

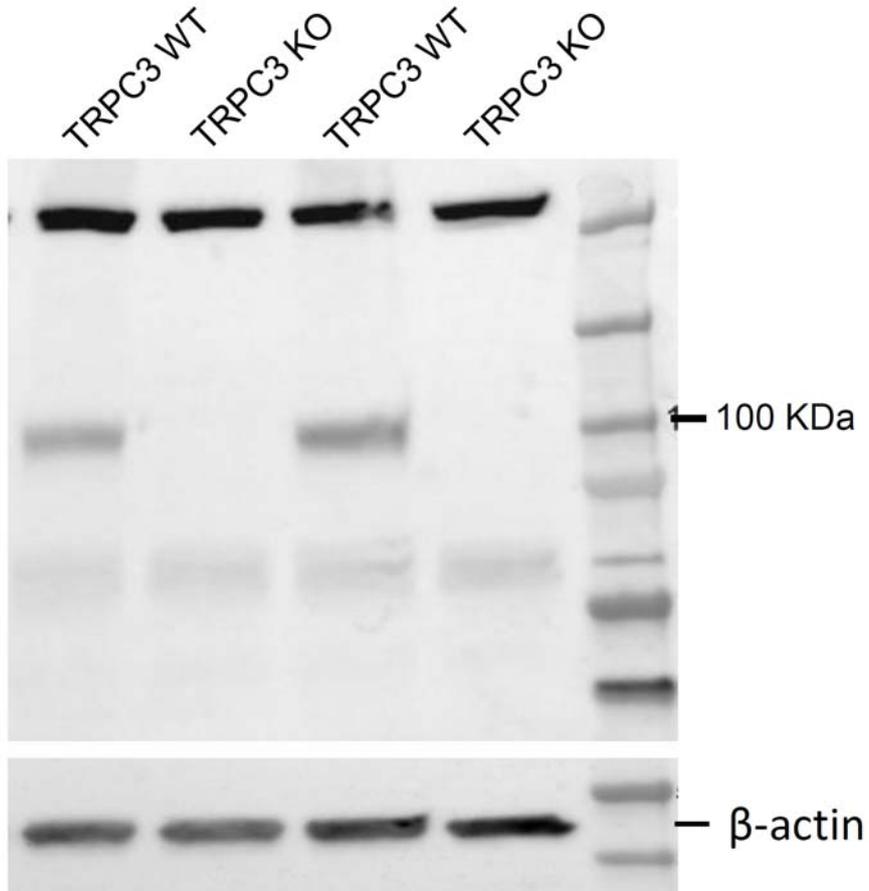
SUPPLEMENTARY DATA

Supplementary Table 1. Primers sequence or reference used for SYBR green or Taqman assays.

PCR assay	Gene	Primers sequence or reference (Applied Biosystem)
SYBR green assay	NPY	NPY-F: CCGCCACGATGCTAGGTAAC
		NPY-R: CAGCCAGAATGCCCAAACAC
	AgRP	AgRP-F: CAGCCAGAATGCCCAAACAC
		AgRP-R: GACTCGTGCAGCCTTACACAG
	POMC	POMC-F: GCGACGGAAGAGAAAAGAGGT
		POMC-R: ATTGGAGGGACCCCTGTCTCG
	CART	CART-F: CACGAGAAGGAGCTGCCAAG
		CART-R: GACTCGTGCAGCCTTACACAG
	UBC	UBC-F: CCCACACAAAGCCCCTCAAT
		UBC-R: AAGATCTGCATCGTCTCTCTCAC
TaqMan assay	TRPC3	Mm00444690_m1
	TRPC4	Rn00584835_m1
	TRPC6	Rn00677559_m1
	36B4	Rn03302271_gH
	TBP	Mm00446973_m1
	UBC	Mm01198158_m1

