



Supplemental Figure 1. Akita mutation decreases body weight and increases mortality in Ldlr^{-/-} mice.

Four week old male and female Ldlr^{-/-} and Ins2^{Akita}Ldlr^{-/-} mice were fed a semi-synthetic 0.02% cholesterol AIN76a diet for 16 weeks. (A) Body weight was measured in mice at 20 weeks old (n=8-14 per group, *P<0.05). (B) The survival rates of Ldlr^{-/-} and Ins2^{Akita}Ldlr^{-/-} mice were calculated based on the numbers of survived mice at ages of 20 weeks and the death between 4 and 20 weeks (n=25-36 per group).

Supplemental Table 1. Primer Sets used for Quantitative Real-time PCR analysis

Gene	5' primer	3' primer
Lxr α	AGGAGTGTCGACTTCGCAA	CTCGGGGTCTGAGTT
Lxr β	AAGCAGGTGCCAGGGTTCT	CTCTTCTTGCCGCTTCAGTTT
Srebp1a	GCGCCATGGACGAGCTG	TTGGCACCTGGGCTGCT
Srebp1c	GGAGCCATGGATTGCACATT	GCTTCCAGAGAGGAGGCCAG
Srebp2	GCGTTCTGGAGACCATGGA	ACAAAGTTGCTCTGAAAACAAATCA
Abac1	CCGAGGAAGACGTGGACACCTTC	CCTCAGCCATGACCTGCCTTGTAG
Abcg1	GCTGTGCGTTTTGTGCTGTT	TGCAGCTCCAATCAGTAGTCCTAA
Lpl	ACTCTGTGTCTAACTGCCACTTCAA	ATACATTCCCGTTACCGTCCAT
Hmgcr	AGCTTGCCCGAATTGTATGTG	TCTGTTGTGAACCATGTGACTTC
Cyp7a1	ACG GGTTGATTCCATACCTGGG	TGTGTCCAAATGCCTTCGCAG
Cyp27a1	CTGCACTTCCTGCTGACCAAT	TGTCAGTGTGTTGGATGTCGTG
Cyp7b1	TAGCCCTCTTTCCTCCACTCATA	GAACCGATCGAACCTAAATTCCT
Il1 α	GCACCTTACACCTACCAGAGT	TGCAGGTCATTTAACCAAGTGG
Il1 β	GCAACTGTTCTGAACTCAACT	ATCTTTTGGGGTCCGTCAACT
Il2	GTGCTCCTTGTCAACAGCG	GGGGAGTTTCAGGTTCTCTGTA
Tnf α	CCCATATACCTGGGAGGAGTCTTC	CATTCCCTTCACAGAGCAATGAC
Mcp1	TTAAAAACCTGGATCGGAACCAA	GCATTAGCTTCAGATTTACGGGT
iNos	CAGCACAGGAAATGTTTCAGC	TAGCCAGCGTACCGGATGA
Cox2	AACTTTGGCATTGTGGAAGG	GGATGCAGGGATGATGTTCT
Ifn γ	CATTGAAAGCCTAGAAAGTCTGAA TAAC	TGGCTCTGCAGGATTTTCATG
Gapdh	AACTTTGGCATTGTGGAAGG	GGATGCAGGGATGATGTTCT

Supplemental Table 2. Microarray analysis of differentially regulated genes in the livers of Ins2^{Akit4}LDLR^{-/-} mice

ProbeID	Fold change	Symbol	Accession	Definition
6450746	-98.841286	Hsd3b5	NM_008295.1	
4280292	-67.8673	Serpina1e	NM_009247.1	
3890743	-14.918378	Serpina12	NM_026535.1	
6620707	-8.248004	MGC25972	NM_177406.2	
3440110	-6.669583	OTTMUSG00000000231	NM_001009550.1	Mus musculus predicted gene, OTTMUSG00000000231 (OTTMUSG00000000231), mRNA.
6580403	-5.3995256	Thrsp	NM_009381.2	Mus musculus thyroid hormone responsive SPOT14 homolog (Rattus) (Thrsp), mRNA.
1820241	-5.273101	Mup5	NM_008649.2	Mus musculus major urinary protein 5 (Mup5), mRNA.
5550026	-5.234726	C730004C24Rik	NM_001024719.2	Mus musculus cytochrome P450, family 2, subfamily c, polypeptide 67 (Cyp2c67), mRNA.
2230678	-5.1879315	Mup4	NM_008648.1	Mus musculus major urinary protein 4 (Mup4), mRNA.
3170255	-5.1159744	Cml4	NM_023455.2	Mus musculus camello-like 4 (Cml4), mRNA.
5290671	-5.024461	Fdps	NM_134469	
1170092	-4.9556894	OTTMUSG00000007485	NM_001012323.1	Mus musculus predicted gene, OTTMUSG00000007485 (OTTMUSG00000007485), mRNA.
160170	-4.8080254	Tff3	NM_011575.1	Mus musculus trefoil factor 3, intestinal (Tff3), mRNA.
620561	-4.724983	EG13909	NM_144511.1	Mus musculus predicted gene, EG13909 (EG13909), mRNA.
