Supplemental Table 1: Primers for quantitative PCR.

Gene	Foward	Reverse	Accession Number
AdipoR1	CCGTCCGGGCAGTACACT	ATCTGTGAAGGAGCAGCAG	NM_028320
AdipoR2	CACCGGAGCTGCCCTCTA	AGTGAAACCAGATGTCACA	NM_ 197985
APPL1	TGATGGCTGTGGACTGTGAAGACA	ATGCCCTACGATCCAGTTCAGCAT	NM_145221.2
Pdx-1	TTTGAAGTCAGTCAGTTGCTCCTT	CCTTCAACCCCTCTCTTGCTATT	NM_008814
MafA	AGGAGGTCATCCGACTGAAACAGA	ATTTCTCCTTGTACAGGTCCCGCT	NM_194350
Insulin 1	TGGCTTCTTCTACACACCCAAGTC	ACTGATCCACAATGCCACGCTTCT	NM_008386
Insulin 2	GTGGCTTCTTCTACACACCCATGT	GCACTGATCTACAATGCCACGCTT	NM_008387
β-actin	CTGAATGGCCCAGGTCTGA	CCCTGGCTGCCTCAACAC	NM_007393

Supplemental Table 2: siRNA targeting sequences

Gene	siRNA
AdipoR1	GGACACAUCUGCUUGGUUU GGAAUUCCGUUAUGGCCUA GAGGGACGUUGGAGAGUCA AGGGAUUGCUCUACUGAUU
AdipoR2	GAAUUUCGUUUCAUGAUUG CGGAUUGGCUUAAGGAUAA CCAGGAAGAUGAAGGGUUU UGGAAGAGUUUGUUUGUAA

Supplemental Figure S1: MIN6 cells were stimulated with **A.** 0-10 µg/mL fAd or **B.** 0-5 µg/mL gAd for 24 h in serum free media. PBS or 5 mM TrisHCl was used as respective controls (veh). Western blot analysis of phospho-Akt [S473] (60 kDa) or β actin (43 kDa). Representative immunoblots are shown. Quantified values represent means ± SE of 3 experiments and are normalized to β actin and response at highest concentration.

Supplemental Figure S2. Cells were stimulated with or without 2.5 µg/mL gAd or 5 µg/mL fAd for 10 min, 1 h or 24 h in serum free media. PBS or 5 mM TrisHCl was used as respective controls (veh). Western blot analysis of **A.** phospho-AMPK [T172] (62 kDa), **B.** phospho-p38 [T180/Y182] (43 kDa) and β actin (43 kDa). Representative immunoblots are shown. Quantified values represent means ± SE of 3 experiments and are normalized to β actin and control.