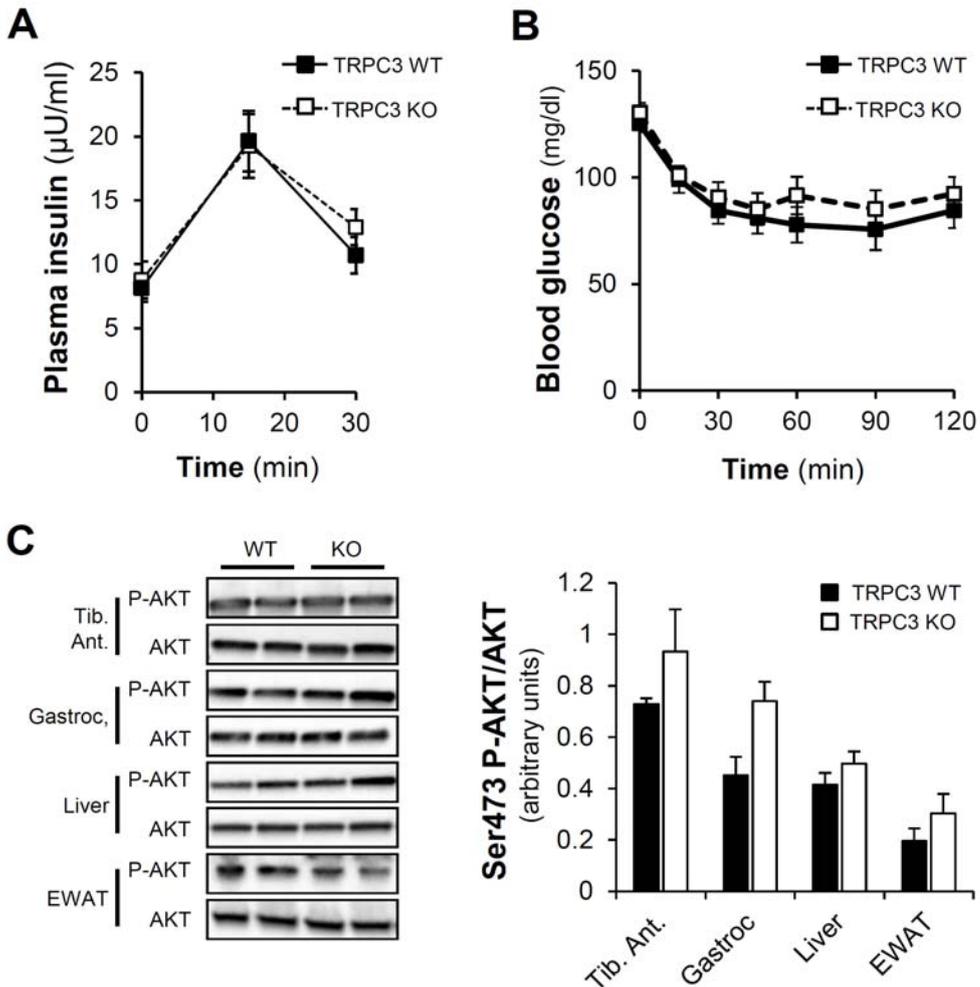
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Supplementary Figure 1. Validation of the TRPC3 antibody. Representative western blot of cerebellum samples from TRPC3 WT and KO mice against TRPC3 (*top*) or β -actin proteins (*bottom*).



