

EN-12-2051

Supplemental Figure 1. *Hprt1* expression in two lines of *Gpr50*^{-/-} mice and absence of fasting-induced torpor in *Hprt1*^{-/-} mice.

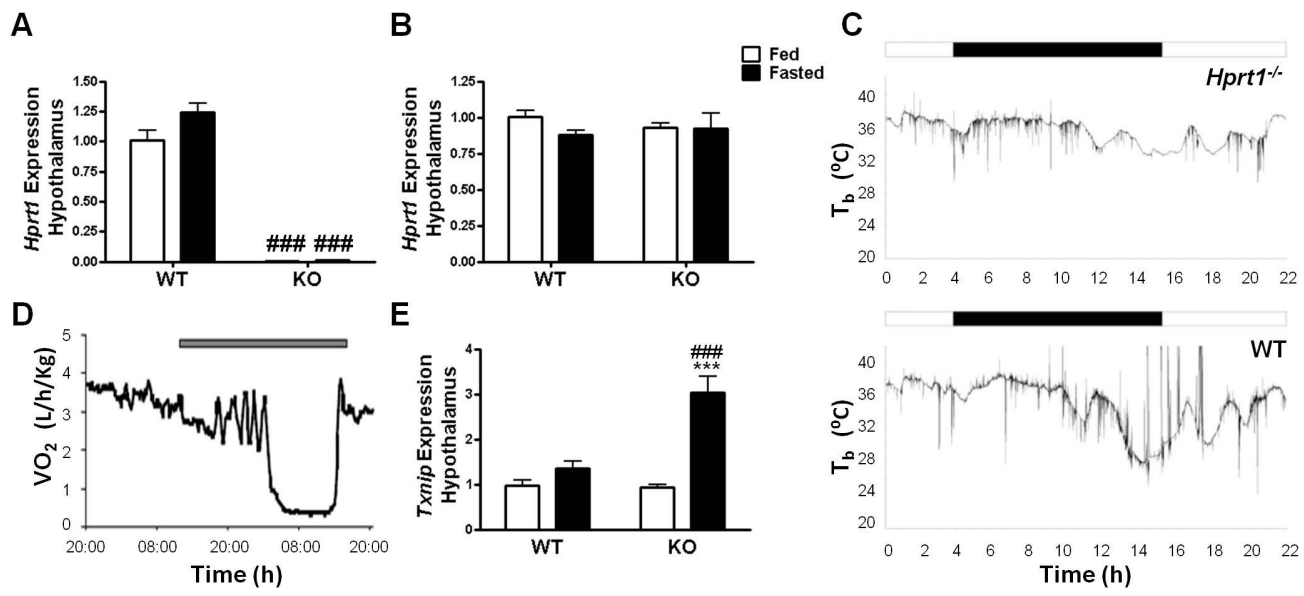
Quantitative RT-PCR analyses of *Hprt1* in the hypothalamus of WT and *Gpr50*^{-/-} mice obtained from DeltaGen (**A**; n=8/group) and Organon Pharmaceuticals (**B**; n=5/group), show near total loss of *Hprt1* expression in the DeltaGen *Gpr50*^{-/-} mice, but no significant difference in expression between Organon *Gpr50*^{-/-} and WT mice. **C**, Core body temperature (T_b) of WT and *Hprt1*^{-/-} mice subject to a 24 h fast was monitored by remote telemetry. No drop in T_b indicative of torpor was observed in *Hprt1*^{-/-} mice. Lighting schedule is represented by black and white boxes; representative recordings of three independent experiments. **D**, *Gpr50*^{-/-} mice obtained from Organon Pharmaceuticals exhibit torpor upon fasting with a similar temporal depth and profile as *Gpr50*^{-/-} obtained from DeltaGen. Grey bar indicates period of fasting. **E**, Confirmation of microarray results using *Gpr50*^{-/-} mice obtained from Organon Pharmaceuticals by quantitative RT-PCR. As in the mice obtained from DeltaGen, *Txnip* expression was significantly increased in the hypothalamus of this line of *Gpr50*^{-/-} mice. Data are mean \pm SEM, normalised to mouse *18S rRNA* control, and as fold-change relative to WT fed mice; *** $P < 0.001$, fed vs fasted; ### $P < 0.001$, torpid vs normothermic animals two-way ANOVA with Bonferroni's post-hoc test.

