SUPPLEMENTARY DATA

Disruption of Lipid Uptake in Astroglia Exacerbates Diet Induced Obesity

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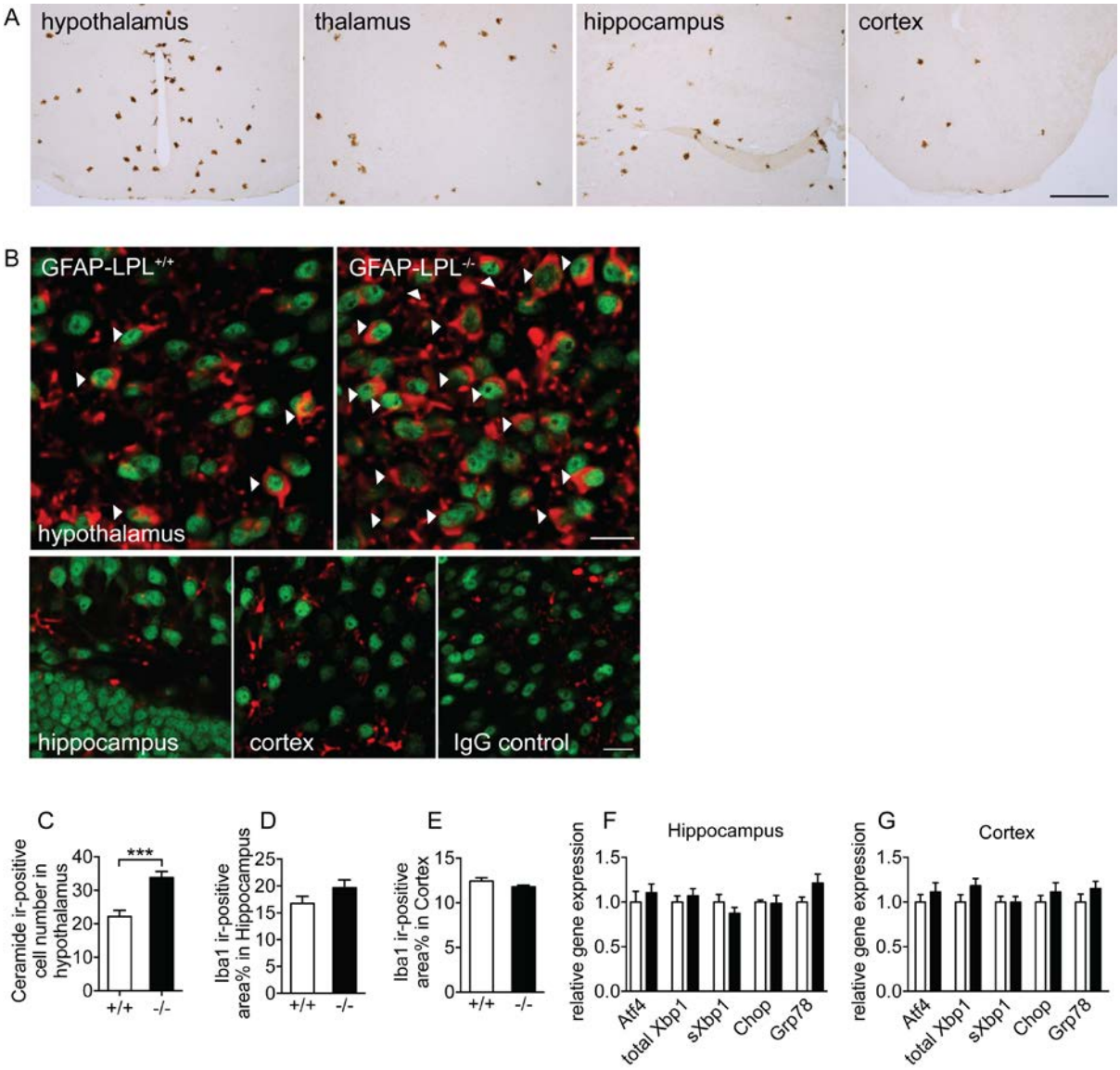
Supplementary Figure 1. Cre-mediated recombination, ceramide and microglia immunoreactivity and ER stress in different brain regions. The postnatal Cre-mediated recombination in distinct brain regions was shown by immunochemistry with anti-GFP antibody in GFAP-LPL$^{+/+}$ adult mice crossed with Rosa26 ACTB-tdTomato reporter mice, 4 weeks after tamoxifen injection (A). Ceramide immunoreactivity is increased in GFAP-LPL$^{-/-}$ hypothalamus but hardly detectable in hippocampus or cortex (ceramide, red dye, alexa 594; NeuN, green dye, alexa 488) (B). Quantification of ceramide immunoreactivity (-ir) in the hypothalamus (C) and iba1-ir in hippocampus and cortex (D & E). The expression of the genes related with ER stress pathway was studied by qPCR in hippocampus and cortex (F & G). Scale bar: (A)= 500 μm and (B)= 20μm. 6-12 animals for (C) – (G).