3890541	-4.6789484	Serpina4-ps1	NR_002861.1	Mus musculus serine (or cysteine) peptidase inhibitor, clade A, member 4, pseudogene 1 (Serpina4-ps1) on chromosome 12.
5690711	-4.6738973	C6	NM_016704.1	Mus musculus complement component 6 (C6), mRNA.
6220070	-4.4580393	Elov3	NM_007703.1	Mus musculus elongation of very long chain fatty acids (FEN1/Elo2, SUR4/Elo3, yeast)-like 3 (Elov3), mRNA.
360187	-4.2275696	Cyp7b1	NM_007825.1	
1110554	-4.086082	Scp2	NM_011327.1	Mus musculus sterol carrier protein 2, liver (Scp2), mRNA.
1450242	-4.019483	Car3	NM_007606.2	
1190148	-3.6669505	Sucnr1	NM_032400.1	Mus musculus succinate receptor 1 (Sucnr1), mRNA.
6450056	-3.6565974	Sqle	NM_009270.2	
3130612	-3.5295248	Dio1	NM_007860	
540020	-3.51675	Cyp51	NM_020010	
6620053	-3.5050912	Csad	NM_144942.1	Mus musculus cysteine sulfinic acid decarboxylase (Csd), mRNA.
7150324	-3.4601424	EG13909	NM_144511.1	Mus musculus predicted gene, EG13909 (EG13909), mRNA.
6040397	-3.4271078	Es1	NM_007954.1	Mus musculus esterase 1 (Es1), mRNA.
2480592	-3.374275	Keg1	NM_029550.1	Mus musculus kidney expressed gene 1 (Keg1), mRNA.
7200050	-3.2963803	Hes6	NM_019479.2	Mus musculus hairy and enhancer of split 6 (Drosophila) (Hes6), mRNA.
2030593	-3.2905521	Hspa8	NM_031165.4	Mus musculus heat shock protein 8 (Hspa8), mRNA.
2470717	-3.2869387	Aqp8	NM_007474.1	Mus musculus aquaporin 8 (Aqp8), mRNA.
4900438	-3.2748284	Ppp1r3c	NM_016854.1	Mus musculus protein phosphatase 1, regulatory (inhibitor) subunit 3C (Ppp1r3c), mRNA.
1010008	-3.264547	Nudt7	NM_024446.2	Mus musculus nudix (nucleoside diphosphate linked moiety X)-type motif 7 (Nudt7), transcript variant 2, mRNA.
3400255	-3.2373502	4432416J03Rik	NM_030069.1	Mus musculus RIKEN cDNA 4432416J03 gene (4432416J03Rik), mRNA.
7610520	-3.1960707	2810007J24Rik	NM_175250.3	Mus musculus RIKEN cDNA 2810007J24 gene (2810007J24Rik), mRNA.
4760672	-3.183106	LOC382044	NM_001081372.1	Mus musculus liver carboxylesterase N-like (LOC382044), mRNA.
6220553	-3.151656	C6	NM_016704.1	Mus musculus complement component 6 (C6), mRNA.
6840020	-3.0947726	Sdro	NM_027301.3	Mus musculus orphan short chain dehydrogenase/reductase (Sdro), mRNA.
3370332	-3.0585957	Hes6	NM_019479.2	Mus musculus hairy and enhancer of split 6 (Drosophila) (Hes6), mRNA.
1510035	-3.0483847	Gstp1	NM_013541.1	Mus musculus glutathione S-transferase, pi 1 (Gstp1), mRNA.
5340722	-3.008483	Csrp3	NM_013808.3	Mus musculus cysteine and glycine-rich protein 3 (Csrp3), mRNA.
1050079	-2.9997687	Cyp1a2	NM_009993.2	Mus musculus cytochrome P450, family 1, subfamily a, polypeptide 2 (Cyp1a2), mRNA.
6200376	-2.99749	Elf4a2	NM_013506	
7650468	-2.9912696	Aacs	NM_030210.1	Mus musculus acetoacetyl-CoA synthetase (Aacs), mRNA.
2100470	-2.975611	Il1rap	NM_008364.1	Mus musculus interleukin 1 receptor accessory protein (Il1rap), transcript variant 1, mRNA.
5420685	-2.9625194	Nudt7	NM_024437.1	Mus musculus nudix (nucleoside diphosphate linked moiety X)-type motif 7 (Nudt7), transcript variant 1, mRNA.
1030048	-2.9472742	Akr1c12	NM_013777	
2810364	-2.9217885	Serpina3k	NM_011458.1	Mus musculus serine (or cysteine) peptidase inhibitor, clade A, member 3K (Serpina3k), mRNA.
240373	-2.9016395	D14Etd449e	NM_025311	
70646	-2.8987677	Moxd1	NM_021509.3	Mus musculus monooxygenase, DBH-like 1 (Moxd1), mRNA.
4010398	-2.8535998	Acaa2	NM_177470	
4250689	-2.849819	Ccrn4l	NM_009834.1	Mus musculus CCR4 carbon catabolite repression 4-like (S. cerevisiae) (Ccrn4l), mRNA.
