OMTM, Volume *27*

Supplemental information

Hypothalamic AAV-BDNF gene therapy improves metabolic function and behavior in the *Magel2*-null mouse model of Prader-Willi syndrome

Nicholas J. Queen, Xunchang Zou, Jacqueline M. Anderson, Wei Huang, Bhavya Appana, Suraj Komatineni, Rachel Wevrick, and Lei Cao

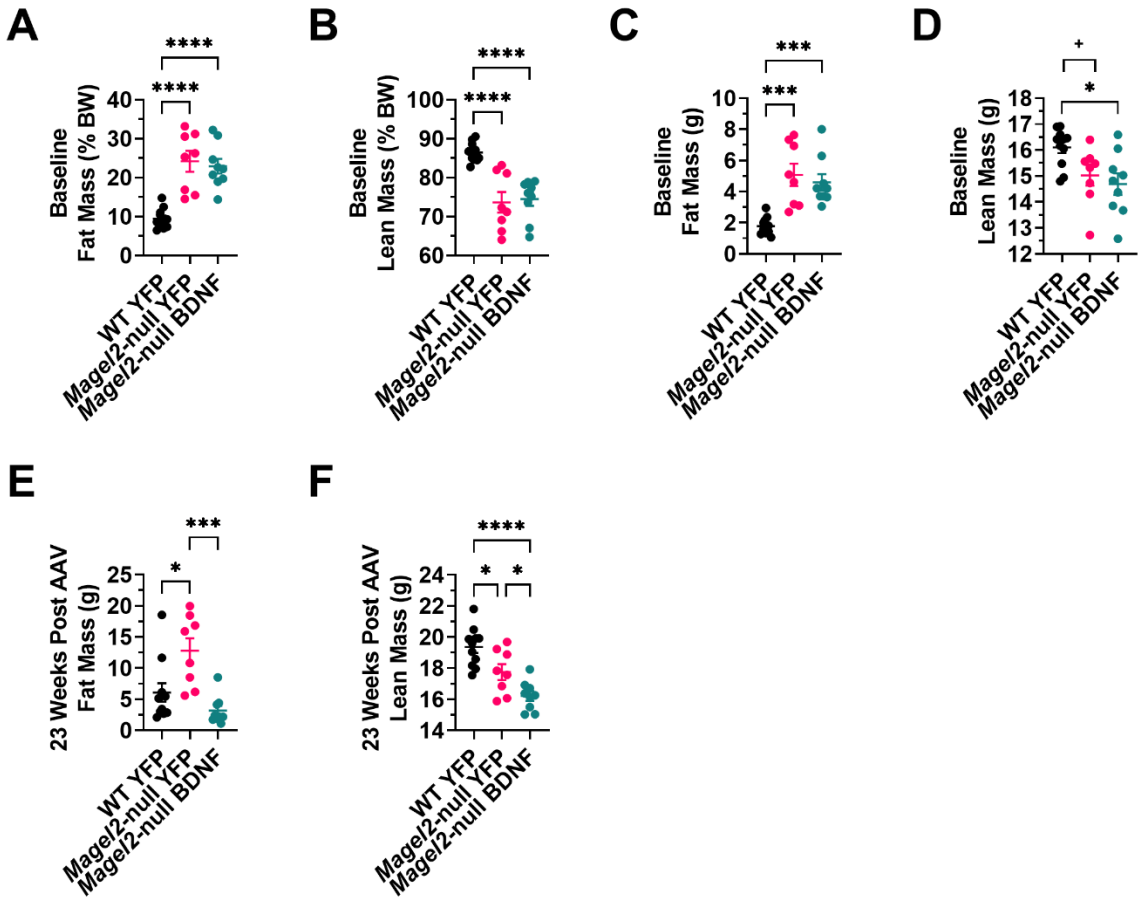

Figure S1. Additional measures of body composition in female mice at baseline and endpoint. (A) Relative fat mass at baseline. (B) Relative lean mass at baseline. (C) Absolute fat mass at baseline. (D) Absolute lean mass at baseline. (E) Absolute fat mass at 23 weeks post AAV injection. (F) Absolute lean mass at 23 weeks post AAV injection. Data are means ± SEM. Sample size: WT YFP n=11, *Magel2*-null YFP n=8, *Magel2*-null BDNF n=9. + $P<0.10$, * $P<0.05$, *** $P<0.001$, **** $P<0.0001$.

