 3	disrupt CDS	inv
AKXD-10	11675	ko/ko	Lactb	Ribosomal protein	9	5 prime	1.611kb	inv
AKXD-27	7403	+/+	Lactb	Ribosomal protein	9	5 prime	1.869kb	same
AKXD-10	12172	+/+	Gclc	Glutathione biosynthesis	9	3 prime	140.378kb	same
AKXD-10	14328	ko/ko	Gclc	Glutathione biosynthesis	9	3 prime	140.673kb	same
AKXD-14	3162	ko/ko	Gpx1	Oxidoreductase	9	intron 1	disrupt CDS	same
AKXD-27	7244	ko/ko	Gpx1	Oxidoreductase	9	exon 2	disrupt CDS	same
AKXD-27	6661	+/+	Glb1	Galactosidase	9	5 prime	0.594kb	inv
AKXD-14	3204	+/+	Glb1	Galactosidase	9	5 prime	0.398kb	same
AKXD-14	4316	ko/ko	1500010M16Rik	Translation initiation	9	5 prime	1.2kb	inv
AKXD-10	14106	+/+	1500010M16Rik	Translation initiation	9	5 prime	0.457kb	inv
AKXD-14	3098	ko/ko	Zdhhc3	Endopeptidase	9	intron 3	disrupt CDS	same
AKXD-10	12169	ko/ko	Zdhhc3	Endopeptidase	9	5 prime	0.711kb	same
AKXD-27	8763	+/+	Ahi1 Myb	Unknown/transcription factor	10	exon 24 3 prime	not disrupt CDS 44.827kb	inv same