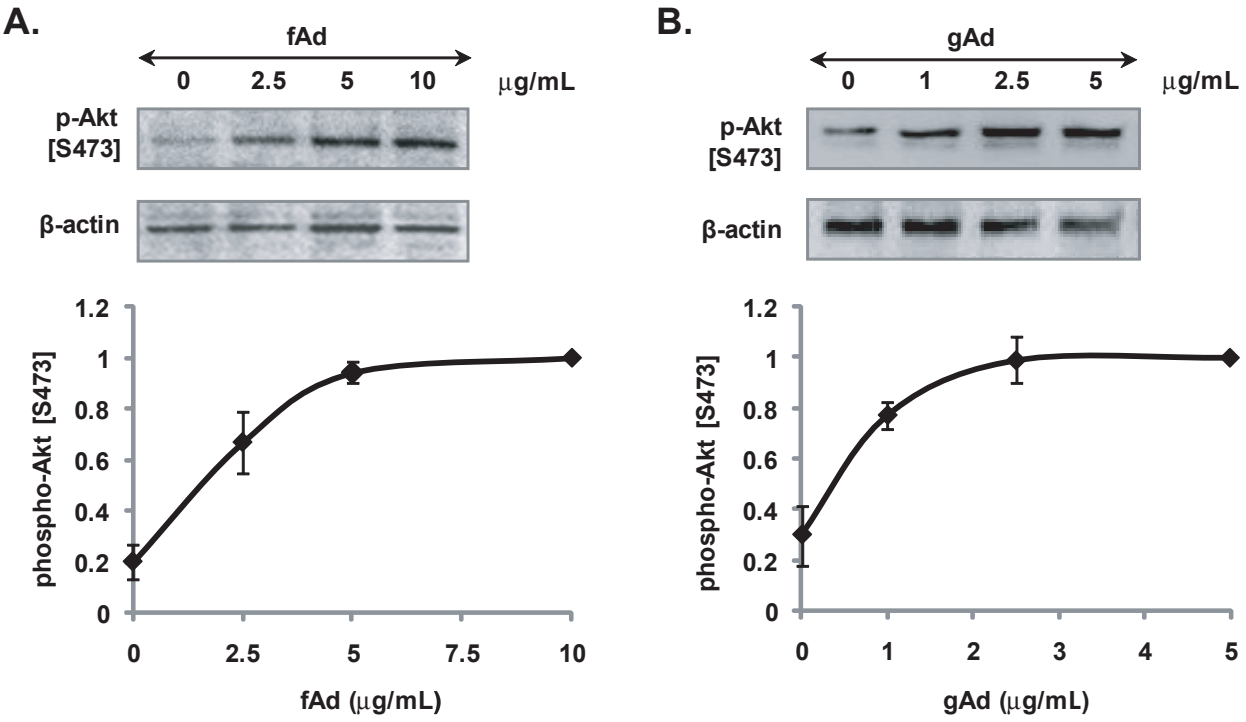
Supplemental Figure S3. Cells were stimulated with or without 2.5 µg/mL gAd, 5 µg/mL fAd or 100 nM insulin (ins) for 10 min, 1 h or 24 h in serum free media. PBS or 5 mM TrisHCl was used as respective controls (veh). Western blot analysis of phospho-Akt [T308] (60 kDa) (**A-C**), total Akt (60 kDa) (**D**), total ERK1/2 (42, 44 kDa) (**D**) and β actin (43 kDa). Representative immunoblots are shown. Quantified values (both bands were assessed for phospho-ERK) represent means ± SE of 3–9 experiments and are normalized to β actin and control. *$p < 0.05$ vs. respective control, #$p < 0.05$ vs. ins or fAd alone.

Supplemental Figure S4: A. INS-1 832/13 and **B.** MIN6 cells were stimulated with or without 2.5 µg/mL gAd or 5 µg/mL fAd for 48 h in growth media or 30 mM glucose. PBS or 5 mM TrisHCl was used as respective controls (veh). Cell lysates were prepared and subjected to western blot analysis for cleaved caspase-3 (19 kDa) and β actin (43 kDa). Representative immunoblots are shown. Quantified values represent means ± SE of 3 experiments and are normalized to β actin and control. * $p < 0.05$ compared to veh in 30 mM glucose. **C.** Mouse slets were stimulated with or without 2.5 µg/mL gAd for 24 h in 2.8 or 25 mM glucose. 5 mM TrisHCl was used as control (veh). Cells were subjected to qPCR for *Ins I* and *Ins II* transcript expression. Quantified values represent means ± SE of 4-6 experiments and are normalized to β actin and control. * $p < 0.05$ compared to veh

Supplemental Figure S5. A. Western blot analysis of Akt (60 kDa) and β actin (43 kDa) in MIN6 cells transfected with DN-Akt. Representative immunoblot shown. **B.** Western blot analysis of AdipoR1 or 2 (46 kDa) and β actin (43 kDa) in cells co-transfected with siRNA against AdipoR1 and 2 or control siRNA (ConSi). Representative immunoblots are shown. Quantified values represent means ± SE of 4 experiments and are normalized to β actin and ConSi. ***$p < 0.001$ vs. ConSi. **C.** Western blot analysis of phospho-Akt [T308] (60 kDa) and β actin (43 kDa) in cells co-transfected with siRNA against AdipoR1 and 2 or ConSi and stimulated with 2.5 µg/mL gAd or 5 µg/mL fAd for 24 h in serum free media. Representative immunoblots are shown. Quantified values represent means ± SE of 4 experiments and are normalized to β actin and control. *$p < 0.05$ vs. respective control.

