SUPPLEMENTARY DATA

Supplementary Table 1. Mouse qPCR primers sequences

Gene	Forward (5'-3')	Reverse (5'-3')	GenBankID
POMC	TGGGCGAGCTGATGACCT	GCCGACTGTGAAATCTGAAAGG	NM_008895
NPY	CCCCAGAACAAGGCTTGAAG	TTGGAAAAGTCGGGAGAACAA	NM_023456
AgRP	CTTTGGCGGAGGTGCTAGAT	AGGACTCGTGCAGCCTTACAC	NM_007427
CRH	AAAGCAGATGGGAGTCATCCA	GCCACCCCTCAAGAATGAATT	NM_205769
preMCH	CCTGCTGGTCCGCAACAT	AGCAACATCAAGGGCTTTTCTC	NM_029971
preproorexin	GCTGTCCGACCGTAACTACCA	GGACAAGGATAGAAGATGGGTT	NM_010410
SOCS3	GGAACTTGTTTGCGCTTTGATT	TCACACACCCTTTTCTCTTCCAT	NM_007707
Nono	CTGTCTGGTGCATTCCTGAACT	AGCTCTGAGTTCATTTTCCCATG	NM_023144
Sdha	TACAAAGTGCGGGTCGATGA	TGTTCCCCAAACGGCTTCT	NM_023281

AgRP: Agouti-related protein, CRH: Corticotropin-releasing *hormone*, Nono: Non-POU-domain-containing octamer binding protein, NPY: Neuropeptide Y, PreMCH: Pro-melanin-concentrating hormone, POMC: Pro-opiomelanocortin, Sdha: Succinate dehydrogenase complex subunit, SOCS3: Suppressor of cytokine signaling 3.

