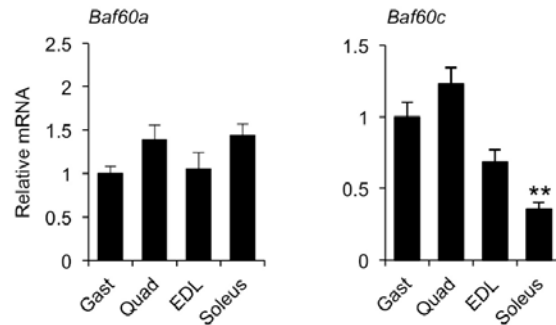


SUPPLEMENTARY DATA

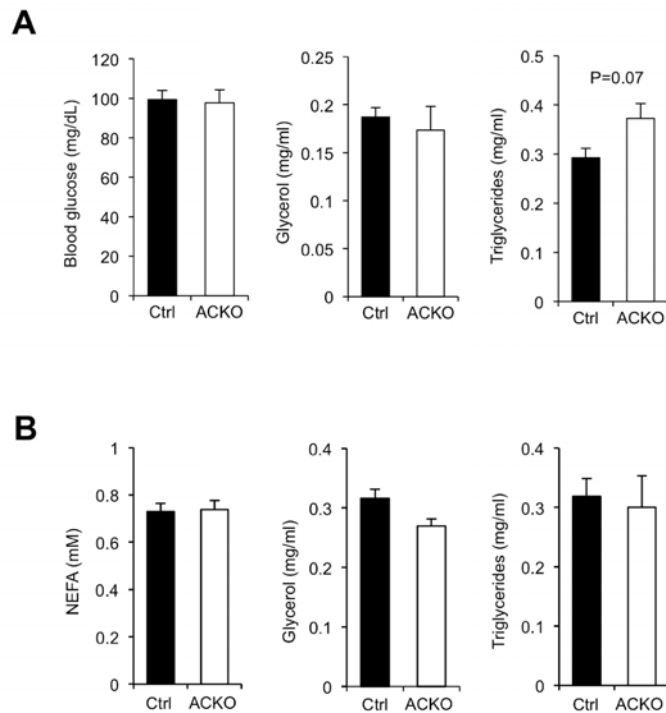
Supplementary Figure 1. Expression of Baf60a and Baf60c in skeletal muscle.

qPCR analysis of *Baf60a* and *Baf60c* mRNA expression in indicated muscles (n = 3). Data represent mean ± S.E.M., ***P*<0.01.



Supplementary Figure 2. Pre-exercise plasma metabolite concentrations.

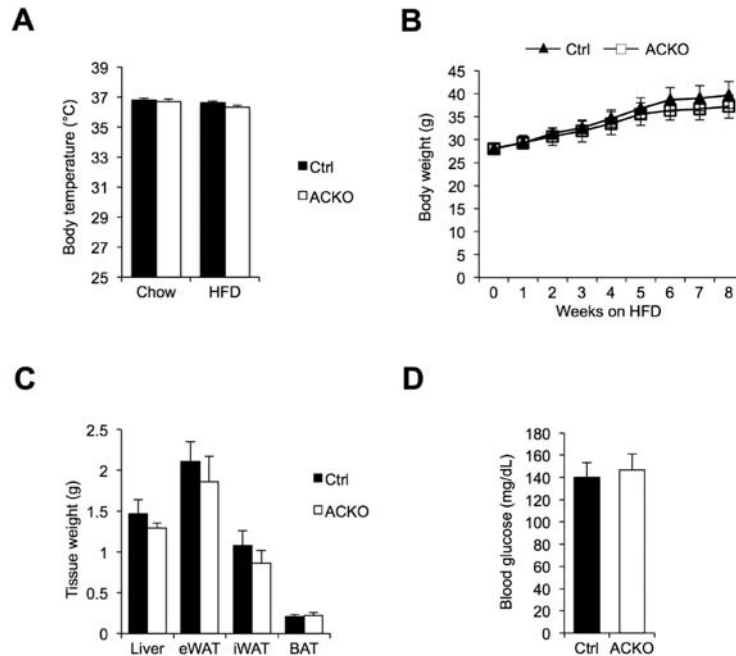
(A) Fasting blood glucose and plasma glycerol and TAG levels in chow-fed control and ACKO mice under resting conditions (n = 6-11). (B) Plasma NEFA, glycerol and TAG levels in HFD-fed mice under resting conditions (n = 5-11). Data represent mean ± S.E.M.