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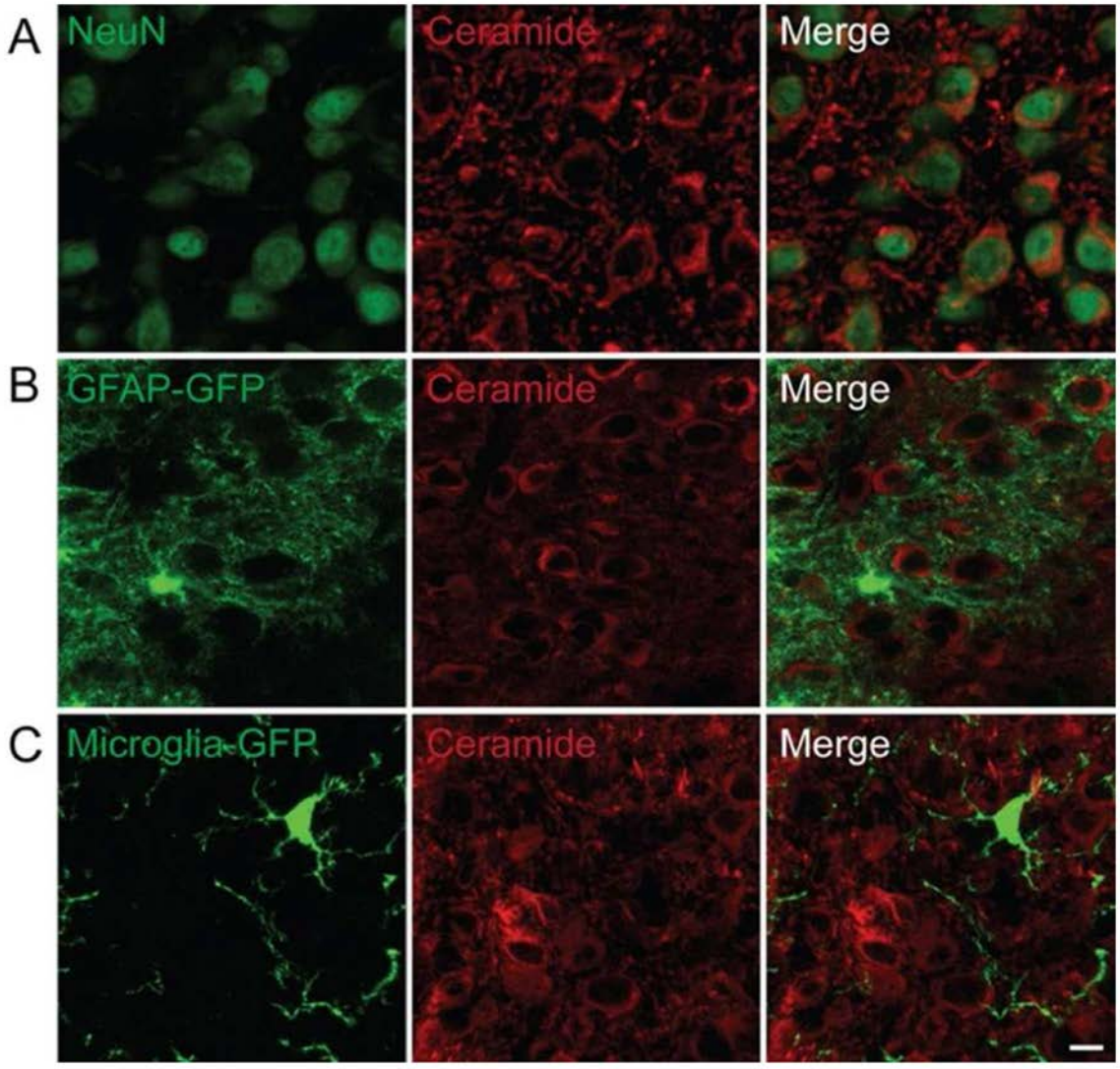
Supplementary Figure 2. The presence of ceramides in hypothalamic neurons. Positive co-localizations of ceramide (red dye, alexa 594) and NeuN (neuronal marker; green dye, alexa 488) were detected in the hypothalamus of wildtype adult mice (A). Ceramide positive cells (red dye) were undetectable in GFAP-expressing astrocytes (B) nor microglia (C) (GFP-positive cells; green dye) in the hypothalamus of hGFAP-eGFP or microglia-GFP reporter mice, respectively. GFAP: Glial fibrillary acidic protein; GFP: green fluorescence protein. Scale bar=10 μm.