AKXD-14	3020	+/+	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime intron 13	58.936kb disrupt CDS	inv same
AKXD-27	6967	+/+	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime 5 prime	147.968kb 67.764kb	same inv
AKXD-14	4146	+/+	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime 5 prime	158.885kb 78.681kb	same inv
AKXD-27	7403	+/+	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime 5 prime	161.181kb 80.977kb	same inv
AKXD-14	3280	ko/ko	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime 5 prime	163.607kb 83.403kb	same inv
AKXD-27	8760	+/+	<i>Ahi1</i> <i>Myb</i>	Unknown/transcription factor	10	3 prime 5 prime	165.232kb 85.028kb	inv same
AKXD-10	11590	ko/ko	<i>Rtn4ip1</i>	Mitochondrial protein	10	5 prime	83.386kb	inv
AKXD-14	3134	ko/ko	<i>Rtn4ip1</i>	Mitochondrial protein	10	5 prime	74.629kb	same
AKXD-27	7405	+/+	<i>Rtn4ip1</i>	Mitochondrial protein	10	5 prime	72.993kb	same
AKXD-14	4149	ko/ko	<i>Prdm1</i>	Zinc finger protein	10	intron 4	disrupt CDS	same
AKXD-10	11978	ko/ko	<i>Prdm1</i>	Zinc finger protein	10	intron 4	disrupt CDS	inv
AKXD-27	7088	ko/ko	<i>Prdm1</i>	Zinc finger protein	10	intron 4	disrupt CDS	same
AKXD-14	3134	ko/ko	<i>Prdm1</i>	Zinc finger protein	10	intron 3	disrupt CDS	same
AKXD-10	13743	ko/ko	<i>3110049J23Rik</i>	Oxidoreductase	10	5 prime	1.506kb	inv
AKXD-10	11814	+/+	<i>3110049J23Rik</i>	Oxidoreductase	10	exon 1	not disrupt CDS	same
AKXD-10	13743	ko/ko	<i>Slc19a1</i>	Solute carrier protein	10	5 prime	0.69kb	inv
AKXD-14	3055	+/+	<i>Slc19a1</i>	Solute carrier protein	10	intron 1	not disrupt CDS	inv
AKXD-10	11985	ko/ko	<i>Pttglip</i>	Pituitary transforming 1 interacting	10	3 prime	7.048kb	same
AKXD-27	8172	+/+	<i>Pttglip</i>	Pituitary transforming 1 interacting	10	3 prime	7.091kb	same
AKXD-27	8442	ko/ko	<i>1200008N06Rik</i>	Rho GTPase	10	intron 1	disrupt CDS	same
AKXD-14	5046	ko/ko	<i>1200008N06Rik</i>	Rho GTPase	10	intron 1	disrupt CDS	same
AKXD-10	11580	+/+	<i>1200008N06Rik</i>	Rho GTPase	10	5 prime	0.37kb	inv
AKXD-14	3376	+/+	<i>Cirbp</i>	RNA binding protein	10	5 prime	10.068kb	same
AKXD-14	3387	ko/ko	<i>Cirbp</i>	RNA binding protein	10	5 prime	9.202kb	same
AKXD-10	12175	ko/ko	<i>Tcfe2a</i>	Transcription factor	10	intron 1	not disrupt CDS	same
AKXD-10	11558	ko/ko	<i>Tcfe2a</i>	Transcription factor	10	intron 1	not disrupt CDS	same
AKXD-14	3371	+/+	<i>Tcfe2a</i>	Transcription factor	10	5 prime	0.105kb	same
AKXD-27	7105	ko/ko	<i>Tcfe2a</i>	Transcription factor	10	5 prime	2.712 kb	inv
AKXD-10	11411	ko/ko	<i>Scamp4</i>	Secretory protein	10	5 prime	0.16kb	same
AKXD-27	8160	+/+	<i>Scamp4</i>	Secretory protein	10	3 prime	5.951kb	inv
AKXD-10	13743	ko/ko	<i>Ebf1</i>	Transcription factor	11	5 prime	0.245kb	inv
AKXD-10	12171	+/+	<i>Ebf1</i>	Transcription factor	11	5 prime	0.038kb	inv
AKXD-10	11670	ko/ko	<i>ltk</i>	Kinase	11	3 prime	13.998kb	same
AKXD-27	6995	+/+	<i>ltk</i>	Kinase	11	3 prime	13.998kb	same
AKXD-10	14100	ko/ko	<i>C330016O10Rik</i>	Protein targeting	11	exon 4	disrupt CDS	same
AKXD-10	11978	ko/ko	<i>C330016O10Rik</i>	Protein targeting	11	intron 3	disrupt CDS	inv
AKXD-27	8402	ko/ko	<i>Il5</i> <i>Irf1</i>	Cytokine/interferon regulator	11	3 prime 3 prime	70.256kb 18.036kb	inv inv
AKXD-14	3286	ko/ko	<i>Il5</i> <i>Irf1</i>	Cytokine/interferon regulator	11	3 prime 3 prime	70.608kb 18.388kb	inv inv
AKXD-14	3098	ko/ko	<i>Tnfrsf13b</i>	Tnf receptor subfamily	11	5 prime	30.729kb	inv
AKXD-14	3046	ko/ko	<i>Tnfrsf13b</i>	Tnf receptor subfamily	11	5 prime	16.79kb	inv
AKXD-14	3276	+/+	<i>Chd3</i>	Helicase	11	3 prime	30.099kb	inv
AKXD-27	6965	ko/ko	<i>Chd3</i>	Helicase	11	5 prime	10.81kb	same
AKXD-14	3275	ko/ko	<i>Chd3</i>	Helicase	11	5 prime	12.83kb	inv
AKXD-14	3381	ko/ko	<i>Pfn1</i>	Actin polymerization	11	intron 1	disrupt CDS	inv
AKXD-27	7230	ko/ko	<i>Pfn1</i>	Actin polymerization	11	5 prime	0.303kb	same
AKXD-10	11680	ko/ko	<i>AI317223</i>	Undefined	11	5 prime	56.503kb	inv
AKXD-10	11591	ko/ko	<i>AI317223</i>	Undefined	11	5 prime	17.55kb	inv
AKXD-10	12218	ko/ko	<i>AI317223</i>	Undefined	11	5 prime	5.723kb	same
AKXD-27	6648	ko/ko	<i>AI317223</i>	Undefined	11	intron 2	disrupt CDS	inv
AKXD-10	11746	ko/ko	<i>Hic1</i> <i>Dph2l1</i>	Hypermethylated/toxin resistance	11	5 prime 3 prime	2.548kb 5.576kb	same same
AKXD-27	7233	+/+	<i>Hic1</i> <i>Dph2l1</i>	Hypermethylated/toxin resistance	11	5 prime 3 prime	3.812kb 4.312kb	inv inv
AKXD-10	11977	+/+	<i>Hic1</i> <i>Dph2l1</i>	Hypermethylated/toxin resistance	11	5 prime intron 3	15.395kb disrupt CDS	inv inv
AKXD-27	7219	ko/ko	<i>Pps</i>	Phosphatase	11	3 prime	4.788kb	inv
AKXD-10	11979	ko/ko	<i>Pps</i>	Phosphatase	11	3 prime	6.239kb	same
AKXD-10	13738	ko/ko	<i>Nf1</i>	Ras GTPase	11	intron 36	disrupt CDS	inv
AKXD-14	4302	+/+	<i>Nf1</i>	Ras GTPase	11	intron 36	disrupt CDS	same
AKXD-27	7405	+/+	<i>Cdk5r</i>	Cdk receptor	11	3 prime	27.993kb	inv
AKXD-27	7422	ko/ko	<i>Cdk5r</i>	Cdk receptor	11	3 prime	28.343kb	same
AKXD-10	12180	+/+	<i>Usp32</i>	Ubiquitin protease	11	3 prime	1.392kb	inv
AKXD-10	11395	ko/ko	<i>Usp32</i>	Ubiquitin protease	11	3 prime	0.954kb	inv
AKXD-10	11401	ko/ko	<i>Usp32</i>	Ubiquitin protease	11	3 prime	0.953kb	inv
AKXD-14	3275	ko/ko	<i>Tbx21</i>	T-box protein	11	intron 1	disrupt CDS	inv
AKXD-27	7232	ko/ko	<i>Tbx21</i>	T-box protein	11	5 prime	26.064kb	same
AKXD-10	12210	ko/ko	<i>Ccr7</i>	Chemokine receptor	11	5 prime	0.701kb	inv
AKXD-27	7102	ko/ko	<i>Ccr7</i>	Chemokine receptor	11	5 prime	12.437kb	same
AKXD-14	3280	ko/ko	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	5 prime intron 1	40.138kb not disrupt CDS	same inv
AKXD-14	3128	+/+	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	5 prime 5 prime	33.176kb 3.709kb	same inv
AKXD-27	7376	ko/ko	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	5 prime 5 prime	8.453kb 28.432kb	inv same
AKXD-10	11582	ko/ko	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	5 prime 5 prime	8.118kb 28.767kb	inv same
AKXD-10	11980	ko/ko	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	5 prime 5 prime	7.345kb 29.54kb	same inv
AKXD-27	7069	ko/ko	<i>Stat5a</i> <i>Stat5b</i>	Signal transduction	11	intron 1 5 prime	not disrupt CDS 37.462kb	inv same
AKXD-27	6644	+/+	<i>Cip1</i>	Transcriptional repressor	11	5 prime	0.673kb	inv
AKXD-14	3098	ko/ko	<i>Cip1</i>	Transcriptional repressor	11	exon 1	not disrupt CDS	same
AKXD-14	3296	ko/ko	<i>Pecam</i>	Rho signaling	11	5 prime	37.287kb	inv
AKXD-27	7405	+/+	<i>Pecam</i>	Rho signaling	11	5 prime	46.48kb	inv
AKXD-27	6641	ko/ko	<i>Pecam</i>	Rho signaling	11	5 prime	47.555kb	inv
AKXD-14	3381	ko/ko	<i>Cbx4</i>	Chromatin assembly	11	5 prime	35.577kb	inv
AKXD-27	8444	+/+	<i>Cbx4</i>	Chromatin assembly	11	5 prime	42.751kb	inv
AKXD-27	8147	ko/ko	<i>Nmyc1</i>	Transcription factor	12	exon 3	disrupt CDS	inv
AKXD-27	8635	ko/ko	<i>Nmyc1</i>	Transcription factor	12	exon 3	disrupt CDS	inv
AKXD-27	8760	+/+	<i>Nmyc1</i>	Transcription factor	12	intron 1	not disrupt CDS	same
AKXD-10	13831	+/+	<i>Idb2</i>	Transcription factor inhibitor	12	5 prime	87.013kb	same
AKXD-27	7221	ko/ko	<i>Idb2</i>	Transcription factor inhibitor	12	5 prime	114.294kb	inv
AKXD-14	3277	+/+	<i>Arf6</i>	ADP-ribosylation	12	5 prime	0.76kb	inv
AKXD-10	12183	ko/ko	<i>Arf6</i>	ADP-ribosylation	12	5 prime	0.626kb	inv
AKXD-27	7395	+/+	<i>Arf6</i>	ADP-ribosylation	12	3 prime	0.143kb	inv
AKXD-10	11767	+/+	<i>Arf6</i>	ADP-ribosylation	12	3 prime	82.025kb	inv

