

Ventral hippocampus neurons encode meal-related memory

Léa Décarie-Spain¹, Cindy Gu¹, Logan Tierno Lauer¹, Keshav S. Subramanian², Samar N. Chehimi⁵, Alicia E. Kao¹, Iris Deng¹, Alexander G. Bashaw², Molly E. Klug¹, Ashyah Hewage Galbokke¹, Kristen N. Donohue¹, Mingxin Yang³, Guillaume de Lartigue³, Kevin P. Myers⁴, Richard C. Crist⁵, Benjamin C. Reiner⁵, Matthew R. Hayes⁵, *Scott E. Kanoski^{1,2}

¹Human & Evolutionary Biology Section, Department of Biological Sciences, University of Southern California, Los Angeles, California, United States

²Neuroscience Graduate Program, University of Southern California, Los Angeles, California, United States

³Monell Chemical Sense Center, Philadelphia, Pennsylvania, United States

⁴Bucknell University, Lewisburg, Philadelphia, Pennsylvania, United States

⁵Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, United States

*Corresponding author

Scott E. Kanoski

University of Southern California

kanoski@usc.edu

ABSTRACT

The ability to encode and retrieve meal-related information is critical to efficiently guide energy acquisition and consumption, yet the underlying neural processes remain elusive. Here we reveal that ventral hippocampus (HPCv) neuronal activity dynamically elevates during meal consumption and this response is highly predictive of subsequent performance in a foraging-related spatial memory task. Targeted recombination-mediated ablation of HPCv meal-responsive neurons impairs foraging-related spatial memory without influencing food motivation, anxiety-like behavior, or escape-mediated spatial memory. These HPCv meal-responsive neurons project to the lateral hypothalamic area (LHA) and single-nucleus RNA sequencing and in situ hybridization analyses indicate they are enriched in serotonin 2a receptors (5HT2aR). Either chemogenetic silencing of HPCv-to-LHA projections or intra-HPCv 5HT2aR antagonist yielded foraging-related spatial memory deficits, as well as alterations in caloric intake and the temporal sequence of spontaneous meal consumption. Collective results identify a population of HPCv neurons that dynamically respond to eating to encode meal-related memories.

INTRODUCTION

Encoding and remembering critical information surrounding food consumption is advantageous to efficiently guide future eating behaviors. Foraging, for example, is facilitated by the retrieval of previously stored spatial information about the location of food sources. Even in the modern environment where food is easily accessible, meal-related memories play an important role in the regulation of eating behaviors. For instance, the ability to recall a recent meal robustly influences subsequent hunger and satiety ratings, as well as the amount of food consumed during the next meal¹⁻⁶.

The hippocampus is a key brain structure for the integration of learning and memory processes with food-seeking and consummatory behaviors⁷. For example, a subnetwork within the human hippocampus implicated in obesity and related eating disorders was recently identified⁸. The ventral subregion of the rodent hippocampus (HPCv) is especially responsive to endocrine and neuropeptide signals that regulate metabolism and food intake control⁹⁻¹⁴, thus making this brain region a prime candidate target for storing meal-related memories. Consistent with this hypothesis, silencing HPCv neurons after food consumption accelerates the onset of a subsequent meal and increases its size^{15,16}, indicating that HPCv neuronal activity in close temporal proximity to a meal influences future eating episodes.

Memory engrams are well characterized for fear-related aversive memories where a specific neuronal ensemble in the amygdala encodes fear memory and its reactivation promotes fear-appropriate behavioral responses¹⁷⁻²¹. While engrams encoding aversive events are also formed in the hippocampus²²⁻²⁶, engrams encoding positive reinforcing appetitive events such as cocaine administration²⁷, female exposure^{28,29}, and prosocial interactions³⁰ are formed in this region as well. Despite these advances, the neural circuitry encoding memory engrams pertaining to meal consumption remains to be identified. Here we sought to identify a specific ensemble of meal-responsive HPCv neurons and the mechanisms through which they encode meal-related memory engrams.

RESULTS

Ventral hippocampus neural activity during meal consumption predicts foraging-related spatial memory performance

To determine whether HPCv neurons are dynamically engaged during meal consumption, we expressed the calcium indicator GCaMP7s in the HPCv (Fig. 1a, b) and assessed bulk calcium-dependent activity over the course of a 30min meal following a 24h fasting period. Results revealed that CA1v bulk calcium-dependent activity dynamically decreases during active eating bouts and increase during inter-bout intervals (Fig. 1c, d). These results suggest that HPCv activity is engaged during a meal at times when the animals are rearing and observing their environment (periods between active eating bouts). These same rats were then trained in a foraging-related spatial memory task (Fig. 1e) and performance index at the memory probe was positively correlated with the magnitude of calcium-dependent activity increases during the interbout intervals of the meal (Fig. 1f). These findings indicate that HPCv activity dynamics during a meal are functionally connected to memory capacity for meal location.

To identify the subregional anatomical location of HPCv meal-responsive neurons, we employed a ‘targeted recombination in active population’ (TRAP) viral approach to express, following intraperitoneal (ip) administration of 4-hydroxytamoxifen (4OHT; 15mg/kg; H6278, Sigma-Aldrich, St. Louis, USA), green fluorescent protein (GFP) in HPCv field CA1 (CA1v) neurons expressing cFos under a ‘Fasted’ or ‘Fed’ state (Fig. 1g, h). We observed a significantly greater number of GFP⁺ cells bodies under a Fed versus Fasted state, and that GFP⁺ cells in the Fed state were predominantly in the pyramidal layer of CA1v (Fig. 1i, j). These results were further confirmed by cFos immunostaining showing significantly enhanced CA1v cFos expression when rats are perfused under a Fed relative to a Fasted state (Extended Data Fig. 1a, b). In addition, the specificity of the TRAP approach to target CA1v meal-responsive neurons was confirmed by greater overlap of cFos and GFP when feeding conditions at the time of 4OHT administration and perfusion are matched versus mismatched (Extended Data Fig. 1c, d). Altogether, these findings indicate that a subset of HPCv neurons (pyramidal CA1v region) display heightened intracellular activity in response to a meal, that this activity occurs during the periods between eating bouts when animals have an opportunity to observe the meal

environment, and that this meal-induced neural response is correlated with foraging-related spatial memory performance.

Ventral hippocampus meal-responsive neurons selectively promote foraging-related spatial memory

To investigate the function of CA1v meal-responsive neurons, we modified the previous TRAP viral approach to express diphtheria toxin (dT_A) in CA1v neurons expressing cFos under a Fasted or Fed state (Fig. 2a), leading to dT_A-mediated chronic ablation of CA1v neurons active in response to fasting (Fasted) or meal consumption (Fed). These animals were compared to a group undergoing 4OHT-induced expression of GFP in CA1v neurons ('Control'). No differences in average daily chow intake nor body weight following 4OHT-induced recombination were observed across experimental groups (Fig. 2b, c). Using a foraging-related spatial memory procedure where animals learn to use visuospatial cues to navigate towards a food source location (Fig. 2d-f), we observed that rats from the Fed group during a memory probe test showed significantly impaired memory performance during a memory probe test for the food location relative to both 'Control' and Fasted animals (Fig. 2g and Extended Data Fig. 2a). Animals from the Fed group did perform a greater number of investigations relative to 'Control' animals, but no differences in distance traveled were observed (Extended Data Fig. 2b, c).

To assess the selectivity of CA1v meal-responsive neurons in mediating meal-related spatial memory (vs. spatial memory in general), another cohort of animals underwent the same meal-related ablation or control treatment as the previous cohort, before training in an escape-based spatial memory task (Fig. 2h) that employs the same apparatus as the foraging version and is of similar difficulty, but without food reinforcement³¹. In this case, Fed rats did not differ from 'Control' animals during escape location training (Fig. 2i, j) nor during the memory probe test (Fig. 2k and Extended Data Fig. 2d). The overall number of investigations and distance traveled were similar across groups (Extended Data Fig. 2f, f).

It is possible that the memory impairment in the food-reinforced spatial task in rats with meal-responsive CA1v neurons ablated was secondary to elevated anxiety-like behavior and/or motivation for the sucrose reinforcer, as this brain region is associated with both anxiety^{32,33} and food motivation^{34,35}. To test this, a similar cohort of animals was tested in an effort-based

operant lever pressing for sucrose rewards (progressive ratio reinforcement schedule), as well as the zero maze test for anxiety-like behavior. Results reveal no group differences in either the progressive ratio test (Extended Fig. 2g) or the time spent in the open areas of the zero maze (Extended data Fig. 2h). Therefore, CA1v meal-responsive neurons appear to selectively modulate spatial memory in the context of foraging without altering spatial memory in general, sucrose motivation, or anxiety-like behavior.

Ventral hippocampus meal-responsive neurons project to the lateral hypothalamic area

To determine whether HPCv neurons engaged by meal consumption or fasting present distinct projection profiles, whole forebrain GFP⁺ axonal density was assessed in the brains of rats following 4OHT-induced GFP expression in CA1v neurons engaged under a Fasted or Fed state. While GFP⁺ axonal projections were observed in the nucleus accumbens (ACB) and lateral septum (LS) of rats injected with 4OHT under both the Fasted or Fed state (Fig. 3a, b), the presence of GFP⁺ axonal projections in the lateral hypothalamic area (LHA) was exclusive to animals receiving 4OHT under the Fed state (Fig. 3c). In contrast, minimal GFP⁺ axonal density was observed in other known projection targets of CA1v neurons, including the prefrontal cortex (PFC), bed of the stria terminalis (BST), and amygdala (AMY) in either the Fed or Fasted state (Extended Data Fig. 3a-c).

To determine the functional relevance of downstream LHA signaling by meal-responsive CA1v neurons in foraging-related memory, we next employed a dual-virus approach to chemogenetically inhibit CA1v neurons sending projections to the LHA following lateral ventricle (LV) infusion of the chemogenetic ligand clozapine-N-oxide (CNO; 18mmol) (Fig. 4a, b). In the absence of LV infusion, rats assigned to the vehicle (VEH) and CNO treatments presented similar number of errors and latencies to reach the food source throughout training (Fig. 4c, d). At the memory probe, rats receiving LV infusion of CNO failed to demonstrate a preference for the hole previously containing food and performed significantly worse than those receiving VEH (Fig. 4e and Extended Data Fig. 4a). LV infusion of CNO did not affect the total number of investigations performed nor the total distance traveled (Extended Data Fig. 4b, c). We have previously shown that LV infusion of CNO in the absence of hM4Di receptors does not impact performance in this task³¹. Thus, CA1v meal-responsive neurons promote foraging-related spatial memory through a CA1v-to-LHA signaling pathway.

Ventral hippocampus meal-responsive neurons express the serotonin type 2a receptor (5HT2aR)

To identify a molecular signature that distinguishes HPCv meal-responsive neurons from fast-responsive neurons, we performed single nucleus RNA sequencing (snRNAseq) on HPCv microdissections obtained from rats under a Fasted or Fed state. After quality controls, the transcriptome profile of 38,138 nuclei were used to identify 17 cellular subtypes, identified by the expression of prototypical marker genes (Fig. 5a, b). We identified 1,615 cell type-specific differentially expressed genes (Fig. 5c, Supplemental Table 1 and 2), with neuronal transcriptome alterations overrepresented in a small number of cellular subtypes, with endothelial cells (cluster 15; 44 genes downregulated, 301 upregulated) and a population of CA1v excitatory neurons (cluster 5; 224 downregulated, 161 upregulated) undergoing the greatest changes upon meal consumption (Fig 5d, Supplemental Table 1 and 2). Examining marker genes for cFos positive cells in the Fed and Fasted state (Supplemental Table 3), we identified an enrichment of *Htr2a* expression amongst the cFos positive cells in the Fed state (Fig. 5e). This enrichment in *Htr2a* was confirmed via fluorescent in situ hybridization, with greater colocalization of cFos with *Htr2a* observed in the CA1v of rats perfused under a Fed state relative to those perfused under a Fasted state (Fig. 6a, b).

To assess the functional relevance of HPCv 5HT2aR signaling in meal-related memory, rats were bilaterally implanted with cannulae targeting the CA1v for infusion of the selective 5HT2aR antagonist M100907 (1µg/hemisphere; M3324, Sigma-Aldrich) or its vehicle (VEH) (Fig. 6c). Rats were trained in the foraging-related spatial memory task and, in the absence of infusions, both groups presented similar number of errors and latencies to reach the food source throughout training (Fig. 6d, e). At the memory probe, rats receiving M100907 failed to demonstrate a preference for the hole previously containing food and performed significantly worse than animals receiving VEH (Fig. 6f and Extended Data Figure 5a), an observation that recapitulates the effect of chemogenetically silencing CA1v to LHA projections. This impairment was not associated with differences in the total number of investigations or distance traveled at the time of the probe (Extended Data Figure 5b, c). These data suggest that HPCv meal-responsive neurons may mediate their effects on foraging-related spatial memory via 5HT2aR signaling.

Ventral hippocampus meal-responsive neurons regulate the temporal interval between meals

Episodic memory for meal consumption not only includes information about spatial and contextual cues that inform about the location of the meal, but also temporal information regarding when the meal was consumed. The latter powerfully influences meal timing and amount consumed in both humans and rodent models in a manner indicating that memory for time since last eating is factored into the next meal^{1,5,6,16,36,37}. To determine whether acute manipulation of signaling pathways from CA1v meal-responsive neurons influences food intake and meal timing, meal pattern analyses were conducted following either CA1v 5HT2aR antagonism or CA1v-to-LHA chemogenetic silencing prior to dark onset. CA1v infusion of the 5HT2aR antagonist M100907 increased food intake relative to VEH at the 2h timepoint (Fig. 7a), and while no statistically significant differences were detected in either meal size (Fig. 7b) or meal frequency (Fig. 7c), inter-meal intervals were decreased by CA1v 5HT2aR antagonism (Fig. 7d). Similarly, LV infusion of CNO to disconnect CA1v-to-LHA signaling increased food intake relative to VEH treatment over a period of 6h (Fig. 7e) and, while no changes were observed in meal size (Fig. 7f), this effect was driven by an increase in meal frequency (Fig. 7g) and a decrease in inter-meal intervals (Fig. 7h). Together, these results highlight a role for HPCv meal-responsive neurons to encode both spatial and temporal aspects of meal-related memories, and that these processes influence spontaneous eating patterns.

DISCUSSION

Memory function greatly contributes to the control of eating behavior, yet the neural substrates governing this phenomenon have been minimally investigated. Here, we show that activation of a population of hippocampal neurons (CA1v pyramidal) during meal consumption serves to encode meal-related spatial and temporal mnemonic information. We functionally characterize these meal-responsive neurons and demonstrate that they project to the lateral hypothalamic area and express the 5HT2a receptor. Remarkably, this neuronal ensemble selectively mediates meal-related memory encoding without influencing food motivation or other memory processes. Together, these novel findings provide evidence for the formation of meal

engrams in the CA1v that serve to facilitate foraging behavior, and when food is readily available, the temporal parameters of meal consumption.

That HPCv neurons are engaged upon food consumption is consistent with previous studies revealing that optogenetic inhibition of HPCv neurons influences food intake^{16,34,37}. Further, fiber photometry recordings of HPCv calcium-dependent activity reveal dynamic changes during foraging and food-seeking behaviors^{31,33}. Our present results advance these findings by establishing a role for HPCv neuronal activity during eating behaviors in encoding meal-related memory, thus providing a mechanistic framework for this previous literature. Further, HPCv calcium activity dynamics during meal consumption reveal elevations selectively during the intervals between active eating bouts. This suggests that HPCv neurons more effectively encode meal-associated memories during periods when the animals (and presumably humans) can more easily observe exteroceptive features of the eating environment.

The CA1v regulates eating behaviors through diverse neuronal pathways, including axonal projections targeting the LS^{33,34}, ACB^{13,38} and PFC³⁹. Our findings reveal that CA1v meal-responsive neurons distinctively send axonal projections to the LHA, which is in line with the well-known contribution of the LHA in regulating eating behaviors⁴⁰. In addition, previous work identified a role for CA1v-to-LHA neuronal projections in modulating appetite and meal parameters^{11,14} through ghrelin signaling. Therefore, it may be the case that periprandial concentrations of ghrelin recruit CA1v meal-responsive neurons to encode mnemonic information. Consistent with this framework, hippocampus ghrelin signaling promotes hippocampal neuronal plasticity, as well as conditioned cue-potentiated overeating^{10,41}.

The predominance of the literature on serotonin signaling and food intake control focuses on the anorexigenic effects of the serotonin type 2c receptor (5HT2cR), notably in the hindbrain^{42–44}. Here, we show a role for HPCv 5HT2aR in modulating food intake, which is consistent with reports of *Htr2a* variants influencing food intake and preferences in humans^{45,46}. In rodents, 5HT2aR-expressing neurons in the central amygdala are responsive to fasting and modulate food consumption^{47,48}. That HPCv 5HT2aR influence food intake through memory function is in line with reports in humans with *Htr2a* allele variants influencing hippocampal function^{49–51} and work in rodents illustrating a role for 5HT2aR signaling in learning in memory processes^{52–57}, and specifically in the HPCv⁵⁸. Serotonin release within the HPCv may result from serotonergic projections originating from the dorsal raphe nucleus (DRN) as engram-

encoding positive experiences within the dorsal hippocampus dentate gyrus are preferentially reactivated by DRN neurons⁵⁹. However, the median raphe nucleus (MRN) also sends serotonergic projections to the HPCv that are involved in goal-directed behavior³⁵ and fear memory⁶⁰. In addition, the interpeduncular nucleus contains serotonin neurons that innervate the HPCv to influence stress and reward functions^{61,62}. While the source of serotonin remains to be determined, our work highlights a novel mechanism through which 5HT2aR signaling in HPCv meal-responsive neurons influences eating behaviors by encoding meal-related memory.

Memories relating to the timing of a meal and the amount of food consumed potentially influence subsequent hunger, satiety, and caloric consumption¹⁻⁴. These phenomena are strikingly illustrated in patients suffering from medial temporal lobe damage who are unable to form new episodic memories and will thus, if permitted, consume multiple consecutive meals in a short temporal window, resulting in greater overall intake⁶³. Additionally, human obesity and disordered eating behaviors are associated to alterations within an orexigenic hippocampal subnetwork⁸. Our present findings illuminate the neural circuitry mediating these effects as both chemogenetic inhibition of a CA1v-to-LHA signaling pathway and HPCv 5HT2aR antagonism disrupted meal-related memory, increased caloric intake, and shortened the inter-meal temporal window, an effect also consistent with rodent studies demonstrating effects of HPCv neuronal inhibition on subsequent meal patterns^{16,36,37}.

Present results should be interpreted in the context of a few limitations. For example, the TRAP-mediated ablation experiment employs a chronic loss of function approach that may lead to compensatory neural adaptations secondary to the loss of CA1v responsive neurons. Therefore, different outcomes might be observed with an activity-based acute and reversible inhibitory approach. Additionally, despite being driven by activity-based neuroanatomical tracing and RNA sequencing experiments, our CA1v-to-LHA chemogenetic and 5HT2aR pharmacology approaches are not restricted to HPCv meal-responsive neurons. Nonetheless, these findings provide a novel neural systems mechanism through which learning and memory processes synergize with eating behaviors.

Results from our snRNAseq of meal-responsive CA1v neurons open the door to promising new research avenues. For example, future work should explore the function of differentially expressed genes in discrete neural populations of the HPCv in response to meal consumption. Results (sequencing dataset now publicly available) reveal that the largest number

of differentially expressed genes are present in a cell cluster delineated by the presence of endothelial cells, which comprise the blood-brain barrier. Whether the blood-brain-barrier undergoes permeability changes to facilitate HPCv function upon meal consumption is an exciting area to investigate. Given that the majority of differentially expressed genes in this cluster were upregulated in the Fed vs. Fasted state, it may be that blood-brain barrier permeability is increased during and immediately after a meal to preclude blood-to-brain entry of potential toxins introduced from the food consumed. Another question arises with regards to the status of these HPCv meal-responsive neurons in the context of obesity and whether they can be targeted to reduce food intake in a diet-induced obese model. Answering these questions would significantly advance our understanding of the neurobiology underlying the higher-order control of eating behavior. Overall, this work identifies a novel population of HPCv neurons that is enriched in 5HT2aR and projects to the LHA to encode the engram for meals.

METHODS

Animals

Adult male Sprague–Dawley rats (Envigo; 250–275g on arrival) were individually housed with *ad libitum* access to water and chow (LabDiet 5001, LabDiet, St. Louis, MO) on a 12h:12h reverse light/dark cycle. All procedures were approved by the University of Southern California Institute of Animal Care and Use Committee.

Intracranial injections

Rats were anesthetized via an intramuscular injection of an anesthesia cocktail (ketamine 90mg/kg body weight [BW], xylazine, 2.8mg/kg BW and acepromazine and 0.72mg/kg BW) followed by a pre-operative, subcutaneous injection of analgesic (buprenorphine SR, 0.65mg/kg BW). Following shaving and preparation of the incision site with iodine and ethanol swabs, rats were placed in a stereotaxic apparatus for viral infusions using a microinfusion pump (Harvard Apparatus, Cambridge, USA) connected to a 33-gauge microsyringe injector attached to a PE20 catheter and Hamilton syringe at a flow rate of 83.3nL/sec. Injectors were left in place for 2min post-injection, prior to placement of an indwelling cannula or closing of the incision site using skin adhesive.

Fiber photometry

To record bulk calcium-dependent activity in the ventral CA1 (CA1v), rats received bilateral infusion (300nL/side) of a synapsin-driven GCaMP7s-expressing virus (AAV9-hSyn-GCaMP7s-WPRE; Addgene, Watertown, USA) at the following coordinates: -4.9mm AP (defined at bregma), +/-4.8mm ML (defined at bregma), and -7.8mm (defined at skull surface at site). A fiber-optic cannula (Doric Lenses Inc, Quebec, Canada) was implanted at the injection site and affixed to the skull with jeweler's screws, instant adhesive glue, and dental cement.

Photometry recording sessions were conducted as described previously^{31,64}. Briefly, 24h-fasted animals were placed in a familiar arena and were given access to chow pellets for 30min, following a 15min recording of baseline calcium-dependent activity. Photometry signal was acquired using the fiber photometry system (Neurophotometrics, San Diego, USA) at a sampling frequency of 40Hz and administering alternating wavelengths of 470nm (calcium-dependent) or

415nm (calcium-independent). Active eating bouts were timed-stamped in real-time by experimenters observing the animals using the data acquisition software Bonsai.