3310424	-2.8466337	Acaa2	NM_177470	
1470091	-2.8400087	Sort1	NM_019972.2	Mus musculus sortilin 1 (Sort1), mRNA.
2470133	-2.8260858	Csrp3	NM_013808.3	Mus musculus cysteine and glycine-rich protein 3 (Csrp3), mRNA.
6420253	-2.808515	Sc4mol	NM_025436.1	Mus musculus sterol-C4-methyl oxidase-like (Sc4mol), mRNA.
7040544	-2.8037817	Lisch7	NM_017405.1	Mus musculus lipolysis stimulated lipoprotein receptor (Lsr), mRNA.
5090414	-2.803588	Acaa2	NM_177470	
3390739	-2.8013003	9530090G24Rik	NM_145537	
6040292	-2.760574	Tgfb14	NM_009366.1	
4860341	-2.7538254	Dio1	NM_007860	
650121	-2.742143	Mcm10	NM_027290.1	Mus musculus minichromosome maintenance deficient 10 (S. cerevisiae) (Mcm10), mRNA.
3800446	-2.7124999	Ugt1a6a	NM_145079.2	Mus musculus UDP glucuronosyltransferase 1 family, polypeptide A6A (Ugt1a6a), mRNA.
4640348	-2.7105625	EG630499	NM_001081015.1	Mus musculus predicted gene, EG630499 (EG630499), mRNA.
5340068	-2.7038872	Il1rap	NM_008364.1	Mus musculus interleukin 1 receptor accessory protein (Il1rap), transcript variant 1, mRNA.
2030047	-2.7025208	Plg	NM_008877.2	Mus musculus plasminogen (Plg), mRNA.
6580092	-2.6618063	Cml2	NM_053096.2	
3850725	-2.6493912	Gck	NM_010292.3	
4560424	-2.6470902	Eef2	NM_007907.1	Mus musculus eukaryotic translation elongation factor 2 (Eef2), mRNA.
2120035	-2.6166344	Cyp2d26	NM_029562.1	Mus musculus cytochrome P450, family 2, subfamily d, polypeptide 26 (Cyp2d26), mRNA.
1410035	-2.6133485	Slico1b2	NM_020495.1	Mus musculus solute carrier organic anion transporter family, member 1b2 (Slico1b2), transcript variant 1, mRNA.
7000601	-2.6071126	Il1rap	NM_008364.1	Mus musculus interleukin 1 receptor accessory protein (Il1rap), transcript variant 1, mRNA.
2810468	-2.600072	Sort1	NM_019972	
1690070	-2.5989757	Eef2	NM_007907.1	Mus musculus eukaryotic translation elongation factor 2 (Eef2), mRNA.
2350484	-2.5989687	Eef2	NM_007907.1	Mus musculus eukaryotic translation elongation factor 2 (Eef2), mRNA.
7160093	-2.5795076	Aqp8	NM_007474.1	Mus musculus aquaporin 8 (Aqp8), mRNA.
7550427	-2.5727606	Fabp5	NM_010634.1	
4150500	-2.5418158	Cyp4a12	NM_172306.1	
6220307	-2.5207717	Sdro	NM_027301.3	Mus musculus orphan short chain dehydrogenase/reductase (Sdro), mRNA.
6960731	-2.5177824	Cpb2	NM_019775.2	Mus musculus carboxypeptidase B2 (plasma) (Cpb2), mRNA.
7400292	-2.5127048	Hdh3	NM_024257.1	Mus musculus haloacid dehalogenase-like hydrolase domain containing 3 (Hdh3), mRNA.
1470554	-2.50922	Glud1	NM_008133.3	Mus musculus glutamate dehydrogenase 1 (Glud1), mRNA.
5080048	-2.4985437	Cyp2d26	NM_029562.1	Mus musculus cytochrome P450, family 2, subfamily d, polypeptide 26 (Cyp2d26), mRNA.
2970086	-2.494693	Rnaset2	NM_029204.1	Mus musculus ribonuclease T2 (Rnaset2), transcript variant 2, mRNA.
240520	-2.4859214	Cpb2	NM_019775.2	Mus musculus carboxypeptidase B2 (plasma) (Cpb2), mRNA.
7040243	-2.4439578	D0H4S114	NM_053078.3	Mus musculus DNA segment, human D4S114 (D0H4S114), mRNA.
4220326	-2.4308374	Mcm10	NM_027290.1	Mus musculus minichromosome maintenance deficient 10 (S. cerevisiae) (Mcm10), mRNA.
4570333	-2.4288478	Acas2	NM_019811.2	Mus musculus acyl-CoA synthetase short-chain family member 2 (Acas2), mRNA.
2510519	-2.4283738	Etfa	NM_145615.2	Mus musculus electron transferring flavoprotein, alpha polypeptide (Etfa), nuclear gene encoding mitochondrial protein, mRNA.
1710309	-2.4255846	1810047C23Rik	NM_138668.1	Mus musculus RIKEN cDNA 1810047C23 gene (1810047C23Rik), mRNA.
6330561	-2.4241812	Lamp2	NM_001017959.1	Mus musculus lysosomal-associated membrane protein 2 (Lamp2), transcript variant 1, mRNA.