SUPPLEMENTARY DATA

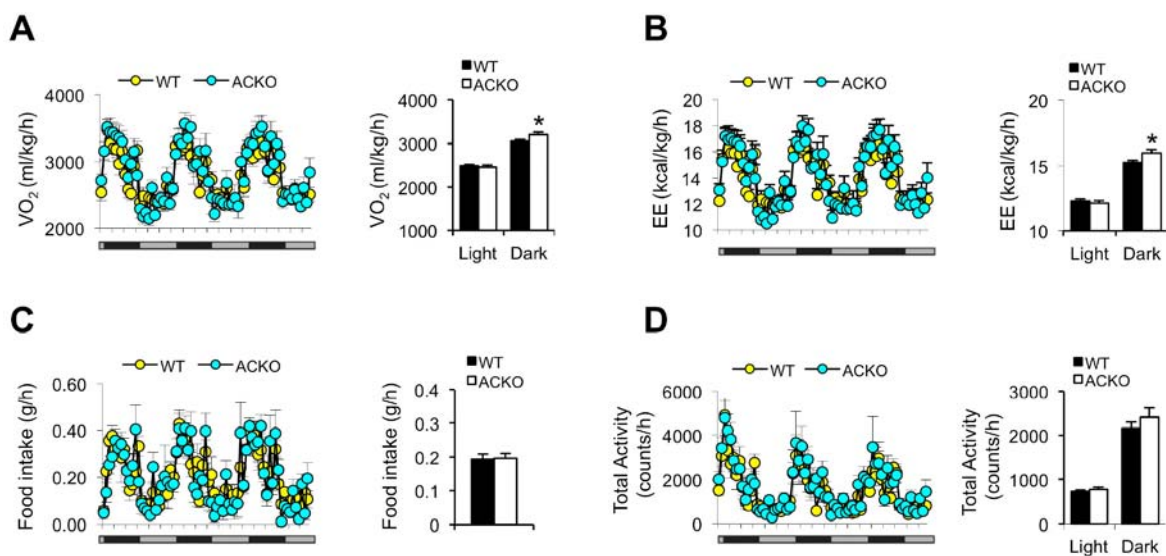
Supplementary Figure 3. HFD feeding under thermoneutral conditions.

(A) Rectal body temperature before and after 6 weeks of HFD feeding at 30 °C. (B-D) Body weight (B), tissue weight (C) and fasting blood glucose (D) in control and ACKO mice fed HFD for eight weeks at 30 °C (n = 4-7). Data represent mean ± S.E.M.



Supplementary Figure 4. Metabolic cage study in chow-fed mice.

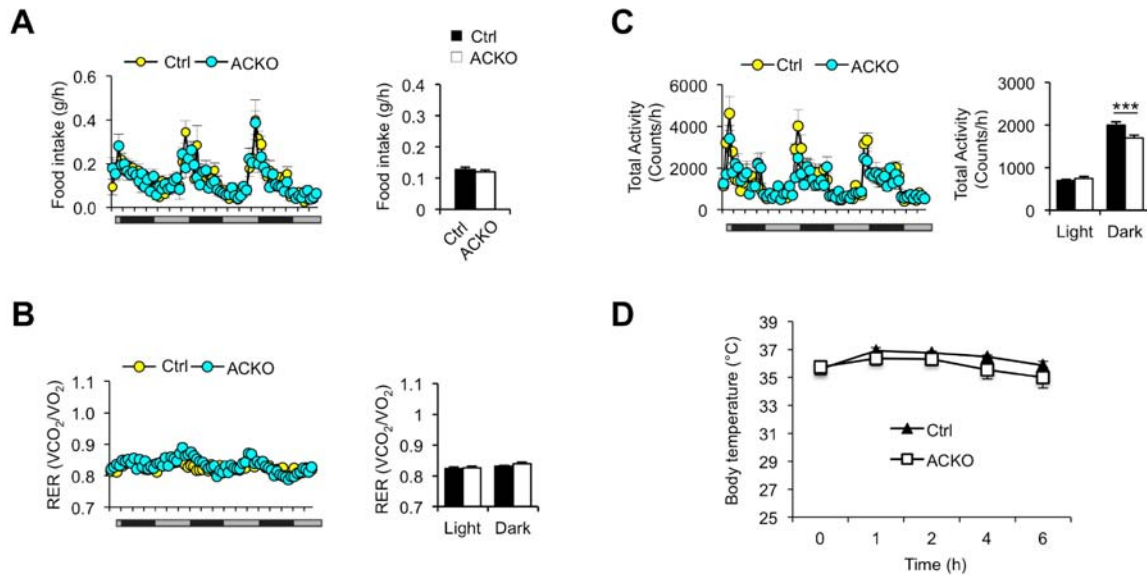
Oxygen consumption rate (VO₂, A), energy expenditure (EE, B), food intake (C), and total activity (D) in chow-fed control and ACKO mice (n = 8). Data represent mean ± S.E.M., *P<0.05.