Photometry signal was corrected by subtracting the calcium-independent from the calcium-dependent signal fitting the result to a biexponential curve. This corrected fluorescence signal was normalized by calculating, for each rat, the $\Delta F/F$ using the average fluorescence signal for the entire recording and further converting it to z-scores.

Targeted recombination in active population (TRAP)

Rats received bilateral CA1v injection of a 1:1 cocktail of viruses (400nL/side): [1] a tamoxifen-inducible virus expressing Cre recombinase under the control of a cFos promoter (AAV8-cFos-ERT2-Cre-ERT2-PEST; Stanford Vector Core, Stanford, USA) and [2] a Cre-dependent virus expressing green fluorescent protein (AAV-Flex-GFP; Addgene) or diphtheria toxin (AAV2/9-EF1a-mCherry-Flex-dTA; Neurophotronics, Quebec, Canada). Three weeks following surgery, 24h fasted rats are offered 30min access to chow pellets (Fed) or not (Fasted), 2h prior to receiving an intraperitoneal (ip) injection of 4-hydroxytamoxifen (4OHT; 15mg/kg; H6278, Sigma-Aldrich, St. Louis, USA) dissolved in saline with 2% Tween-80 and 5% DMSO, similarly to⁶⁵. Behavioral measures and histological analyses commenced at least 1 week following 4OHT-induced recombination.

For the histological analyses of GFP+ cell bodies and axonal projections, coronal sections were compared between rats undergoing 4OHT-driven expression of GFP (AAV8-cFos-ERT2-Cre-ERT2-PEST mixed with AAV-Flex-GFP) in the Fed versus Fasted state. For the chronic ablation experiment, rats undergoing dTA-mediated ablation (AAV-8-cFos-ERT2-Cre-ERT2-PEST mixed with AAV2/9-EF1a-mCherry-Flex-dTA) induced by 4OHT administration following meal consumption (Fed) or not (Fasted) were compared to animals with CA1v GFP expression (AAV-8-cFos-ERT2-Cre-ERT2-PEST mixed with AAV-Flex-GFP) induced by 4OHT administration ('Control').

Foraging-related spatial memory task

The foraging-related spatial memory task was conducted as described previously³¹. Briefly, using an elevated circular platform with 18 equally distanced holes surrounding by visuospatial cues on the walls, rats were trained, over the course of 4 days (3min/trial, 2

trial/day), to navigate towards the escape hole containing 5 sucrose pellets (F0023, Bio-Serv Flemington, USA). Distinct spatial cues are present on the walls surrounding the table and low-level ambient lighting is provided by floor lamps. Memory probe occurred 72h after the last training session and consisted of a 2-min trial during which preference of the rat for the previously reinforced hole was assessed in the absence of sucrose pellets. A performance index was calculated by dividing the number of investigations for the previously reinforced hole and its adjacent holes by the total number of investigations. Investigations were quantified by tracking animal's head using the AnyMaze Behavior Tracking Software (Stoelting, Wood Dale, USA).

Escape-based spatial memory task

The escape-based spatial memory task was conducted as described previously³¹, using a protocol that is identical to the foraging-related spatial memory task, with the exception that sucrose pellets were absent, and a mildly aversive overhead bright light (120W) and white noise (75dB) were presented until the rat found the escape box.

Chemogenetic silencing of the HPCv-lateral hypothalamic area (LHA) pathway

Chemogenetic silencing of CA1v projections to the LHA was performed using a previously published dual-viral approach³¹. Rats received bilateral HPCv injection (300nL/side) of a Cre-dependent hM4Di-expressing virus (AAV2-Flex-hM4Di-mCherry; Addgene) using the same stereotaxic coordinates as the TRAP approach, as well as bilateral LHA injection (200nL/side) of a retrograde AAV expressing Cre recombinase (AAV2[retro]-hSYN1-EGFP-2A-iCre-WPRE; Vector BioLabs) at the following stereotaxic coordinates: -2.9mm AP, +/- 1.1mm ML, and -8.6mm DV (all defined at bregma). Animals were also implanted with a unilateral indwelling cannula (26-gauge, Plastics One, Roanoke, USA), affixed to the skull with jeweler's screws, instant adhesive glue and dental cement, targeting the lateral ventricle (LV) at the following stereotaxic coordinates: -0.9mm AP (defined at bregma), +1.8mm ML (defined at bregma), and -2.6mm DV (defined at skull surface at site).

Placement of the LV cannula was confirmed by elevation of at least 100% of baseline glycemia following infusion of 210µg (2uL) of 5-thio-D-glucose (5TG) through the cannula using an injector extending 2mm beyond the end of the cannula guide (Ritter et al, 1981). In

animals that failed to present the glycemic response, the test was repeated with a 2.5mm injector, and upon passing the 5TG test, 2.5mm injectors were used for the remainder of the study.

For assessment in the foraging-related spatial memory task and meal pattern analysis, measures were performed 1h following LV infusion (2uL) of artificial cerebrospinal fluid (Veh) or clozapine-N-oxide (CNO; 18mmol).

Single nucleus RNA sequencing

Following a 24h fast, rats were offered a 30min access to chow pellets (Fed) or not (Fast), 90min prior to sacrifice. Fresh brains were harvested, and flash frozen in isopentane surrounded by dry ice. Coronal sections (250um) were made on a cryostat and bilateral microdissections of the HPCv were obtained using a tissue puncher (2mm diameter). Nuclei suspensions were generated from the frozen samples and data, similar to our prior descriptions⁶⁶⁻⁶⁸. Nuclei were processed for the 10x Genomics 3' gene expression assay (v3.1) per manufacturer protocols, and 10x Genomics Cell Ranger was used to align sequencing reads. Filtered read count matrixes were merged via Seurat, and nuclei with high UMI, low gene count and >5% mitochondrial reads were removed as doublets or low quality as we previously described⁶⁸. Counts were normalized to 10,000 reads per nucleus and scaled, and variable genes were identified mean.var.plot method in the FindVariableFeatures function in Seurat. The first 50 principal components were used to create a neighbors graph and the data was then clustered at a resolution of 0.8. Subsequent quality control steps removed a cluster with abnormally low UMI, a cluster with mixed cell type markers, and three clusters with most nuclei contributed by only 1-2 samples. The remaining data was normalized and scaled again, clustered at a resolution of 0.15, resulting in identification of 17 clusters across 38,138 nuclei. Clusters were identified by expression of major cell type markers: microglia – *Cx3cr1*; macrophages – *Mrc1*; endothelial cells – *Cldn5*; astrocytes – *Gja1*; oligodendrocyte precursor cells – *Pdgfra*; oligodendrocytes – *Mag*; neurons – *Snap25*; excitatory neurons – *Slc17a6*, *Slc17a7*; granule cells – *Prox1*; inhibitory neurons – *Gad1*. Differential gene expression analysis between the two experimental groups was performed within each cluster using a Wilcoxon rank sum test and p-values were adjusted for multiple testing using a Bonferroni correction for the total number of genes in the data set.

Pharmacological manipulations of ventral hippocampus serotonin receptor type 2a

Rats were bilaterally implanted with indwelling cannulae in the CA1v, at the following stereotaxic coordinates: -4.9mm AP (defined at bregma), +/-4.8mm ML (defined at bregma), and -5.8mm (defined at skull surface at site). Cannulae were fixed to the skull using jeweler's screws, instant adhesive glue and dental cement.

For assessment in the foraging-related spatial memory task and meal pattern analysis, measures were performed 5min following CA1v infusion (200nL/side) of 33% DMSO in artificial cerebrospinal fluid (Veh) or the serotonin type 2a receptor antagonist M100907 (1µg/side; M3324, Sigma-Aldrich).

Cannula placement was confirmed post-mortem via a 200nL infusion of 2% Chicago sky blue ink through the guide cannula. Data from animals with dye confined to the CA1v were included in the analyses.

Meal pattern analysis

The Biodaq automated food intake monitoring cage system (Research Diets, New Brunswick, USA) was used to assess 24h food intake, meal size, meal frequency and post-meal intervals. Two 24h measures spaced a week apart were conducted for meal pattern analysis in the CA1v-to-LHA chemogenetic silencing (VEH vs CNO) and CA1v 5HT2aR antagonism (VEH vs M100907) experiments. Meal parameters were set at a minimum meal size of 0.2g and inter-meal interval of 900s⁶⁹.

Immunohistochemistry

Rats received an intramuscular injection of an anesthesia cocktail (ketamine 90mg/kg BW xylazine, 2.8mg/kg BW and acepromazine and 0.72mg/kg BW) prior to transcardiac perfusion with 0.9% sterile saline (pH 7.4) followed by 4% paraformaldehyde (PFA) in 0.1M borate buffer (pH 9.5; PFA). Harvested brains were post-fixed in PFA with 12% sucrose for 24h, then flash frozen in isopentane cooled in dry ice. Coronal sections (30µm) were obtained using a microtome, collected in 5-series and stored in antifreeze solution at -20°C until further processing.

To amplify the native GFP signal in axonal projections from animals undergoing 4-OHT-induced expression of GFP under the Fed or Fasted state, the chicken anti-GFP primary antibody (1:500; Ab13970, Abcam, Boston USA) was used followed by a donkey anti-chicken secondary

antibody conjugated to AF488 (1:500; AB_2340375, Jackson ImmunoResearch, West Grove, USA).

To amplify the native mCherry signal from animals undergoing CA1v-to-LHA chemogenetic silencing, the rabbit anti-RFP primary antibody (1:2000; AB_2209751, Rockland, Limerick, USA) was used followed by a donkey anti-rabbit secondary antibody conjugated to Cy3 (1:500; AB_2307443, Jackson ImmunoResearch).

To measure cFos protein expression in the CA1v under the Fed and Fasted state, the mouse anti-c-Fos primary antibody (1:1000; Ab208942, Abcam) was used followed by a donkey anti-mouse secondary antibody conjugated to AF647 (1:500; Jackson ImmunoResearch).

Antibodies were prepared in 0.02M potassium phosphate buffered saline (KPBS) solution containing 0.2% bovine serum albumin and 0.3% Triton X-100 at 4°C overnight. After thorough washing with 0.02M KPBS, sections were incubated at 4°C overnight in secondary antibody solution. Sections were mounted and coverslipped using 50% glycerol in 0.02 M KPBS and the edges were sealed with clear nail polish. Photomicrographs were acquired using a Nikon 80i (Nikon DSQI1, 1280X1024 resolution, 1.45 megapixel) under epifluorescence or darkfield illumination, as described previously (Cell Rep).

Fluorescent in situ hybridization

Fluorescent in situ hybridization analyses for cFos (ACD, 403591, Newark, USA) and Htr2a (ACD, 424551) were performed in HPCv coronal sections from rats perfused under a Fed or Fasted state. Co-localization of cFos positive cells with Htr2a in the CA1v was quantitatively analyzed.

Effort-based lever pressing

Using operant conditioning boxes (Med Associates Inc, St Albans, USA), rats were trained to lever press for 45mg sucrose pellets (Bio-Serv, F0023) over the course of 6 days with 1 session each day (2 days of fixed ratio 1 with autoshaping procedure, 2 days of fixed ratio 1 and 2 days of fixed ratio 3 reinforcement schedule). For the test session, rats were placed in the chambers to lever press for sucrose under a progressive ratio reinforcement schedule. The response requirement increased progressively using the following formula: $F(i) = 5e^{0.2i-5}$, where $F(i)$ is the number of lever presses required for the next pellet at i = pellet number and the

breakpoint was defined as the final completed lever press requirement that preceded a 20-min period without earning a reinforcer, as described previously^{12,31}.

Zero-maze

Rats were placed on an elevated circular track consisting of 2 open zones (3cm high curbs) and 2 closed zones (17.5cm high walls) and left to explore for 5min during the dark cycle. The total time spent in open zones (defined as body center in open sections) was measured using the AnyMaze Behavior Tracking Software (Stoelting).

Statistical analysis

Data are expressed as mean $\pm$ SEM. Differences were considered statistically significant at $p < 0.05$. All variables were analyzed, and all graphs were created using the GraphPad Prism 9 software.

Two-tailed paired t-test as used to compare changes in CA1v calcium activity dynamics during eating bouts versus interbout intervals, while two-tailed unpaired t-tests were used to compare the number of GFP+ and cFos+ cells, as well as number of Htr2a+ and cFos+ cells, under the Fed and Fasted states. A simple linear regression analysis was conducted to investigate the relationship between CA1v increases in calcium-dependent activity during interbout intervals and performance in the foraging-related spatial memory task. A two-way ANOVA (group $\times$ condition) was used to analyze overlap of GFP with cFos in animals injected with 4OHT under a Fed or Fasted state and perfused under a matched or mismatched condition. Repeated measures two-way ANOVAs (group $\times$ time) were employed to assess body weight and acquisition in both the foraging-related and escape-based spatial memory tasks (errors and latencies) in the TRAP ablation (4OHT-induced dTA expression) experiment. A repeated measure two-way ANOVA (group $\times$ time) was also used to assess acquisition in the foraging-related memory task in the chemogenetic silencing of the CA1v-to-LHA pathway and CA1v 5HT2aR antagonism experiments. A Kruskal-Wallis test with Dunn's posthoc comparison was employed to assess performance in the foraging-related spatial memory task in the TRAP ablation experiment. One-way ANOVAs were used to compare performance in the effort-based lever pressing and zero-maze tasks in the TRAP ablation cohort. Two-tailed unpaired t-test were employed to assess performance in the escape-based spatial memory task for the TRAP ablation cohort and

foraging-related spatial memory task in the CA1v-to-LHA chemogenetic and CA1v 5HT2aR antagonism experiments. Two-tailed paired t-tests were employed to evaluate meal patterns in the CA1v-to-LHA chemogenetic and the CA1v 5HT2aR antagonism experiments.

Significant ANOVAs were analyzed with a Tukey posthoc test, where appropriate. Outliers were identified as being more extreme than the median $\pm 1.5 \times$ interquartile range. For all experiments, assumptions of normality, homogeneity of variance (HOV), and independence were met where required.

ACKNOWLEDGEMENTS

This work was supported by a Quebec Research Funds Postdoctoral Fellowship (315201) and an Alzheimer's Association Research Fellowship to promote diversity (AARFD-22-972811) to LDS, a National Science Foundation Graduate Research Fellowship to KSS and National Institute of Diabetes and Digestive and Kidney Diseases grants: DK105155 to MRH and DK104897 to SEK. Clozapine-N-Oxide was kindly provided by the National Institute of Mental Health.

CONFLICT OF INTEREST

BCR and MRH both receive research funding from Novo Nordisk and Boehringer Ingelheim that was not used in support of these studies. MRH receives research funding from Eli Lilly & Co., Gila Therapeutics, and Pfizer that was not used in support of these studies. MRH is CEO of Cantius Therapeutics, LLC which pursues biological work unrelated to the current study. All other authors declare no competing interests.

REFERENCES

1. Higgs, S. (2005). Memory and its role in appetite regulation. *Physiol Behav* 85, 67–72. 10.1016/J.PHYSBEH.2005.04.003.
2. Brunstrom, J.M., Burn, J.F., Sell, N.R., Collingwood, J.M., Rogers, P.J., Wilkinson, L.L., Hinton, E.C., Maynard, O.M., and Ferriday, D. (2012). Episodic Memory and Appetite Regulation in Humans. *PLoS One* 7. 10.1371/journal.pone.0050707.
3. Higgs, S., and Donohoe, J.E. (2011). Focusing on food during lunch enhances lunch memory and decreases later snack intake. *Appetite* 57, 202–206. 10.1016/j.appet.2011.04.016.
4. Collins, R., and Stafford, L.D. (2015). Feeling happy and thinking about food. Counteractive effects of mood and memory on food consumption. *Appetite* 84, 107–112. 10.1016/j.appet.2014.09.021.
5. Parent, M.B., Higgs, S., Cheke, L.G., and Kanoski, S.E. (2022). Memory and eating: A bidirectional relationship implicated in obesity. *Neurosci Biobehav Rev* 132, 110–129. 10.1016/j.neubiorev.2021.10.051.
6. Higgs, S. (2002). Memory for recent eating and its influence on subsequent food intake. *Appetite* 39, 159–166. 10.1006/appe.2002.0500.
7. Kanoski, S.E., and Grill, H.J. (2017). Hippocampus Contributions to Food Intake Control: Mnemonic, Neuroanatomical, and Endocrine Mechanisms. *Biol Psychiatry* 81, 748–756. 10.1016/j.biopsych.2015.09.011.
8. Barbosa, D.A.N., Gattas, S., Salgado, J.S., Kuijper, F.M., Wang, A.R., Huang, Y., Kakusa, B., Leuze, C., Luczak, A., Rapp, P., et al. (2023). An orexigenic subnetwork within the human hippocampus. *Nature* 621. 10.1038/s41586-023-06459-w.
9. Kanoski, S.E., Hayes, M.R., Greenwald, H.S., Fortin, S.M., Gianessi, C.A., Gilbert, J.R., and Grill, H.J. (2011). Hippocampal leptin signaling reduces food intake and modulates food-related memory processing. *Neuropsychopharmacology* 36, 1859–1870. 10.1038/npp.2011.70.
10. Kanoski, S.E., Fortin, S.M., Ricks, K.M., and Grill, H.J. (2013). Ghrelin signaling in the ventral hippocampus stimulates learned and motivational aspects of feeding via PI3K-Akt signaling. *Biol Psychiatry* 73, 915–923. 10.1016/j.biopsych.2012.07.002.
11. Hsu, T.M., Hahn, J.D., Konanur, V.R., Noble, E.E., Suarez, A.N., Thai, J., Nakamoto, E.M., and Kanoski, S.E. (2015). Hippocampus ghrelin signaling mediates appetite through lateral hypothalamic orexin pathways. *Elife* 4. 10.7554/ELIFE.11190.
12. Hsu, T.M., Hahn, J.D., Konanur, V.R., Lam, A., and Kanoski, S.E. (2015). Hippocampal GLP-1 receptors influence food intake, meal size, and effort-based responding for food through volume transmission. *Neuropsychopharmacology* 40, 327–337. 10.1038/NPP.2014.175.
13. Noble, E.E., Wang, Z., Liu, C.M., Davis, E.A., Suarez, A.N., Stein, L.M., Tsan, L., Terrill, S.J., Hsu, T.M., Jung, A.H., et al. (2019). Hypothalamus-hippocampus circuitry regulates impulsivity via melanin-concentrating hormone. *Nat Commun* 10, 4923. 10.1038/s41467-019-12895-y.

