# Supplementary Information

## Supplementary Material and Methods

***VTA coordinates***: Separate experiments were carried out to verify coordinates for VTA cannula implants and determine if FA injection into the VTA elicits inflammation. A first group of rats (n=10) was bilaterally injected with rhodamine-filled latex microspheres (100nL; LumaFluor Inc.) into the VTA. Transcardial perfusions were carried out two days later under ketamine/xylazine anesthesia with ice-cold PBS followed by 10% buffered formalin. Brains were removed, post-fixed and immersed in a 30% sucrose-PBS solution. Frozen brain sections (30µm) were cut on a cryostat and visualized with a fluorescence microscope (Zeiss Axio Imager 2).

***Inflammatory marker expression:*** Inflammatory marker expression in the VTA in response to OA injections was assessed in the group of rats used for the food intake experiment. OA was re-administered into the VTA 24 hours after the last injection (n=9-10). Inflammatory marker expression in response to PA injections was assessed in rats used for the operant responding experiment in response to phloretin. Vehicle or PA was re-administered 3 days after the end of the operant conditioning experiment. Rats were sacrificed 3 hours later. Brains were snap-frozen in isopentane and kept at -80°C until qPCR measures with appropriate primers for tumor-necrosis factor alpha (*tnfa*, forward: *CACGCTCTTCTGTCTACTG*, reverse: *AAGATGATCTGAGTGTGAGG*) and interleukin 1 beta (*Il1b*, forward: *CTTGTGCAAGTGTCTGAAG*, reverse: *GAACAGGTCATTCTCATCAC*).

***Intra-VTA phloretin controls:*** Two groups of rats were used to evaluate the effect of intra-VTA phloretin alone on chow intake (n=15) and operant responding for 45 mg high-fat plus high-sucrose pellets (n=6), as described in the Material and Methods section.

# Supplementary Figures

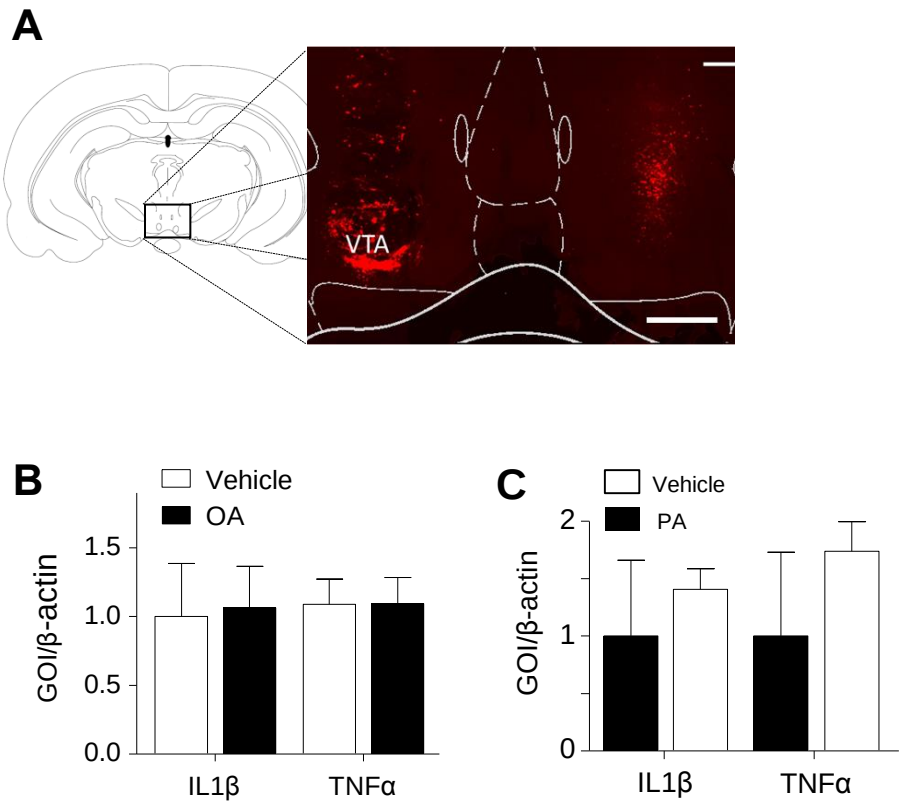


**Figure S1. (A)** VTA cannula placement verification using rhodamine nanobeads (scale bar: 500µm). **(B-C)** IL-1β and TNFα gene expression in the VTA was similar between vehicle and OA- or PA-injected rats. Normalized to β-actin. Results are expressed as mean ± SEM.