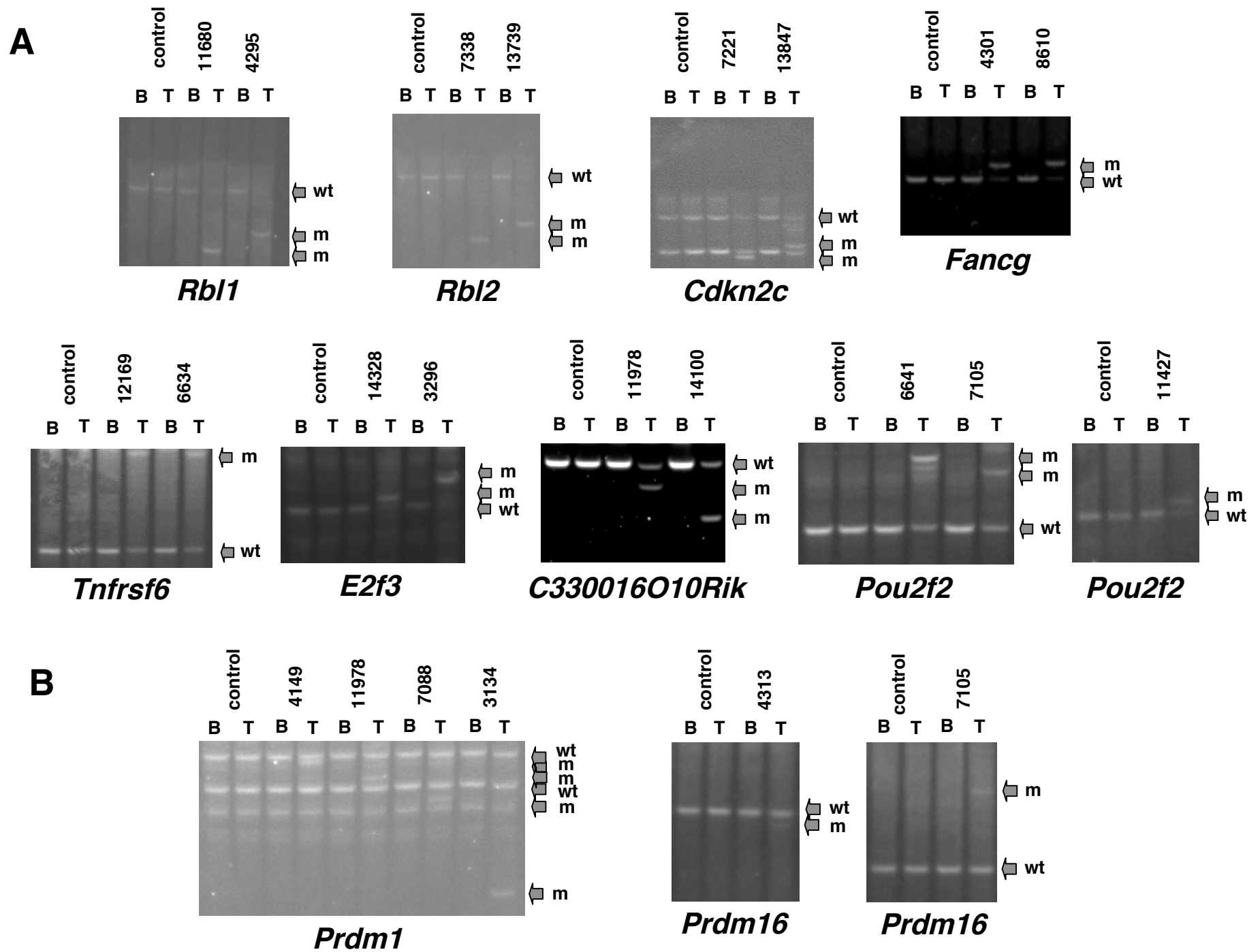
AKXD-14	3127	+/+	Plek2	Signalling, protein biosynthesis	12	5 prime	75.079kb	inv
AKXD-14	3286	ko/ko	Plek2	Signalling, protein biosynthesis	12	5 prime	99.312kb	same
AKXD-10	12182	+/+	Pnma1	Undefined	12	5 prime	39.327kb	same
AKXD-27	6896	+/+	Pnma1	Undefined	12	5 prime	45.979kb	inv
AKXD-14	3203	+/+	Jundm2	Transcription factor	12	5 prime	54.515kb	inv
AKXD-14	3197	ko/ko	Jundm2	Transcription factor	12	5 prime	54.084kb	inv
AKXD-27	7239	+/+	Batf	Transcription factor	12	5 prime	25.556kb	same
AKXD-10	12169	ko/ko	Batf	Transcription factor	12	5 prime	0.866kb	inv
AKXD-27	8172	+/+	Gtf2a1	Transcription factor	12	5 prime	0.308kb	inv
AKXD-14	3280	ko/ko	Gtf2a1	Transcription factor	12	5 prime	0.335kb	same
AKXD-27	6645	+/+	Elmo1	Phagocytosis/cell migration	13	intron 14	disrupt CDS	inv
AKXD-14	3134	ko/ko	Elmo1	Phagocytosis/cell migration	13	intron 14	disrupt CDS	inv
AKXD-10	11984	ko/ko	Sox4	Transcription factor	13	3 prime	65.559kb	same
AKXD-10	12002	ko/ko	Sox4	Transcription factor	13	3 prime	10.257kb	inv
AKXD-27	6648	ko/ko	Sox4	Transcription factor	13	3 prime	7.173kb	inv
AKXD-10	11976	ko/ko	Sox4	Transcription factor	13	3 prime	6.562kb	same
AKXD-10	11979	ko/ko	Sox4	Transcription factor	13	3 prime	6.22kb	same
AKXD-10	11414	+/+	Sox4	Transcription factor	13	3 prime	2.926kb	same
AKXD-10	11746	ko/ko	Sox4	Transcription factor	13	3 prime	1.748kb	same
AKXD-10	14443	+/+	Sox4	Transcription factor	13	3 prime	1.387kb	same
AKXD-10	11818	ko/ko	Sox4	Transcription factor	13	3 prime	0.9kb	same
AKXD-10	13847	ko/ko	Sox4	Transcription factor	13	3 prime	0.895kb	same
AKXD-14	3098	ko/ko	Sox4	Transcription factor	13	3 prime	0.833kb	same
AKXD-10	12183	ko/ko	Sox4	Transcription factor	13	3 prime	0.753kb	same
AKXD-27	7412	ko/ko	Sox4	Transcription factor	13	3 prime	0.544kb	same
AKXD-10	11423	ko/ko	Sox4	Transcription factor	13	3 prime	0.522kb	same
AKXD-14	3381	ko/ko	Sox4	Transcription factor	13	3 prime	0.52kb	same
AKXD-10	11402	+/+	Sox4	Transcription factor	13	3 prime	0.473kb	same
AKXD-10	11580	+/+	Sox4	Transcription factor	13	3 prime	0.207kb	same
AKXD-27	8408	ko/ko	Sox4	Transcription factor	13	3 prime	0.177kb	same
AKXD-27	6992	+/+	Sox4	Transcription factor	13	3 prime	0.064kb	same
AKXD-14	4147	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	3285	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	3127	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7103	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	8444	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-10	14101	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-10	11419	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7105	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7219	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	3053	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	6967	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7422	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	3037	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	6641	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-10	11664	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7395	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	3367	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-10	11819	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	4149	ko/ko	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-14	5044	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-27	7420	+/+	Sox4	Transcription factor	13	exon 1	not disrupt CDS	same
AKXD-10	11591	ko/ko	Sox4	Transcription factor	13	5 prime	0.712kb	inv
AKXD-10	12186	+/+	Sox4	Transcription factor	13	5 prime	1.329kb	inv
AKXD-27	8417	ko/ko	Sox4	Transcription factor	13	5 prime	3.195kb	inv
AKXD-10	11767	+/+	Sox4	Transcription factor	13	5 prime	3.28kb	inv
AKXD-14	3296	ko/ko	E2f3	Transcription factor	13	intron 1	disrupt CDS	inv
AKXD-10	14328	ko/ko	E2f3	Transcription factor	13	exon 1	disrupt CDS	inv
AKXD-27	8309	ko/ko	3110004L20Rik	Undefined	13	intron 1	disrupt CDS	same
AKXD-27	6648	ko/ko	3110004L20Rik	Undefined	13	intron 1	disrupt CDS	inv
AKXD-27	7405	+/+	Rreb1	Transcription factor	13	5 prime	24.967kb	inv
AKXD-10	14443	+/+	Rreb1	Transcription factor	13	5 prime	24.727kb	inv
AKXD-10	12186	+/+	Rreb1	Transcription factor	13	5 prime	2.102kb	inv
AKXD-14	3031	ko/ko	Rreb1	Transcription factor	13	5 prime	1.394kb	inv
AKXD-14	3296	ko/ko	Rreb1	Transcription factor	13	5 prime	1.394kb	inv
AKXD-10	11979	ko/ko	Rreb1	Transcription factor	13	5 prime	1.352kb	inv
AKXD-10	11664	ko/ko	Rreb1	Transcription factor	13	5 prime	0.703kb	inv
AKXD-27	6965	ko/ko	Gadd45g	MAPKK activation	13	5 prime	77.509kb	inv
AKXD-27	7425	ko/ko	Gadd45g	MAPKK activation	13	5 prime	77.484kb	inv
AKXD-27	6900	ko/ko	Pitx1	Homeodomain protein	13	5 prime	35.182kb	inv
AKXD-10	14038	+/+	Pitx1	Homeodomain protein	13	5 prime	35.601kb	inv
AKXD-14	4316	ko/ko	Mef2c	Transcription enhancer factor	13	intron 2	not disrupt CDS	same
AKXD-27	8888	+/+	Mef2c	Transcription enhancer factor	13	intron 2	not disrupt CDS	same
AKXD-14	5039	ko/ko	Mef2c	Transcription enhancer factor	13	intron 2	not disrupt CDS	same
AKXD-14	3055	+/+	Mef2c	Transcription enhancer factor	13	intron 2	not disrupt CDS	same
AKXD-27	8557	+/+	Enc1	Phosphatase	13	5 prime	0.695kb	inv
AKXD-10	11390	+/+	Enc1	Phosphatase	13	intron 1	not disrupt CDS	inv
AKXD-10	11668	ko/ko	Kcnk5	Potassium channel	14	intron 1	disrupt CDS	same
AKXD-27	8444	+/+	Kcnk5	Potassium channel	14	intron 1	disrupt CDS	inv
AKXD-27	8146	+/+	D14Erd171e	Undefined	14	5 prime	53.592 kb	same
AKXD-10	11818	ko/ko	D14Erd171e	Undefined	14	5 prime	53.752 kb	inv
AKXD-10	11390	+/+	Gmfb	Growth factor	14	intron 1	disrupt CDS	same
AKXD-14	3134	ko/ko	Gmfb	Growth factor	14	intron 1	disrupt CDS	same
AKXD-10	14043	ko/ko	Cldn10	Tight junction protein	14	intron 1	disrupt CDS	inv
AKXD-14	3280	ko/ko	Cldn10	Tight junction protein	14	intron 1	disrupt CDS	inv
AKXD-27	7239	+/+	Ghr	Cell receptor	15	exon 1	not disrupt CDS	inv
AKXD-14	3100	+/+	Ghr	Cell receptor	15	5 prime	0.602kb	inv