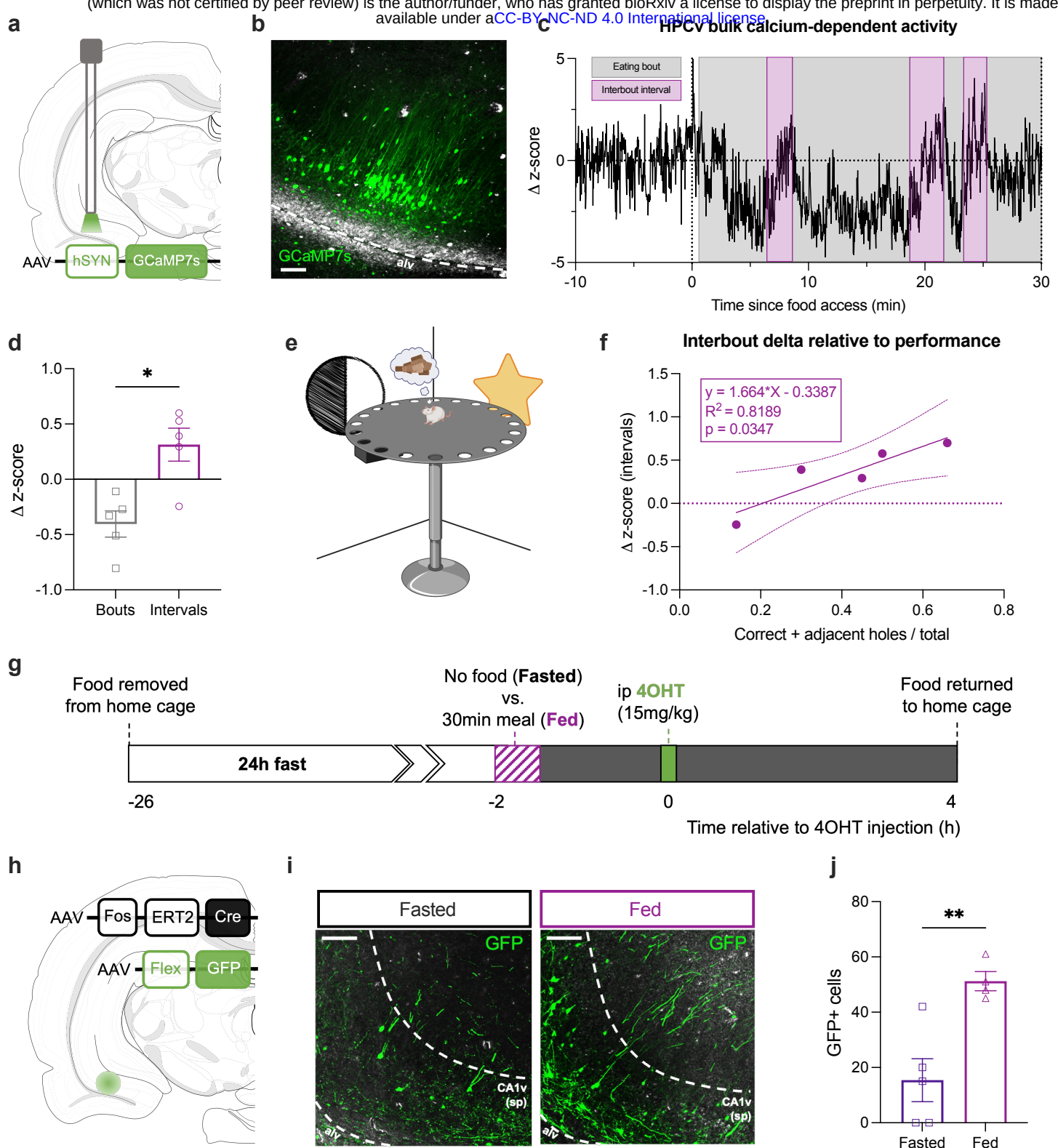
14. Suarez, A.N., Liu, C.M., Cortella, A.M., Noble, E.E., and Kanoski, S.E. (2020). Ghrelin and Orexin Interact to Increase Meal Size Through a Descending Hippocampus to Hindbrain Signaling Pathway. *Biol Psychiatry* 87, 1001–1011. 10.1016/j.biopsych.2019.10.012.
15. Hannapel, R.C., Henderson, Y.H., Nalloor, R., Vazdarjanova, A., and Parent, M.B. (2017). Ventral hippocampal neurons inhibit postprandial energy intake. *Hippocampus* 27, 274–284. 10.1002/hipo.22692.
16. Hannapel, R., Ramesh, J., Ross, A., Lalumiere, R.T., Roseberry, A.G., and Parent, M.B. (2019). Postmeal optogenetic inhibition of dorsal or ventral hippocampal pyramidal neurons increases future intake. *eNeuro* 6. 10.1523/ENEURO.0457-18.2018.
17. Tonegawa, S., Pignatelli, M., Roy, D.S., and Ryan, T.J. (2015). Memory engram storage and retrieval. *Curr Opin Neurobiol* 35, 101–109. 10.1016/J.CONB.2015.07.009.
18. Josselyn, S.A., and Tonegawa, S. (2020). Memory engrams: Recalling the past and imagining the future. *Science* 367. 10.1126/SCIENCE.AAW4325.
19. Nonaka, A., Toyoda, T., Miura, Y., Hitora-Imamura, N., Naka, M., Eguchi, M., Yamaguchi, S., Ikegaya, Y., Matsuki, N., and Nomura, H. (2014). Synaptic plasticity associated with a memory engram in the basolateral amygdala. *Journal of Neuroscience* 34, 9305–9309. 10.1523/JNEUROSCI.4233-13.2014.
20. Rashid, A.J., Yan, C., Mercaldo, V., Hsiang, H.L., Park, S., Cole, C.J., De Cristofaro, A., Yu, J., Ramakrishnan, C., Lee, S.Y., et al. (2016). Competition between engrams influences fear memory formation and recall. *Science* (1979) 353, 383–387. 10.1126/science.aaf0594.
21. Zhang, X., Kim, J., and Tonegawa, S. (2020). Amygdala Reward Neurons Form and Store Fear Extinction Memory. *Neuron* 105, 1077–1093.e7. 10.1016/j.neuron.2019.12.025.
22. Liu, X., Ramirez, S., Pang, P.T., Puryear, C.B., Govindarajan, A., Deisseroth, K., and Tonegawa, S. (2012). Optogenetic stimulation of a hippocampal engram activates fear memory recall. *Nature* 2012 484:7394 484, 381–385. 10.1038/NATURE11028.
23. Ramirez, S., Liu, X., Lin, P.A., Suh, J., Pignatelli, M., Redondo, R.L., Ryan, T.J., and Tonegawa, S. (2013). Creating a false memory in the hippocampus. *Science* (1979) 341, 387–391. 10.1126/SCIENCE.1239073/SUPPL_FILE/RAMIREZ-SM.PDF.
24. Chen, B.K., Murawski, N.J., Cincotta, C., McKissick, O., Finkelstein, A., Hamidi, A.B., Merfeld, E., Doucette, E., Grella, S.L., Shpokayte, M., et al. (2019). Artificially Enhancing and Suppressing Hippocampus-Mediated Memories. *Current Biology* 29, 1885–1894.e4. 10.1016/J.CUB.2019.04.065.
25. Zhang, T.R., Larosa, A., Di Raddo, M.E., Wong, V., Wong, A.S., and Wong, T.P. (2019). Negative memory engrams in the hippocampus enhance the susceptibility to chronic social defeat stress. *Journal of Neuroscience* 39, 7576–7590. 10.1523/JNEUROSCI.1958-18.2019.
26. Terranova, J.I., Yokose, J., Osanai, H., Marks, W.D., Yamamoto, J., Ogawa, S.K., and Kitamura, T. (2022). Hippocampal-amygdala memory circuits govern experience-dependent observational fear. *Neuron* 110, 1416–1431.e13. 10.1016/j.neuron.2022.01.019.
27. Zhou, Y., Zhu, H., Liu, Z., Chen, X., Su, X.J., Ma, C., Tian, Z., Huang, B., Yan, E., Liu, X., et al. (2019). A ventral CA1 to nucleus accumbens core engram circuit mediates conditioned place preference for cocaine. *Nature Neuroscience* 2019 22:12 22, 1986–1999. 10.1038/S41593-019-0524-Y.

28. Redondo, R.L., Kim, J., Arons, A.L., Ramirez, S., Liu, X., and Tonegawa, S. (2014). Bidirectional switch of the valence associated with a hippocampal contextual memory engram. *Nature* 513, 426–430. 10.1038/nature13725.
29. Shpokayte, M., McKissick, O., Guan, X., Yuan, B., Rahsepar, B., Fernandez, F.R., Ruesch, E., Grella, S.L., White, J.A., Liu, X.S., et al. (2022). Hippocampal cells segregate positive and negative engrams. *Communications Biology* 2022 5:1 5, 1–15. 10.1038/S42003-022-03906-8.
30. Okuyama, T., Kitamura, T., Roy, D.S., Itohara, S., and Tonegawa, S. (2016). Ventral CA1 neurons store social memory. *Science* (1979) 353.
31. Décarie-Spain, L., Liu, C.M., Lauer, L.T., Subramanian, K., Bashaw, A.G., Klug, M.E., Gianatiempo, I.H., Suarez, A.N., Noble, E.E., Donohue, K.N., et al. (2022). Ventral hippocampus-lateral septum circuitry promotes foraging-related memory. *Cell Rep* 40. 10.1016/j.celrep.2022.111402.
32. Jimenez, J.C., Su, K., Goldberg, A.R., Luna, V.M., Biane, J.S., Ordek, G., Zhou, P., Ong, S.K., Wright, M.A., Zweifel, L., et al. (2018). Anxiety Cells in a Hippocampal-Hypothalamic Circuit. *Neuron* 97, 670–683.e6. 10.1016/J.NEURON.2018.01.016.
33. Kosugi, K., Yoshida, K., Suzuki, T., Kobayashi, K., Yoshida, K., Mimura, M., and Tanaka, K.F. (2021). Activation of ventral CA1 hippocampal neurons projecting to the lateral septum during feeding. *Hippocampus* 31, 294–304. 10.1002/hipo.23289.
34. Sweeney, P., and Yang, Y. (2015). An excitatory ventral hippocampus to lateral septum circuit that suppresses feeding. *Nat Commun* 6, 1–11. 10.1038/ncomms10188.
35. Yoshida, K., Drew, M.R., Mimura, M., and Tanaka, K.F. (2019). Serotonin-mediated inhibition of ventral hippocampus is required for sustained goal-directed behavior. *Nat Neurosci* 22, 770–777. 10.1038/S41593-019-0376-5.
36. Henderson, Y.O., Smith, G.P., and Parent, M.B. (2013). Hippocampal neurons inhibit meal onset. *Hippocampus* 23, 100–107. 10.1002/hipo.22062.
37. Hannapel, R.C., Henderson, Y.H., Nalloor, R., Vazdarjanova, A., and Parent, M.B. (2017). Ventral hippocampal neurons inhibit postprandial energy intake. *Hippocampus* 27, 274–284. 10.1002/HIPO.22692.
38. Yang, A.K., Mendoza, J.A., Lafferty, C.K., Lacroix, F., and Britt, J.P. (2020). Hippocampal Input to the Nucleus Accumbens Shell Enhances Food Palatability. *Biol Psychiatry* 87, 597–608. 10.1016/j.biopsych.2019.09.007.
39. Hsu, T.M., Noble, E.E., Liu, C.M., Cortella, A.M., Konanur, V.R., Suarez, A.N., Reiner, D.J., Hahn, J.D., Hayes, M.R., and Kanoski, S.E. (2018). A hippocampus to prefrontal cortex neural pathway inhibits food motivation through glucagon-like peptide-1 signaling. *Mol Psychiatry* 23, 1555–1565. 10.1038/mp.2017.91.
40. Rossi, M.A., and Stuber, G.D. (2018). Overlapping Brain Circuits for Homeostatic and Hedonic Feeding. *Cell Metab* 27, 42–56. 10.1016/j.cmet.2017.09.021.
41. Diano, S., Farr, S.A., Benoit, S.C., McNay, E.C., Da Silva, I., Horvath, B., Gaskin, F.S., Nonaka, N., Jaeger, L.B., Banks, W.A., et al. (2006). Ghrelin controls hippocampal spine synapse density and memory performance. *Nat Neurosci* 9, 381–388. 10.1038/nn1656.
42. Holt, M.K., Llewellyn-Smith, I.J., Reimann, F., Gribble, F.M., and Trapp, S. (2017). Serotonergic modulation of the activity of GLP-1 producing neurons in the nucleus of the solitary tract in mouse. *Mol Metab* 6, 909–921. 10.1016/j.molmet.2017.06.002.

43. D'Agostino, G., Lyons, D., Cristiano, C., Lettieri, M., Olarte-Sanchez, C., Burke, L.K., Greenwald-Yarnell, M., Cansell, C., Doslikova, B., Georgescu, T., et al. (2018). Nucleus of the Solitary Tract Serotonin 5-HT_{2C} Receptors Modulate Food Intake. *Cell Metab* 28, 619-630.e5. 10.1016/j.cmet.2018.07.017.
44. Leon, R.M., Borner, T., Reiner, D.J., Stein, L.M., Lhamo, R., De Jonghe, B.C., and Hayes, M.R. (2019). Hypophagia induced by hindbrain serotonin is mediated through central GLP-1 signaling and involves 5-HT_{2C} and 5-HT₃ receptor activation. *Neuropsychopharmacology* 44, 1742–1751. 10.1038/s41386-019-0384-x.
45. Herbeth, B., Aubry, E., Fumeron, F., Aubert, R., Cailotto, F., Siest, G., and Visvikis-Siest, S. (2005). Polymorphism of the 5-HT_{2A} receptor gene and food intakes in children and adolescents: the Stanislas Family Study. *Am J Clin Nutr* 82, 467–470. 10.1093/ajcn.82.2.467.
46. Prado-Lima, P.S., Cruz, I.B.M., Schwanke, C.H.A., Netto, C.A., and Licinio, J. (2006). Human food preferences are associated with a 5-HT_{2A} serotonergic receptor polymorphism [2]. *Mol Psychiatry* 11, 889–891. 10.1038/sj.mp.4001872.
47. Douglass, A.M., Kucukdereli, H., Ponserre, M., Markovic, M., Gründemann, J., Strobel, C., Alcala Morales, P.L., Conzelmann, K.K., Lüthi, A., and Klein, R. (2017). Central amygdala circuits modulate food consumption through a positive-valence mechanism. *Nat Neurosci* 20, 1384–1394. 10.1038/nn.4623.
48. Peters, C., He, S., Fermani, F., Lim, H., Ding, W., Mayer, C., and Klein, R. (2023). Transcriptomics reveals amygdala neuron regulation by fasting and ghrelin thereby promoting feeding. *Sci Adv* 9, eadf6521. 10.1126/sciadv.adf6521.
49. Schott, B.H., Seidenbecher, C.I., Richter, S., Wüstenberg, T., Debska-Vielhaber, G., Schubert, H., Heinze, H.J., Richardson-Klavehn, A., and Düzel, E. (2011). Genetic variation of the serotonin 2a receptor affects hippocampal novelty processing in humans. *PLoS One* 6, 1–6. 10.1371/journal.pone.0015984.
50. Sigmund, J.C., Vogler, C., Huynh, K.D., de Quervain, D.J.F., and Papassotiropoulos, A. (2008). Fine-mapping at the HTR_{2A} locus reveals multiple episodic memory-related variants. *Biol Psychol* 79, 239–242. 10.1016/j.biopsycho.2008.06.002.
51. Gong, P., Li, J., Wang, J., Lei, X., Chen, D., Zhang, K., Zhang, W., Zhen, A., Gao, X., and Zhang, F. (2011). Variations in 5-HT_{2A} influence spatial cognitive abilities and working memory. *Canadian Journal of Neurological Sciences* 38, 303–308. 10.1017/S0317167100011513.
52. Bekinschtein, P., Renner, M.C., Gonzalez, M.C., and Weisstaub, N. (2013). Role of medial prefrontal cortex serotonin 2A receptors in the control of retrieval of recognition memory in rats. *Journal of Neuroscience* 33, 15716–15725. 10.1523/JNEUROSCI.2087-13.2013.
53. Stackman, R.W., Zhang, G., Sgeirsdóttir, H.N., Cohen, S.J., Munchow, A.H., and Barrera, M.P. (2013). Stimulation of serotonin 2A receptors facilitates consolidation and extinction of fear memory in C57BL/6J mice. *Neuropharmacology* 64, 403–413. 10.1016/j.neuropharm.2012.06.007.
54. Li, L.B., Zhang, L., Sun, Y.N., Han, L.N., Wu, Z.H., Zhang, Q.J., and Liu, J. (2015). Activation of serotonin_{2A} receptors in the medial septum-diagonal band of Broca complex

- enhanced working memory in the hemiparkinsonian rats. *Neuropharmacology* *91*, 23–33. 10.1016/J.NEUROPHARM.2014.11.025.
55. Zhang, G., Cinalli, D., Cohen, S.J., Knapp, K.D., Rios, L.M., Martínez-Hernández, J., Luján, R., and Stackman, R.W. (2016). Examination of the hippocampal contribution to serotonin 5-HT_{2A} receptor-mediated facilitation of object memory in C57BL/6J mice. *Neuropharmacology* *109*, 332–340. 10.1016/j.neuropharm.2016.04.033.
56. Morici, J.F., Miranda, M., Gallo, F.T., Zanoni, B., Bekinschtein, P., and Weisstaub, N. V. (2018). 5-HT_{2a} receptor in mPFC influences context-guided reconsolidation of object memory in perirhinal cortex. *Elife* *7*, 1–23. 10.7554/eLife.33746.
57. Morici, J.F., Cicuttin, G., Silva, A., Gallo, F.T., Miranda, M., Belluscio, M., Zold, C., Bekinschtein, P., and Weisstaub, N. V. (2022). Serotonin Type 2a Receptor in the Prefrontal Cortex Controls Perirhinal Cortex Excitability During Object Recognition Memory Recall. *Neuroscience* *497*, 196–205. 10.1016/j.neuroscience.2022.05.015.
58. Surowka, P., Noworyta, K., Smaga, I., Filip, M., and Rygula, R. (2023). Trait sensitivity to negative feedback in rats is associated with increased expression of serotonin 5-HT_{2A} receptors in the ventral hippocampus. *Front Mol Neurosci* *16*. 10.3389/fnmol.2023.1092864.
59. Nagai, Y., Kisaka, Y., Nomura, K., Nishitani, N., Andoh, C., Koda, M., Kawai, H., Seiriki, K., Nagayasu, K., Kasai, A., et al. (2023). Dorsal raphe serotonergic neurons preferentially reactivate dorsal dentate gyrus cell ensembles associated with positive experience. *Cell Rep* *42*, 112149. 10.1016/j.celrep.2023.112149.
60. Ohmura, Y., Izumi, T., Yamaguchi, T., Tsutsui-Kimura, I., Yoshida, T., and Yoshioka, M. (2010). The serotonergic projection from the median raphe nucleus to the ventral hippocampus is involved in the retrieval of fear memory through the corticotropin-releasing factor type 2 receptor. *Neuropsychopharmacology* *35*, 1271–1278. 10.1038/npp.2009.229.
61. Groenewegen, H.J., and Steinbusch, H.W.M. (1984). Serotonergic and non-serotonergic projections from the interpeduncular nucleus to the ventral hippocampus in the rat. *Neurosci Lett* *51*, 19–24. 10.1016/0304-3940(84)90256-8.
62. Sherafat, Y., Bautista, M., Fowler, J.P., Chen, E., Ahmed, A., and Fowler, C.D. (2020). The interpeduncular-ventral hippocampus pathway mediates active stress coping and natural reward. *eNeuro* *7*, 1–17. 10.1523/ENEURO.0191-20.2020.
63. Rozin, P., Dow, S., Moscovitch, M., and Rajaram, S. (1988). What causes humans to begin and end a meal? A role for memory for what has been eaten, as evidenced by a study of multiple meal eating in amnesic patients. *Psychol Sci* *9*.
64. Subramanian, K.S., Lauer, L.T., Hayes, A.M.R., Décarie-Spain, L., McBurnett, K., Nourbash, A.C., Donohue, K.N., Kao, A.E., Bashaw, A.G., Burdakov, D., et al. (2023). Hypothalamic melanin-concentrating hormone neurons integrate food-motivated appetitive and consummatory processes in rats. *Nat Commun* *14*, 1–14. 10.1038/s41467-023-37344-9.
65. Giannotti, G., Heinsbroek, J.A., Yue, A.J., Deisseroth, K., and Peters, J. (2019). Prefrontal cortex neuronal ensembles encoding fear drive fear expression during long-term memory retrieval. *Sci Rep* *9*. 10.1038/s41598-019-47095-7.

66. Reiner, B.C., Crist, R.C., Borner, T., Doyle, R.P., Hayes, M.R., and De Jonghe, B.C. (2022). Single nuclei RNA sequencing of the rat AP and NTS following GDF15 treatment. *Mol Metab* 56, 101422. 10.1016/j.molmet.2021.101422.
67. Reiner, B.C., Zhang, Y., Stein, L.M., Perea, E.D., Arauco-Shapiro, G., Ben Nathan, J., Ragnini, K., Hayes, M.R., Ferraro, T.N., Berrettini, W.H., et al. (2022). Single nucleus transcriptomic analysis of rat nucleus accumbens reveals cell type-specific patterns of gene expression associated with volitional morphine intake. *Transl Psychiatry* 12. 10.1038/s41398-022-02135-1.
68. Borner, T., Reiner, B.C., Crist, R.C., Furst, C.D., Doebley, S.A., Halas, J.G., Ai, M., Samms, R.J., De Jonghe, B.C., and Hayes, M.R. (2023). GIP receptor agonism blocks chemotherapy-induced nausea and vomiting. *Mol Metab* 73, 101743. 10.1016/j.molmet.2023.101743.
69. Farley, C., Cook, J.A., Spar, B.D., Austin, T.M., and Kowalski, T.J. (2003). Meal pattern analysis of diet-induced obesity in susceptible and resistant rats. *Obes Res* 11, 845–851. 10.1038/oby.2003.116.



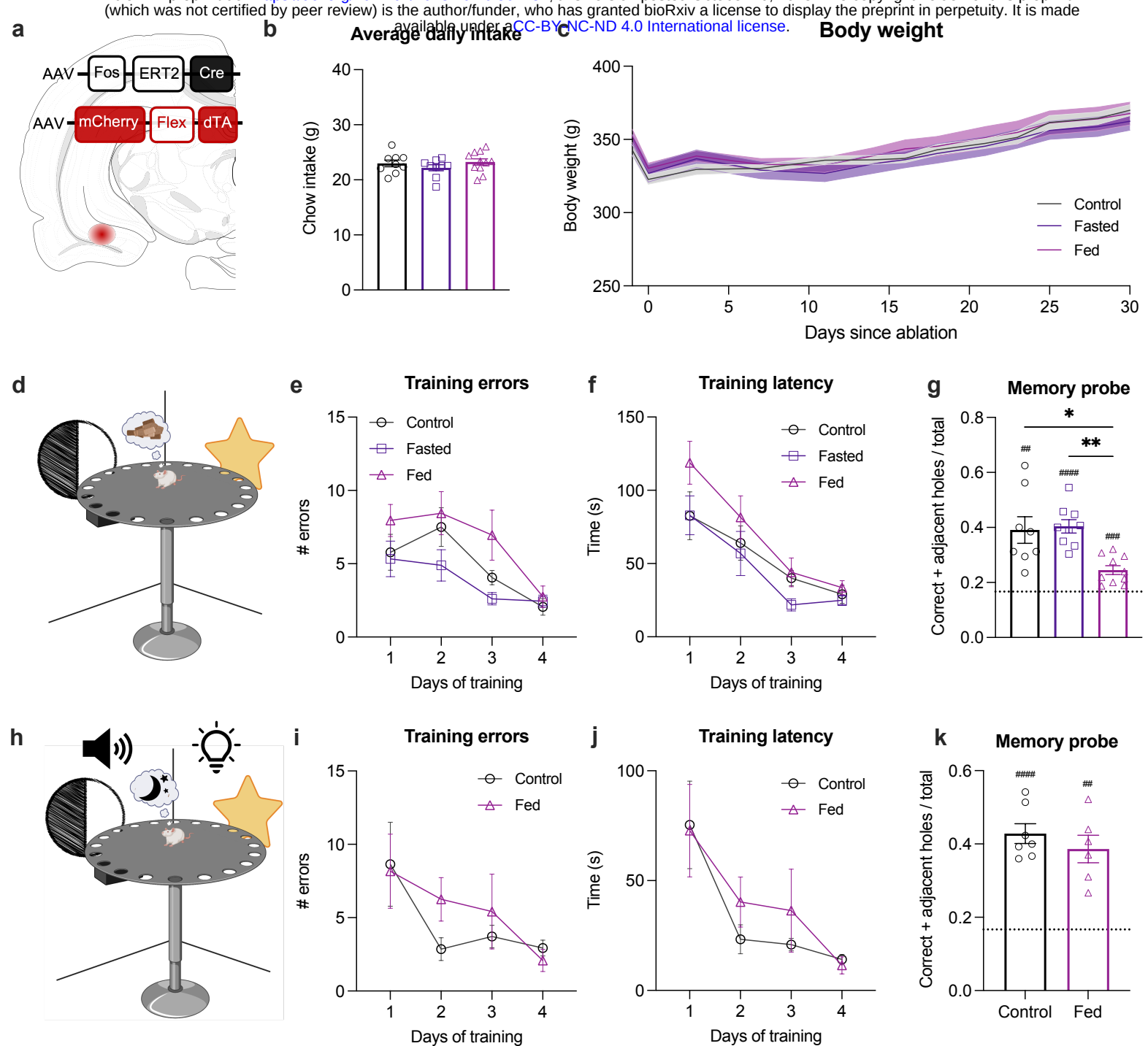


Figure 2. Ablation of ventral hippocampus meal-responsive neurons selectively impairs foraging-related spatial memory.