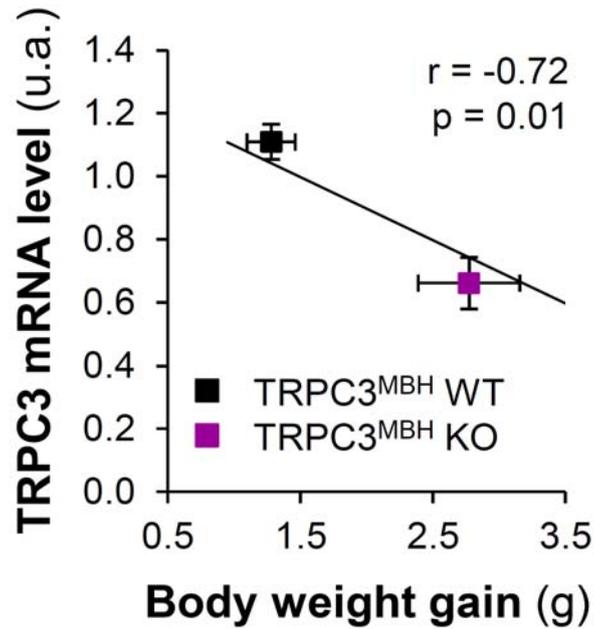
SUPPLEMENTARY DATA

Supplementary Figure 2. Insulin secretion and sensitivity are not altered in TRPC3 KO mice. A. Glucose-stimulated plasma insulin levels during the OGTT in TRPC3 WT (n=10) or KO (n=8) mice. **B.** Blood glucose during an insulin tolerance test (ITT; 0.3 U/kg) in TRPC3 WT (n=12) or TRPC3 KO (n=10) mice. **C.** Representative blots of Ser473 pAkt and total Akt (**C left**) and quantitative bar graphs of Ser473-Akt phosphorylation (**C right**) in tibialis anterior (Tib. Ant.) and gastrocnemius (Gastroc) muscles, liver and epididymal white adipose tissue (EWAT) in TRPC3 WT (n=6) and KO (n=8) mice fasted for 5 hours 10 minutes after insulin injection (IP, 10 U/kg). Procedure for P-Akt western blotting was performed as previously described (ref. 28).



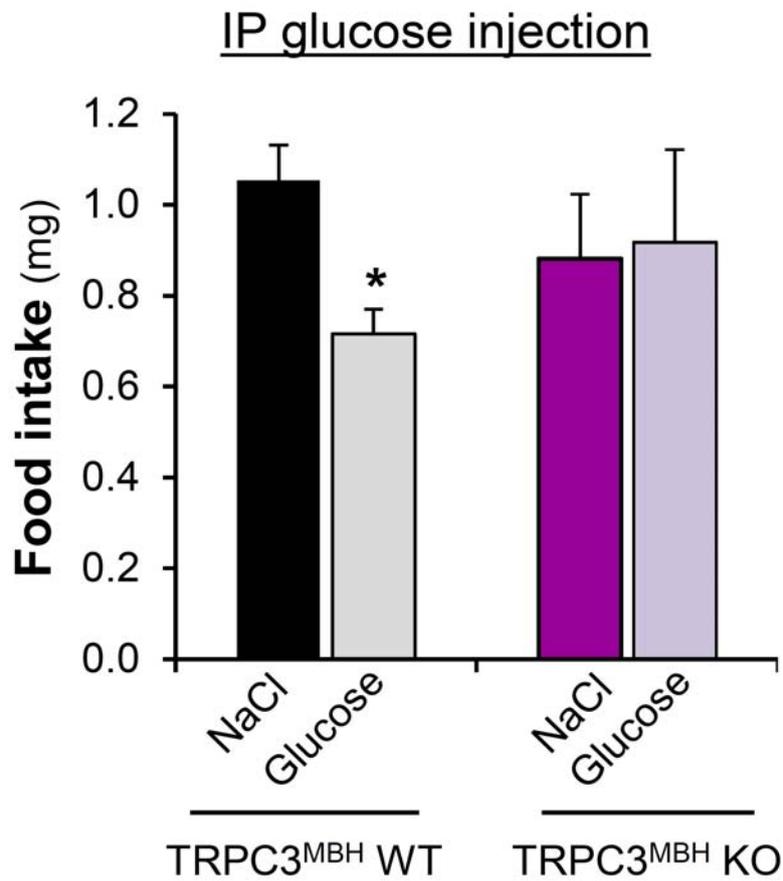
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Supplementary Figure 3. Decreased MBH TRPC3 expression is correlated with increased body weight gain. Strength of association by the *Pearson correlation test* between MBH TRPC3 expression and body weight gain of TRPC3^{lox/lox} mice injected in the MBH with an AAV-cre/GFP (TRPC3^{MBH} KO; n=5) or an AAV-GFP (TRPC3^{MBH} WT ; n=6) virus.