AKXD-14	3127	+/+	Prlr	Cell receptor	15	5 prime	148.72kb	inv
AKXD-27	7390	ko/ko	Prlr	Cell receptor	15	5 prime	111.153kb	inv
AKXD-14	3371	+/+	Prlr	Cell receptor	15	5 prime	109.923kb	inv
AKXD-27	8751	ko/ko	Prlr	Cell receptor	15	5 prime	108.943kb	inv
AKXD-10	11398	+/+	Myc	Transcription factor	15	5 prime	1.558kb	inv
AKXD-14	3196	+/+	Myc	Transcription factor	15	5 prime	1.345kb	same
AKXD-14	3203	+/+	Myc	Transcription factor	15	5 prime	1.082kb	inv
AKXD-14	3132	+/+	Myc	Transcription factor	15	5 prime	1.06kb	inv
AKXD-27	7425	ko/ko	Myc	Transcription factor	15	5 prime	0.578kb	inv
AKXD-10	12211	ko/ko	Myc	Transcription factor	15	5 prime	0.578kb	same
AKXD-10	11567	ko/ko	Myc	Transcription factor	15	5 prime	0.54kb	inv
AKXD-27	8559	+/+	Myc	Transcription factor	15	5 prime	0.5kb	inv
AKXD-27	8763	+/+	Myc	Transcription factor	15	5 prime	0.468kb	inv
AKXD-10	11985	ko/ko	Myc	Transcription factor	15	3 prime	49.557kb	inv
AKXD-14	3276	+/+	Myc	Transcription factor	15	3 prime	122.277kb	same
AKXD-14	3195	+/+	Myc	Transcription factor	15	3 prime	155.679kb	same
AKXD-27	6967	+/+	Myc	Transcription factor	15	3 prime	186.564kb	same
AKXD-27	8756	ko/ko	Ptp4a3	Protein phosphatase	15	5 prime	22.841kb	inv
AKXD-14	3108	ko/ko	Ptp4a3	Protein phosphatase	15	5 prime	22.763kb	inv
AKXD-27	7369	ko/ko	Ly6e	Cell-surface glycoprotein	15	5 prime	20.411kb	inv
AKXD-14	3053	+/+	Ly6e	Cell-surface glycoprotein	15	intron 1	not disrupt CDS	same
AKXD-14	3031	ko/ko	Ly6e	Cell-surface glycoprotein	15	3 prime	2.443kb	same
AKXD-10	13844	ko/ko	Tob2	ErbB2 transducer	15	3 prime	15.894kb	inv
AKXD-10	11664	ko/ko	Tob2	ErbB2 transducer	15	5 prime	5.985kb	same
AKXD-27	8352	ko/ko	Slc38a4	Amino acid transport	15	5 prime	9.606kb	inv
AKXD-27	8763	+/+	Slc38a4	Amino acid transport	15	5 prime	10.924kb	inv
AKXD-10	11400	ko/ko	Slc38a4	Amino acid transport	15	5 prime	11.073kb	inv
AKXD-27	7088	ko/ko	Ela1	Pancreatic elastase	15	3 prime	18.354kb	same
AKXD-14	5039	ko/ko	Ela1	Pancreatic elastase	15	intron 6	disrupt CDS	inv
AKXD-27	7379	ko/ko	Gspt1	GTPase, cell cycle control	16	intron 1	disrupt CDS	inv
AKXD-27	8760	+/+	Gspt1	GTPase, cell cycle control	16	intron 1	disrupt CDS	same
AKXD-14	3196	+/+	Eif4a2	Translation initiation	16	5 prime	1.243kb	inv
AKXD-27	7389	ko/ko	Eif4a2	Translation initiation	16	5 prime	0.177kb	same
AKXD-27	7422	ko/ko	Bcl6	Apoptosis	16	5 prime	150.012kb	same
AKXD-27	7390	ko/ko	Bcl6	Apoptosis	16	5 prime	180.01kb	inv
AKXD-10	12218	ko/ko	Bcl6	Apoptosis	16	5 prime	220.737kb	inv
AKXD-27	8558	+/+	Bcl6	Apoptosis	16	5 prime	231.887kb	inv
AKXD-27	7219	ko/ko	Ifnar1	Interferon receptor	16	5 prime	37.778kb	same
AKXD-27	8408	ko/ko	Ifnar1	Interferon receptor	16	5 prime	0.578kb	inv
AKXD-10	12183	ko/ko	Ifnar1	Interferon receptor	16	5 prime	0.463kb	inv
AKXD-14	3046	ko/ko	Phf10	Transcriptional regulation	17	intron 2	not disrupt CDS	inv
AKXD-14	3195	+/+	Phf10	Transcriptional regulation	17	intron 2	not disrupt CDS	inv
AKXD-14	4301	ko/ko	Phf10	Transcriptional regulation	17	intron 2	not disrupt CDS	inv
AKXD-10	12180	+/+	Hmga1	Chromatin organization	17	5 prime	2.341kb	inv
AKXD-14	3166	ko/ko	Hmga1	Chromatin organization	17	5 prime	2.244kb	same
AKXD-14	4316	ko/ko	Hmga1	Chromatin organization	17	5 prime	2.097kb	same
AKXD-10	11398	+/+	Hmga1	Chromatin organization	17	5 prime	0.706kb	inv
AKXD-14	5044	+/+	Hmga1	Chromatin organization	17	3 prime	2.726kb	inv
AKXD-14	5046	ko/ko	Sfrs3	Splicing factor	17	5 prime	4.62kb	inv
AKXD-14	3280	ko/ko	Sfrs3	Splicing factor	17	5 prime	4.618kb	inv
AKXD-14	3387	ko/ko	Pim1	Protein kinase	17	5 prime	92.049kb	inv
AKXD-14	4147	+/+	Pim1	Protein kinase	17	5 prime	52.415kb	same
AKXD-27	8749	+/+	Pim1	Protein kinase	17	exon 7	not disrupt CDS	same
AKXD-27	8635	ko/ko	Pim1	Protein kinase	17	exon 7	not disrupt CDS	same
AKXD-10	11402	+/+	Pim1	Protein kinase	17	exon 7	not disrupt CDS	same
AKXD-27	7379	ko/ko	Cryaa	Crystallin	17	3 prime	46.465kb	same
AKXD-14	3162	ko/ko	Cryaa	Crystallin	17	3 prime	64.915kb	same
AKXD-14	3381	ko/ko	Tap2	ABC transporter	17	5 prime	0.346kb	same
AKXD-14	4146	+/+	Tap2	ABC transporter	17	exon 1	not disrupt CDS	inv
AKXD-27	8557	+/+	Ltb	Cytokine	17	5 prime	5.209kb	same
AKXD-27	8444	+/+	Ltb	Cytokine	17	3 prime	4.655kb	inv
AKXD-10	12186	+/+	Nfkbie	Nfkb regulator	17	exon 1	disrupt CDS	same
AKXD-27	6664	+/+	Nfkbie	Nfkb regulator	17	intron 1	disrupt CDS	same
AKXD-10	11582	ko/ko	Nfkbie	Nfkb regulator	17	intron 1	disrupt CDS	same
AKXD-27	8445	+/+	Nfkbie	Nfkb regulator	17	intron 1	disrupt CDS	inv
AKXD-14	3134	ko/ko	Ptcra	Pre-T cell receptor	17	3 prime	7.508kb	inv
AKXD-14	3196	+/+	Ptcra	Pre-T cell receptor	17	5 prime	4.783kb	inv
AKXD-27	6967	+/+	Ccnd3	Cell cycle regulator	17	5 prime	68.447kb	inv
AKXD-14	3095	+/+	Ccnd3	Cell cycle regulator	17	5 prime	57.391kb	inv
AKXD-10	11419	+/+	Ccnd3	Cell cycle regulator	17	5 prime	39.937kb	inv
AKXD-14	3110	ko/ko	Ccnd3	Cell cycle regulator	17	exon 5	not disrupt CDS	same
AKXD-27	6661	+/+	Satb1	histone methylation	17	5 prime	72.948kb	inv
AKXD-27	7101	+/+	Satb1	histone methylation	17	5 prime	74.286kb	inv
AKXD-10	11668	ko/ko	Em14	Undefined	17	5 prime	72.498kb	same
AKXD-14	3162	ko/ko	Em14	Undefined	17	5 prime	72.378kb	same
AKXD-27	7092	ko/ko	Em14	Undefined	17	5 prime	72.253kb	same
AKXD-14	3166	ko/ko	Map3k8	Kinase	18	intron 7	disrupt CDS	same
AKXD-27	8758	ko/ko	Map3k8	Kinase	18	intron 7	disrupt CDS	same
AKXD-14	3096	+/+	Map3k8	Kinase	18	5 prime	1.122kb	inv
AKXD-27	7069	ko/ko	Map3k8	Kinase	18	5 prime	1.381kb	same
AKXD-14	3285	ko/ko	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-10	11748	ko/ko	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-14	3197	ko/ko	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-27	8574	+/+	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-27	8161	+/+	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-10	10092	ko/ko	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same
AKXD-14	3096	+/+	Zfp521	Transcription factor	18	exon 2	disrupt CDS	same