(a) Diagram of viral approach for 4-hydroxytamoxifen (4OHT)-inducible Cre-dependent expression of diptheria toxin (dTA) (Fasted and Fed) or green fluorescent protein (Control) in ventral CA1 neurons active in the Fasted or Fed state. (b) Average daily food intake following 4OHT intraperitoneal administration to induce dTA-mediated lesion (Fasted and Fed) versus Control. (c) Body weight following intraperitoneal administration of 4OHT. (d) Diagram of Barnes maze apparatus for the foraging-related spatial memory task. (e) Average number of errors and (f) latency to find the food during training for the foraging-related spatial memory task. (g) Performance index during the probe for the foraging-related spatial memory task. (h) Diagram of Barnes maze apparatus for the escape-based spatial memory task. (i) Average number of errors and (j) latency to find the escape box during training for the escape-based spatial memory task. (k) Performance index during the probe for the escape-based spatial memory task. Data are presented as mean $\pm$ SEM. For Fig. 2b, one-way ANOVA (n=9-10/group). For Fig. 2c, two-way ANOVA, Tukey post hoc (n=9-11/group). For Fig. 2e-f and Fig. 2i-j, two-way ANOVA (n=9-10/group and n=6-7/group). For Fig. 2g, Kruskal-Wallis, multiple comparisons, (n=9-11/group). For Fig. 2k, two-tailed unpaired t-test, (n=6-7/group); *p<0.05, **p<0.01, ***p<0.005. For Fig. 2g and Fig. 2k, one-sample t-test, different from chance set at 0.1667; #p<0.01, ###p<0.005, ####p<0.001.

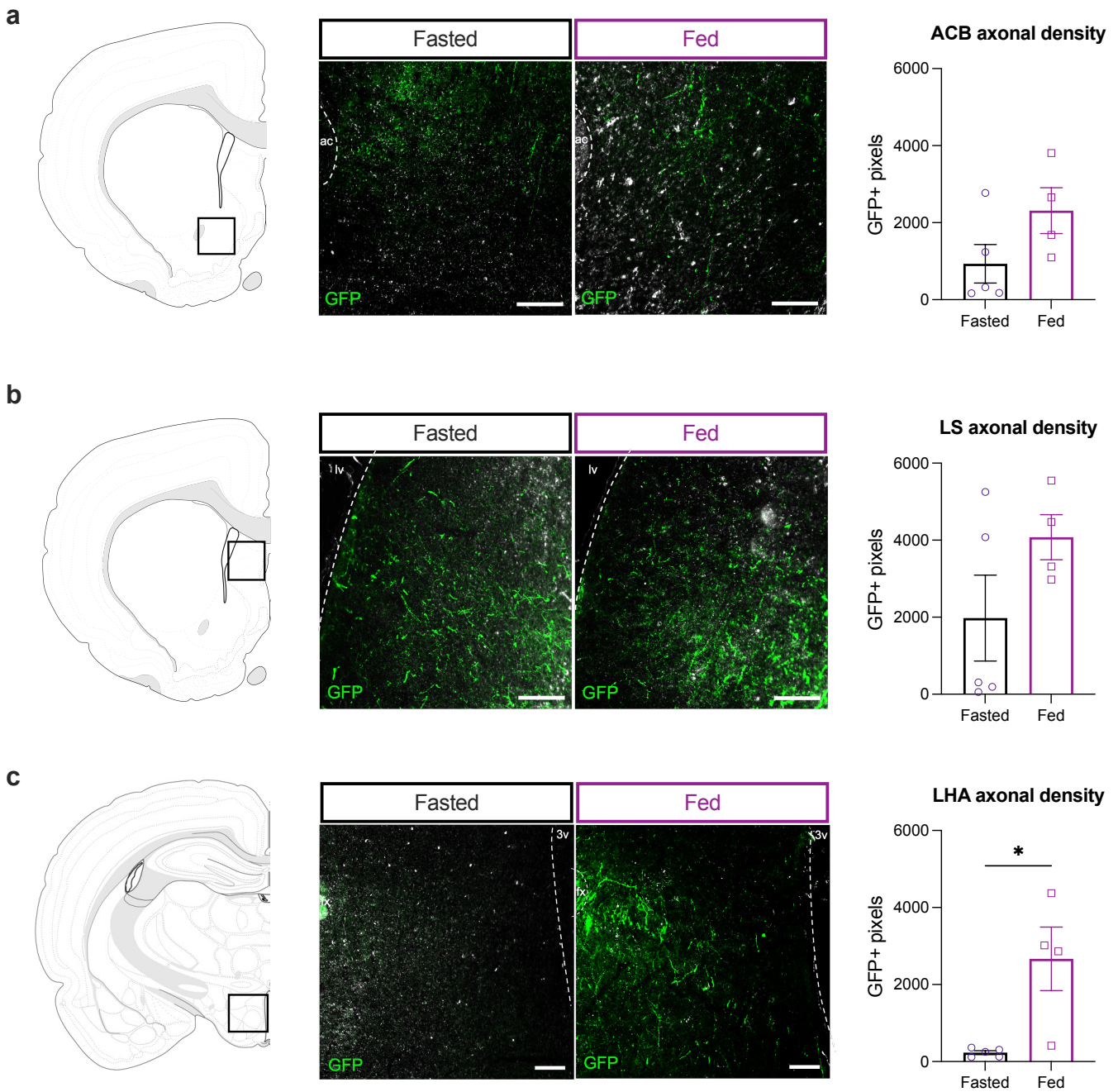


Figure 3. Ventral hippocampus meal- but not fast-responsive neurons project to the lateral hypothalamic area.

(a) *Left:* Diagram of a coronal section of the nucleus accumbens (ACB). *Middle:* Representative photomicrographs of axonal green fluorescent protein (GFP)⁺ expression in the ACB from ventral CA1 neurons active in the Fasted or Fed state, relative to the anterior commissure (ac); scale bar 100 μ m. *Right:* Average number of GFP⁺ pixels in the ACB. **(b)** *Left:* Diagram of a coronal section of the lateral septum (LS). *Middle:* Representative photomicrographs of axonal GFP⁺ expression in the LS from ventral CA1 neurons active in the Fasted or Fed state, relative to the lateral ventricle (lv); scale bar 100 μ m. *Right:* Average number of GFP⁺ pixels in the LS. **(c)** *Left:* Diagram of a coronal section of the lateral hypothalamic area (LHA). *Middle:* Representative photomicrographs of axonal GFP⁺ expression in the LHA from ventral CA1 neurons active in the Fasted or Fed state, relative to the fornix (fx) and 3rd ventricle (3v); scale bar 100 μ m. *Right:* Average number of GFP⁺ pixels in the LHA. Data are presented as mean $\pm$ SEM. For Fig. 3a-c, two-tailed unpaired t-test (n=4-5/group); *p<0.05.

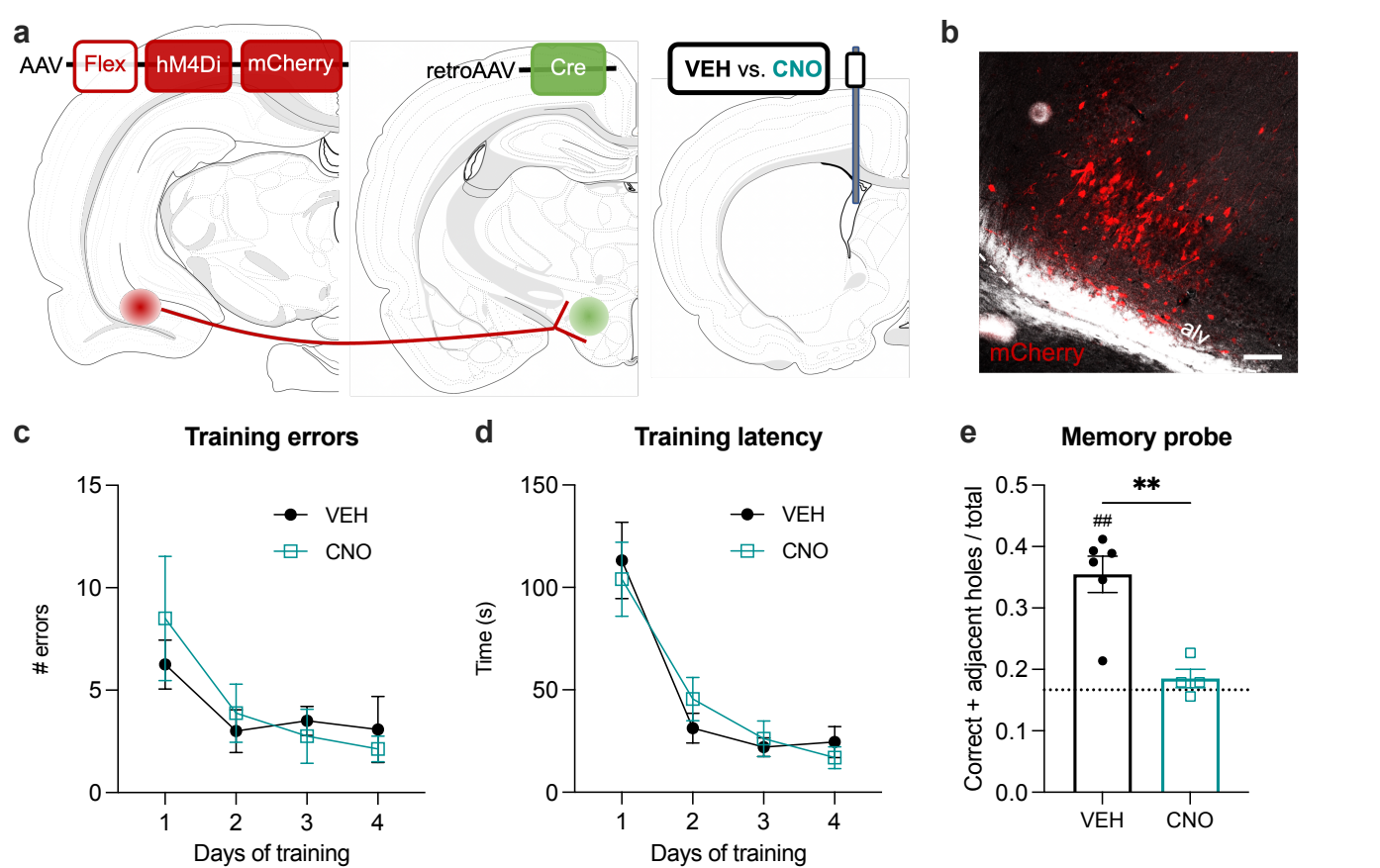


Figure 4. Chemogenetic inhibition of a ventral hippocampus to lateral hypothalamus pathway impairs foraging-related spatial memory.

(a) Diagram of viral approach for expression of hM4Di receptors in ventral CA1 neurons projecting to the lateral hypothalamic area and administration of vehicle (VEH) or clozapine-N-oxide (CNO) through a lateral ventricle (LV) cannula. (b) Representative photomicrograph of mCherry expression for placement validation of viral injections, relative to the alveus (alv); scale bar 100 μ m. (c) Average number of errors and (d) latency to find the food during training for the foraging-related spatial memory task. (e) Performance index during the probe for the foraging-related spatial memory task, 1h following LV administration of VEH or CNO. Data are presented as mean $\pm$ SEM. For Fig. 5c-d, two-way ANOVA ($n=4-6$ /group). For Fig. 5e, two-tailed unpaired t-test ($n=4-6$ /group); ** $p<0.01$. For Fig. 5e, one-sample t-test, different from chance set at 0.1667; ## $p<0.01$.

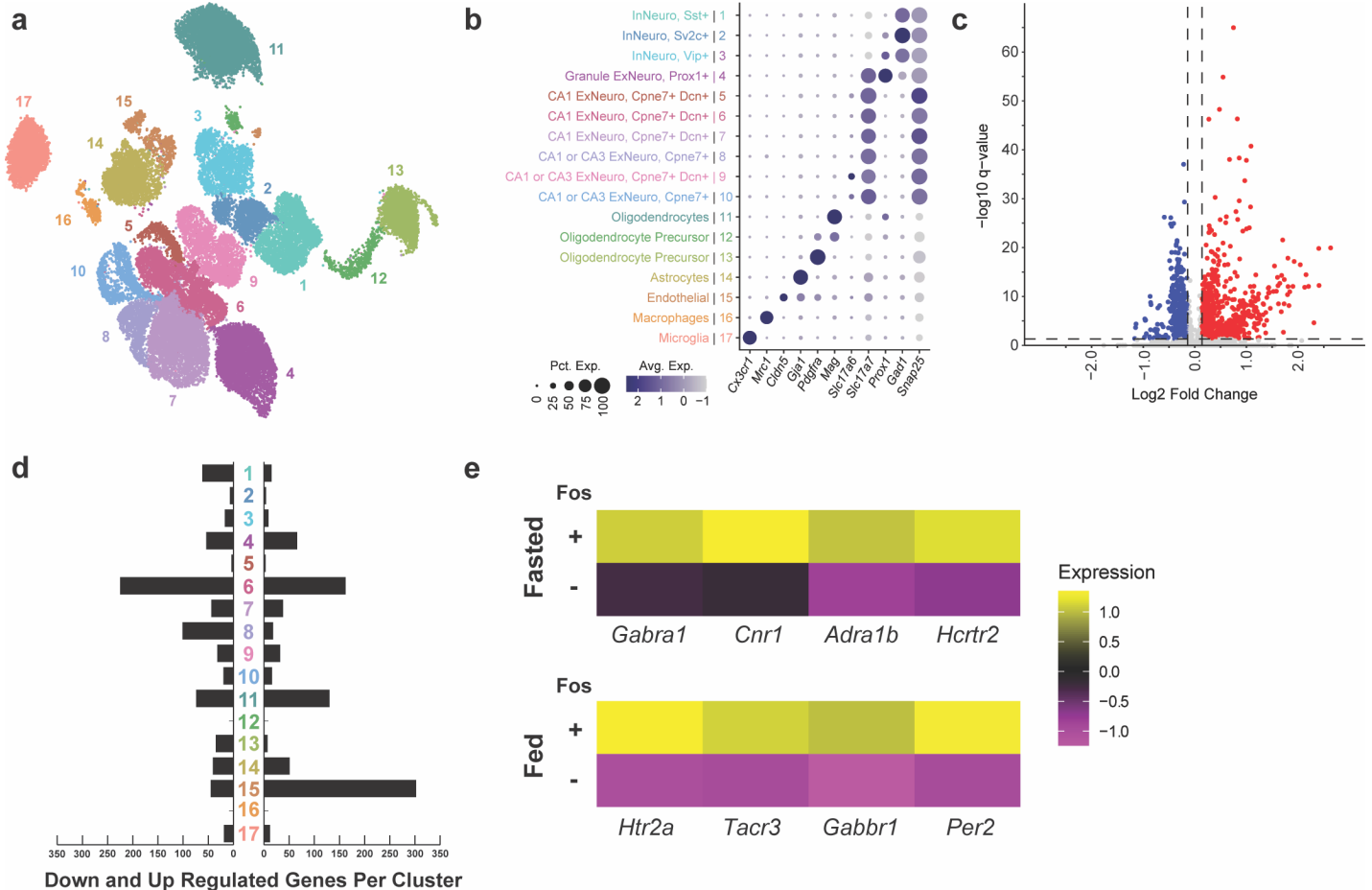


Figure 5. Meal consumption primarily alters the transcriptional profile of ventral hippocampus endothelial cells and CA1v excitatory neurons and engages 5HT2aR expressing cells.

(a) Uniform manifold approximation and projection (UMAP) of the ventral hippocampus (HPCv) samples identifying 17 clusters. (b) Annotation of cellular subtypes with known makers of HPCv cellular subtypes. The size and color of dots are proportional to the percentage of cells expressing the gene (Pct. Exp) and the average expression levels of the gene (Avg. Exp.), respectively. The cluster numbers and colors are matched to that of the UMAP. (c) Volcano plot depicting the number of significant differential expression events induced by meal consumption. (d) Number of genes with meal consumption-altered increased (right) or decreased (left) expression per cluster. (e) Heatmaps of select genes enriched in *Fos*+ cells under a Fasted or Fed state.

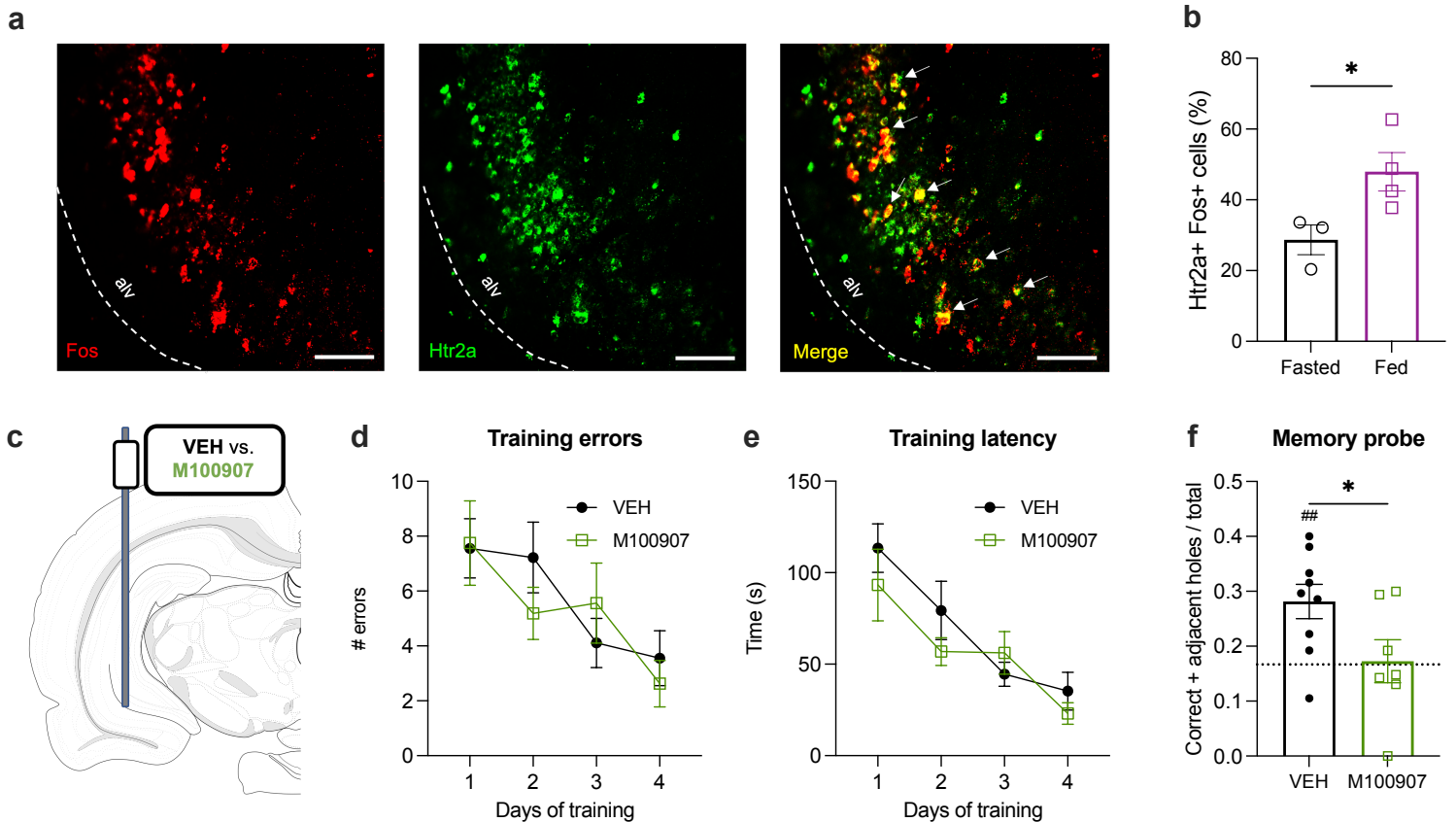


Figure 6. Ventral hippocampus 5HT2aR expressing neurons are engaged by a meal, project to the lateral hypothalamic reia, and are functionally required for foraging-related spatial memory.

(a) Representative photomicrograph of fluorescent in situ hybridization for *Fos* (red) and *Htr2a* (green) in the ventral CA1, relative to the alveus (alv); scale bar 100μm. **(b)** Percentage of ventral CA1 *Fos*+ cells that co-express *Htr2a* in rats perfused under a Fasted or Fed state. **(c)** Diagram of approach for ventral CA1 administration of vehicle (VEH) or the 5HT2aR antagonist M100907 (1g/hemisphere). **(d)** Average number of errors and **(e)** latency to find food during the training for the foraging-related spatial memory task. **(f)** Performance during the probe for the foraging-related spatial memory task, 5min following ventral CA1 infusion of VEH or M100907. Data are presented as mean ± SEM. For Fig. 6b and Fig. 6f, two-tailed unpaired t-test (n=7-9/group and n=5-6/group). For Fig. 6d-e, two-way ANOVA (n=7-9/group); *p<0.05. For Fig. 6f, one-sample t-test, different from chance set at 0.1667; ##p<0.01.