5670192	-2.4189932	Hspd1	NM_010477.2	Mus musculus heat shock protein 1 (chaperonin) (Hspd1), mRNA.
6940196	-2.413873	Aatk	NM_007377.1	
1090343	-2.3930862	F12	NM_021489.1	Mus musculus coagulation factor XII (Hageman factor) (F12), mRNA.
5310343	-2.3920052	Insig1	NM_153526.2	Mus musculus insulin induced gene 1 (Insig1), mRNA.

4730220	-2.3858068	Mrc1	NM_008625.1	Mus musculus mannose receptor, C type 1 (Mrc1), mRNA.
5290358	-2.3843257	Gstp1	NM_013541.1	Mus musculus glutathione S-transferase, pi 1 (Gstp1), mRNA.
6420403	-2.3767965	C4bp	NM_007576.3	Mus musculus complement component 4 binding protein (C4bp), mRNA.
1980470	-2.341134	1300013B24Rik	NM_026184.2	Mus musculus ERO1-like beta (S. cerevisiae) (Ero1lb), mRNA.
1940053	-2.3254335	EG13909	NM_144511.1	Mus musculus predicted gene, EG13909 (EG13909), mRNA.
2760463	-2.325086	Slc2a2	NM_031197.1	Mus musculus solute carrier family 2 (facilitated glucose transporter), member 2 (Slc2a2), mRNA.
450673	-2.322854	Spes1	NM_026911.1	Mus musculus signal peptidase complex subunit 1 homolog (S. cerevisiae) (Spes1), mRNA.
4480541	-2.3219519	Alas2	NM_009653.1	
1030209	-2.293369	AW061290	NM_201361.1	Mus musculus expressed sequence AW061290 (AW061290), mRNA.
3890609	-2.2729723	Lpin1	NM_172950.2	Mus musculus lipin 1 (Lpin1), transcript variant 1, mRNA.
7320753	-2.272744	Hsd17b2	NM_008290.1	
4810402	-2.2696898	C8a	NM_146148.1	Mus musculus complement component 8, alpha polypeptide (C8a), mRNA.
4590468	-2.2622886	Cyb5r3	NM_029787.2	Mus musculus cytochrome b5 reductase 3 (Cyb5r3), mRNA.
4760280	-2.2585769	F11	NM_028066.1	Mus musculus coagulation factor XI (F11), mRNA.
4920369	-2.2570918	Insig1	NM_153526.2	Mus musculus insulin induced gene 1 (Insig1), mRNA.
1190112	-2.256873	ldh1	NM_010497	
6330482	-2.244441	Avpr1a	NM_016847.2	Mus musculus arginine vasopressin receptor 1A (Avpr1a), mRNA.
1090577	-2.2414904	Mtch2	NM_019758.2	Mus musculus mitochondrial carrier homolog 2 (C. elegans) (Mtch2), nuclear gene encoding mitochondrial protein, mRNA.
6350324	-2.2404478	Gna14	NM_008137.2	Mus musculus guanine nucleotide binding protein, alpha 14 (Gna14), mRNA.
4880736	-2.2388432	C8b	NM_133882.1	Mus musculus complement component 8, beta subunit (C8b), mRNA.
3440070	-2.2325554	Slc25a25	NM_146118.2	Mus musculus solute carrier family 25 (mitochondrial carrier, phosphate carrier), member 25 (Slc25a25), mRNA.
2680110	-2.2278974	Insig2	NM_178082.2	Mus musculus insulin induced gene 2 (Insig2), mRNA.
3710040	-2.2220085	Ugt2a3	NM_028094.1	Mus musculus UDP glucuronosyltransferase 2 family, polypeptide A3 (Ugt2a3), mRNA.
1740326	-2.2151837	lth4	NM_018746.1	Mus musculus inter alpha-trypsin inhibitor, heavy chain 4 (lth4), mRNA.
1170564	-2.2095072	Hp	NM_017370.1	Mus musculus haptoglobin (Hp), mRNA.
1440307	-2.2028189	H2-Ab1	NM_207105.1	Mus musculus histocompatibility 2, class II antigen A, beta 1 (H2-Ab1), mRNA.
2340082	-2.2022305	Aadac	NM_023383.1	Mus musculus arylacetamide deacetylase (esterase) (Aadac), mRNA.
6290673	-2.1984274	Atp6v0d1	NM_013477.2	Mus musculus ATPase, H+ transporting, lysosomal V0 subunit D1 (Atp6v0d1), mRNA.
5340504	-2.1947052	F11	NM_028066.1	Mus musculus coagulation factor XI (F11), mRNA.
2970196	-2.1876962	1110014L17Rik	NM_134020.1	Mus musculus transmembrane emp24 protein transport domain containing 4 (Tmed4), mRNA.
1990451	-2.1766126	Atp5f1	NM_009725.2	Mus musculus ATP synthase, H+ transporting, mitochondrial F0 complex, subunit b, isoform 1 (Atp5f1), mRNA.