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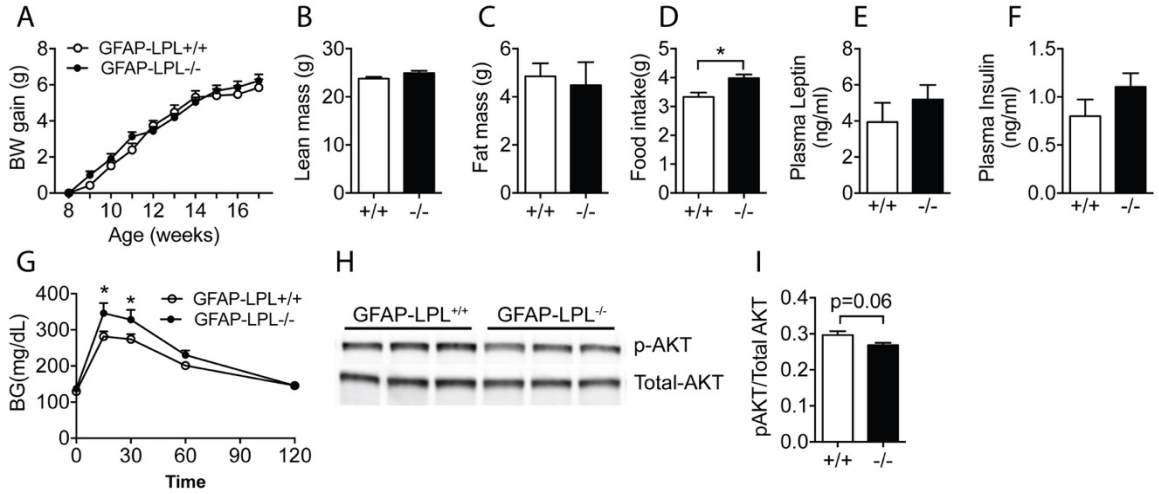
Supplementary Figure 3. Metabolic phenotype of GFAP-LPL$^{+/+}$ and GFAP-LPL$^{-/-}$ mice fed with a standard chow diet. On a standard chow diet, GFAP-LPL$^{-/-}$ mice showed a higher daily food intake (D) without changes in body weight (BW) gain (A), lean mass (B) or fat mass (C) compared with their littermate controls. Plasma leptin (E) and insulin (F) levels were unchanged between groups. GFAP-LPL$^{-/-}$ mice had worse glucose tolerance 8 weeks after tamoxifen injection (G). Western blotting depicting changes in p-AKT (phosphorylation of protein kinase B in Ser 473) and total-Akt in the hypothalamus of mice after 10 min of peripheral insulin injection (H). Western blot quantification of hypothalamic p-Akt/Akt levels in response to peripheral insulin injection in GFAP-LPL$^{-/-}$ mice (I). $p < 0.05$ for *. n=8-9 mice per group for metabolic phenotyping.



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Supplementary Table 1. qRT-PCR SYBR primer sequences or taqman probes for amplification of cDNA

Gene symbol	Sequence (5’ - 3’)
Hprt	Mm01545399_m1
Hprt	GCAGTACAGCCCCAAAATGG
	AACAAAGTCTGGCCTGTATCCAA
Lpl	Mm00434764_m1
Fasn	MM00662319_m1
Cd36	Mm01135198_m1
sXbp1	CTGAGTCCGAATCAGGTGCAG
	GTCCATGGGAAGATGTTCTGG
totalXbp1	CAGCACTCAGACTATGTGCA
	GTCCATGGGAAGATGTTCTGG
Atf4	GGGTTCTGTCTTCCACTCCA
	AAGCAGCAGAGTCAGGCTTTC
Chop	CCACCACACCTGAAAGCAGAA
	AGGTGAAAGGCAGGGACTCA
Grp78	TTCAGCCAATTATCAGCAAACTCT
	TTTTCTGATGTATCCTCTTCACCAGT