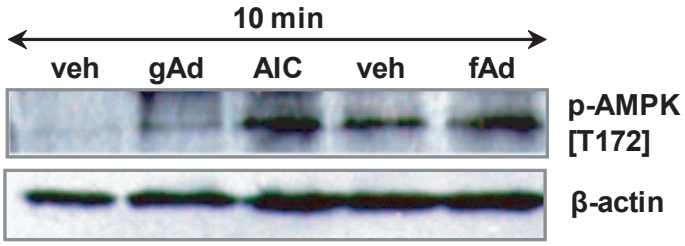
Supplemental Figure S6. Cells were infected with gfp, AdipoR1 or 2 adenoviruses. 24 h post-infection, **A.** cell lysates were subjected to cell fractionation or **B., C.** cells were stimulated with or without 2.5 µg/mL of gAd, 5 µg/mL fAd or 100 nM insulin (ins) for 10 min. Western blot analysis of AdipoRs (46 kDa), phospho-Akt [S473]/[T308] (60 kDa), β actin (43 kDa) and Tim23 (23 kDa) [membrane marker]. Representative immunoblots are shown. Quantified values represent means ± SE of 4-6 experiments and are normalized to β actin. C: cytosolic, M: membrane fraction.

Supplemental Figure S1.

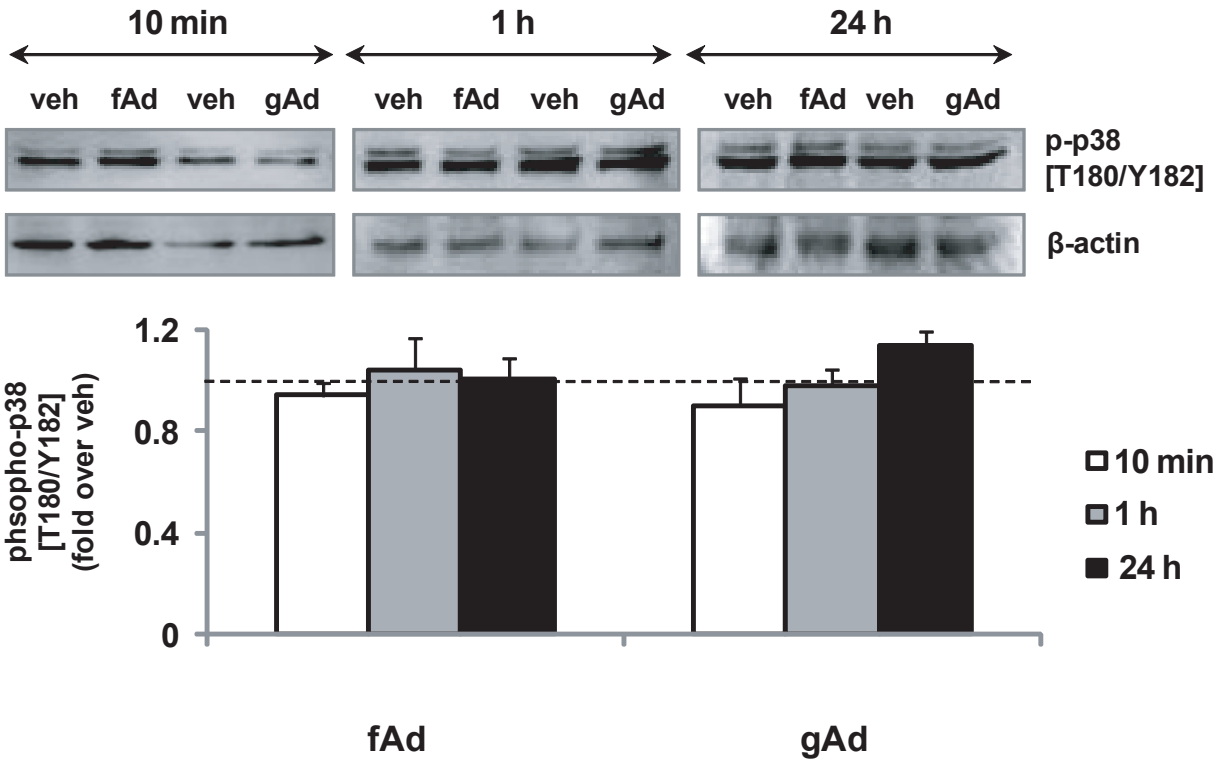


Supplemental Figure S2.