AKXD-27	8557	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	8756	ko/ko	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	8172	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	6686	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	8563	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	8643	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	6996	+/+	<i>Zfp521</i>	Transcription factor	18	intron 1	not disrupt CDS	same
AKXD-27	7420	+/+	<i>Zfp608</i>	Zinc finger protein	18	3 prime	50.244kb	same
AKXD-27	8557	+/+	<i>Zfp608</i>	Zinc finger protein	18	3 prime	50.244kb	same
AKXD-27	7251	+/+	March3	Undefined	18	5 prime	50.153kb	inv
AKXD-27	7070	ko/ko	March3	Undefined	18	5 prime	54.847kb	inv
AKXD-10	11680	ko/ko	Mppe1	metallo phosphoesterase	18	intron 1	not disrupt CDS	inv
AKXD-14	3053	+/+	Mppe1	metallo phosphoesterase	18	5 prime	0.228kb	same
AKXD-14	3195	+/+	<i>Nfatc1</i>	Transcriptional regulation	18	intron 9	disrupt CDS	same
AKXD-27	6648	ko/ko	<i>Nfatc1</i>	Transcriptional regulation	18	intron 9	disrupt CDS	same
AKXD-27	6899	ko/ko	<i>Nfatc1</i>	Transcriptional regulation	18	intron 8	disrupt CDS	inv
AKXD-27	7232	ko/ko	Scyl1	Kinase-like protein	19	5 prime	31.576kb	same
AKXD-27	8758	ko/ko	Scyl1	Kinase-like protein	19	5 prime	31.904kb	same
AKXD-10	11427	ko/ko	Scyl1	Kinase-like protein	19	5 prime	32.724kb	inv
AKXD-10	11984	ko/ko	Ppp1r14b	Protein phosphatase, regulatory	19	intron 1	disrupt CDS	same
AKXD-14	3204	+/+	Ppp1r14b	Protein phosphatase, regulatory	19	intron 1	disrupt CDS	same
AKXD-10	12169	ko/ko	Tnfrsf6	Tnf receptor superfamily	19	intron 1	disrupt CDS	same
AKXD-27	6634	ko/ko	Tnfrsf6	Tnf receptor superfamily	19	intron 1	disrupt CDS	same
AKXD-14	3134	ko/ko	<i>Hhex</i>	Homeodomain protein	19	5 prime	1.476kb	inv
AKXD-10	11767	+/+	<i>Hhex</i>	Homeodomain protein	19	5 prime	0.642kb	inv
AKXD-10	11985	ko/ko	<i>Hhex</i>	Homeodomain protein	19	5 prime	0.274kb	inv
AKXD-27	7233	+/+	<i>Hhex</i>	Homeodomain protein	19	exon 1	disrupt CDS	inv
AKXD-27	6645	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	26.305kb	same
AKXD-14	3116	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	30.414kb	same
AKXD-10	11419	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	51.636kb	same
AKXD-14	3029	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	52.579kb	inv
AKXD-10	11402	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	52.891kb	same
AKXD-14	3376	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	53.859kb	same
AKXD-10	12175	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	53.864kb	same
AKXD-14	3046	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	53.943kb	same
AKXD-14	3381	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	53.967kb	same
AKXD-14	3200	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	53.969kb	same
AKXD-10	11748	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.098kb	same
AKXD-14	3037	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.181kb	same
AKXD-10	11979	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.198kb	same
AKXD-10	11977	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.254kb	same
AKXD-14	3159	+/+	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.373kb	same
AKXD-10	11673	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.449kb	same
AKXD-14	4301	ko/ko	<i>Hhex</i>	Homeodomain protein	19	3 prime	54.543 kb	same
AKXD-10	14043	ko/ko	Avp1	MAPK activation	19	5 prime	0.682kb	same
AKXD-27	6644	+/+	Avp1	MAPK activation	19	5 prime	0.877kb	inv
AKXD-10	14150	ko/ko	Ldb1	Transcription cofactor	19	5 prime	0.272kb	inv
AKXD-27	8444	+/+	Ldb1	Transcription cofactor	19	5 prime	2.759kb	same
AKXD-14	3371	+/+	Hdac6 Eras	Histone deacetylase RAS protein	X	5 prime 5 prime	18.804kb 0.167kb	inv inv
AKXD-27	8888	+/+	Hdac6 Eras	Histone deacetylase RAS protein	X	5 prime 5 prime	18.931kb 0.294kb	inv inv
AKXD-27	7390	ko/ko	<i>Bcor</i>	Transcription factor	X	5 prime	3.252kb	same
AKXD-27	8160	+/+	<i>Bcor</i>	Transcription factor	X	5 prime	6.096kb	inv
AKXD-10	13844	ko/ko	<i>Bcor</i>	Transcription factor	X	5 prime	48.318kb	same
AKXD-14	5039	ko/ko	<i>Gpc3</i>	Negative growth regulator	X	5 prime	131.236kb	inv
AKXD-14	3196	+/+	<i>Gpc3</i>	Negative growth regulator	X	5 prime	131.585kb	inv
AKXD-14	4153	+/+	<i>Gpc3</i>	Negative growth regulator	X	5 prime	137.99kb	inv
AKXD-10	11977	+/+	Arhgap4 Ard1	Rho GTPase N-acetyltransferase	X	5 prime 3 prime	1.11kb 4.535kb	inv inv
AKXD-27	6996	+/+	Arhgap4 Ard1	Rho GTPase N-acetyltransferase	X	5 prime 3 prime	2.775kb 2.87kb	inv inv
AKXD-27	7403	+/+	4921526G09Rik	Undefined	X	5 prime	57.36kb	same
AKXD-10	11591	ko/ko	4921526G09Rik	Undefined	X	5 prime	57.192kb	inv
AKXD-27	8415	ko/ko	Pola1	DNA polymerase	X	5 prime	6.412kb	inv
AKXD-10	13847	ko/ko	Pola1	DNA polymerase	X	5 prime	6.726kb	same
AKXD-10	13831	+/+	Pola1	DNA polymerase	X	5 prime	6.726kb	same
AKXD-10	13843	ko/ko	Pola1	DNA polymerase	X	5 prime	6.726kb	same
AKXD-27	7065	+/+	<i>Il2rg</i>	Cytokine receptor	X	5 prime	5.455kb	same
AKXD-27	7107	ko/ko	<i>Il2rg</i>	Cytokine receptor	X	5 prime	6.759kb	inv