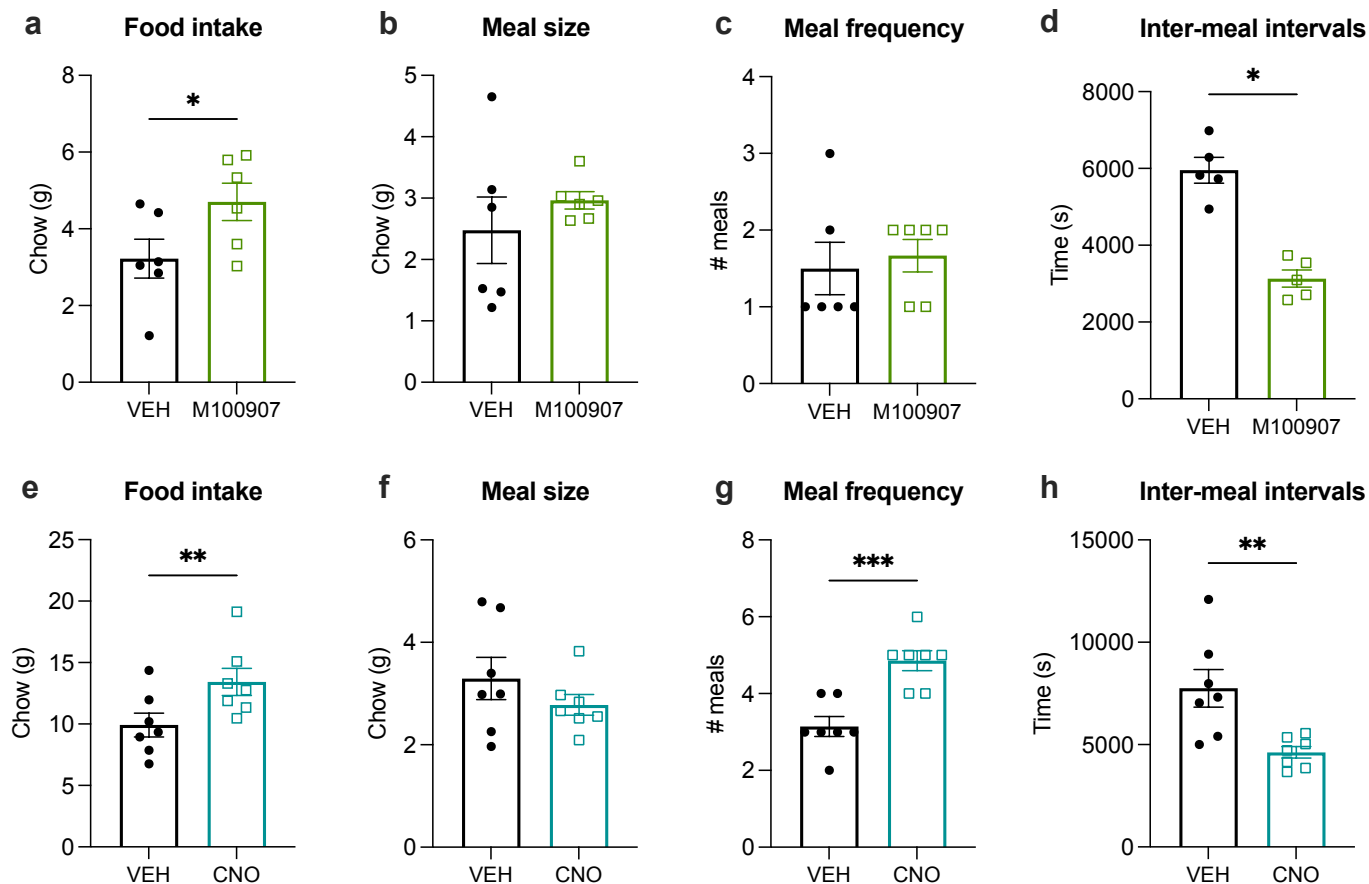
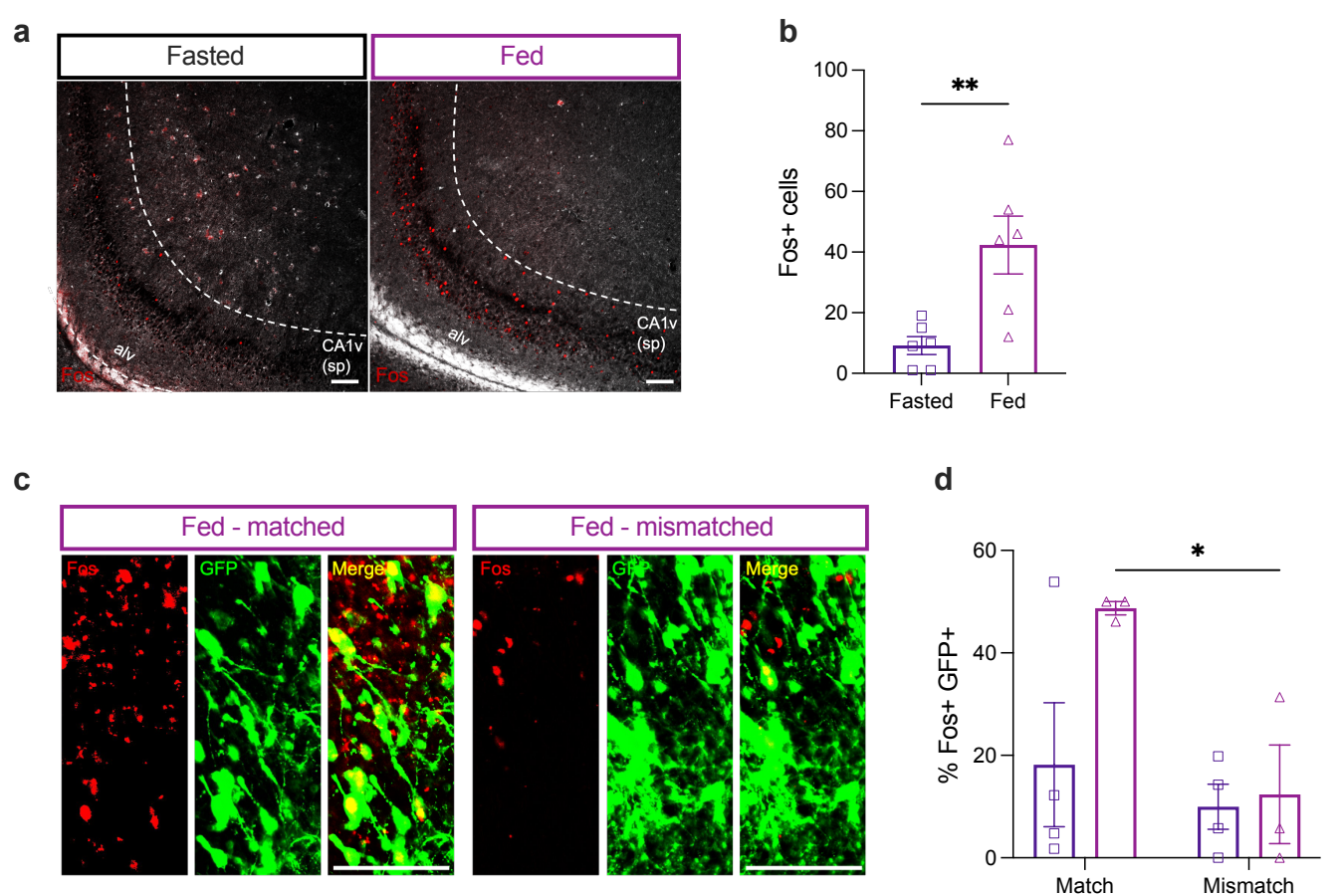


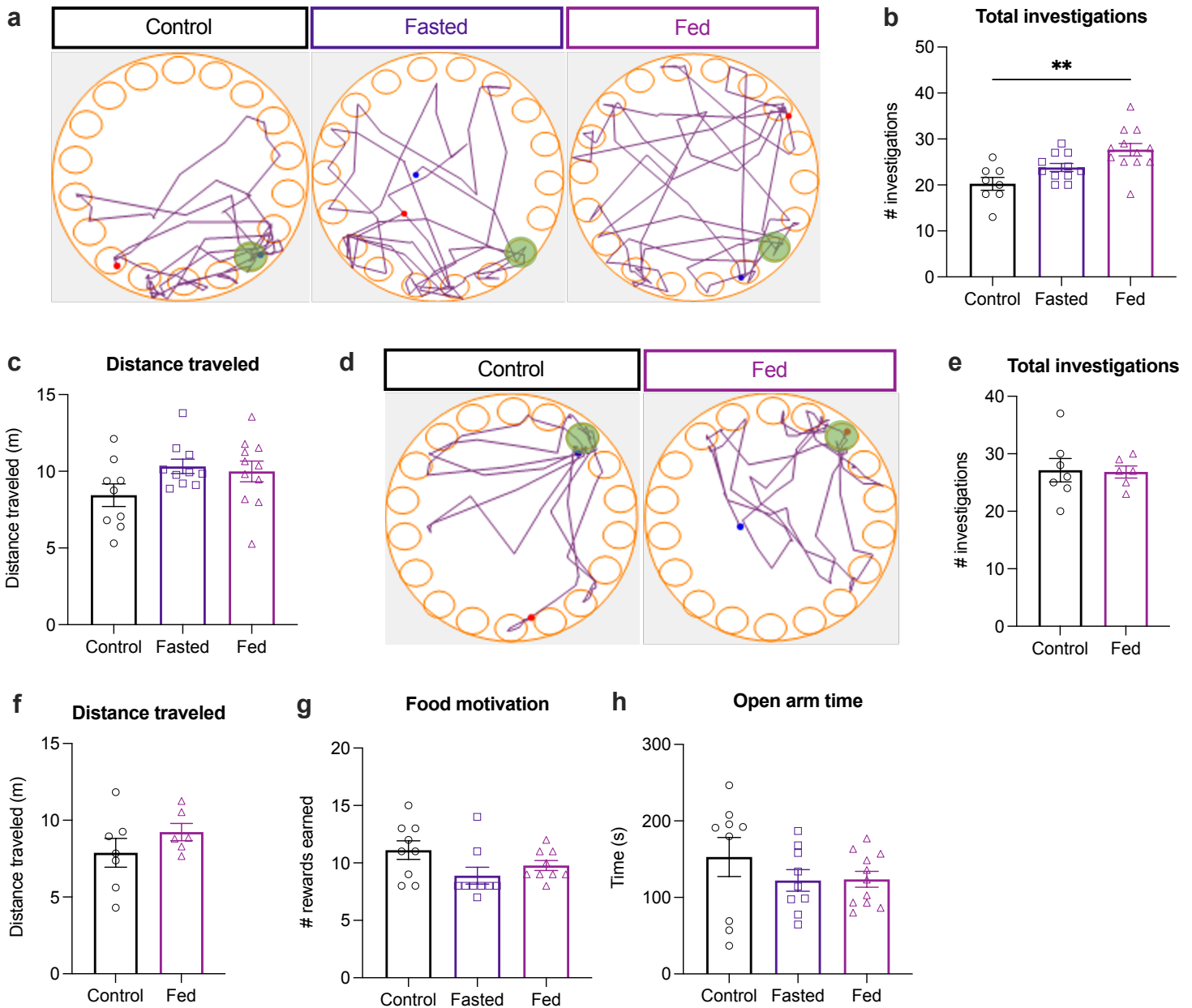
Figure 7. Blockade of ventral hippocampus to lateral hypothalamic area signaling or 5HT_{2A}R signaling increases food intake by reducing temporal intervals between meals during spontaneous feeding.

(a) Average 2h chow intake, (b) meal size, (c) meal frequency and (d) inter-meal intervals following ventral CA1 administration of vehicle (VEH) or M100907. (e) Average 2h chow intake, (f) meal size, (g) meal frequency and (h) inter-meal intervals following lateral ventricle administration of vehicle (VEH) or clozapine-N-oxide (CNO) in rats expressing hM4Di receptors in ventral CA1 neurons projecting to the lateral hypothalamic area. Data are presented as mean $\pm$ SEM. Two-tailed paired t-test ($n=7/\text{group}$ and $n=5-6/\text{group}$); * $p<0.05$, ** $p<0.01$, *** $p<0.001$.



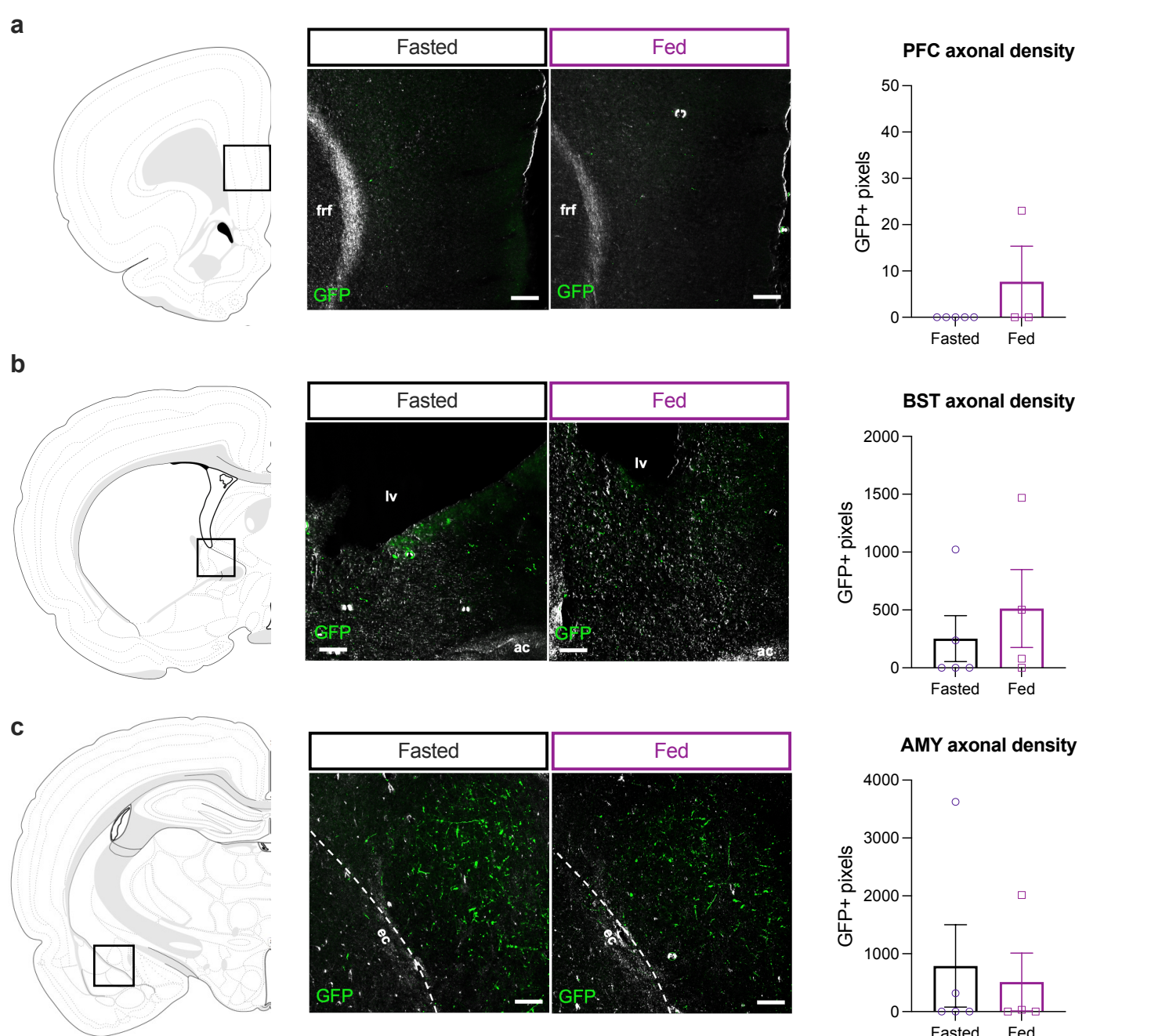
Supplementary Fig. 1 Validation of the targeted recombination in active population viral approach.

(a) Representative photomicrographs of Fos immunolabelling in the pyramidal layer of the ventral CA1 (CA1v(sp)) of rats perfused under a Fasted or Fed state, relative to the alveus (alv); scale bar 100 μ m. (b) Quantification of Fos+ cells in the ventral CA1 of rats perfused under a Fasted or Fed state. (c) Representative photomicrograph of the ventral CA1v with immunolabelling for green fluorescent protein (GFP; green) and Fos (red) in a rat from the Fed group perfused under a Fed state (match) or Fasted state (mismatched); scale bar 100 μ m. (d) Percentage of ventral CA1 GFP+ cells that co-express Fos in rats from the Fed and Fasted group perfused under matched or mismatched conditions. Data are presented as mean $\pm$ SEM. For Extended Fig. 1b, Mann-Whitney test ($n=6$ /group). For Extended Fig. 1d, two-way ANOVA, Tukey post hoc ($n=3-4$ /group); * $p<0.05$, ** $p<0.01$.



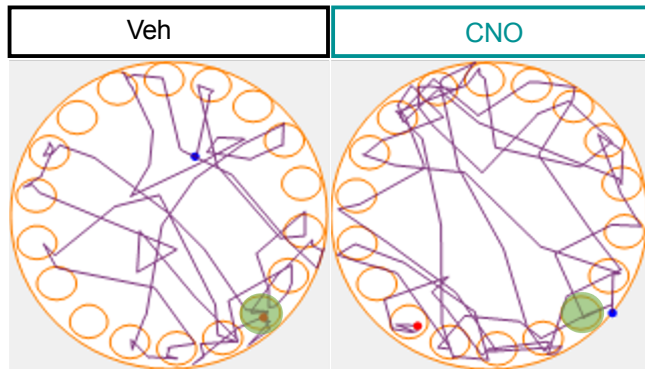
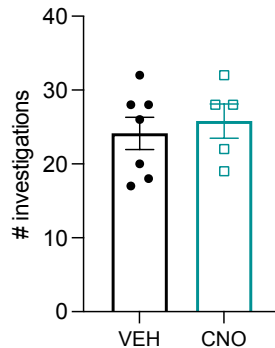
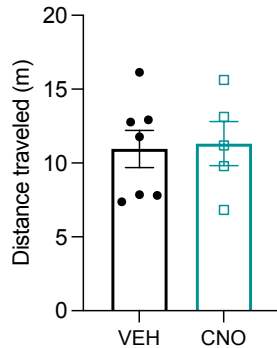
Supplementary Fig. 2 Ablation of ventral hippocampus meal-responsive neurons does not influence effort-based lever pressing for sucrose nor anxiety-like behavior.

(a) Representative traces of individual animals trajectory during the foraging-related spatial memory probe with the correct hole in green. (b) Total number of investigations and (c) total distance travelled during the foraging-related spatial memory probe. (d) Representative traces of individual animals trajectory during the escape-based spatial memory probe. (e) Total number of investigations and (f) distance travelled during the escape-based spatial memory probe with the correct hole in green. (g) Number of sucrose pellets earned in an effort-based lever pressing task with a progressive ratio reinforcement schedule. (h) Time spent in the open arms of the zero-maze. Data are presented as mean $\pm$ SEM. For Extended Fig. 2b-c and Extended Fig. 2g-h, one-way ANOVA (n=9-11/group); **p<0.01. For Extended Fig. 2e-f, two-tailed unpaired t-test (n=6-7/group).



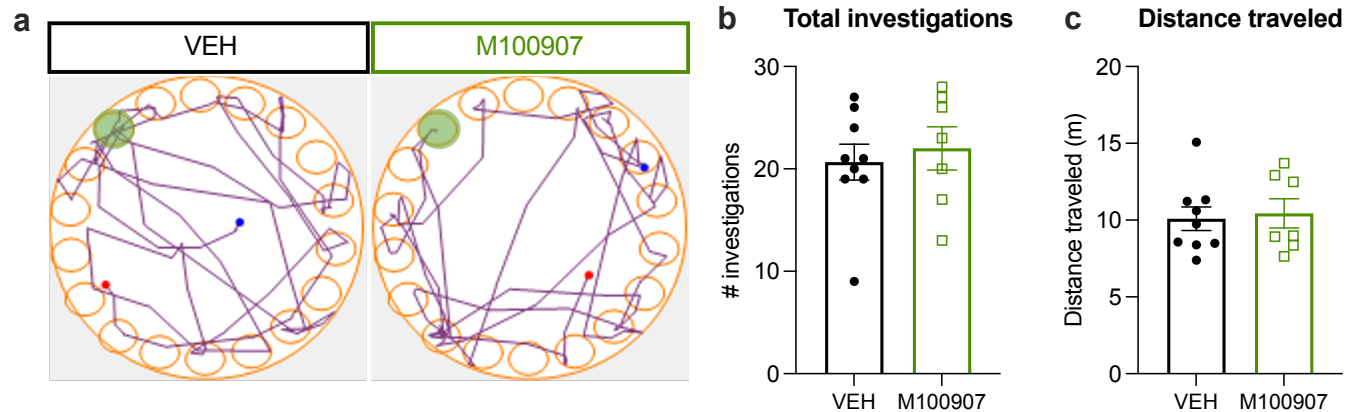
Supplementary Fig. 3 Ventral hippocampus meal and fasting-responsive neurons send minimal projections to the prefrontal cortex, bed of the stria terminalis and amygdala.

(a) *Left*: Diagram of a coronal section of the prefrontal cortex (PFC). *Middle*: Representative photomicrographs of axonal green fluorescent protein (GFP)⁺ expression in the PFC from ventral CA1 neurons active in the Fasted or Fed state, relative to the fasciculus retroflexus (frf); scale bar 100 μ m. *Right*: Proportion of animals with GFP⁺ axons in the PFC. (b) *Left*: Diagram of a coronal section of the bed of the stria terminalis (BST). *Middle*: Representative photomicrographs of axonal GFP⁺ expression in the BST from ventral CA1 neurons active in the Fasted or Fed state, relative to the anterior commissure (ac) and lateral ventricle (lv); scale bar 100 μ m. *Right*: Proportion of animals with GFP⁺ axons in the BST. (c) *Left*: Diagram of a coronal section of the amygdala (AMY). *Middle*: Representative photomicrographs of axonal GFP⁺ expression in the AMY from ventral CA1 neurons active in the Fasted or Fed state, relative to the external capsule (ec); scale bar 100 μ m. *Right*: Proportion of animals with GFP⁺ axons in the AMY. Data are presented as mean $\pm$ SEM. Two-tailed unpaired t-test (n=4-5/group).

a**b****Total investigations****c****Distance traveled**

Supplementary Fig. 4 Ventral hippocampus to lateral hypothalamic area signaling contributes to foraging-related spatial memory.

(a) Representative traces of individual animals trajectory during the foraging-related spatial memory probe with the correct hole in green. (b) Total number of investigations and (c) total distance travelled during the foraging-related spatial memory probe. Data are presented as mean $\pm$ SEM. For Extended Data Fig. 4b-c two-tailed paired t-test ($n=4-6$ /group).



Supplementary Fig. 5 Ventral hippocampus 5HT2aR signaling contributes to foraging-related spatial memory.

(a) Representative traces of individual animal trajectory during the foraging-related spatial memory probe with the correct hole in green. (b) Total number of investigations and (c) total distance travelled during the foraging-related spatial memory probe.