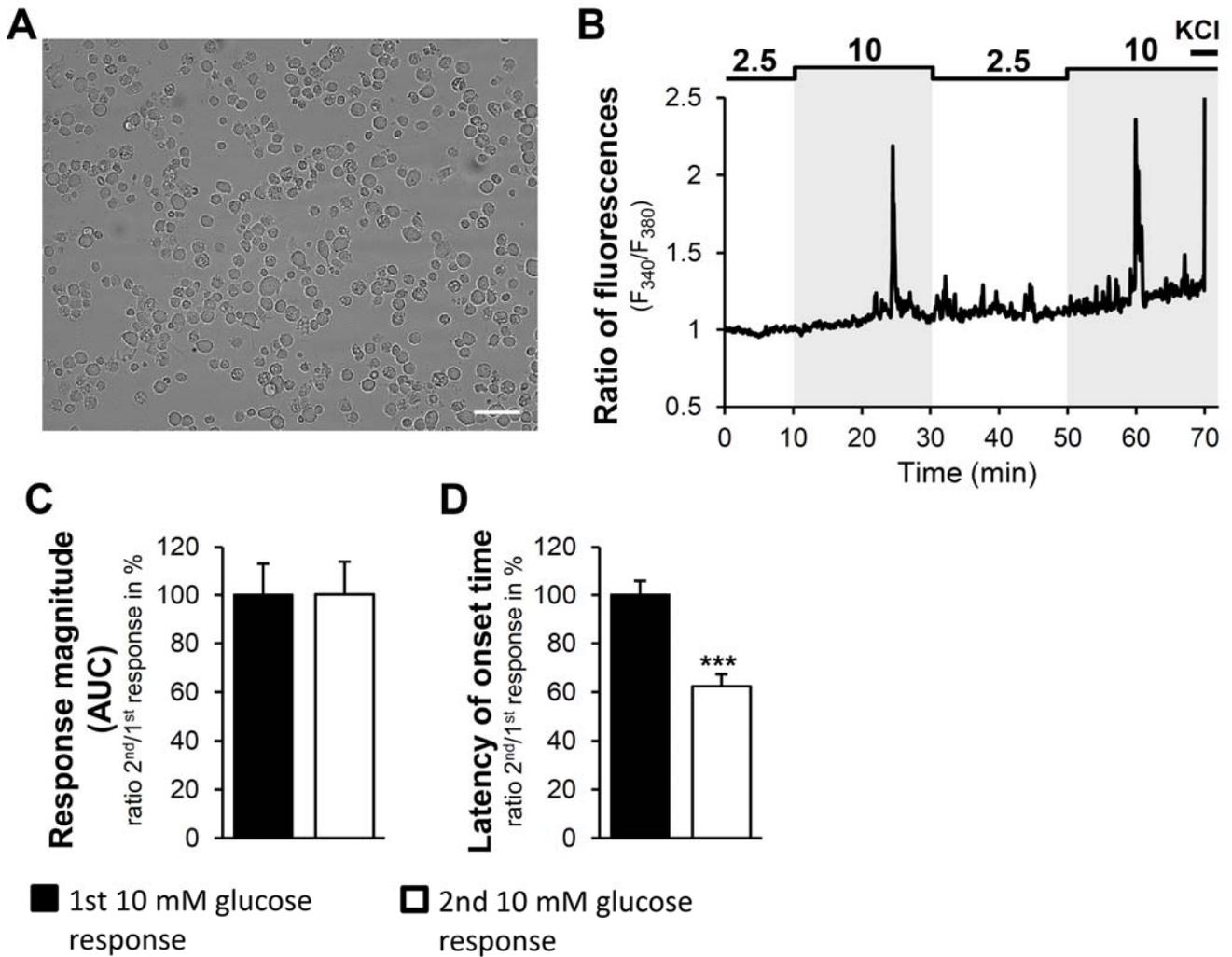
SUPPLEMENTARY DATA

Supplementary Figure 4. Inhibition of MBH TRPC3 expression impairs IP glucose-induced decreased food intake. Food intake 2 hours after intraperitoneal injection of glucose (2 g/kg) or NaCl (0.9 %) in 18h fasted-TRPC3^{MBH} WT (NaCl: n=7; Glucose: n=7) or TRPC3^{MBH} KO mice (NaCl: n=5; Glucose: n=7), 6 weeks post-AAV-injection.