6650373	-2.1761727	1200015F23Rik	NM_001033136.2	Mus musculus RIKEN cDNA 1200015F23 gene (1200015F23Rik), mRNA. XM_924991
1500592	-2.1750824	Habp2	NM_146101.1	Mus musculus hyalurononic acid binding protein 2 (Habp2), mRNA.
6520048	-2.16716	Masp2	NM_001003893.2	Mus musculus mannan-binding lectin serine peptidase 2 (Masp2), transcript variant 1, mRNA.
7330228	-2.1628683	2810439F02Rik	NM_028341.1	Mus musculus RIKEN cDNA 2810439F02 gene (2810439F02Rik), mRNA.
1660687	-2.154367	Ppap2b	NM_080555.1	
130392	-2.1538498	Dct	NM_010024.1	Mus musculus dopachrome tautomerase (Dct), mRNA.
7100239	-2.1517055	Cpb2	NM_019775.2	Mus musculus carboxypeptidase B2 (plasma) (Cpb2), mRNA.
1240414	-2.150003	Suclg1	NM_019879.1	Mus musculus succinate-CoA ligase, GDP-forming, alpha subunit (Suclg1), mRNA.
4220468	-2.1418362	Hnrpa2b1	NM_182650.2	
1690678	-2.1301732	0610007C21Rik	NM_027855.2	Mus musculus RIKEN cDNA 0610007C21 gene (0610007C21Rik), transcript variant 1, mRNA.
3460358	-2.1185172	Rdh9	NM_153133.1	
1470014	-2.1183789	Acad8	NM_025862.1	
6660719	-2.1158948	Mgll	NM_011844.3	Mus musculus monoglyceride lipase (Mgll), mRNA.
3190646	-2.1144884	Aox3	NM_023617.1	
5260600	-2.1130493	Ppp1r10	NM_175934.2	Mus musculus protein phosphatase 1, regulatory subunit 10 (Ppp1r10), mRNA.
6840156	-2.1116416	Sreb1	NM_011480.1	Mus musculus sterol regulatory element binding factor 1 (Sreb1), mRNA.
2750128	-2.107892	H2-Q8	NM_023124.2	Mus musculus histocompatibility 2, Q region locus 8 (H2-Q8), mRNA.
4390113	-2.104544	Hp	NM_017370.1	Mus musculus haptoglobin (Hp), mRNA.
460474	-2.1028125	2310008M10Rik	NM_025509.2	Mus musculus RIKEN cDNA 2310008M10 gene (2310008M10Rik), mRNA.
780021	-2.1001697	D9Wsu20e	NM_133718	
990338	-2.0962195	Nsdhl	NM_010941.3	Mus musculus NAD(P) dependent steroid dehydrogenase-like (Nsdhl), mRNA.
1230047	-2.0919383	Gjb2	NM_008125.2	Mus musculus gap junction membrane channel protein beta 2 (Gjb2), mRNA.
4210139	-2.0909088	Aqp1	NM_007472.1	Mus musculus aquaporin 1 (Aqp1), mRNA.
1010608	-2.0802422	Tmem14c	NM_025387.1	Mus musculus transmembrane protein 14C (Tmem14c), mRNA.
1170471	-2.0799453	Mug2	NM_008646.1	Mus musculus muringlobulin 2 (Mug2), mRNA.
1110025	-2.0745485	Ppp1ca	NM_031868.1	Mus musculus protein phosphatase 1, catalytic subunit, alpha isoform (Ppp1ca), mRNA.
5900685	-2.0719488	EG231903	NM_001039678.1	Mus musculus paraoxon cluster neighbor (Phoxnb), mRNA.
2260082	-2.0706346	Chrna4	NM_015730.4	Mus musculus cholinergic receptor, nicotinic, alpha polypeptide 4 (Chrna4), mRNA.
1240221	-2.0699158	Moxd1	NM_021509.3	Mus musculus monooxygenase, DBH-like 1 (Moxd1), mRNA.
6060661	-2.064808	Slc17a8	NM_182959.2	Mus musculus solute carrier family 17 (sodium-dependent inorganic phosphate cotransporter), member 8 (Slc17a8), mRNA.
670161	-2.0637865	Sep15	NM_053102	
7000634	-2.0573165	Hes6	NM_019479.2	Mus musculus hairy and enhancer of split 6 (Drosophila) (Hes6), mRNA.
2340162	-2.0549853	Hao1	NM_010403.1	Mus musculus hydroxyacid oxidase 1, liver (Hao1), mRNA.
5690327	-2.0530512	Tmem49	NM_029478.2	Mus musculus transmembrane protein 49 (Tmem49), mRNA.
4150097	-2.050302	Ppp1r3b	NM_177741.2	
4810128	-2.0464292	C730027E14Rik	NM_146020.1	Mus musculus RIKEN cDNA C730027E14 gene (C730027E14Rik), mRNA.
1410050	-2.046284	LOC380712	XM_354627.1	
4560139	-2.035127	Cnih	NM_009919	
2100097	-2.0327315	Mvd	NM_138656.1	Mus musculus mevalonate (diphospho) decarboxylase (Mvd), mRNA.
5260639	-2.030951	Mif2	NM_145385.1	Mus musculus myeloid leukemia factor 2 (Mif2), mRNA.