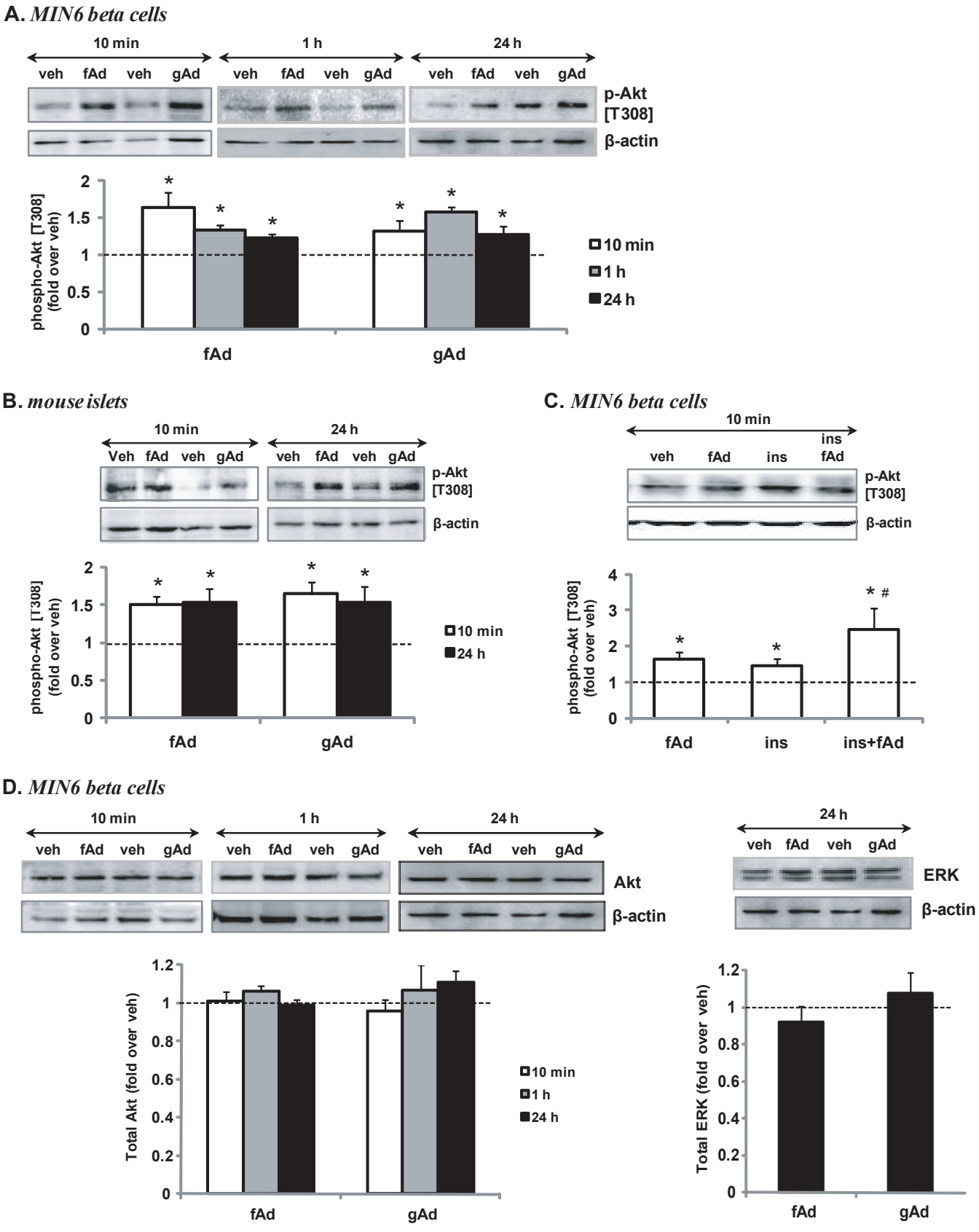
A. ***C2C12 myocytes***



B. ***MIN6 beta cells***



Supplemental Figure S3.