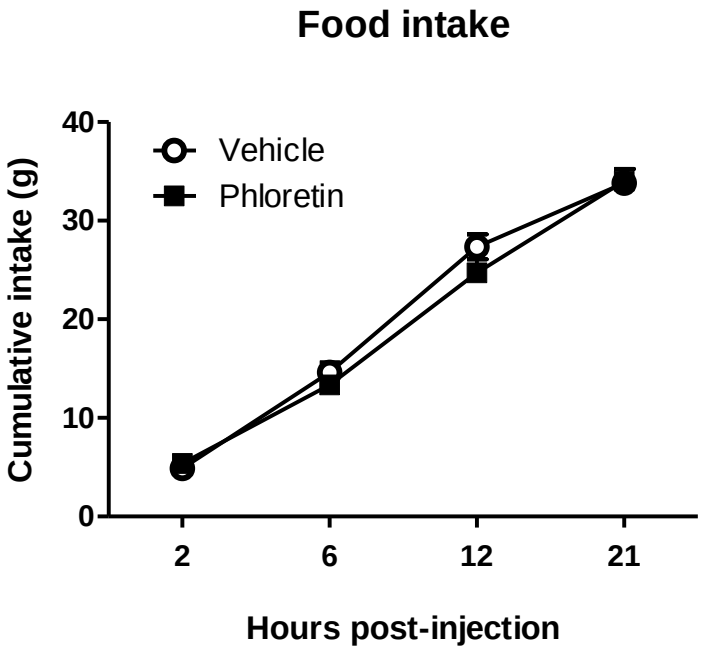


**Figure S2.** Intra-VTA injection of phloretin (100µM/side) had no effect on food intake. n=7-8 per group. Results are expressed as mean ± SEM.

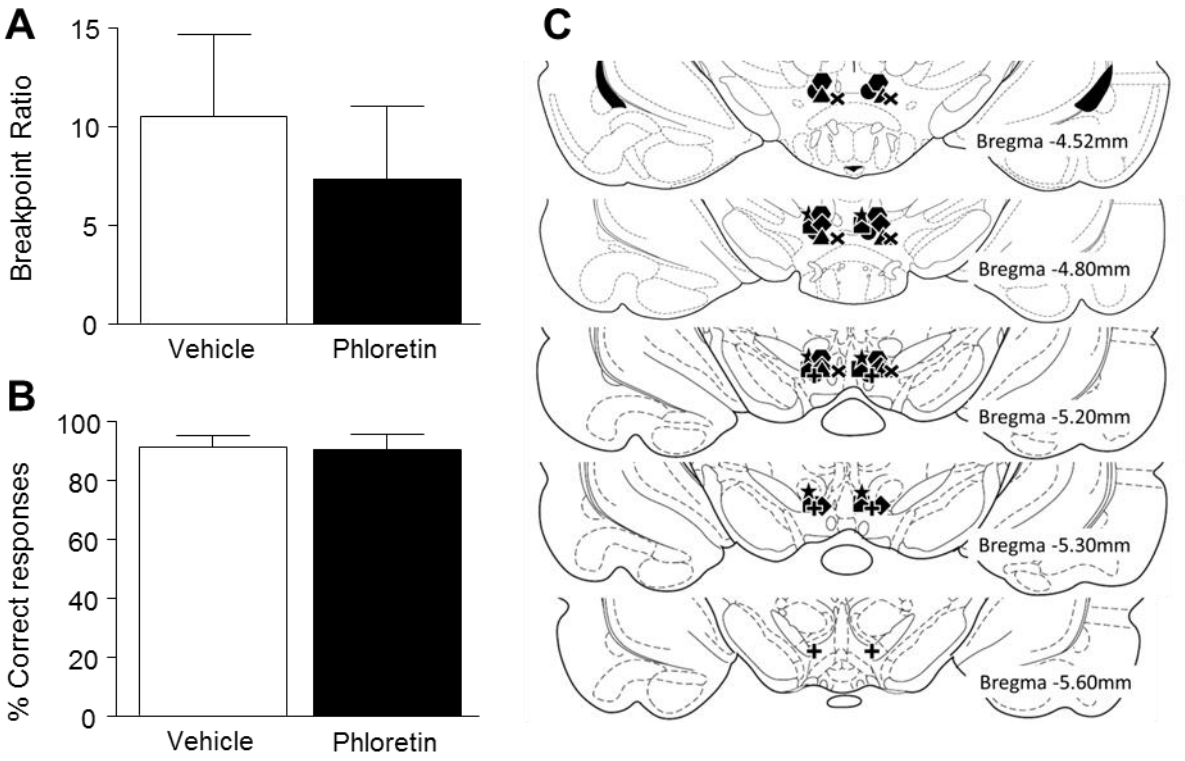


**Figure S3. (A)** Intra-VTA injection of phloretin (100µM/side) had no effect compared to vehicle on operant responding for high-fat/sucrose pellets in a progressive ratio operant task. **(B)** The percentage of correct lever responses was unaffected by either treatment. Results are expressed as mean ± SEM; n=6. **(C)** Injector cannula placements; each symbol depicts a different rat.