2320189	-2.0307598	Gnas	NM_010309	
1580129	-2.0299277	Npr2	NM_173788.2	
1580167	-2.0298488	Aqp1	NM_007472.1	Mus musculus aquaporin 1 (Aqp1), mRNA.
630725	-2.028838	Tmem66	NM_026432.2	Mus musculus transmembrane protein 66 (Tmem66), mRNA.
6200121	-2.0268445	Dars	NM_145507.1	Mus musculus aspartyl-tRNA synthetase (Dars), mRNA.
990537	-2.026479	1600019D15Rik	NM_028975	
2650653	-2.0245764	Nsdhl	NM_010941.3	Mus musculus NAD(P) dependent steroid dehydrogenase-like (Nsdhl), mRNA.
7210039	-2.0243747	Gpc1	NM_016696	
2480577	-2.0181537	Actb	NM_007393.1	Mus musculus actin, beta, cytoplasmic (Actb), mRNA.
6650520	-2.0174704	Oprs1	NM_011014.1	Mus musculus opioid receptor, sigma 1 (Oprs1), mRNA.
110181	-2.0154502	1200003C05Rik	NM_024205.1	Mus musculus RIKEN cDNA 1200003C05 gene (1200003C05Rik), mRNA.
4830047	-2.0152812	Coq10b	NM_001039710.1	Mus musculus coenzyme Q10 homolog B (S. cerevisiae) (Coq10b), transcript variant 1, mRNA.
3140500	-2.0126176	H2afz	NM_016750.1	Mus musculus H2A histone family, member Z (H2afz), mRNA.
2490452	-2.0111158	Usp18	NM_011909.1	Mus musculus ubiquitin specific peptidase 18 (Usp18), mRNA.
4480167	-2.0109437	Capn2	NM_009794.1	Mus musculus calpain 2 (Capn2), mRNA.
1300040	-2.008009	Adh5	NM_007410.2	Mus musculus alcohol dehydrogenase 5 (class III), chi polypeptide (Adh5), mRNA.
3310347	-2.007972	Srm	NM_009272.2	Mus musculus spermidine synthase (Srm), mRNA.
5910431	-2.006654	Tram1	NM_028173.1	Mus musculus translocating chain-associating membrane protein 1 (Tram1), mRNA.
2230491	-2.005863	Kdelr2	NM_025841.1	Mus musculus KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 2 (Kdelr2), mRNA.
3130066	-1.9495593	Nox4	NM_015760.2	Mus musculus NADPH oxidase 4 (Nox4), mRNA.
4540382	-1.9456974	Egfr	NM_007912.4	Mus musculus epidermal growth factor receptor (Egfr), transcript variant 2, mRNA.
2650753	-1.8086075	Cyp2d9	NM_010006.1	Mus musculus cytochrome P450, family 2, subfamily d, polypeptide 9 (Cyp2d9), mRNA.
5260367	-1.8080443	Cyp1a2	NM_009993.2	Mus musculus cytochrome P450, family 1, subfamily a, polypeptide 2 (Cyp1a2), mRNA.
1850730	-1.7847711	LOC620807	NM_001081285.1	Mus musculus novel member of the major urinary protein (Mup) gene family (LOC620807), mRNA.
2810487	1.50665	Slpi	NM_011414.1	Mus musculus secretory leukocyte peptidase inhibitor (Slpi), mRNA.
3460296	1.6841825	Anxa2	NM_007585.2	

7050487	1.7108731	Cd63	NM_007653.1	
2000398	1.8209116	Hba-a1	NM_008218.1	Mus musculus hemoglobin alpha, adult chain 1 (Hba-a1), mRNA.
7330278	1.8793817	Lgals1	NM_008495.1	
3710544	1.9063638	Mgst3	NM_025569.1	Mus musculus microsomal glutathione S-transferase 3 (Mgst3), mRNA.
110292	1.9685271	Wfdc15	NM_138685.2	Mus musculus WAP four-disulfide core domain 15B (Wfdc15b), transcript variant 1, mRNA.
4210129	1.9797294	Socs2	NM_007706.1	
4780040	2.0057118	Abcc3	XM_358306.1	
4890743	2.016324	Tm6sf2	NM_181540.2	Mus musculus transmembrane 6 superfamily member 2 (Tm6sf2), mRNA.
2480719	2.0226586	Flot1	NM_008027.1	
7560338	2.0257423	Ass1	NM_007494.2	Mus musculus argininosuccinate synthetase 1 (Ass1), mRNA.
2510390	2.02744	Idh2	NM_173011.1	Mus musculus isocitrate dehydrogenase 2 (NADP+), mitochondrial (Idh2), mRNA.
4780066	2.0357263	Csrp1	NM_007791.2	Mus musculus cysteine and glycine-rich protein 1 (Csrp1), mRNA.
730110	2.0400376	Por	NM_008898.1	Mus musculus P450 (cytochrome) oxidoreductase (Por), mRNA.
4860598	2.0484593	Map3k7ip1	NM_025609.2	Mus musculus mitogen-activated protein kinase kinase kinase 7 interacting protein 1 (Map3k7ip1), mRNA.