SUPPLEMENTARY DATA

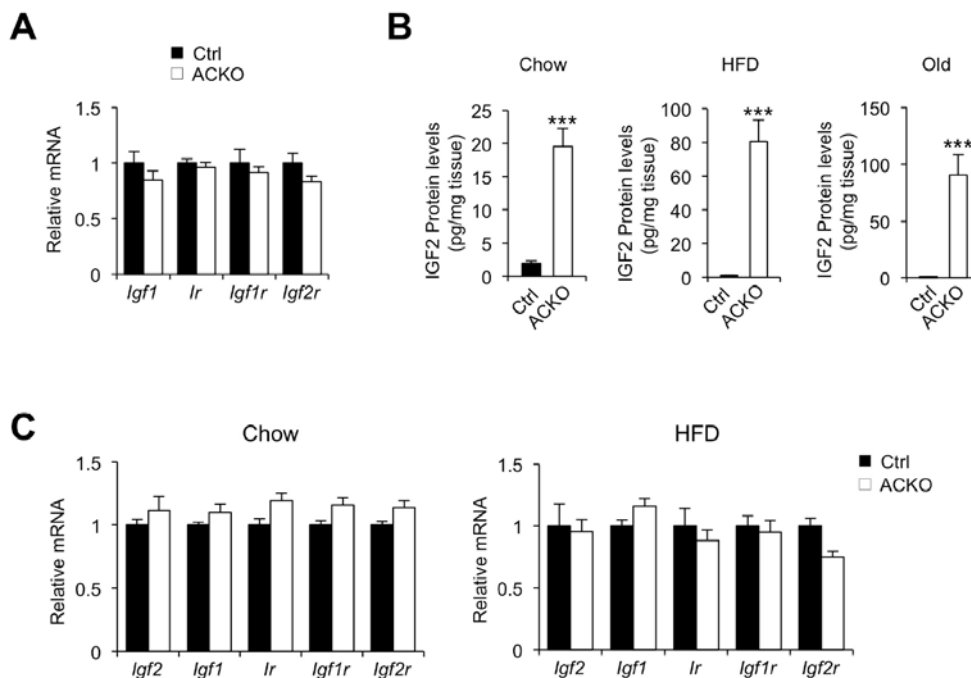
Supplementary Figure 5. Metabolic cage study in HFD-fed mice and cold exposure.

(A-C) Food intake (A), respiratory exchange ratio (RER, B), and total activity (C) in control and ACKO mice following one week of HFD feeding (n = 8). (D) Rectal body temperature in chow-fed mice following cold exposure (4 °C) for indicated time (n = 6). Data represent mean ± S.E.M., ***P<0.001.



Supplementary Figure 6. Regulation of the insulin/IGF pathway by Baf60.

(A) qPCR analysis of gene expression in quadriceps from young mice (n = 4-5). (B) IGF2 protein concentrations in quadriceps protein lysates from young mice (left; n = 4-5), HFD-fed mice (middle; n = 7-9), and old mice (right; n = 6-7). (C) qPCR analysis liver gene expression in young mice (left; n = 4-5), and mice fed with HFD for 16 weeks (right; n = 7-8). Data represent mean ± S.E.M., ***P<0.001.



SUPPLEMENTARY DATA

Supplementary Table 1. List of qPCR primers.