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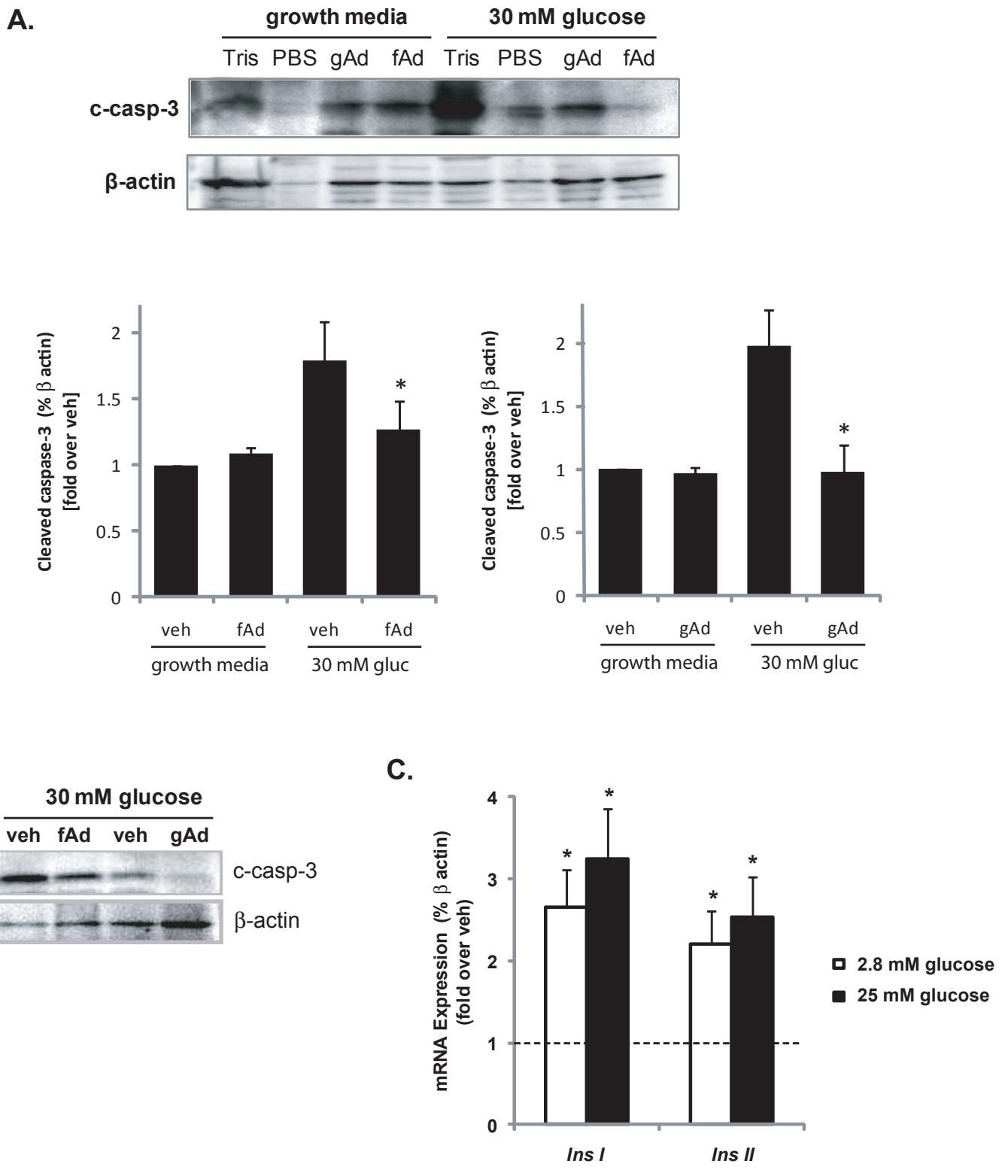