4900142	2.050635	Mapkapk2	NM_008551.1	Mus musculus MAP kinase-activated protein kinase 2 (Mapkapk2), mRNA.
4860088	2.0521526	Akt1s1	NM_026270.1	Mus musculus AKT1 substrate 1 (proline-rich) (Akt1s1), mRNA.
6060468	2.052928	Bola2	NM_175103.2	Mus musculus bolA-like 2 (E. coli) (Bola2), mRNA.
2350324	2.0580964	Gstt3	NM_133994.2	Mus musculus glutathione S-transferase, theta 3 (Gstt3), mRNA.
1070091	2.0772054	Gmfg	NM_022024.1	
2120195	2.108044	St5	NM_029811.1	
7050440	2.1200566	St5	NM_029811.1	
2140022	2.124925	Cdc42ep5	NM_021454.3	Mus musculus CDC42 effector protein (Rho GTPase binding) 5 (Cdc42ep5), mRNA.
1580445	2.134949	Lmyc1	NM_008506.2	Mus musculus v-myc myelocytomatosis viral oncogene homolog 1, lung carcinoma derived (avian) (Myc1), mRNA.
460747	2.1396449	Fbxo21	NM_145564.2	Mus musculus F-box protein 21 (Fbxo21), mRNA.
4850612	2.1409142	Dscr11	NM_207649.1	Mus musculus regulator of calcineurin 2 (Rcan2), transcript variant 1, mRNA.
7400392	2.1538346	Sepw1	NM_009156.1	
6770114	2.161094	Trem2	NM_031254.2	Mus musculus triggering receptor expressed on myeloid cells 2 (Trem2), mRNA.
2970307	2.1690018	Rhbd2	NM_183163.2	Mus musculus rhomboid, veinlet-like 2 (Drosophila) (Rhbd2), mRNA.
2230019	2.1798692	1190005I06Rik	NM_197988.1	Mus musculus RIKEN cDNA 1190005I06 gene (1190005I06Rik), mRNA.
270722	2.196207	MGC106740	NM_001025383.1	Mus musculus predicted gene, OTTMUSG00000017677 (OTTMUSG00000017677), mRNA.
2100608	2.1991613	Cyp2b20	NM_009999	
7610097	2.2083037	Spink3	NM_009258.2	
730025	2.2097547	Gstm2	NM_008183.2	Mus musculus glutathione S-transferase, mu 2 (Gstm2), mRNA.
3360280	2.22012	Zap70	NM_009539.2	Mus musculus zeta-chain (TCR) associated protein kinase (Zap70), mRNA.
2970544	2.2442906	Zap70	NM_009539.2	Mus musculus zeta-chain (TCR) associated protein kinase (Zap70), mRNA.
3130750	2.281593	Ung	NM_011677.1	
130634	2.2819686	Ddit4	NM_029083.1	Mus musculus DNA-damage-inducible transcript 4 (Ddit4), mRNA.
7320053	2.2955827	Gpx3	NM_008161.1	Mus musculus glutathione peroxidase 3 (Gpx3), mRNA.
1570594	2.3007054	Socs3	NM_007707.2	Mus musculus suppressor of cytokine signaling 3 (Socs3), mRNA.
4280056	2.329025	Trib3	NM_144554.1	
6400719	2.3488345	Saa3	NM_011315	
1980608	2.3507454	D4Erd429e	NM_001025106.1	Mus musculus DNA segment, Chr 4, ERATO Doi 429, expressed (D4Erd429e), transcript variant 1, mRNA.
2470086	2.3529687	Slc39a4	NM_028064.2	Mus musculus solute carrier family 39 (zinc transporter), member 4 (Slc39a4), mRNA.
3830296	2.356381	Gal3st1	NM_016922.2	Mus musculus galactose-3-O-sulfotransferase 1 (Gal3st1), mRNA.
4070201	2.3669646	Vldlr	NM_013703.1	Mus musculus very low density lipoprotein receptor (Vldlr), mRNA.
150114	2.3863676	Chi3l1	NM_007695.1	Mus musculus chitinase 3-like 1 (Chi3l1), mRNA.
2360528	2.3986454	Hpd	NM_008277.1	Mus musculus 4-hydroxyphenylpyruvic acid dioxygenase (Hpd), mRNA.
6560703	2.3993177	H6pd	NM_173371.2	Mus musculus hexose-6-phosphate dehydrogenase (glucose 1-dehydrogenase) (H6pd), mRNA.
3370551	2.4066198	Nnmt	NM_010924.1	Mus musculus nicotinamide N-methyltransferase (Nnmt), mRNA.
2100215	2.4177208	Irs2	NM_001081212.1	Mus musculus insulin receptor substrate 2 (Irs2), mRNA.
1450333	2.4214277	Clecsf12	NM_020008	
2650154	2.4273634	Aldh1b1	NM_028270.2	Mus musculus aldehyde dehydrogenase 1 family, member B1 (Aldh1b1), mRNA.
5310079	2.469809	Prf1	NM_011073.2	Mus musculus perforin 1 (pore forming protein) (Prf1), mRNA.