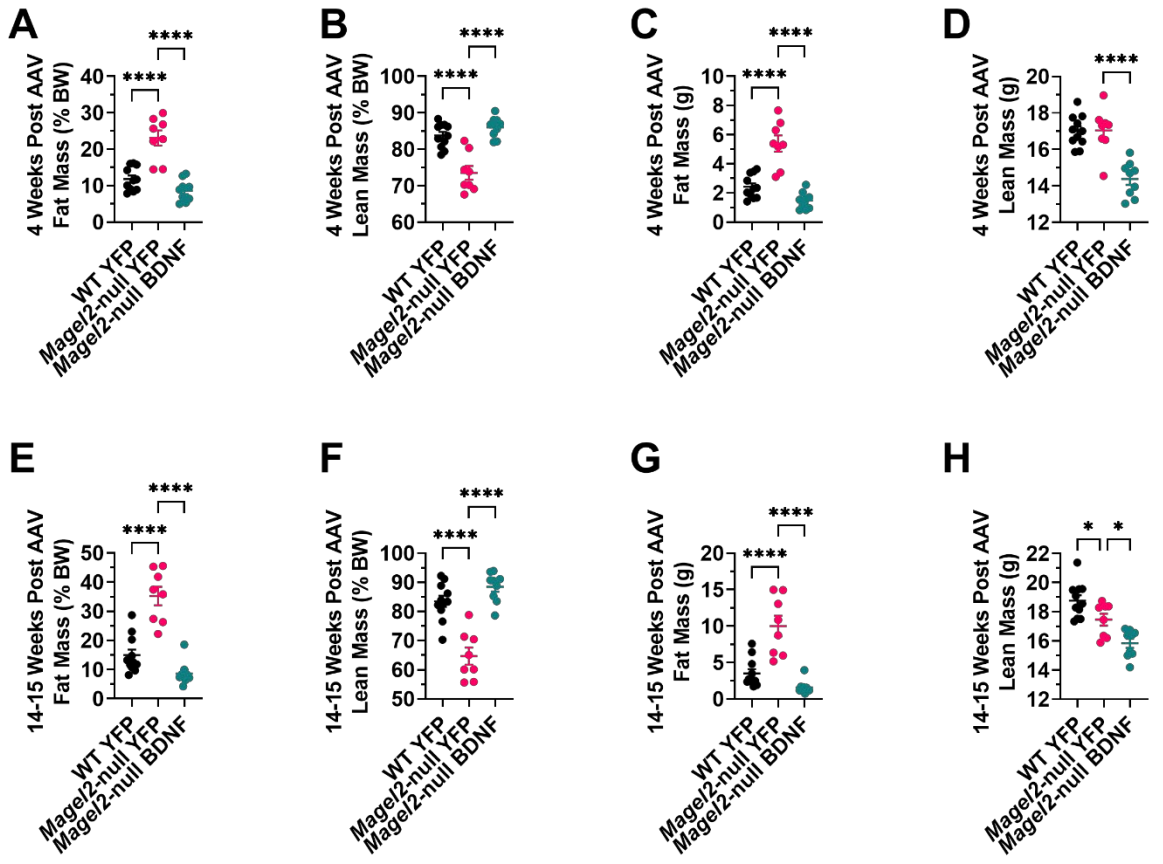

Figure S2. Midpoint measurements of body composition in female mice. (A) Relative fat mass at 4 weeks post AAV injection. (B) Relative lean mass at 4 weeks post AAV injection. (C) Absolute fat mass at 4 weeks post AAV injection. (D) Absolute lean mass at 4 weeks post AAV injection. (E) Relative fat mass between 14-15 weeks post AAV injection. (F) Relative lean mass between 14-15 weeks post AAV injection. (G) Absolute fat mass between 14-15 weeks post AAV