Supplemental Table 1. Number of differentially expressed genes by cell cluster

Cluster Number	Cluster Label	DEGs - Down	DEGs - Up	DEGs Sum
1	InNeuro, Sst+	61	14	75
2	InNeuro, Sv2c+	6	3	9
3	InNeuro, Vip+	16	8	24
4	Granule, ExNeuro, Prox1+	53	65	118
5	CA1 ExNeuro, Cpne7+ Dcn+	3	2	5
6	CA1 ExNeuro, Cpne7+ Dcn+	224	161	385
7	CA1 excitatory, Cpne7+ Dcn+	43	37	80
8	CA1 or CA3 Excitatory, Cpne7+	100	17	117
9	CA1 or CA3 Excitatory, Cpne7+ Dcn+	31	31	62
10	CA1 or CA3 Excitatory, Cpne7+	19	15	34
11	Oligodendrocytes	73	129	202
12	Oligodendrocyte precursor cells	0	0	0
13	Oligodendrocyte precursor cells	34	6	40
14	Astrocytes	40	50	90
15	Endothelial	44	301	345
16	Macrophages	0	0	0
17	Microglia	18	11	29

Supplemental Table 2. List of differentially expressed genes by cell cluster

Cluster Number	Cluster Label	Gene	Avg_logFC	p_value_adj
1	InNeuro, Sst+	Plp1	0.689139	5.43E-21
1	InNeuro, Sst+	Calm1	-0.348079	4.22E-15
1	InNeuro, Sst+	AY172581.	0.82082	7.29E-15
1	InNeuro, Sst+	AY172581.	0.689911	2.27E-14
1	InNeuro, Sst+	Slc25a4	-0.265047	6.38E-13
1	InNeuro, Sst+	Tubb5	-0.3242	1.38E-10
1	InNeuro, Sst+	LOC10036	-0.264211	3.66E-10
1	InNeuro, Sst+	Mbp	0.532513	9.79E-10
1	InNeuro, Sst+	Ptgds	0.344925	1.18E-08
1	InNeuro, Sst+	LOC10036	-0.255025	1.65E-08
1	InNeuro, Sst+	Hsp90ab1	-0.235676	2.73E-08
1	InNeuro, Sst+	Ndfip1	-0.21066	4.55E-08
1	InNeuro, Sst+	Actb	-0.293834	6.37E-08
1	InNeuro, Sst+	Ndufa4	-0.239722	2.69E-07
1	InNeuro, Sst+	Calm2.1	-0.234976	2.78E-07
1	InNeuro, Sst+	Yeats2	0.234705	3.67E-07
1	InNeuro, Sst+	Tuba1b	-0.23471	0.00000101
1	InNeuro, Sst+	Tubb2a	-0.199748	0.00000207
1	InNeuro, Sst+	Pnma8b	-0.239753	0.00000245
1	InNeuro, Sst+	Stmn3	-0.22593	0.00000317
1	InNeuro, Sst+	Ube3a	0.178372	0.00000382
1	InNeuro, Sst+	H3f3a	-0.193198	0.00000407
1	InNeuro, Sst+	Nrgn	-0.278443	0.0000136
1	InNeuro, Sst+	Dynll1	-0.223619	0.000019
1	InNeuro, Sst+	Aldoa	-0.191401	0.0000226
1	InNeuro, Sst+	Tubb3	-0.173543	0.0000235
1	InNeuro, Sst+	Ubb	-0.243958	0.0000239
1	InNeuro, Sst+	Cox5b	-0.219854	0.000027
1	InNeuro, Sst+	Tspyl4	-0.182452	0.0000323
1	InNeuro, Sst+	Atp5md	-0.14614	0.0000351
1	InNeuro, Sst+	Snrnp70	0.162309	0.000048
1	InNeuro, Sst+	Rabggtb	-0.184143	0.0000606
1	InNeuro, Sst+	Cox6c	-0.178559	0.0000647
1	InNeuro, Sst+	Xkr4	0.160862	0.0000878
1	InNeuro, Sst+	Vamp2	-0.226754	0.00010448
1	InNeuro, Sst+	Hint1	-0.194172	0.00015051
1	InNeuro, Sst+	Atp5mc1	-0.231248	0.00020905
1	InNeuro, Sst+	Abcc4	-0.182903	0.00038556
1	InNeuro, Sst+	Ckb	-0.184145	0.00039076
1	InNeuro, Sst+	Ndufs5	-0.196656	0.00042794
1	InNeuro, Sst+	Bex2	-0.19628	0.0004649
1	InNeuro, Sst+	AABR0702	-0.167216	0.0005376
1	InNeuro, Sst+	Pdap1	-0.152529	0.00072588

1 InNeuro, Sst+	Atxn7l3b	-0.21016	0.00082484
1 InNeuro, Sst+	Cfl1	-0.168266	0.00093108
1 InNeuro, Sst+	Nox1	0.214298	0.00107971
1 InNeuro, Sst+	AC134224.	-0.140981	0.00108262
1 InNeuro, Sst+	Basp1	-0.192247	0.00118673
1 InNeuro, Sst+	Fam81b	0.262993	0.00160474
1 InNeuro, Sst+	Tmsb4x	-0.213723	0.00196772
1 InNeuro, Sst+	Atp5mc3	-0.188741	0.00280035
1 InNeuro, Sst+	Vdac1	-0.143019	0.00346196
1 InNeuro, Sst+	AABR0705	-0.153156	0.00541302
1 InNeuro, Sst+	Prdx2	-0.158882	0.00674463
1 InNeuro, Sst+	Pgam1	-0.157052	0.00714644
1 InNeuro, Sst+	Cend1	-0.160151	0.00802467
1 InNeuro, Sst+	Mdh1	-0.183505	0.00920252
1 InNeuro, Sst+	Atp5mg	-0.185358	0.01072918
1 InNeuro, Sst+	Pja2	-0.186738	0.01075376
1 InNeuro, Sst+	Tuba1a	-0.159222	0.01119602
1 InNeuro, Sst+	Peg3	-0.145479	0.01338453
1 InNeuro, Sst+	Mrps6	0.198198	0.01338634
1 InNeuro, Sst+	Atp5pf	-0.164683	0.01687485
1 InNeuro, Sst+	Atp5if1	-0.192466	0.02086643
1 InNeuro, Sst+	Pgk1	-0.196241	0.02399951
1 InNeuro, Sst+	Stmn1	-0.159054	0.02417347
1 InNeuro, Sst+	lqcg	0.243318	0.02483409
1 InNeuro, Sst+	Ldha	-0.144121	0.02555568
1 InNeuro, Sst+	Hspd1	-0.146662	0.02916467
1 InNeuro, Sst+	5S-rRNA.1	-0.153761	0.03331506
1 InNeuro, Sst+	LOC10036	0.2053	0.03370855
1 InNeuro, Sst+	Atp5f1b	-0.187998	0.03507442
1 InNeuro, Sst+	Cct7	-0.163602	0.03559561
1 InNeuro, Sst+	Ywhaz	-0.154047	0.04289096
1 InNeuro, Sst+	Calm2	-0.164912	0.04746821
2 InNeuro, Sv2c+	Plp1	0.490675	2.29E-08
2 InNeuro, Sv2c+	Ptgds	0.337271	0.00000125
2 InNeuro, Sv2c+	Calm2.1	-0.448735	0.0000274
2 InNeuro, Sv2c+	Ubb	-0.372579	0.00033163
2 InNeuro, Sv2c+	Calm1	-0.345112	0.0004569
2 InNeuro, Sv2c+	Atp5mg	-0.310693	0.00390333
2 InNeuro, Sv2c+	Apod	0.376695	0.00800837
2 InNeuro, Sv2c+	Nrgn	-0.353592	0.03425359
2 InNeuro, Sv2c+	Ndfip1	-0.227381	0.03525855
3 InNeuro, Vip+	Plp1	0.501647	1.03E-09
3 InNeuro, Vip+	Ptgds	0.434053	8.32E-07
3 InNeuro, Vip+	Hsp90ab1	-0.253309	0.00000357
3 InNeuro, Vip+	Actb	-0.281577	0.000012
3 InNeuro, Vip+	Tuba1b	-0.307934	0.0000169
3 InNeuro, Vip+	Calm2.1	-0.29281	0.0000584

3 InNeuro, Vip+	AABR0702	-0.269522	0.0000777
3 InNeuro, Vip+	Calm1	-0.290441	0.00086749
3 InNeuro, Vip+	Tubb5	-0.244566	0.00087073
3 InNeuro, Vip+	Nrgn	-0.307959	0.0016452
3 InNeuro, Vip+	Scg2	-0.343129	0.00191658
3 InNeuro, Vip+	Penk	0.430929	0.00231835
3 InNeuro, Vip+	LOC108341	-0.251516	0.00274923
3 InNeuro, Vip+	Yeats2	0.217788	0.00353379
3 InNeuro, Vip+	Apod	0.263998	0.00399062
3 InNeuro, Vip+	Nsg2	-0.218257	0.00724987
3 InNeuro, Vip+	Aplp2	-0.268283	0.00846241
3 InNeuro, Vip+	Dynll2	-0.171954	0.00984199
3 InNeuro, Vip+	Atp5mg	-0.220705	0.01060818
3 InNeuro, Vip+	Aldoa	-0.209281	0.01474846
3 InNeuro, Vip+	Pnlsr	0.153321	0.01571416
3 InNeuro, Vip+	Col19a1	0.396179	0.02600242
3 InNeuro, Vip+	Slc28a2	0.20254	0.03498207
3 InNeuro, Vip+	Ubb	-0.201494	0.04441349
4 Granule, ExNeuro, Prox1+	Plp1	0.748618	1.06E-65
4 Granule, ExNeuro, Prox1+	Ptgds	0.546652	1.37E-55
4 Granule, ExNeuro, Prox1+	Mcbp	-0.216407	9.4E-38
4 Granule, ExNeuro, Prox1+	Rfx3	-0.201011	4.91E-30
4 Granule, ExNeuro, Prox1+	Apod	0.325802	3.22E-24
4 Granule, ExNeuro, Prox1+	Cryab	0.220255	3E-21
4 Granule, ExNeuro, Prox1+	Mal	0.24256	1.46E-18
4 Granule, ExNeuro, Prox1+	Myo5b	-0.265623	1E-16
4 Granule, ExNeuro, Prox1+	Atp2b4	-0.244018	2.29E-16
4 Granule, ExNeuro, Prox1+	Gpc6	-0.217764	4.01E-16
4 Granule, ExNeuro, Prox1+	Kcnk2	-0.249984	9.02E-16
4 Granule, ExNeuro, Prox1+	Clmp	0.347753	3.64E-15
4 Granule, ExNeuro, Prox1+	Mbp	0.390552	9.32E-15
4 Granule, ExNeuro, Prox1+	Nkain2	-0.15299	1.74E-14
4 Granule, ExNeuro, Prox1+	Cxcl12	-0.239757	2.91E-14
4 Granule, ExNeuro, Prox1+	Hba-a1	0.206594	3.35E-14
4 Granule, ExNeuro, Prox1+	5S-rRNA.14	-0.254835	1.16E-13
4 Granule, ExNeuro, Prox1+	AY172581.1	0.457413	3.7E-13
4 Granule, ExNeuro, Prox1+	Ddx5	0.214116	4.44E-13
4 Granule, ExNeuro, Prox1+	Kcnip3	-0.221868	5.56E-13
4 Granule, ExNeuro, Prox1+	Arl15	0.274643	7.18E-13
4 Granule, ExNeuro, Prox1+	Wipf3	0.308821	1.81E-12
4 Granule, ExNeuro, Prox1+	Mvb12b	0.28824	2.31E-12
4 Granule, ExNeuro, Prox1+	Cldn11	0.168666	4.09E-12
4 Granule, ExNeuro, Prox1+	Tf	0.271493	1.38E-11
4 Granule, ExNeuro, Prox1+	Tcerg1l	-0.179705	2.06E-11
4 Granule, ExNeuro, Prox1+	Rapgef4	-0.161482	3E-11
4 Granule, ExNeuro, Prox1+	Cnp	0.165756	4.68E-11
4 Granule, ExNeuro, Prox1+	AY172581.1	0.584618	2.42E-10

4 Granule, ExNeuro, Prox1+	Camk4	0.313337	2.86E-10
4 Granule, ExNeuro, Prox1+	Adra1a	-0.197918	4.79E-10
4 Granule, ExNeuro, Prox1+	Zfat	0.21949	5.01E-10
4 Granule, ExNeuro, Prox1+	Tpd52l1	-0.163061	5.57E-10
4 Granule, ExNeuro, Prox1+	Dgkg	-0.144964	6.07E-10
4 Granule, ExNeuro, Prox1+	Tenm4	-0.167709	3.84E-09
4 Granule, ExNeuro, Prox1+	Kcnc2	-0.251537	7.6E-09
4 Granule, ExNeuro, Prox1+	Eepd1	0.181137	7.94E-09
4 Granule, ExNeuro, Prox1+	Rspo3	0.256667	9.1E-09
4 Granule, ExNeuro, Prox1+	Car10	-0.194524	1.63E-08
4 Granule, ExNeuro, Prox1+	LOC100134	0.154871	3.77E-08
4 Granule, ExNeuro, Prox1+	Maml2	0.199977	1.27E-07
4 Granule, ExNeuro, Prox1+	Cd9	0.155624	0.00000013
4 Granule, ExNeuro, Prox1+	Syndig1	0.343244	1.46E-07
4 Granule, ExNeuro, Prox1+	Fth1	0.235698	1.52E-07
4 Granule, ExNeuro, Prox1+	Camk2a	0.160093	1.79E-07
4 Granule, ExNeuro, Prox1+	Nt5e	0.164429	2.88E-07
4 Granule, ExNeuro, Prox1+	LOC108341	-0.195865	7.45E-07
4 Granule, ExNeuro, Prox1+	Jmjd1c	0.169661	8.48E-07
4 Granule, ExNeuro, Prox1+	Glis3	-0.247526	0.00000227
4 Granule, ExNeuro, Prox1+	Vps13c	0.236896	0.00000261
4 Granule, ExNeuro, Prox1+	Cobl	-0.181277	0.00000276
4 Granule, ExNeuro, Prox1+	AABR0705	-0.153279	0.00000286
4 Granule, ExNeuro, Prox1+	Trpc5	0.355721	0.00000302
4 Granule, ExNeuro, Prox1+	Rimbp2	0.183184	0.00000401
4 Granule, ExNeuro, Prox1+	Fgfr2	-0.146533	0.00000491
4 Granule, ExNeuro, Prox1+	Mrps6	0.188851	0.00000808
4 Granule, ExNeuro, Prox1+	Chst9	-0.153458	0.0000108
4 Granule, ExNeuro, Prox1+	Mast3	0.209609	0.0000112
4 Granule, ExNeuro, Prox1+	Atp6v0c	-0.201141	0.0000114
4 Granule, ExNeuro, Prox1+	Gad1	-0.18518	0.0000119
4 Granule, ExNeuro, Prox1+	Peli2	0.144992	0.0000239
4 Granule, ExNeuro, Prox1+	Epha3	0.216756	0.0000242
4 Granule, ExNeuro, Prox1+	Megf11	-0.164162	0.0000254
4 Granule, ExNeuro, Prox1+	Hpcal1	-0.142731	0.000027
4 Granule, ExNeuro, Prox1+	Grm8	0.49049	0.0000401
4 Granule, ExNeuro, Prox1+	Epha7	0.301321	0.0000525
4 Granule, ExNeuro, Prox1+	Saraf	-0.198317	0.0000628
4 Granule, ExNeuro, Prox1+	Ppfibp1	-0.144551	0.0000766
4 Granule, ExNeuro, Prox1+	Slc8a2	0.187968	0.0000822
4 Granule, ExNeuro, Prox1+	Pdzd2	-0.182544	0.00010711
4 Granule, ExNeuro, Prox1+	AABR0704	0.217277	0.00012444
4 Granule, ExNeuro, Prox1+	Plekha1	0.154779	0.00014401
4 Granule, ExNeuro, Prox1+	Ulk4	-0.15057	0.00017733
4 Granule, ExNeuro, Prox1+	Cacng3	-0.169932	0.00019511
4 Granule, ExNeuro, Prox1+	H3f3a	-0.184155	0.00020515
4 Granule, ExNeuro, Prox1+	Nek10	-0.180302	0.00021467

4 Granule, ExNeuro, Prox1+	Fstl5	0.26742	0.00023876
4 Granule, ExNeuro, Prox1+	AABR0702	-0.17616	0.00033311
4 Granule, ExNeuro, Prox1+	Sdc2	0.180149	0.00037217
4 Granule, ExNeuro, Prox1+	Prkcb	0.164564	0.00041412
4 Granule, ExNeuro, Prox1+	Atp10a	-0.151076	0.0006234
4 Granule, ExNeuro, Prox1+	Nrg1	-0.140892	0.00068471
4 Granule, ExNeuro, Prox1+	Tuba1a	-0.240147	0.00102805
4 Granule, ExNeuro, Prox1+	Kcnt2	0.310553	0.00112165
4 Granule, ExNeuro, Prox1+	AABR0705	-0.163001	0.00113041
4 Granule, ExNeuro, Prox1+	Arhgap39	0.156522	0.00113467
4 Granule, ExNeuro, Prox1+	Ndfip1	-0.155059	0.00129619
4 Granule, ExNeuro, Prox1+	Cap2	0.150057	0.00136214
4 Granule, ExNeuro, Prox1+	Kcnab2	0.167859	0.00154241
4 Granule, ExNeuro, Prox1+	Plxdc2	-0.145668	0.00158347
4 Granule, ExNeuro, Prox1+	Ano2	-0.14662	0.00161002
4 Granule, ExNeuro, Prox1+	Scg2	-0.153124	0.00163029
4 Granule, ExNeuro, Prox1+	Plk5	0.181604	0.00231314
4 Granule, ExNeuro, Prox1+	Svep1	0.19172	0.0023298
4 Granule, ExNeuro, Prox1+	Man1c1	-0.15122	0.00278018
4 Granule, ExNeuro, Prox1+	Cst6	-0.164714	0.00280565
4 Granule, ExNeuro, Prox1+	Myo16	-0.144146	0.00457187
4 Granule, ExNeuro, Prox1+	Abcc4	-0.161849	0.005796
4 Granule, ExNeuro, Prox1+	Hdac9	-0.15709	0.00646312
4 Granule, ExNeuro, Prox1+	Pnir	0.140624	0.00755098
4 Granule, ExNeuro, Prox1+	Nav1	0.154081	0.00811803
4 Granule, ExNeuro, Prox1+	Penk	-0.195247	0.00906194
4 Granule, ExNeuro, Prox1+	Trpm3	0.150719	0.01012689
4 Granule, ExNeuro, Prox1+	Deptor	0.178453	0.0117232
4 Granule, ExNeuro, Prox1+	Smo	0.219649	0.0133948
4 Granule, ExNeuro, Prox1+	Chgb	-0.172257	0.01438096
4 Granule, ExNeuro, Prox1+	Lmo3	0.230049	0.01923723
4 Granule, ExNeuro, Prox1+	AABR0706	-0.151724	0.02005107
4 Granule, ExNeuro, Prox1+	Zeb2	0.159393	0.02265478
4 Granule, ExNeuro, Prox1+	Blvrb	0.152697	0.02451594
4 Granule, ExNeuro, Prox1+	Grm1	0.149712	0.02648646
4 Granule, ExNeuro, Prox1+	Malt1	0.14338	0.02845859
4 Granule, ExNeuro, Prox1+	Pde4d	0.327601	0.03280578
4 Granule, ExNeuro, Prox1+	Pdzrn3	-0.15552	0.03316342
4 Granule, ExNeuro, Prox1+	Shisa7	0.141905	0.03470838
4 Granule, ExNeuro, Prox1+	Smarca4	0.142333	0.03849916
4 Granule, ExNeuro, Prox1+	Asic2	0.187192	0.04357117
4 Granule, ExNeuro, Prox1+	Fbn1	0.214844	0.04386312
5 CA1 ExNeuro, Cpne7+ Dcn+	Plp1	0.667676	0.00022307
5 CA1 ExNeuro, Cpne7+ Dcn+	Galr1	-0.19932	0.00404163
5 CA1 ExNeuro, Cpne7+ Dcn+	AC134224	-0.206302	0.01224444
5 CA1 ExNeuro, Cpne7+ Dcn+	Arhgap35	0.288405	0.01738532
5 CA1 ExNeuro, Cpne7+ Dcn+	Cdc37	-0.17662	0.01922035

6 CA1 ExNeuro, Cpne7+ Dcn+	Xkr4	0.47838	5.4E-49
6 CA1 ExNeuro, Cpne7+ Dcn+	AY172581.	0.824672	4.81E-47
6 CA1 ExNeuro, Cpne7+ Dcn+	Cadps2	0.860177	4.7E-39
6 CA1 ExNeuro, Cpne7+ Dcn+	AY172581.	0.67358	9.18E-39
6 CA1 ExNeuro, Cpne7+ Dcn+	Reln	1.000466	1.42E-38
6 CA1 ExNeuro, Cpne7+ Dcn+	Yeats2	0.394884	5.53E-31
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdh9	0.612044	4.82E-27
6 CA1 ExNeuro, Cpne7+ Dcn+	Pde4d	-0.464458	7.73E-27
6 CA1 ExNeuro, Cpne7+ Dcn+	Unc5d	0.492885	1.9E-26
6 CA1 ExNeuro, Cpne7+ Dcn+	Actb	-0.410064	1.15E-25
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdh18	-0.468668	1.49E-25
6 CA1 ExNeuro, Cpne7+ Dcn+	Lsamp	-0.447601	4.36E-25
6 CA1 ExNeuro, Cpne7+ Dcn+	Cntn4	1.058015	9.13E-25
6 CA1 ExNeuro, Cpne7+ Dcn+	Cntn6	1.003274	1.5E-24
6 CA1 ExNeuro, Cpne7+ Dcn+	Plp1	0.283904	7.66E-24
6 CA1 ExNeuro, Cpne7+ Dcn+	Snrnp70	0.272296	8.62E-24
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnd3	0.383263	2.2E-23
6 CA1 ExNeuro, Cpne7+ Dcn+	Calm2.1	-0.342311	3.59E-22
6 CA1 ExNeuro, Cpne7+ Dcn+	Ldb2	-0.344058	6.76E-22
6 CA1 ExNeuro, Cpne7+ Dcn+	Ubb	-0.36086	3.75E-21
6 CA1 ExNeuro, Cpne7+ Dcn+	AC134224.	-0.286564	1.53E-20
6 CA1 ExNeuro, Cpne7+ Dcn+	Ddx5	0.318867	6.46E-20
6 CA1 ExNeuro, Cpne7+ Dcn+	Negr1	0.330517	7.46E-20
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmsb4x	-0.377303	9.97E-20
6 CA1 ExNeuro, Cpne7+ Dcn+	Tubb5	-0.318222	1.19E-19
6 CA1 ExNeuro, Cpne7+ Dcn+	Calm1	-0.318106	1.23E-19
6 CA1 ExNeuro, Cpne7+ Dcn+	Cntn3	0.393945	2.43E-19
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC10036.	-0.336174	2.61E-18
6 CA1 ExNeuro, Cpne7+ Dcn+	Aldoa	-0.313738	1.03E-17
6 CA1 ExNeuro, Cpne7+ Dcn+	Ndfip1	-0.323052	3.61E-17
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc25a4	-0.337972	9.15E-17
6 CA1 ExNeuro, Cpne7+ Dcn+	Adgrl2	-0.35322	1.7E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Cacna2d3	-0.330183	1.91E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Vwc2l	-0.463517	2.15E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Ywhah	-0.290529	8.12E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Samd5	-0.347098	8.45E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Tuba1a	-0.291972	9.77E-16
6 CA1 ExNeuro, Cpne7+ Dcn+	Dgkg	0.371941	1.18E-15
6 CA1 ExNeuro, Cpne7+ Dcn+	Nrxn3	0.390066	1.4E-15
6 CA1 ExNeuro, Cpne7+ Dcn+	Foxn3	0.362375	5.3E-15
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0705	0.330674	8.17E-15
6 CA1 ExNeuro, Cpne7+ Dcn+	Gpr137b	0.376979	1.36E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	Hdac9	-0.382889	1.77E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	Ndufa4	-0.269468	1.86E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	Specc1	0.333617	1.92E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	Wnk3	-0.271325	2.47E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	Ephb1	0.441056	4.73E-14