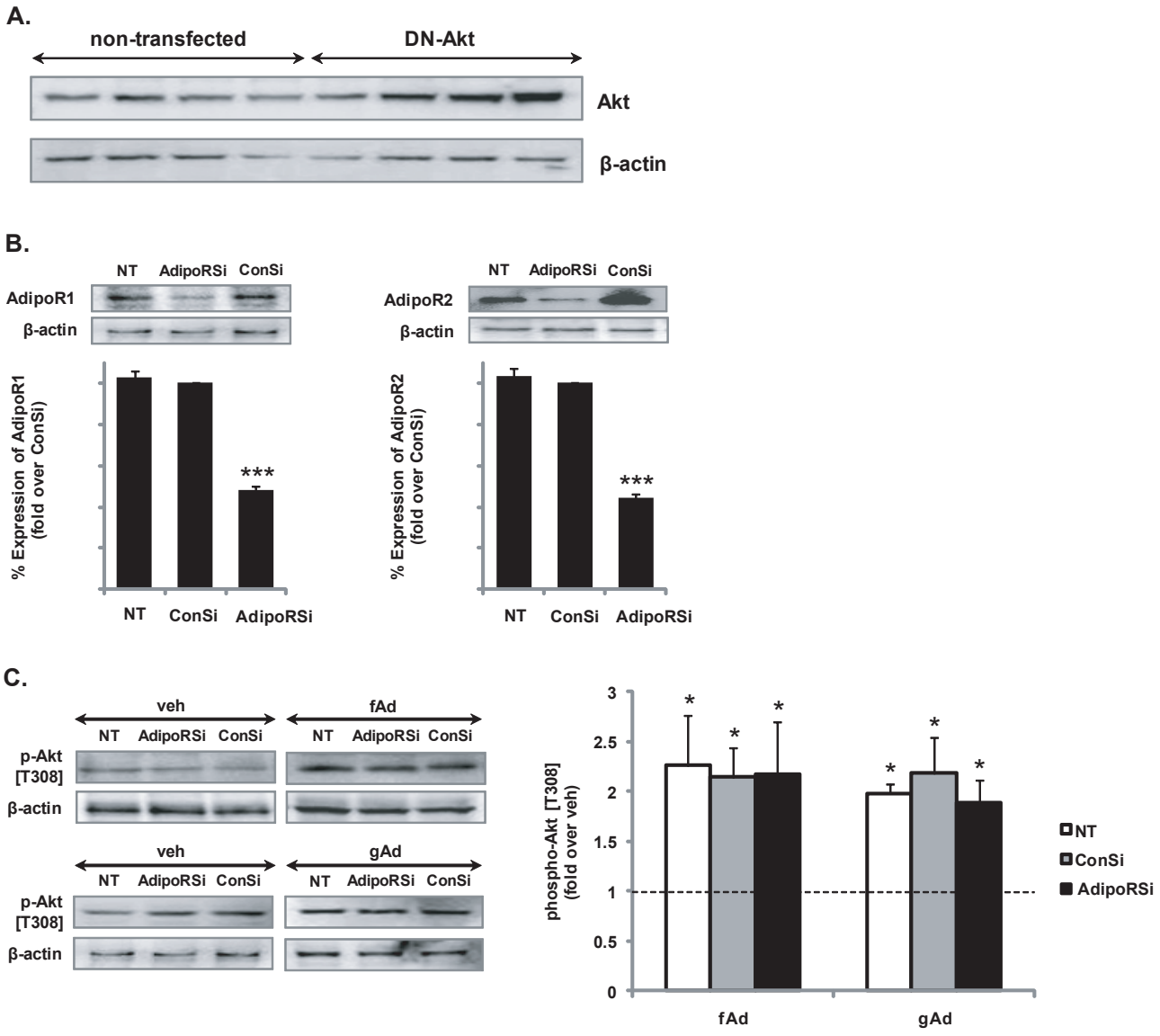


Supplemental Figure S5.



Supplemental Figure S6.