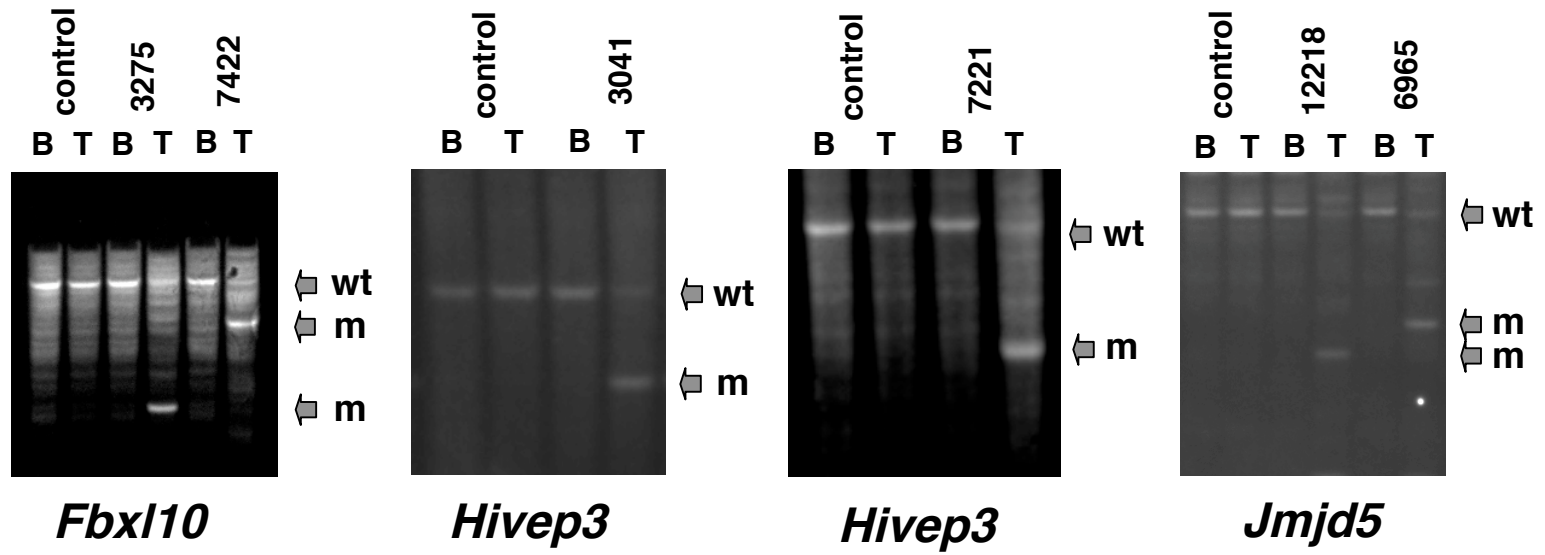
CIS loci listed in bold are new candidate cancer causing genes identified in the present study, while CIS listed in non-bold have been identified in previous insertional mutagenesis screens. All of the data contained in Supplementary Table 1 has been deposited in the Mouse Retroviral Tagged Cancer Gene Database (<http://rtcgd.ncicrf.gov>).