6 CA1 ExNeuro, Cpne7+ Dcn+	Cpne7	0.366438	9.09E-14
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0701	0.439434	1.24E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Nlgn1	0.183911	1.52E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Epha5	-0.25339	1.53E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0705	0.315763	2.04E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Nfib	0.281791	3.46E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0703	0.208658	5.08E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Zeb2	-0.407941	5.59E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Satb2	-0.289378	6.94E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Slit2	-0.342453	7.91E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	H3f3a	-0.266115	8.59E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Prkcb	-0.307332	9.91E-13
6 CA1 ExNeuro, Cpne7+ Dcn+	Tenm2	0.220419	1.1E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Foxo1	0.351426	1.19E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Hsp90ab1	-0.318108	1.25E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0702	-0.229728	1.33E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdh11	-0.317319	1.5E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Zfp629	0.269912	2.41E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Akt3	-0.220285	2.46E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Ptgds	0.295392	2.79E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Prpf4b	0.27554	2.96E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Nmnat2	0.276338	3.26E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Nck2	-0.296014	4.01E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnk2	0.405216	5.91E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Ldha	-0.221056	7.32E-12
6 CA1 ExNeuro, Cpne7+ Dcn+	Adgrl3	-0.333109	1.24E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Edil3	0.317086	1.29E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Rtn4rl1	0.277323	1.59E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Tuba1b	-0.275157	4.29E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Nefl	-0.211149	4.32E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Iqcg	0.344564	4.76E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Cfl1	-0.217186	8.06E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Ptk2b	0.266504	8.34E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0702	0.296182	8.78E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdh8	-0.339829	9.23E-11
6 CA1 ExNeuro, Cpne7+ Dcn+	Il1rapl2	-0.467599	1E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Tubb2a	-0.248797	1.32E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Basp1	-0.2191	1.75E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Syt7	0.296916	2.32E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Rspo2	-0.252411	3.85E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Mctp1	-0.285962	4.41E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Fndc3b	0.32908	4.76E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Sema3a	0.344407	7E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Tnks	0.274264	7.09E-10
6 CA1 ExNeuro, Cpne7+ Dcn+	Grm3	-0.517233	1.31E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Cntnap5c	-0.369097	1.37E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Septin7	-0.26457	1.56E-09

6 CA1 ExNeuro, Cpne7+ Dcn+	Crim1	-0.278247	1.84E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Med12l	0.259488	2.21E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0706	0.249618	2.6E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Grm7	-0.170948	2.76E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5mc1	-0.211222	2.81E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0703	-0.210662	2.97E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Pnma8b	-0.242749	3.07E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Sipa1l2	0.363466	3.12E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Magi3	-0.264016	4.35E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0700	-0.251215	4.43E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Psme3ip1	-0.150277	4.7E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Mcf2l	0.243825	5.23E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Casc4	-0.227047	7.22E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Rph3al	0.464228	8.02E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Cpne4	-0.317122	9.9E-09
6 CA1 ExNeuro, Cpne7+ Dcn+	Opcml	-0.199838	1.11E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Ctnnd2	-0.161749	1.23E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0703	0.311239	1.33E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Efna5	0.39071	1.64E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Arhgef28	-0.257769	2.13E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmeff2	0.32009	2.22E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Nrxn2	0.242044	2.81E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Srrm3	0.208131	3.06E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Bex3	-0.183957	3.34E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Lrrc4c	-0.19943	4.48E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Hs6st3	-0.230622	4.94E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Nap1l3	-0.161216	6.35E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Serpini1	-0.230707	6.83E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Lgi1	0.220238	8.84E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Chst1	-0.219469	9.29E-08
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdk14	-0.185968	1.01E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Trabd2b	-0.317191	0.00000012
6 CA1 ExNeuro, Cpne7+ Dcn+	Rasal2	-0.228423	1.26E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC100351	-0.181785	1.36E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Pebp1	-0.216885	1.45E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Cck	-0.250828	1.68E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Ube3a	0.192719	1.91E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Ptpro	0.312186	1.91E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Plxna2	0.284653	2.55E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Eml5	0.207514	2.63E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Tox3	0.369324	2.67E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Ncl	-0.179347	3.03E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Vsnl1	-0.270029	3.18E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Cnksr2	-0.190204	3.43E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	RGD13117	0.276282	3.45E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Pid1	-0.266708	3.72E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC691991	-0.159977	3.86E-07

6 CA1 ExNeuro, Cpne7+ Dcn+	Atp6ap1l	0.338814	3.97E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Plekhg1	-0.26452	5.16E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Dgkb	0.170541	6.61E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Galnt16	0.223586	6.65E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Nkain3	0.255979	0.00000068
6 CA1 ExNeuro, Cpne7+ Dcn+	Eef1a2	-0.197441	6.88E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Cacna1c	0.216855	6.89E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Brinp1	-0.24561	7.66E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Mpp7	0.265565	9.48E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	Itgbl1	-0.406654	9.95E-07
6 CA1 ExNeuro, Cpne7+ Dcn+	P4ha2	0.278269	0.00000103
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp6v1a	-0.214696	0.00000119
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox8a	-0.2326	0.00000131
6 CA1 ExNeuro, Cpne7+ Dcn+	Bex2	-0.210566	0.00000148
6 CA1 ExNeuro, Cpne7+ Dcn+	Trpm3	-0.344193	0.00000151
6 CA1 ExNeuro, Cpne7+ Dcn+	Ptprt	-0.27224	0.00000154
6 CA1 ExNeuro, Cpne7+ Dcn+	Pmepa1	-0.164611	0.00000166
6 CA1 ExNeuro, Cpne7+ Dcn+	Myt1l	-0.157817	0.00000168
6 CA1 ExNeuro, Cpne7+ Dcn+	Gria4	-0.18725	0.00000185
6 CA1 ExNeuro, Cpne7+ Dcn+	Dst	0.173162	0.00000198
6 CA1 ExNeuro, Cpne7+ Dcn+	Vxn	-0.237668	0.00000204
6 CA1 ExNeuro, Cpne7+ Dcn+	Dner	-0.226419	0.00000214
6 CA1 ExNeuro, Cpne7+ Dcn+	Ckb	-0.217403	0.00000231
6 CA1 ExNeuro, Cpne7+ Dcn+	Chrm5	0.344463	0.00000255
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC10036:	0.290832	0.00000301
6 CA1 ExNeuro, Cpne7+ Dcn+	Hsp90aa1	-0.161189	0.00000308
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmtc1	0.298168	0.00000403
6 CA1 ExNeuro, Cpne7+ Dcn+	Rab3a	-0.187538	0.00000413
6 CA1 ExNeuro, Cpne7+ Dcn+	Pard3b	0.356498	0.00000468
6 CA1 ExNeuro, Cpne7+ Dcn+	Calm2	-0.1864	0.00000495
6 CA1 ExNeuro, Cpne7+ Dcn+	Tiam1	0.194365	0.00000502
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0700	0.35221	0.00000514
6 CA1 ExNeuro, Cpne7+ Dcn+	Grik2	-0.182214	0.00000559
6 CA1 ExNeuro, Cpne7+ Dcn+	Lcorl	0.28202	0.00000591
6 CA1 ExNeuro, Cpne7+ Dcn+	Dpy19l3	0.279112	0.00000697
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp6v1f	-0.158238	0.00000719
6 CA1 ExNeuro, Cpne7+ Dcn+	Mpdz	0.232036	0.00000726
6 CA1 ExNeuro, Cpne7+ Dcn+	Elavl4	-0.244441	0.00000835
6 CA1 ExNeuro, Cpne7+ Dcn+	Ralgapa2	0.216043	0.00000963
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnq3	-0.239392	0.0000117
6 CA1 ExNeuro, Cpne7+ Dcn+	Sel1l2	0.290497	0.0000119
6 CA1 ExNeuro, Cpne7+ Dcn+	Tacc2	0.199372	0.0000121
6 CA1 ExNeuro, Cpne7+ Dcn+	Mrps6	0.202152	0.000013
6 CA1 ExNeuro, Cpne7+ Dcn+	Gltpd2	-0.165443	0.0000131
6 CA1 ExNeuro, Cpne7+ Dcn+	Pbx4	0.23003	0.0000136
6 CA1 ExNeuro, Cpne7+ Dcn+	Ccdc148	0.216197	0.0000142
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox5b	-0.205525	0.0000148

6 CA1 ExNeuro, Cpne7+ Dcn+	LOC10036	-0.194121	0.0000154
6 CA1 ExNeuro, Cpne7+ Dcn+	Eid1	-0.157511	0.0000174
6 CA1 ExNeuro, Cpne7+ Dcn+	Pde2a	0.216567	0.0000177
6 CA1 ExNeuro, Cpne7+ Dcn+	Myo5b	0.273888	0.0000186
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0702	0.249184	0.0000186
6 CA1 ExNeuro, Cpne7+ Dcn+	Hspd1	-0.204055	0.0000189
6 CA1 ExNeuro, Cpne7+ Dcn+	Magi2	-0.173603	0.0000189
6 CA1 ExNeuro, Cpne7+ Dcn+	Mdga2	-0.203037	0.0000193
6 CA1 ExNeuro, Cpne7+ Dcn+	Zfhx2	0.281924	0.0000199
6 CA1 ExNeuro, Cpne7+ Dcn+	Pgk1	-0.149033	0.000021
6 CA1 ExNeuro, Cpne7+ Dcn+	Fam81b	0.330248	0.0000219
6 CA1 ExNeuro, Cpne7+ Dcn+	Abcc4	-0.209762	0.0000221
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc35f3	0.223435	0.0000222
6 CA1 ExNeuro, Cpne7+ Dcn+	Me3	0.187994	0.0000232
6 CA1 ExNeuro, Cpne7+ Dcn+	Sez6l2	0.224352	0.0000249
6 CA1 ExNeuro, Cpne7+ Dcn+	Vamp2	-0.16115	0.0000252
6 CA1 ExNeuro, Cpne7+ Dcn+	Stmn1	-0.194103	0.0000264
6 CA1 ExNeuro, Cpne7+ Dcn+	Camk1d	-0.197699	0.0000282
6 CA1 ExNeuro, Cpne7+ Dcn+	Gli3	0.287611	0.0000322
6 CA1 ExNeuro, Cpne7+ Dcn+	Galnt13	-0.295804	0.0000332
6 CA1 ExNeuro, Cpne7+ Dcn+	Ppp6r1	0.223279	0.0000352
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmem222	-0.162947	0.0000359
6 CA1 ExNeuro, Cpne7+ Dcn+	Pex5l	-0.296642	0.0000366
6 CA1 ExNeuro, Cpne7+ Dcn+	Ndufb2	-0.157402	0.0000368
6 CA1 ExNeuro, Cpne7+ Dcn+	Rgma	0.203472	0.0000369
6 CA1 ExNeuro, Cpne7+ Dcn+	Epb41l4b	0.194573	0.000037
6 CA1 ExNeuro, Cpne7+ Dcn+	Grp	0.235237	0.0000382
6 CA1 ExNeuro, Cpne7+ Dcn+	Metap1d	-0.158245	0.0000434
6 CA1 ExNeuro, Cpne7+ Dcn+	Etl4	-0.321519	0.0000529
6 CA1 ExNeuro, Cpne7+ Dcn+	Gabra5	-0.180329	0.0000533
6 CA1 ExNeuro, Cpne7+ Dcn+	Cadps	-0.151807	0.0000536
6 CA1 ExNeuro, Cpne7+ Dcn+	Efnb2	0.210449	0.0000546
6 CA1 ExNeuro, Cpne7+ Dcn+	5S-rRNA.1	-0.184202	0.0000597
6 CA1 ExNeuro, Cpne7+ Dcn+	Sorbs1	0.196058	0.0000669
6 CA1 ExNeuro, Cpne7+ Dcn+	Nars1	-0.153529	0.0000675
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnip3	0.231683	0.0000676
6 CA1 ExNeuro, Cpne7+ Dcn+	Dab1	0.158543	0.0000713
6 CA1 ExNeuro, Cpne7+ Dcn+	Celf5	0.180489	0.0000765
6 CA1 ExNeuro, Cpne7+ Dcn+	Cpne8	-0.244554	0.0000799
6 CA1 ExNeuro, Cpne7+ Dcn+	Rpl5	-0.150878	0.0000853
6 CA1 ExNeuro, Cpne7+ Dcn+	Trrap	0.192113	0.0000871
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnt2	-0.325057	0.0000923
6 CA1 ExNeuro, Cpne7+ Dcn+	Crtac1	0.242688	0.0000936
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox4i1	-0.196243	0.0000939
6 CA1 ExNeuro, Cpne7+ Dcn+	Nedd4l	-0.189801	0.0000982
6 CA1 ExNeuro, Cpne7+ Dcn+	Map1a	-0.230638	0.0001196
6 CA1 ExNeuro, Cpne7+ Dcn+	Dlgap1	0.141187	0.00012575

6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0703	0.380367	0.00013225
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0706	-0.300971	0.00014061
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp6v0c	-0.216891	0.0001474
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC10254	-0.188762	0.00014911
6 CA1 ExNeuro, Cpne7+ Dcn+	Igsf21	0.271159	0.00015712
6 CA1 ExNeuro, Cpne7+ Dcn+	Epha7	-0.218492	0.00016011
6 CA1 ExNeuro, Cpne7+ Dcn+	Lrrtm4	0.177065	0.0001635
6 CA1 ExNeuro, Cpne7+ Dcn+	Gpc6	-0.276009	0.0001912
6 CA1 ExNeuro, Cpne7+ Dcn+	Ndufb9	-0.170611	0.00020916
6 CA1 ExNeuro, Cpne7+ Dcn+	Ckmt1	-0.152226	0.00020962
6 CA1 ExNeuro, Cpne7+ Dcn+	Ywhab	-0.191914	0.00020975
6 CA1 ExNeuro, Cpne7+ Dcn+	Vom2r46	0.297682	0.00023507
6 CA1 ExNeuro, Cpne7+ Dcn+	Pja2	-0.184184	0.00023603
6 CA1 ExNeuro, Cpne7+ Dcn+	Ndufs5	-0.147398	0.00025513
6 CA1 ExNeuro, Cpne7+ Dcn+	Fnbp1l	-0.18475	0.0002619
6 CA1 ExNeuro, Cpne7+ Dcn+	Uchl1	-0.185586	0.00027469
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp2b2	0.170999	0.00028138
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc22a17	0.200918	0.00029511
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0702	0.262278	0.00029922
6 CA1 ExNeuro, Cpne7+ Dcn+	Rfx3	0.15826	0.00031478
6 CA1 ExNeuro, Cpne7+ Dcn+	Tubb3	-0.202185	0.00031562
6 CA1 ExNeuro, Cpne7+ Dcn+	Sgk1	0.28444	0.00032316
6 CA1 ExNeuro, Cpne7+ Dcn+	Gabrg1	-0.215733	0.00032831
6 CA1 ExNeuro, Cpne7+ Dcn+	Necab1	-0.167399	0.0003329
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc24a5	0.234566	0.00033489
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox6c	-0.194123	0.00034047
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox7b	-0.154548	0.00034251
6 CA1 ExNeuro, Cpne7+ Dcn+	Scg5	-0.197401	0.00036774
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5pd	-0.159287	0.00037041
6 CA1 ExNeuro, Cpne7+ Dcn+	AC134224	-0.217859	0.00039996
6 CA1 ExNeuro, Cpne7+ Dcn+	Mtss1	0.236052	0.00040236
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0705	0.244782	0.00042999
6 CA1 ExNeuro, Cpne7+ Dcn+	Eps8	0.19016	0.00043293
6 CA1 ExNeuro, Cpne7+ Dcn+	Adcy8	0.212524	0.00043809
6 CA1 ExNeuro, Cpne7+ Dcn+	Abhd6	0.212409	0.00044133
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnt1	0.235533	0.00044252
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5mc3	-0.151454	0.00044623
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnq5	-0.173188	0.00046042
6 CA1 ExNeuro, Cpne7+ Dcn+	Tnfrsf19	-0.19115	0.00047732
6 CA1 ExNeuro, Cpne7+ Dcn+	Il1rapl1	0.194857	0.00048878
6 CA1 ExNeuro, Cpne7+ Dcn+	Nedd8	-0.161778	0.00051187
6 CA1 ExNeuro, Cpne7+ Dcn+	Ptms	-0.181848	0.00052327
6 CA1 ExNeuro, Cpne7+ Dcn+	Tnfrsf25	0.211841	0.00052987
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0705	-0.151644	0.00058299
6 CA1 ExNeuro, Cpne7+ Dcn+	Nr2f1	-0.168785	0.00064623
6 CA1 ExNeuro, Cpne7+ Dcn+	Xylt1	-0.20153	0.00065833
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5f1b	-0.199805	0.00066593

6 CA1 ExNeuro, Cpne7+ Dcn+	Gpc3	0.263677	0.00066988
6 CA1 ExNeuro, Cpne7+ Dcn+	Thrb	-0.295815	0.00074549
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmem196	-0.189607	0.00077409
6 CA1 ExNeuro, Cpne7+ Dcn+	Lpl	-0.184882	0.00078607
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5mg	-0.167382	0.0008785
6 CA1 ExNeuro, Cpne7+ Dcn+	Grm1	-0.179691	0.00090454
6 CA1 ExNeuro, Cpne7+ Dcn+	Rps15a	-0.177253	0.00091648
6 CA1 ExNeuro, Cpne7+ Dcn+	Rreb1	0.246277	0.00092578
6 CA1 ExNeuro, Cpne7+ Dcn+	Prex2	-0.240058	0.0009304
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc7a11	-0.239166	0.00099188
6 CA1 ExNeuro, Cpne7+ Dcn+	Nme1	-0.156446	0.0010002
6 CA1 ExNeuro, Cpne7+ Dcn+	Nol4	-0.197666	0.00103763
6 CA1 ExNeuro, Cpne7+ Dcn+	Nfkb1	-0.179138	0.00104637
6 CA1 ExNeuro, Cpne7+ Dcn+	Man1c1	0.224135	0.00107709
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdc14a	-0.226449	0.00108163
6 CA1 ExNeuro, Cpne7+ Dcn+	Pcgf5	-0.160834	0.00118202
6 CA1 ExNeuro, Cpne7+ Dcn+	Srgap3	0.154613	0.00133647
6 CA1 ExNeuro, Cpne7+ Dcn+	Nap1l1	-0.160725	0.00146096
6 CA1 ExNeuro, Cpne7+ Dcn+	Ada	0.20511	0.00166962
6 CA1 ExNeuro, Cpne7+ Dcn+	Pde4b	-0.201052	0.00168672
6 CA1 ExNeuro, Cpne7+ Dcn+	Trpc6	-0.204488	0.00177151
6 CA1 ExNeuro, Cpne7+ Dcn+	Kansl1l	0.222694	0.00188202
6 CA1 ExNeuro, Cpne7+ Dcn+	Fstl5	-0.226076	0.00201151
6 CA1 ExNeuro, Cpne7+ Dcn+	Pde11a	0.375527	0.00229471
6 CA1 ExNeuro, Cpne7+ Dcn+	Trio	0.1499	0.00232014
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0706	-0.146009	0.00241638
6 CA1 ExNeuro, Cpne7+ Dcn+	Klhl14	-0.152931	0.00247793
6 CA1 ExNeuro, Cpne7+ Dcn+	Stmn3	-0.208396	0.00248348
6 CA1 ExNeuro, Cpne7+ Dcn+	Stard13	0.163362	0.00258401
6 CA1 ExNeuro, Cpne7+ Dcn+	Gabrg3	-0.229467	0.00264381
6 CA1 ExNeuro, Cpne7+ Dcn+	Plk2	-0.155457	0.00268084
6 CA1 ExNeuro, Cpne7+ Dcn+	Sgcd	-0.21198	0.00280259
6 CA1 ExNeuro, Cpne7+ Dcn+	Ahcyl2	0.155039	0.00284691
6 CA1 ExNeuro, Cpne7+ Dcn+	Peak1	-0.22183	0.00286449
6 CA1 ExNeuro, Cpne7+ Dcn+	Icam5	0.193361	0.00320995
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0704	0.224917	0.00338619
6 CA1 ExNeuro, Cpne7+ Dcn+	Shc3	-0.200268	0.00346483
6 CA1 ExNeuro, Cpne7+ Dcn+	Adcy9	0.154786	0.00414416
6 CA1 ExNeuro, Cpne7+ Dcn+	Marchf1	0.227375	0.00430745
6 CA1 ExNeuro, Cpne7+ Dcn+	Tmem91	-0.180356	0.00444359
6 CA1 ExNeuro, Cpne7+ Dcn+	Nrip3	-0.159059	0.00452967
6 CA1 ExNeuro, Cpne7+ Dcn+	Myrip	-0.181355	0.00456412
6 CA1 ExNeuro, Cpne7+ Dcn+	Etv1	-0.361812	0.00465141
6 CA1 ExNeuro, Cpne7+ Dcn+	Khdrbs2	-0.166323	0.00487947
6 CA1 ExNeuro, Cpne7+ Dcn+	Fat4	0.211589	0.00488281
6 CA1 ExNeuro, Cpne7+ Dcn+	Rpl28	-0.153708	0.00491973
6 CA1 ExNeuro, Cpne7+ Dcn+	Ca12	0.295138	0.00492101