injection. (H) Absolute lean mass between 14-15 weeks post AAV injection. Data are means ± SEM. Sample size: WT YFP n=11, *Magel2*-null YFP n=8, *Magel2*-null BDNF n=9. * $P<0.05$, **** $P<0.0001$.

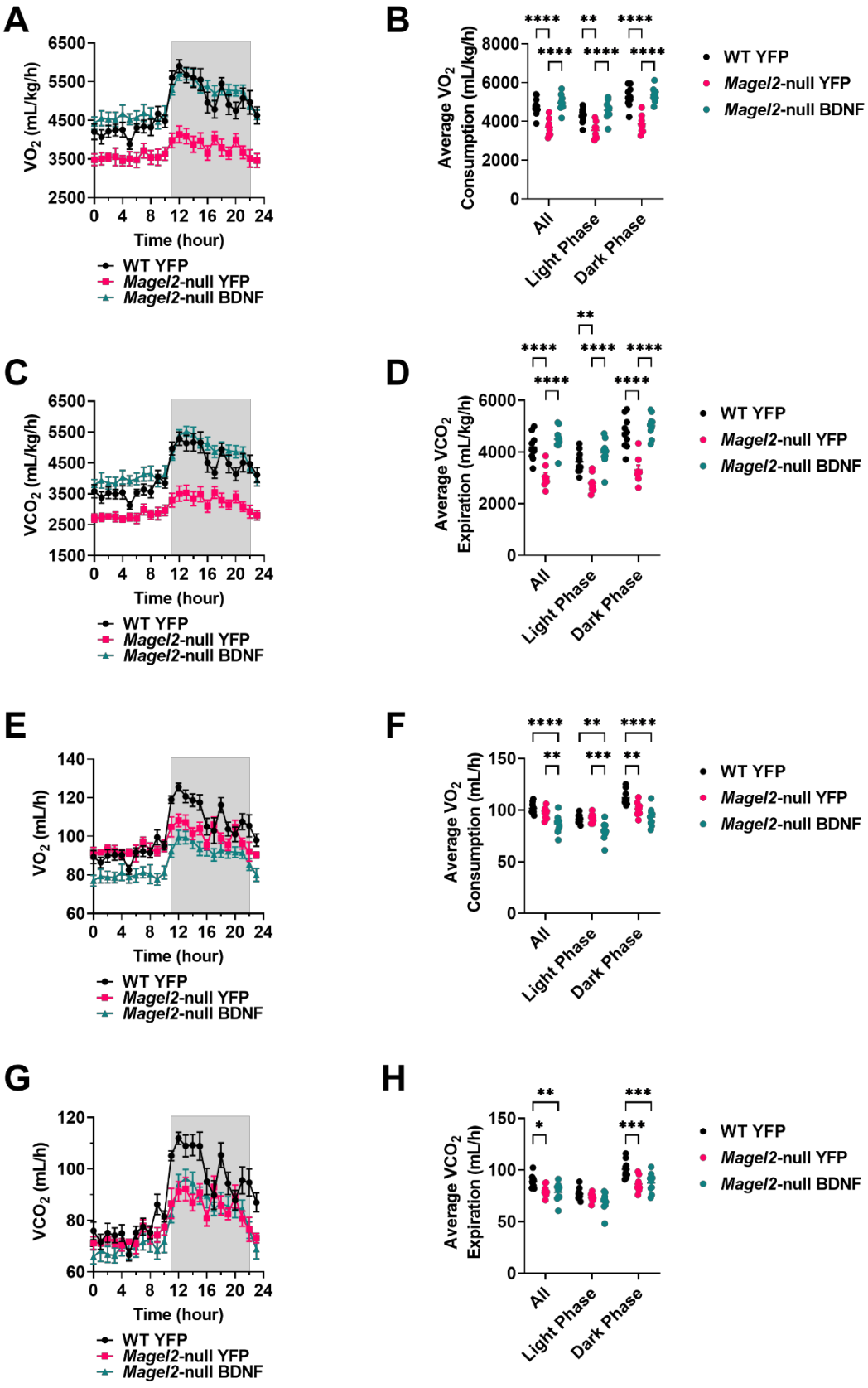
A
B
C
D
E
F
G
H
VO2 (mL/kg/h)
Time (hour)
Average VO2 Consumption (mL/kg/h)
VCO2 (mL/kg/h)
Average VCO2 Expiration (mL/kg/h)
VO2 (mL/h)
Average VO2 Consumption (mL/h)
VCO2 (mL/h)
Average VCO2 Expiration (mL/h)
All
Light Phase
Dark Phase
WT YFP
Magel2-null YFP
Magel2-null BDNF