Supplementary Figure S1 Southern analysis of retroviral integrations in tumors of AKXD- *Blm*^{m3/m3} mice. High-molecular weight genomic DNAs were extracted from the brain (B) and tumor (T) of each animal. Tumor ID numbers are shown at the top of each gel. A tumor that does not have a viral integration at that locus was used as a control. Restriction enzyme-digested DNAs (5 µg per lane) were electrophoresed in 0.8% agarose gels and transferred to nylon membranes followed by UV cross-linking. Probes were labeled with alkaline phosphatase and the bands detected with CDP-Star reagents. Wt arrows denote bands produced from the wild type allele and m arrows denote mutant bands indicative of the retroviral-mutated allele. Among the CIS genes whose coding regions were consistently disrupted by viral integration, some of the genes (A) showed evidence of bi-allelic integration, but others (B) did not.

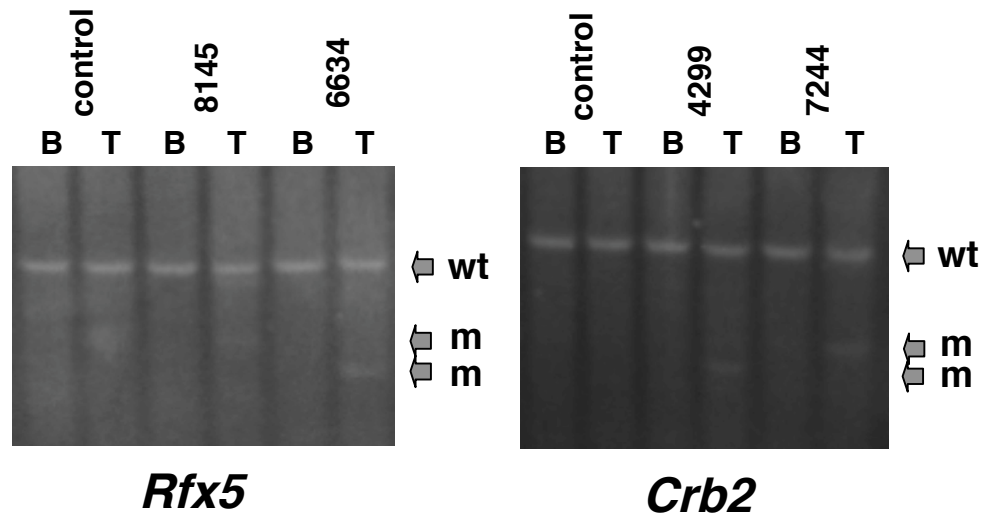


Supplementary Figure S2 Southern analysis of retroviral integrations in tumors of AKXD- *Blm*^{m3/m3} mice. Southern blots were performed as described in the legend of supplementary figure S1. Wt arrows denote bands produced from the wild type allele and m arrows denote mutant bands indicative of the retroviral-mutated allele. (A) Bi-allelic integration was also detected in some CIS genes whose expressions were downregulated by viral integration in AKXD- *Blm*^{m3/m3} lymphomas, (B) but was not detected in CIS genes whose expressions may be upregulated by viral integration in AKXD-*Blm*^{+/+} lymphomas.