Supplemental Figure 2. *Txnip* expression in female *Gpr50*^{-/-} mice.

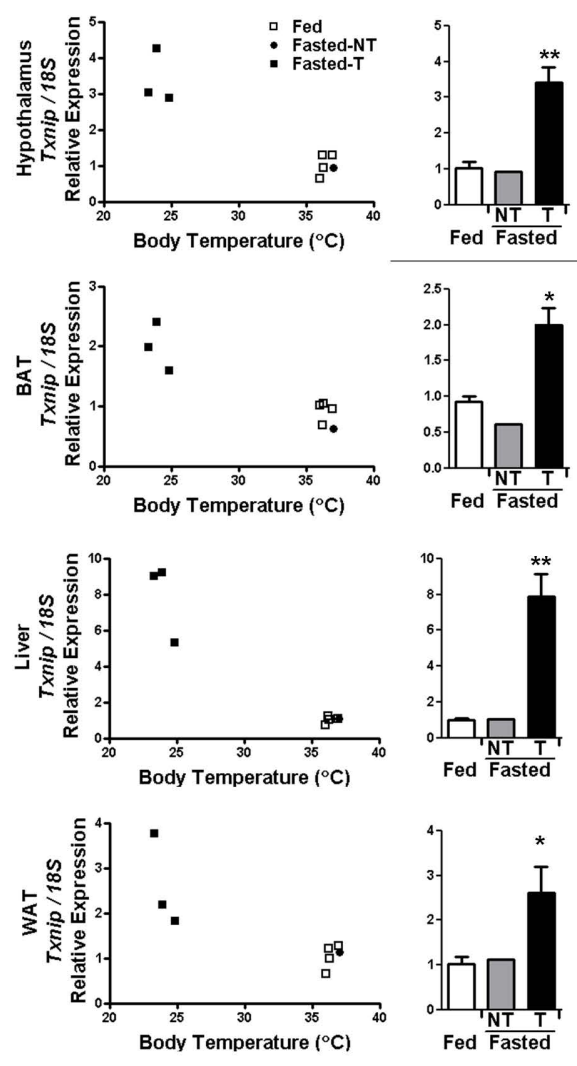
21 Quantitative RT-PCR analysis of *Txnip* expression in tissues of female *Gpr50*^{-/-} mice fed *ad libitum* or fasted (n=4/group). As in male *Gpr50*^{-/-} mice, fasting induced a state of torpor (T), as assessed by body temperature at the time of sacrifice, except in one animal, which did not enter or was aroused from torpor. Torpor caused significant increases in *Txnip* expression in all tissues studied ($P < 0.01$), whereas in the fasted normothermic (NT) animal, levels of *Txnip* were comparable to those in the fed group. Data are normalised to mouse *18S rRNA* control, and as fold-change relative to fed mice; statistical significance was determined using one-way ANOVA with Bonferroni's post-hoc test.

Supplemental Figure 3. RT-PCR profiling of *Txnip* expression in murine tissues.

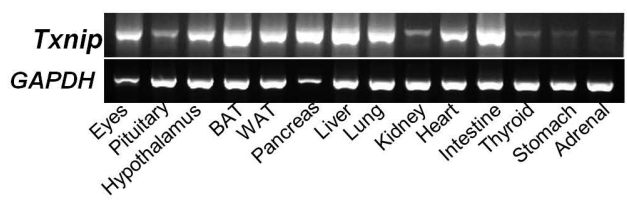
Supplemental Figure 1



Supplemental Figure 2



Supplemental Figure 3



Supplemental Table 1. Altered transcripts in the hypothalamus of fasted *Gpr50*^{-/-} vs. fasted WT mice.