Figure S3. Additional measures of indirect calorimetry in female mice. (A) Volume of oxygen consumption over time as normalized to body weight. (B) Hourly oxygen consumption as normalized to body weight. (C) Volume of carbon dioxide expiration over time as normalized to body weight. (D) Hourly carbon dioxide expiration as normalized to body weight. (E) Absolute volume of oxygen consumption over time. (F) Hourly absolute volume of oxygen consumption. (G) Absolute volume of carbon dioxide expiration over time. (H) Hourly absolute volume of carbon dioxide expiration. Data are means ± SEM. Sample size: WT YFP n=10, *Magel2*-null YFP n=8, *Magel2*-null BDNF n=9. Dark phases are denoted by shaded areas on indirect calorimetry time-course panels. * $P<0.05$, ** $P<0.01$, *** $P<0.001$, **** $P<0.0001$.

Table S1. Primer sequences used for qPCR.

Gene	Sequence
Actinb	ACCCGCGAGCACAGCTT ATATCGTCATCCATGGCGAACT
Adrb3	GGACGCTGTTCCTTTAAAAGCA TCCATCTCACCCCCCATGT
Adipoq	CCCTCCACCCAAGGGAACT CCATTGTGGCCAGGATGTC
Agrp	GCGGAGGTGCTAGATCCA AGGACTCGTGCAGCCTTA
BDNF	CCATAAGGACGCGGACTTGT AGGCTCCAAAGGCACTTGACT
Crh	TGGCCCCAAGGAGGAAA CCACTGCAGCTCCAAATAAAAA
Hprt1	TGTTGTTGGATATGCCCTTG GCGCTCATCTTAGGCTTTGT
Hsl	GCGCCAGGACTGGAAAGAAT TGAGAACGCTGAGGCTTTGAT
Insr	GGCTCTCCCCAGGAAACTACA GGTTCTGTCCAGGAGCCATTT
Lep	ATTTCACACACGCAGTCGGTAT AGCCCAGGAATGAAGTCCAA
Mc4r	CACTGTGTCAGGCGTCCTCTT ATGGAAATGAGGCAGATGATGA
Obrb	AATGACGCAGGGCTGTATGT TCAGGCTCCAGAAGAAGAGG
Pomc	GGCCTTTCCCCTAGAGTTCAA GGACCTGCTCCAAGCCTAATG
Ppargc1a	AAGTGTGGAACTCTCTGGAACTG GGGTTATCTTGGTTGGCTTTATG
Pten	TGGATTCGACTTAGACTTGACCT GCGGTGTCATAATGTCTCTCAG
TrkB-FL	GACAATGCACGCAAGGACTT AGTAGTCGGTGCTGTACACA
Vgf	GGGCGCCCCGATGT TCAGCTACCTGCCCATTATGC