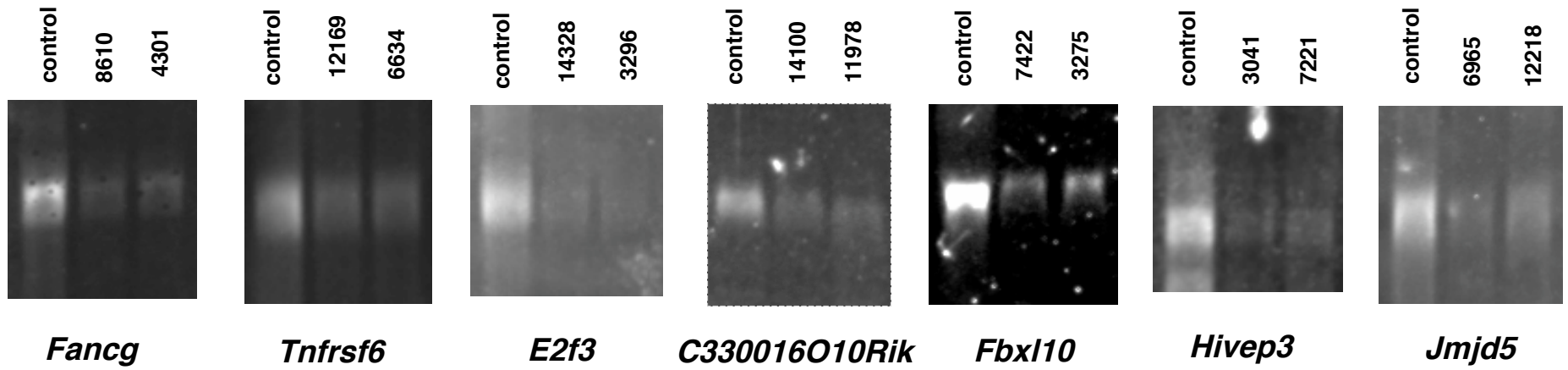
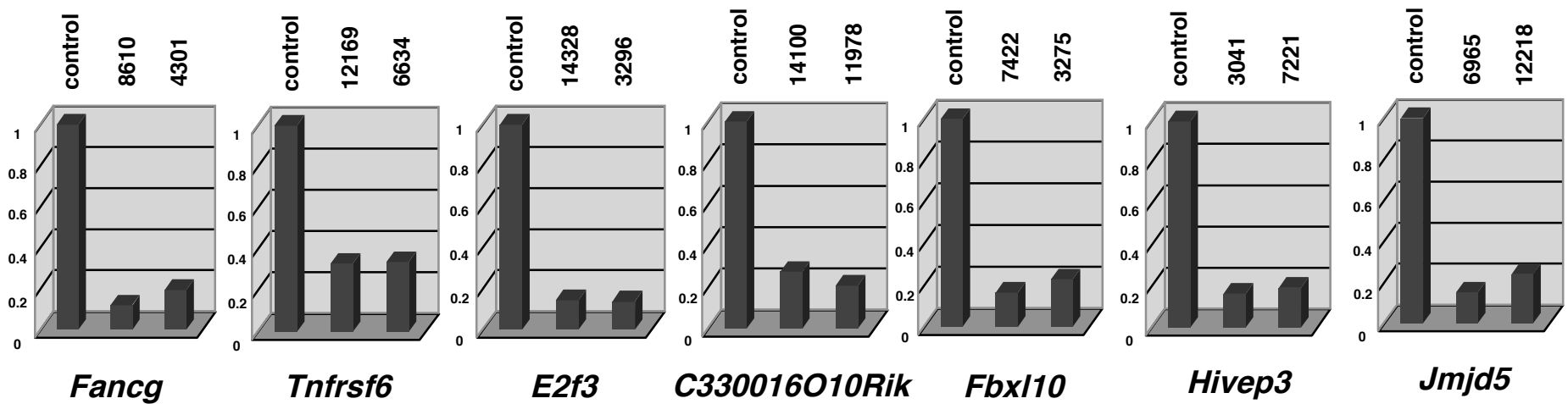
A



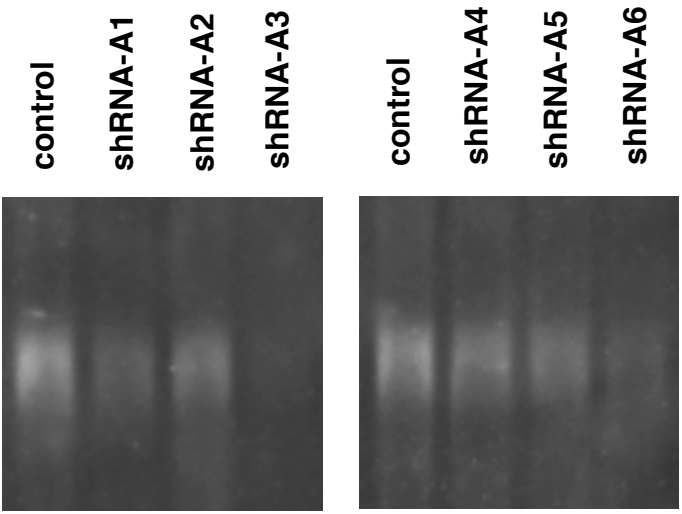
B



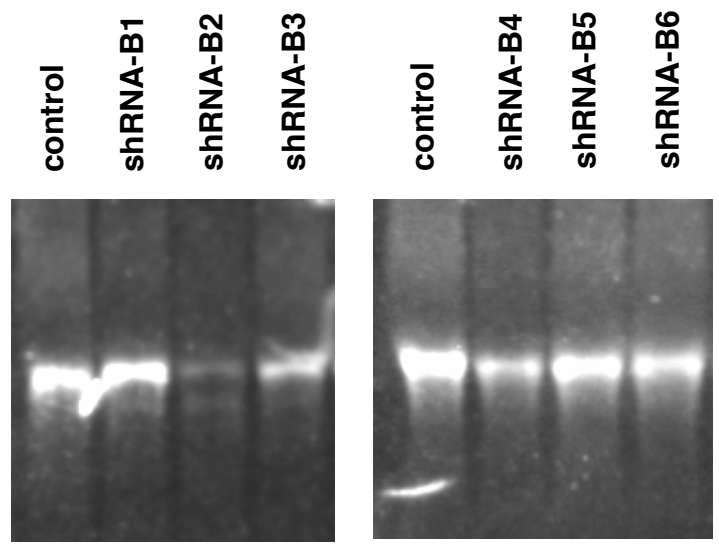
Supplementary Figure S3 Expressions of TS candidate genes were downregulated in lymphomas. (A) Expression of candidate TS genes in AKXD- *Blm*^{m3/m3} lymphomas. Total RNAs from the lymphomas were fractionated on 1.0% agarose-formaldehyde gels and transferred onto nylon membranes. Tumor ID numbers are shown at the top of each gel. A similar type of tumor that does not have a viral integration at that locus was used as a control. (B) Quantitative analysis of Northern blots. Gel images were acquired using a luminescent image analyzer and band intensities quantified with the Image Gauge ver.4 software. Arbitrary units were shown on vertical axis regarding the expression level of control cells as 1.

A**B**

Supplementary Figure S4 Expression of *Jmjd5* and *Fbxl10* was suppressed by small hairpin RNAs (shRNAs) for each gene. Six retroviral vectors expressing shRNAs for each gene were constructed and introduced into NIH 3T3 cells. Infected cells were then selected for their puromycin resistance for two weeks and the expression levels of each gene examined using Northern blots. Two shRNA constructs that suppressed each gene were chosen for subsequent studies so that off-target effects of the shRNAs could be avoided.



Jmjd5



Fbxl10