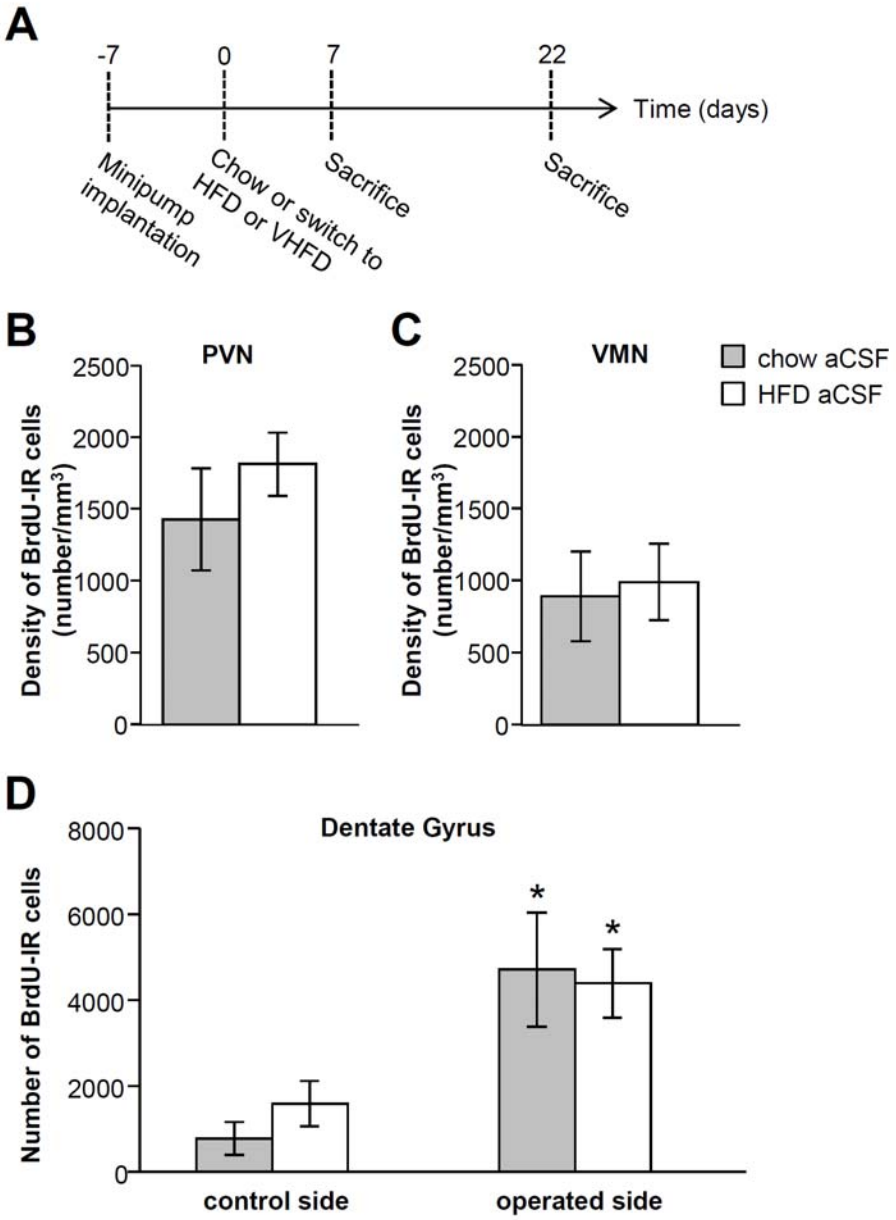
SUPPLEMENTARY DATA

Supplementary Table 2. Antibodies used for immunohistochemistry

Antibody	Dilution	Reference number	Company
Rat anti-BrdU	1:1000	OBT0030	AbD Serotec, France
Rabbit anti-Iba1	1:2000	019-19741	Wako Chemicals GmbH, France
Rabbit anti-GFAP	1:2000	Z0334	Dako, France
Mouse anti-NeuN	1:500	MAB377	Millipore, France
Mouse anti-TNFα	1:300	Ab1793	Abcam, France
Goat anti-rat biotinylated secondary	1:1000	BA9401	Vector Labs, France
Goat anti-rabbit biotinylated secondary	1:1000	E0432	Dako, France
AlexaFluor 488-conjugated secondary	1:1000	A11006	Life Technologies, France
AlexaFluor 594-conjugated secondary	1:1000	A11012; A11020	Life Technologies, France