Gene	Description	ID	q Value	Fold Change
Txnip	thioredoxin interacting protein	NM_001009935	0.010	2.55
Hist1h1c	histone cluster 1, H1c	NM_015786	0.009	2.49
Foxf1a	forkhead box F1a	NM_010426	0.010	2.02
Btf3l4	basic transcription factor 3-like 4	NM_027453	0.010	1.96
Nat12	N-acetyltransferase 12	NM_001081430	0.010	1.78
Csrnp1	cysteine-serine-rich nuclear protein 1	NM_153287	0.009	1.63
Myd116	myeloid differentiation primary response gene 116	NM_008654	0.002	1.59
H3f3b	H3 histone, family 3B	NM_008211	0.010	1.58
Ppm1b	protein phosphatase 1B, magnesium dependent, beta isoform	NM_001159496	0.009	1.50
Yod1	YOD1 OTU deubiquitinating enzyme 1 homologue	NM_178691	0.009	1.50
Id1	inhibitor of DNA binding 1	NM_010495	0.009	1.49
Hist1h2be	histone cluster 1, H2be	NM_178194	0.007	1.45
Lsamp	limbic system-associated membrane protein	NM_175548	0.000	1.44
Tardbp	TAR DNA binding protein	NM_145556	0.010	1.44
Ap1g2	adaptor protein complex AP-1, gamma 2 subunit	NM_007455	0.009	1.30
Rrh	retinal pigment epithelium derived rhodopsin homolog	NM_009102	0.010	1.24
Accn3	amiloride-sensitive cation channel 3	NM_183000	0.009	1.22
Cml5	camello-like 5	NM_023493	0.010	1.20
Abcd4	ATP-binding cassette, sub-family D (ALD), member 4	NM_008992	0.005	-1.20
Fam161b	family with sequence similarity 161, member B	NM_172581	0.009	-1.25
Osbp11	oxysterol binding protein-like 11	NM_176840	0.010	-1.27
Hps5	Hermansky-Pudlak syndrome 5 homolog (human)	NM_001005247	0.010	-1.27
Dusp11	dual specificity phosphatase 11	NM_028099	0.002	-1.31
Fancg	Fanconi anemia, complementation group G	NM_053081	0.000	-1.32
Zfp128	zinc finger protein 128	NM_153802	0.009	-1.34
Gpr75	G protein-coupled receptor 75	NM_175490	0.010	-1.36
Zfp27	zinc finger protein 27	NM_001037707	0.010	-1.36
Zfp454	zinc finger protein 454	NM_172794	0.007	-1.41
Zfp324	zinc finger protein 324	NM_178732	0.009	-1.41
Zfp111	zinc finger protein 111	NM_019940	0.010	-1.48
Cpne1	copine I	NM_170588	0.010	-1.49
Stradb	STE20-related kinase adaptor beta	NM_172656	0.010	-1.51
Rqcd1	required for cell differentiation homolog 1 (S. pombe)	NM_021383	0.009	-1.58
Ttf1	transcription termination factor, RNA polymerase I	NM_009442	0.010	-1.59
Shc2	Src homology 2 domain containing transforming protein	NM_001024539	0.009	-1.59
Tmem126b	transmembrane protein 126B	NM_026734	0.010	-1.60
Zscan22	zinc finger and SCAN domain containing 22	NM_001001447	0.010	-1.62
Gabrq	gamma-aminobutyric acid A receptor, subunit theta	NM_020488	0.007	-2.22
Sfrs5	splicing factor, arginine/serine-rich 5 (SRp40, HRS)	NM_001079695	0.009	-2.26
Hprt1	hypoxanthine guanine phosphoribosyl transferase 1	NM_013556	0.000	-33.66