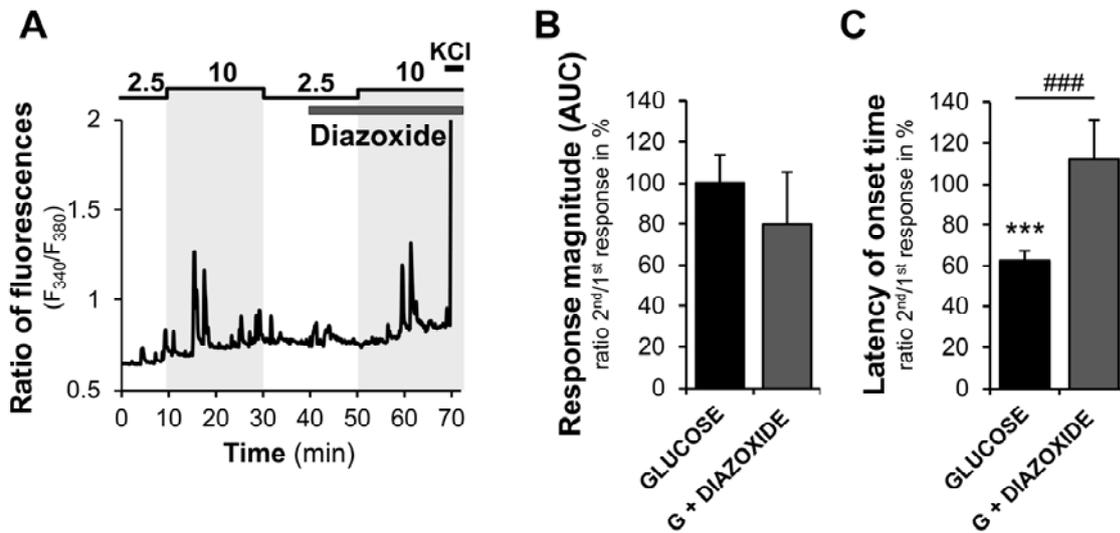
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Supplementary Figure 5. Characterization of MBH GE neuron in response to increased glucose level. **A-** Representative bright-field image of cultured dissociated MBH neurons (x20 objective, scale bar = 40 μ m). **B-** Representative calcium imaging trace of GE neuron in response to 2 consecutive increased glucose level from 2.5 to 10 mM. Quantification of the magnitude (AUC, **C**) and latency (**D**) of the 1st and 2nd glucose response (**B**; n=71 GE neurons/953 total cells, 16 independent cultures).***: p<0.05 vs. 1st glucose response, paired *t*-test.



SUPPLEMENTARY DATA

Supplementary Figure 6. K_{ATP} channels are not involved in GE neuron response to increased glucose. **A.** Representative calcium imaging traces of MBH GE neuron in response to 2.5-10 mM glucose increase in presence or not of potassium channel activator Diazoxide (250 μ M). **B,C.** Quantification of glucose response magnitude (**B**) and latency (**C**) of the second response to 10 mM increased glucose level in presence of solvent (Glucose alone) or Diazoxide. ***: $p < 0.001$ vs. 1st glucose response, paired t -test; ns: $p > 0.05$, ###: $p < 0.001$ vs. Glucose, unpaired t -test.



SUPPLEMENTARY DATA

Supplementary Figure 7. TRPC3 deficient mice do not have altered MBH TRPC4 and C6 expression. MBH TRPC4 and TRPC6 mRNA expression in TRPC3 WT (n=10) and KO (n=14) mice.