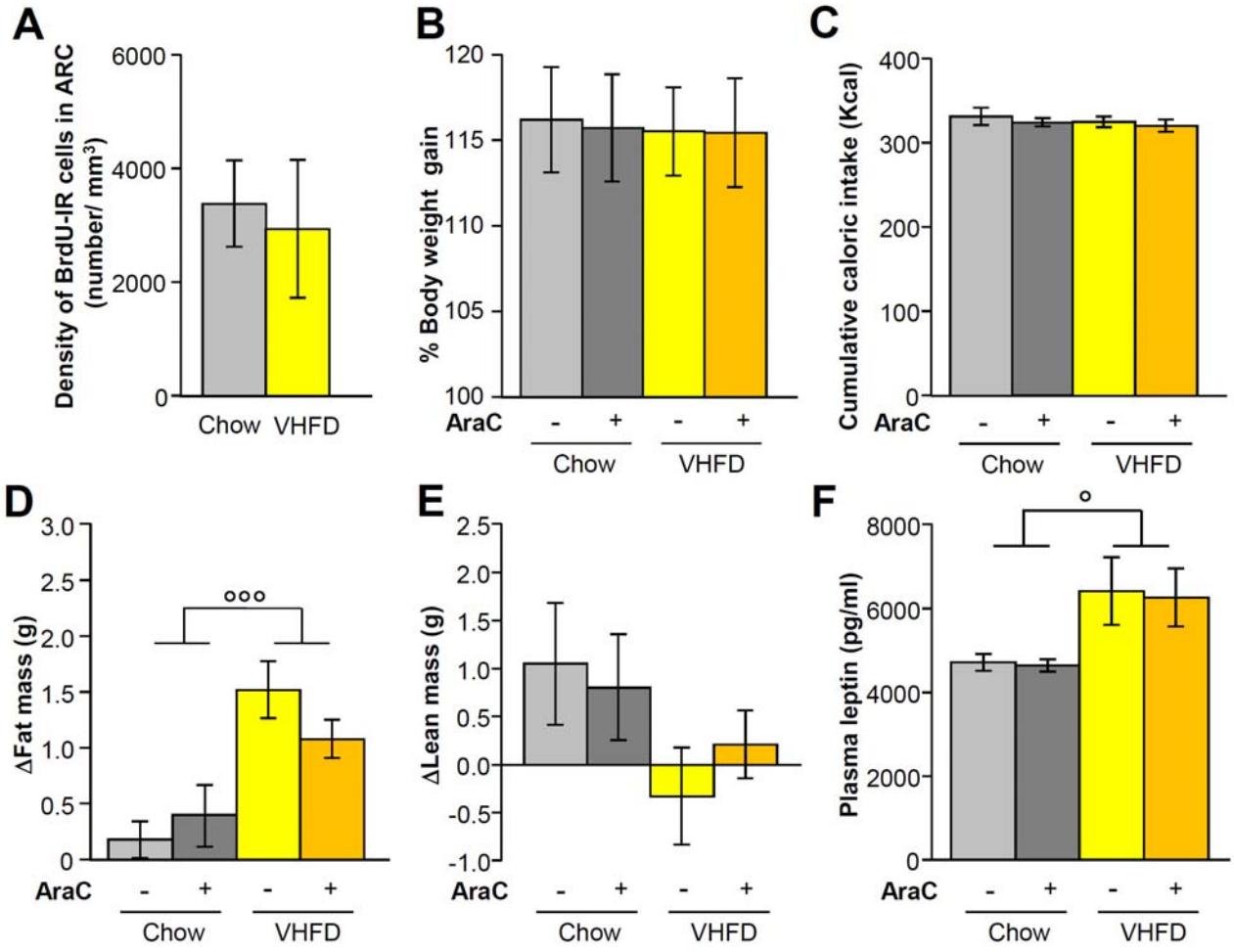
SUPPLEMENTARY DATA

Supplementary Figure 1. Exposure to HFD does not alter cell genesis in hypothalamic nuclei such as the PVN and VMN, or in the hippocampus. (A) Diagram of the experimental design. Density of BrdU-IR cells in (B) the PVN (t_9=0.958, p=0.36, n=5-6 per group) and (C) VMN (t_9=0.249, p=0.80, n=5-6 per group) of mice fed chow or HFD. (D) Total number of BrdU-IR cells in the dentate gyrus of mice fed chow or HFD (two-way ANOVA: diet $F_{(1,14)}$=0.0890, p=0.77; cannula placement $F_{(1,14)}$=16.39, p<0.005; interaction $F_{(1,14)}$=0.4648, p=0.51; n=3-6 mice per group). The implantation of the cannula significantly increased the number of BrdU-IR cells regardless of the diet consumed. *p<0.05 vs. control side.



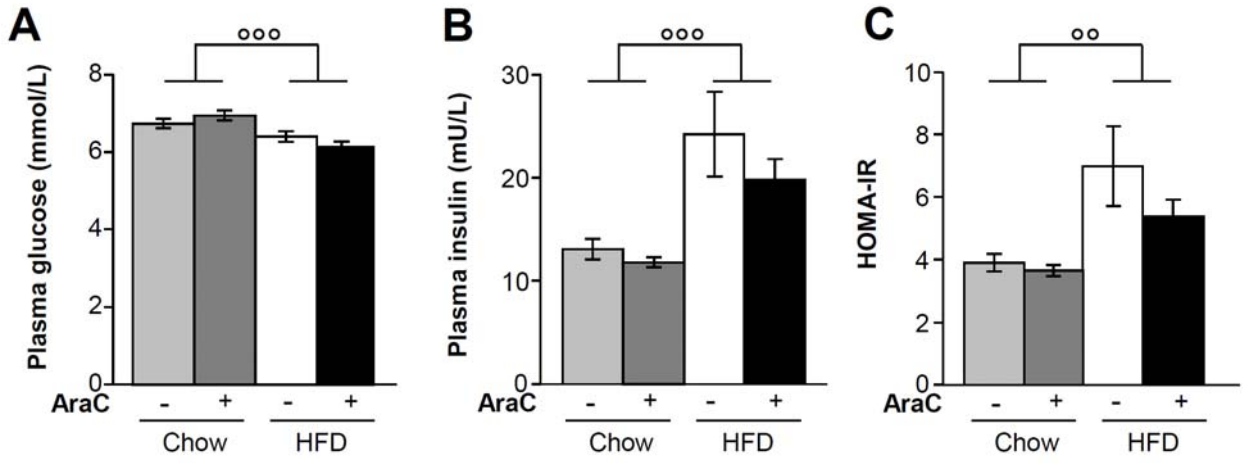
SUPPLEMENTARY DATA

Supplementary Figure 2. Intake of a very high-fat, very low-carbohydrate diet (VHFD) does not alter cell proliferation and blockade of cell proliferation during VHFD does not alter energy balance. (A) Density of BrdU-IR cells in the ARC ($t_{(8)}$=0.3111, p=0.76, n=5 per group). (B) Body weight gain (two-way ANOVA: diet $F_{(1,34)}$=0.0261, p=0.87; treatment $F_{(1,34)}$=0.0086, p=0.92; interaction $F_{(1,34)}$=0.0051, p=0.94; n=9-10 per group), (C) caloric intake (two-way ANOVA: diet $F_{(1,34)}$=0.4908, p=0.48; treatment $F_{(1,34)}$=0.5686, p=0.46; interaction $F_{(1,34)}$=0.0216, p=0.88; n=9-10 per group), (D) difference in fat mass (two-way ANOVA: diet $F_{(1,34)}$=20.97, p<0.0005; treatment $F_{(1,34)}$=0.2657, p=0.61; interaction $F_{(1,34)}$=2.150, p=0.15; n=9-10 per group), (E) difference in lean mass (two-way ANOVA: diet $F_{(1,34)}$=3.68, p=0.06; treatment $F_{(1,34)}$=0.082, p=0.77; interaction $F_{(1,34)}$=0.579, p=0.45; n=9-10 per group), and (F) plasma leptin levels (two-way ANOVA: diet $F_{(1,34)}$=8.414, p<0.05; treatment $F_{(1,34)}$=0.041, p=0.84; interaction $F_{(1,34)}$=0.0037, p=0.95; n=9-10 per group) in chow- and VHFD-fed mice treated or not with AraC. °p<0.05 and °°°p<0.0005 diet effect.