qPCR primers for gene expression

Gene symbol	Forward primer	Reverse primer
<i>36B4</i>	GAAACTGCTGCCTCACATCCG	GCTGGCACAGTGACCTCACACG
<i>Baf60a</i>	GGCGGTCCAAAATCGAAATC	ACCAGTTCCTCGAATCCTTTG
<i>Baf60b</i>	GAAGCTGGACCAGACCATCG	CGCAGTTCCTCGCATTATCTC
<i>Baf60c</i>	CGCGCAAAGCCACGA	TCCAGACGGCATCCCG
<i>Cpt1b</i>	ACAGACTTGCTACAGCACCTC	CGTCGAGGATTCTCTGGAC
<i>Acadvl</i>	GACAACCCCGGCTATCTCT	CTGCCCTGGCTGGTTTTTC
<i>Acaa2</i>	GATCTCAAGCTGGAAGATAC	ACCTCTGCTGAGACTGCAAG
<i>Hadha</i>	TGCTCCTCGACCACGCTAAC	GCCTTGGTCTTTTTCTGCTT
<i>Hadhb</i>	TGGCTGTGGCTGGTCAT	TCGGTCGCTCCTTCTAGAG
<i>Acadl</i>	TGCACACATACAGACGGTGCAG	TCAGATGCCAGTATTTTTGCC
<i>Myoglobin</i>	CATGGACAGGAAGTCCTCATCG	CTGTGAGCACGGTGCAACCATG
<i>HK1</i>	GAGGTCTACGACACCCAGA	GAAGTCTCCGAGGCATTGAG
<i>HK2</i>	CCGCCGTGGTGGACAAGATA	AGCAGTGATGAGAGCCGCTC
<i>Gpd1</i>	CCCATGAGCGTGCTGATG	GTGATGCGAAAGTTGGGTGTCT
<i>Pgk1</i>	GCTGTTCTCTCTTCCTCATC	CCTTTGGTTGTTTGTATCTGG
<i>Pgam2</i>	GAGAGTGCTTATTGCAGCCCA	GGTCGGACATCCCTTCCAG
<i>Eno3</i>	CGACACATCGCAGATCTTGC	CCGTTGATCACATTAAGGCAG
<i>Pkm2</i>	ATCATTTGTACCATTGGGCTG	TTCATTCCAGACTTAATCATCTCCTC
<i>Glut4</i>	TCTGTGGGTGGCATGATCTCT	CCAACACGGCCAAGACATTG
<i>Serca1</i>	ACTGTTACCAGCTAAGTCC	TGCCAACACGCACATAGTTA
<i>Serca2a</i>	GGTCCTGGCAGATGACAACCTC	CTGTCACCAGATTGACCCAGA
<i>Pln</i>	ATCTTGCTGTGTTGGCTGTG	AGGGGACAACCACTTCCTCT
<i>Sln</i>	TGAAGACAAGCCTTGGTGTG	TGGCCCTCAGTATTGGTAG
<i>Mln</i>	CAACGTTGCTAGGAGAACACC	GCTCTTGCCACTCATGTTCA
<i>Ryr1</i>	TACTTCGACACAACCCACA	ACAGTCTCCAGCAGGGAAGA
<i>Atp1a1</i>	GGTTACACTGTGCTAGGTGTTG	TCCAGGGCATGAGGCTCAGC
<i>Atp1a2</i>	CCACCACTGCGGAAAATGG	GCCCTTAGACAGATCCACTTGG
<i>Atp1b1</i>	CCTACGTGCTAAACATCATCAG	AGCAGTTCCTCCAGCCAGTCAAG
<i>Atp1b2</i>	GTCAGCATGTTGAGAAGCTCAAC	GTCCGGTTGAACTGGCAGGCAC
<i>mGpd</i>	GAAGGGGACTATTCTTGTGGGT	GGATGTCAAATTCGGGTGTGT
<i>Ucp3</i>	GCCCAACATCACAAGAAATGC	GCTCCAAAGGCAGAGACAAAGT
<i>Ucp2</i>	AGGGCACTGCAAGCATGTGT	GTCAGATTCCTGGGCAAGTCA
<i>Ucp1</i>	CTCTACGACTCAGTCCAAGAG	CATTAAGCCGGCTGAGATCTTG
<i>Pgc-1α</i>	AGCCGTGACCACTGACAACGAG	GCTGCATGGTTCTGAGTGCTAAG
<i>Cidea</i>	GCAGCCTGCAGGAATTATCAGC	GATCATGAAATGCGTGTGTGCC
<i>Dio2</i>	GATGCTCCCAATTCCAGTGT	TGAACCAAAGTTGACCACCA
<i>Prdm16</i>	CGGAAGAGCGTGAGTACAAATG	TCCGTGAACACCTTGACACAGT
<i>Igf2</i>	CTTGTTGACACGCTTCAGTTTGT	CGGAAGCAGCACTCTTCCA
<i>Igf1</i>	TGGATGCTCTCAGTTCGTGTG	GCTGGAGCCATAGCCTGTG
<i>H19</i>	TACCCCGGGATGACTTCAT	TATCTCCGGGACTCCAAACC
<i>Ir</i>	ATGGGCTTCGGGAGAGGAT	GGATGTCCATACCAGGGCAC
<i>Igf1r</i>	GTGGGGGCTCGTGTCTTC	GATCACCGTGCAGTTTTCCA
<i>Igf2r</i>	GGGAAGCTGTTGACTCCAAAA	GCAGCCCATAGTGGTGTGAA
qPCR primers for ChIP		
Location	Forward primer	Reverse primer
<i>Igf2 P1a</i>	TACCGGCTTCTCTGAACCTCA	TGCTGACCGATTTTGGAGC
<i>Igf2 P1b</i>	ACCCAACAGCAACAACAAC	TCTTGATCCAGGCCTAACGAG
<i>Igf2 P2a</i>	AATAGCCCAGGAATTATCGCA	TCCCTGTCCTCAGCACTTTGA
<i>Igf2 P2b</i>	AACTGAGCACAGGTCCTGCC	CGAGGTCCCATGTATGTTTC
<i>Igf2 P2c</i>	CAGCTGACCTCATTTCCTGAT	TATGCAAACCGAACAGCGG
<i>Igf2 P3a</i>	AACTGCCCTGCCTTTTACTG	TCCTTAGCAAAGCACCACCAG