3400646	2.4741106	Ptpns1	XM_149178.1	
6940184	2.4754598	Ccl4	NM_013652.1	
4210619	2.4856105	Mgst3	NM_025569.1	Mus musculus microsomal glutathione S-transferase 3 (Mgst3), mRNA.
3450102	2.4874983	Slc24a6	NM_133221.1	Mus musculus solute carrier family 24 (sodium/potassium/calcium exchanger), member 6 (Slc24a6), mRNA.
6660176	2.5067897	Stat3	NM_011486.2	
1500301	2.5292456	Tuba8	NM_017379	
4640358	2.5736706	Ncor1	NM_011308.1	
1780037	2.5753164	BC030476	NM_173421.1	Mus musculus cDNA sequence BC030476 (BC030476), mRNA.
5310360	2.60978	Stat3	NM_011486.2	
5360300	2.6193829	Lpl	NM_008509.1	
6350288	2.6222072	Orm2	NM_011016.1	
2320176	2.6567092	Rnf125	NM_026301.1	Mus musculus ring finger protein 125 (Rnf125), mRNA.
540300	2.6877487	1810008K03Rik	NM_026929.2	Mus musculus ChaC, cation transport regulator-like 1 (E. coli) (Chac1), mRNA.
4480639	2.6949115	Vldlr	NM_013703.1	Mus musculus very low density lipoprotein receptor (Vldlr), mRNA.
5220279	2.7476487	Mt1	NM_013602.2	Mus musculus metallothionein 1 (Mt1), mRNA.
5560754	2.748223	Ly6d	NM_010742.1	Mus musculus lymphocyte antigen 6 complex, locus D (Ly6d), mRNA.
1980603	2.752739	S100a9	NM_009114.1	Mus musculus S100 calcium binding protein A9 (calgranulin B) (S100a9), mRNA.
510474	2.788553	Lgals3	NM_010705.1	Mus musculus lectin, galactose binding, soluble 3 (Lgals3), mRNA.
4890768	2.7889364	1700067K01Rik	NM_183097.1	Mus musculus RIKEN cDNA 1700067K01 gene (1700067K01Rik), mRNA.
1190546	2.7967541	S100a8	NM_013650.1	
6560497	2.8397925	Nnmt	NM_010924.1	Mus musculus nicotinamide N-methyltransferase (Nnmt), mRNA.
6660403	2.869217	Serpina6	NM_007618.2	Mus musculus serine (or cysteine) peptidase inhibitor, clade A, member 6 (Serpina6), mRNA.
6020441	2.8747478	Fmo3	NM_008030.1	Mus musculus flavin containing monooxygenase 3 (Fmo3), mRNA.
6330377	2.8930984	Gadd45g	NM_011817.1	Mus musculus growth arrest and DNA-damage-inducible 45 gamma (Gadd45g), mRNA.
5900577	2.97985	Vldlr	NM_013703.1	Mus musculus very low density lipoprotein receptor (Vldlr), mRNA.
4070142	3.010534	Gadd45g	NM_011817.1	Mus musculus growth arrest and DNA-damage-inducible 45 gamma (Gadd45g), mRNA.
4290017	3.1079502	Kiss1	NM_178260	
4890626	3.2244468	Lcn2	NM_008491.1	Mus musculus lipocalin 2 (Lcn2), mRNA.
2510646	3.2538488	Ly6d	NM_010742.1	Mus musculus lymphocyte antigen 6 complex, locus D (Ly6d), mRNA.
1410224	3.7265804	EG243881	NM_001081148.1	Mus musculus cytochrome P450, family 2, subfamily b, polypeptide 23 (Cyp2b23), mRNA.
1260164	3.8790767	Asns	NM_012055.1	Mus musculus asparagine synthetase (Asns), mRNA.
2190196	4.5825095	Mt2	NM_008630.1	
60364	4.792408	BC013476	NM_201640.1	Mus musculus cytochrome P450, family 4, subfamily a, polypeptide 31 (Cyp4a31), mRNA.
2940592	4.9268265	Gsta1	NM_008181.2	Mus musculus glutathione S-transferase, alpha 1 (Ya) (Gsta1), mRNA.
3710465	5.168958	Gsta2	NM_008182.1	
5960543	5.588551	Mmd2	NM_175217.3	
4780164	6.8696165	Krt1-23	NM_033373.1	Mus musculus keratin 23 (Krt23), mRNA.
4670228	8.579869	Gpnmb	NM_053110.2	Mus musculus glycoprotein (transmembrane) nmb (Gpnmb), mRNA.
670653	10.839069	Cyp17a1	NM_007809.2	Mus musculus cytochrome P450, family 17, subfamily a, polypeptide 1 (Cyp17a1), mRNA.
1940273	24.879896	Cyp4a14	NM_007822.1	Mus musculus cytochrome P450, family 4, subfamily a, polypeptide 14 (Cyp4a14), mRNA.
1940504	25.820763	Cyp2b9	NM_010000.1	

Notes : Genes with >= 1.50 fold difference (down or up) in the livers of Ins2^{Akita}/LDLR^{-/-} were listed.