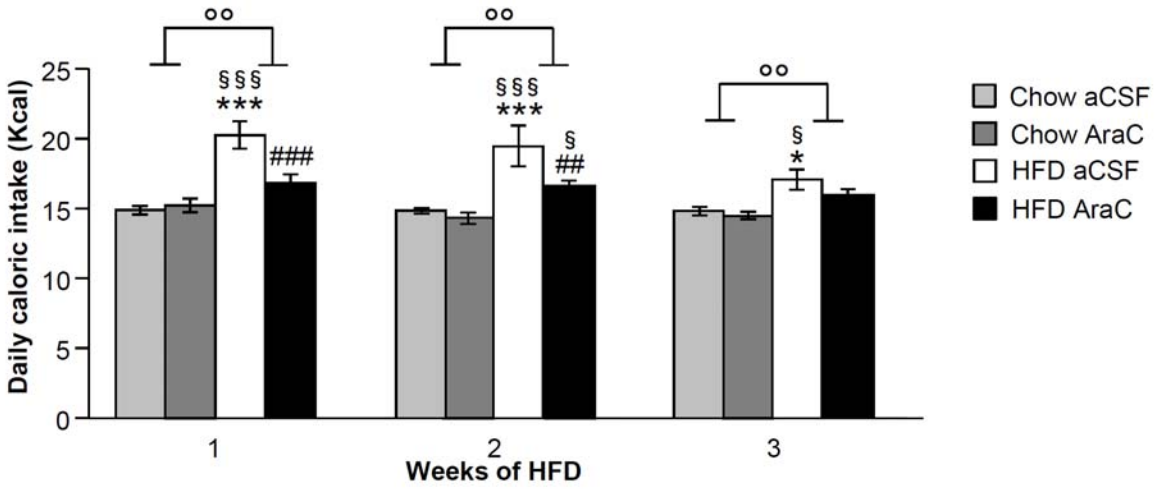
SUPPLEMENTARY DATA

Supplementary Figure 3. Effect of the diet and of AraC administration on plasma glucose and insulin levels. (A) plasma glucose (two-way ANOVA: diet $F_{(1,33)}$=18.70, p<0.0005; treatment $F_{(1,33)}$=0.04924, p=0.82; interaction $F_{(1,33)}$ = 3.304, p=0.078; n=8-10 per group), (B) plasma insulin (two-way ANOVA: diet $F_{(1,33)}$=20.87, p<0.0005; treatment $F_{(1,33)}$=1.811, p=0.18; interaction $F_{(1,33)}$=0.5475, p=0.46; n=8-10 per group), and (C) HOMA-IR (two-way ANOVA: diet $F_{(1,33)}$=14.65, p=0.0005; treatment $F_{(1,33)}$=2.145, p=0.15; interaction $F_{(1,33)}$=1.136, p=0.29; n=8-10 per group) in chow- and HFD-fed mice treated or not with AraC. °°p<0.005 and °°°p<0.0005 diet effect.



SUPPLEMENTARY DATA

Supplementary Figure 4. AraC treatment blunts the initial increase in caloric intake associated to HFD consumption. Mean weekly caloric intake in chow- and HFD-fed mice treated or not with AraC (two-way repeated ANOVA, interaction time x diet x treatment: $F_{(2,66)}=3.926$, $p<0.05$; n=9-10 per group). *$p<0.05$, ***$p<0.0005$ vs. chow aCSF; $^{\S}p<0.05$, $^{\S\S\S}p<0.0005$ vs. chow AraC; $^{\#\#}p<0.005$, $^{\#\#\#}p<0.0005$ vs. HFD aCSF. °°$p<0.005$ diet effect over time.



SUPPLEMENTARY DATA

Supplementary Figure 5. HFD or AraC do not alter Iba1-IR cells in the hippocampus. (A) Representative images of microglial cells labeled with Iba1 in the hippocampus and (B) quantification of Iba1 staining in the hippocampus of chow- and HFD-fed mice treated or not with AraC (two-way ANOVA: diet $F_{(1,14)}$=0.8547, p=0.371; treatment $F_{(1,14)}$=1.255, p=0.281; interaction $F_{(1,14)}$=1.529, p=0.236; n=3-6 per group).