6 CA1 ExNeuro, Cpne7+ Dcn+	Nexmif	-0.14439	0.00516099
6 CA1 ExNeuro, Cpne7+ Dcn+	Atp5if1	-0.166758	0.00523944
6 CA1 ExNeuro, Cpne7+ Dcn+	Naca	-0.152643	0.00552173
6 CA1 ExNeuro, Cpne7+ Dcn+	RGD13062	0.168691	0.00605059
6 CA1 ExNeuro, Cpne7+ Dcn+	Neurod6	-0.201806	0.00614957
6 CA1 ExNeuro, Cpne7+ Dcn+	Mrfap1	-0.149285	0.00648565
6 CA1 ExNeuro, Cpne7+ Dcn+	Ccn3	-0.183722	0.00675441
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc25a40	0.236484	0.00766651
6 CA1 ExNeuro, Cpne7+ Dcn+	Stmn4	-0.185639	0.00803306
6 CA1 ExNeuro, Cpne7+ Dcn+	Pde8b	0.252143	0.00853333
6 CA1 ExNeuro, Cpne7+ Dcn+	Tead1	0.241917	0.00883594
6 CA1 ExNeuro, Cpne7+ Dcn+	Mast3	0.197988	0.00884228
6 CA1 ExNeuro, Cpne7+ Dcn+	Psmd12	-0.153558	0.00885874
6 CA1 ExNeuro, Cpne7+ Dcn+	Ccser1	-0.194963	0.00929376
6 CA1 ExNeuro, Cpne7+ Dcn+	RGD15640	-0.151139	0.00953999
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0703	-0.189757	0.0097335
6 CA1 ExNeuro, Cpne7+ Dcn+	Osbp2	0.159247	0.00985193
6 CA1 ExNeuro, Cpne7+ Dcn+	Anxa6	0.18247	0.01016357
6 CA1 ExNeuro, Cpne7+ Dcn+	Sorbs2	-0.168345	0.01038356
6 CA1 ExNeuro, Cpne7+ Dcn+	Kcnip1	-0.259383	0.01081488
6 CA1 ExNeuro, Cpne7+ Dcn+	Slc4a10	0.155687	0.01084867
6 CA1 ExNeuro, Cpne7+ Dcn+	Neto1	-0.239631	0.01099656
6 CA1 ExNeuro, Cpne7+ Dcn+	Rab3b	0.273177	0.0112615
6 CA1 ExNeuro, Cpne7+ Dcn+	Serinc1	-0.151835	0.01228265
6 CA1 ExNeuro, Cpne7+ Dcn+	Itga9	-0.203477	0.012781
6 CA1 ExNeuro, Cpne7+ Dcn+	Pcmt1	-0.156836	0.01280465
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC108341	-0.176483	0.01301362
6 CA1 ExNeuro, Cpne7+ Dcn+	Asxl3	-0.157414	0.01310457
6 CA1 ExNeuro, Cpne7+ Dcn+	Nav1	0.177989	0.01328997
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC100351	-0.153585	0.01362677
6 CA1 ExNeuro, Cpne7+ Dcn+	Crym	-0.152054	0.0139991
6 CA1 ExNeuro, Cpne7+ Dcn+	Nrdc	0.185118	0.0140718
6 CA1 ExNeuro, Cpne7+ Dcn+	Apod	0.144964	0.01411244
6 CA1 ExNeuro, Cpne7+ Dcn+	Ksr1	0.21709	0.01432144
6 CA1 ExNeuro, Cpne7+ Dcn+	Cisd2	-0.148383	0.01438408
6 CA1 ExNeuro, Cpne7+ Dcn+	Bach2	-0.140722	0.0155968
6 CA1 ExNeuro, Cpne7+ Dcn+	Mgst3	-0.19124	0.01733719
6 CA1 ExNeuro, Cpne7+ Dcn+	Wdfy3	0.143646	0.01749748
6 CA1 ExNeuro, Cpne7+ Dcn+	Cux2	-0.171187	0.01915599
6 CA1 ExNeuro, Cpne7+ Dcn+	Cox7c	-0.144603	0.01929065
6 CA1 ExNeuro, Cpne7+ Dcn+	Dbn1	0.156567	0.02019255
6 CA1 ExNeuro, Cpne7+ Dcn+	AABR0705	0.282954	0.02032927
6 CA1 ExNeuro, Cpne7+ Dcn+	Soga3	-0.166717	0.02520353
6 CA1 ExNeuro, Cpne7+ Dcn+	Csmd2	0.158641	0.02536484
6 CA1 ExNeuro, Cpne7+ Dcn+	Rbm25l1	-0.173815	0.02569168
6 CA1 ExNeuro, Cpne7+ Dcn+	Rorb	-0.34117	0.02581233
6 CA1 ExNeuro, Cpne7+ Dcn+	Fam189a1	0.150211	0.02915978

6 CA1 ExNeuro, Cpne7+ Dcn+	Syt14	-0.174072	0.02924134
6 CA1 ExNeuro, Cpne7+ Dcn+	Trafd1	0.199653	0.02988635
6 CA1 ExNeuro, Cpne7+ Dcn+	Cdc42	-0.152539	0.03002909
6 CA1 ExNeuro, Cpne7+ Dcn+	Morf4l2	-0.159004	0.03324913
6 CA1 ExNeuro, Cpne7+ Dcn+	Arap2	-0.244639	0.03344877
6 CA1 ExNeuro, Cpne7+ Dcn+	LOC100174	0.190969	0.03542172
6 CA1 ExNeuro, Cpne7+ Dcn+	Clmn	-0.186876	0.0379779
6 CA1 ExNeuro, Cpne7+ Dcn+	Kidins220	0.161961	0.04110148
6 CA1 ExNeuro, Cpne7+ Dcn+	Uqcrb.1	-0.147558	0.04456948
7 CA1 excitatory, Cpne7+ Dcn+	Hsp90ab1	-0.359514	2.24E-21
7 CA1 excitatory, Cpne7+ Dcn+	Calm1	-0.298385	3.19E-18
7 CA1 excitatory, Cpne7+ Dcn+	Tmsb4x	-0.312448	2.24E-16
7 CA1 excitatory, Cpne7+ Dcn+	Calm2.1	-0.294399	3.68E-14
7 CA1 excitatory, Cpne7+ Dcn+	Ubb	-0.330645	5.26E-14
7 CA1 excitatory, Cpne7+ Dcn+	Actb	-0.346928	1.82E-13
7 CA1 excitatory, Cpne7+ Dcn+	Ptgds	0.152681	3.81E-13
7 CA1 excitatory, Cpne7+ Dcn+	Tubb5	-0.325088	4.15E-12
7 CA1 excitatory, Cpne7+ Dcn+	LOC100174	0.178239	2.87E-11
7 CA1 excitatory, Cpne7+ Dcn+	AC134224	-0.15439	9.27E-11
7 CA1 excitatory, Cpne7+ Dcn+	Gpm6a	-0.175258	1.07E-10
7 CA1 excitatory, Cpne7+ Dcn+	Zfat	0.144157	2.98E-10
7 CA1 excitatory, Cpne7+ Dcn+	Polq	0.161036	1.22E-09
7 CA1 excitatory, Cpne7+ Dcn+	Zfp629	0.182015	1.69E-09
7 CA1 excitatory, Cpne7+ Dcn+	LOC100361	-0.27112	6.43E-09
7 CA1 excitatory, Cpne7+ Dcn+	Ndfip1	-0.18742	7.18E-09
7 CA1 excitatory, Cpne7+ Dcn+	Lamc1	0.162367	1.4E-08
7 CA1 excitatory, Cpne7+ Dcn+	Celf5	0.144014	1.78E-08
7 CA1 excitatory, Cpne7+ Dcn+	Nrgn	-0.206533	1.82E-08
7 CA1 excitatory, Cpne7+ Dcn+	Snrnp70	0.140355	2.29E-08
7 CA1 excitatory, Cpne7+ Dcn+	Chst1	-0.223955	5.63E-08
7 CA1 excitatory, Cpne7+ Dcn+	Atp8b5p	0.154612	1.03E-07
7 CA1 excitatory, Cpne7+ Dcn+	Ddx5	0.161174	0.00000027
7 CA1 excitatory, Cpne7+ Dcn+	Atp6v0c	-0.184676	0.00000178
7 CA1 excitatory, Cpne7+ Dcn+	Zfp61	0.163643	0.00000312
7 CA1 excitatory, Cpne7+ Dcn+	Cnih3	0.150216	0.00000461
7 CA1 excitatory, Cpne7+ Dcn+	Klhl32	0.220261	0.00000474
7 CA1 excitatory, Cpne7+ Dcn+	Olfm1	-0.175421	0.00000681
7 CA1 excitatory, Cpne7+ Dcn+	Tubb2a	-0.231782	0.00000715
7 CA1 excitatory, Cpne7+ Dcn+	Tuba1a	-0.184173	0.0000161
7 CA1 excitatory, Cpne7+ Dcn+	Ephb2	0.153303	0.0000216
7 CA1 excitatory, Cpne7+ Dcn+	Slc25a4	-0.256013	0.0000235
7 CA1 excitatory, Cpne7+ Dcn+	Ube3a	0.143927	0.0000368
7 CA1 excitatory, Cpne7+ Dcn+	AABR0704	0.15788	0.0000432
7 CA1 excitatory, Cpne7+ Dcn+	Mrps6	0.149903	0.0000435
7 CA1 excitatory, Cpne7+ Dcn+	AABR0700	-0.346434	0.0000639
7 CA1 excitatory, Cpne7+ Dcn+	Kcnh3	0.157315	0.0000748
7 CA1 excitatory, Cpne7+ Dcn+	Cpe	-0.146235	0.0000756

7 CA1 excitatory, Cpne7+ Dcn+	AABR0705	0.170671	0.0001019
7 CA1 excitatory, Cpne7+ Dcn+	lqcg	0.180638	0.00010321
7 CA1 excitatory, Cpne7+ Dcn+	Galnt14	0.225477	0.00012937
7 CA1 excitatory, Cpne7+ Dcn+	Lpin3	0.147415	0.00014403
7 CA1 excitatory, Cpne7+ Dcn+	Calr	-0.211437	0.00017026
7 CA1 excitatory, Cpne7+ Dcn+	Aldoa	-0.193739	0.00023088
7 CA1 excitatory, Cpne7+ Dcn+	Abcc4	-0.21372	0.00027641
7 CA1 excitatory, Cpne7+ Dcn+	Tuba1b	-0.168929	0.00034502
7 CA1 excitatory, Cpne7+ Dcn+	Cox6c	-0.200942	0.00060626
7 CA1 excitatory, Cpne7+ Dcn+	Bsg	-0.185776	0.00086955
7 CA1 excitatory, Cpne7+ Dcn+	Nefm	-0.157998	0.00091343
7 CA1 excitatory, Cpne7+ Dcn+	Plppr1	0.146797	0.00144784
7 CA1 excitatory, Cpne7+ Dcn+	Thsd7b	-0.181627	0.00204493
7 CA1 excitatory, Cpne7+ Dcn+	Ano3	0.167944	0.00219697
7 CA1 excitatory, Cpne7+ Dcn+	Fam81b	0.155875	0.00258486
7 CA1 excitatory, Cpne7+ Dcn+	AABR0702	0.25235	0.00278154
7 CA1 excitatory, Cpne7+ Dcn+	Unc5d	0.297065	0.00299983
7 CA1 excitatory, Cpne7+ Dcn+	Pja2	-0.233712	0.00321932
7 CA1 excitatory, Cpne7+ Dcn+	Atp5f1e	-0.184479	0.00359735
7 CA1 excitatory, Cpne7+ Dcn+	Ywhah	-0.235682	0.00449085
7 CA1 excitatory, Cpne7+ Dcn+	Serpini1	-0.182452	0.00453821
7 CA1 excitatory, Cpne7+ Dcn+	P4ha1	0.161219	0.00469829
7 CA1 excitatory, Cpne7+ Dcn+	Pnma8b	-0.19446	0.00477934
7 CA1 excitatory, Cpne7+ Dcn+	Basp1	-0.18184	0.00533045
7 CA1 excitatory, Cpne7+ Dcn+	Plxdc2	0.177391	0.00619435
7 CA1 excitatory, Cpne7+ Dcn+	Cdh13	0.183646	0.00751753
7 CA1 excitatory, Cpne7+ Dcn+	Stmn3	-0.157228	0.00910064
7 CA1 excitatory, Cpne7+ Dcn+	Spock3	0.240625	0.01027276
7 CA1 excitatory, Cpne7+ Dcn+	Kcnd3	0.162804	0.01037124
7 CA1 excitatory, Cpne7+ Dcn+	Gli3	0.215146	0.01239062
7 CA1 excitatory, Cpne7+ Dcn+	Ndufb8	-0.185611	0.01259412
7 CA1 excitatory, Cpne7+ Dcn+	Hspa5	-0.144442	0.01396921
7 CA1 excitatory, Cpne7+ Dcn+	Wnk3	-0.190858	0.01781267
7 CA1 excitatory, Cpne7+ Dcn+	Yeats2	0.143804	0.02365678
7 CA1 excitatory, Cpne7+ Dcn+	P3h2	-0.174632	0.02665415
7 CA1 excitatory, Cpne7+ Dcn+	Robo1	0.186187	0.03319427
7 CA1 excitatory, Cpne7+ Dcn+	Dpyd	0.172459	0.03596823
7 CA1 excitatory, Cpne7+ Dcn+	Grik3	0.165498	0.03708481
7 CA1 excitatory, Cpne7+ Dcn+	H3f3a	-0.181751	0.03852425
7 CA1 excitatory, Cpne7+ Dcn+	Sema3e	-0.192023	0.04585727
7 CA1 excitatory, Cpne7+ Dcn+	Ywhab	-0.218464	0.04668737
7 CA1 excitatory, Cpne7+ Dcn+	Ckb	-0.225457	0.04777099
8 CA1 or CA3 Excitatory, Cpne7+	Fhl5	-0.19892	2.14E-19
8 CA1 or CA3 Excitatory, Cpne7+	AY172581.	1.183264	3.86E-15
8 CA1 or CA3 Excitatory, Cpne7+	Zbtb16	-0.417329	2.05E-14
8 CA1 or CA3 Excitatory, Cpne7+	AC134224.	-0.303353	7.02E-13
8 CA1 or CA3 Excitatory, Cpne7+	Ptgds	0.578611	9.03E-13

8 CA1 or CA3 Excitatory, Cpne7+	Susd6	-0.449722	7.73E-12
8 CA1 or CA3 Excitatory, Cpne7+	AY172581.	0.97913	1.89E-11
8 CA1 or CA3 Excitatory, Cpne7+	Ppfibp1	-0.40232	6.13E-10
8 CA1 or CA3 Excitatory, Cpne7+	Ube3a	0.377669	2.2E-09
8 CA1 or CA3 Excitatory, Cpne7+	Ksr1	-0.326455	5.48E-09
8 CA1 or CA3 Excitatory, Cpne7+	Plp1	0.546108	1.19E-08
8 CA1 or CA3 Excitatory, Cpne7+	Samd5	-0.399326	1.2E-08
8 CA1 or CA3 Excitatory, Cpne7+	Calm2.1	-0.241562	6.19E-08
8 CA1 or CA3 Excitatory, Cpne7+	Unc5d	0.469868	1.94E-07
8 CA1 or CA3 Excitatory, Cpne7+	Ppm1e	-0.2529	2.17E-07
8 CA1 or CA3 Excitatory, Cpne7+	Map1a	-0.285644	5.56E-07
8 CA1 or CA3 Excitatory, Cpne7+	Psme3ip1	-0.200641	0.00000109
8 CA1 or CA3 Excitatory, Cpne7+	Grin2a	-0.270105	0.00000448
8 CA1 or CA3 Excitatory, Cpne7+	Abcc4	-0.292472	0.0000061
8 CA1 or CA3 Excitatory, Cpne7+	AABR0705	0.305411	0.0000137
8 CA1 or CA3 Excitatory, Cpne7+	Adamts17	-0.248471	0.0000141
8 CA1 or CA3 Excitatory, Cpne7+	Tubb5	-0.265884	0.0000146
8 CA1 or CA3 Excitatory, Cpne7+	AABR0702	-0.287111	0.0000176
8 CA1 or CA3 Excitatory, Cpne7+	Ddx17	-0.204254	0.0000266
8 CA1 or CA3 Excitatory, Cpne7+	AC134224.	-0.256426	0.0000268
8 CA1 or CA3 Excitatory, Cpne7+	Spon1	-0.328346	0.0000275
8 CA1 or CA3 Excitatory, Cpne7+	Plxdc2	0.393334	0.0000277
8 CA1 or CA3 Excitatory, Cpne7+	Wipf3	-0.313689	0.0000324
8 CA1 or CA3 Excitatory, Cpne7+	Tuba1b	-0.208547	0.0000347
8 CA1 or CA3 Excitatory, Cpne7+	Ncl	-0.199287	0.0000378
8 CA1 or CA3 Excitatory, Cpne7+	LOC300303	-0.168714	0.0000393
8 CA1 or CA3 Excitatory, Cpne7+	Ldha	-0.184541	0.00004
8 CA1 or CA3 Excitatory, Cpne7+	Tasp1	-0.233642	0.0000455
8 CA1 or CA3 Excitatory, Cpne7+	Calm1	-0.279355	0.0000561
8 CA1 or CA3 Excitatory, Cpne7+	Emid1	-0.200463	0.0000676
8 CA1 or CA3 Excitatory, Cpne7+	Chrm5	-0.253758	0.00011978
8 CA1 or CA3 Excitatory, Cpne7+	Pebp1	-0.189299	0.00012566
8 CA1 or CA3 Excitatory, Cpne7+	Unc13b	0.400669	0.00013425
8 CA1 or CA3 Excitatory, Cpne7+	Arhgef28	-0.25295	0.00016919
8 CA1 or CA3 Excitatory, Cpne7+	Tuba1a	-0.254996	0.00017428
8 CA1 or CA3 Excitatory, Cpne7+	Syt1	-0.28333	0.00017898
8 CA1 or CA3 Excitatory, Cpne7+	Sntg2	-0.2538	0.00017932
8 CA1 or CA3 Excitatory, Cpne7+	AABR0705	-0.246713	0.00021052
8 CA1 or CA3 Excitatory, Cpne7+	Plekha5	0.449711	0.00024574
8 CA1 or CA3 Excitatory, Cpne7+	Msra	-0.263105	0.00030438
8 CA1 or CA3 Excitatory, Cpne7+	LOC100361	-0.186724	0.00036105
8 CA1 or CA3 Excitatory, Cpne7+	Atp5f1e	-0.141883	0.00036204
8 CA1 or CA3 Excitatory, Cpne7+	Adamts2	-0.313969	0.00047309
8 CA1 or CA3 Excitatory, Cpne7+	Dlgap1	-0.159222	0.00058119
8 CA1 or CA3 Excitatory, Cpne7+	Yeats2	0.29221	0.0005843
8 CA1 or CA3 Excitatory, Cpne7+	Cck	-0.239262	0.00063931
8 CA1 or CA3 Excitatory, Cpne7+	Sncb	-0.142883	0.00070444

8 CA1 or CA3 Excitatory, Cpne7+	Mcmcdc2	-0.176435	0.00071038
8 CA1 or CA3 Excitatory, Cpne7+	Tgfb3	-0.173741	0.0007197
8 CA1 or CA3 Excitatory, Cpne7+	Nap1l1	-0.16348	0.000724
8 CA1 or CA3 Excitatory, Cpne7+	Cemip	-0.185755	0.00074757
8 CA1 or CA3 Excitatory, Cpne7+	Uchl1	-0.214896	0.000802
8 CA1 or CA3 Excitatory, Cpne7+	Kcnh1	-0.254111	0.00083204
8 CA1 or CA3 Excitatory, Cpne7+	Sema3c	-0.30782	0.00093687
8 CA1 or CA3 Excitatory, Cpne7+	Nefm	-0.149476	0.00104465
8 CA1 or CA3 Excitatory, Cpne7+	AABR0703	-0.285564	0.00116266
8 CA1 or CA3 Excitatory, Cpne7+	Frmd6	-0.180196	0.00118045
8 CA1 or CA3 Excitatory, Cpne7+	Prkcb	-0.302105	0.00125936
8 CA1 or CA3 Excitatory, Cpne7+	AABR0702	-0.190524	0.00158295
8 CA1 or CA3 Excitatory, Cpne7+	Prex2	-0.22345	0.00167315
8 CA1 or CA3 Excitatory, Cpne7+	Nrgn	-0.234692	0.00181489
8 CA1 or CA3 Excitatory, Cpne7+	Vstm2l	-0.167726	0.00188633
8 CA1 or CA3 Excitatory, Cpne7+	Rin3	-0.191543	0.00206202
8 CA1 or CA3 Excitatory, Cpne7+	Ywhah	-0.228928	0.00241344
8 CA1 or CA3 Excitatory, Cpne7+	Nenf	-0.168624	0.00255696
8 CA1 or CA3 Excitatory, Cpne7+	Tnr	-0.24241	0.00285074
8 CA1 or CA3 Excitatory, Cpne7+	Vdac2	-0.162811	0.0028806
8 CA1 or CA3 Excitatory, Cpne7+	AABR0704	0.299319	0.00335059
8 CA1 or CA3 Excitatory, Cpne7+	Sorcs2	-0.228834	0.00342603
8 CA1 or CA3 Excitatory, Cpne7+	Snrrp70	0.192381	0.00360065
8 CA1 or CA3 Excitatory, Cpne7+	Tnc	0.478747	0.00370967
8 CA1 or CA3 Excitatory, Cpne7+	Sdf2	-0.162699	0.00431678
8 CA1 or CA3 Excitatory, Cpne7+	Chka	-0.210747	0.00493614
8 CA1 or CA3 Excitatory, Cpne7+	Bex2	-0.150113	0.00497926
8 CA1 or CA3 Excitatory, Cpne7+	Myrip	-0.219372	0.00506988
8 CA1 or CA3 Excitatory, Cpne7+	Kcnq3	-0.334168	0.00508811
8 CA1 or CA3 Excitatory, Cpne7+	Pde4d	-0.291523	0.0067078
8 CA1 or CA3 Excitatory, Cpne7+	Psmb5	-0.164379	0.00833266
8 CA1 or CA3 Excitatory, Cpne7+	Lsamp	-0.218671	0.00845892
8 CA1 or CA3 Excitatory, Cpne7+	Ptprk	-0.257018	0.00879777
8 CA1 or CA3 Excitatory, Cpne7+	Rab3a	-0.166514	0.00944696
8 CA1 or CA3 Excitatory, Cpne7+	Cdh13	0.276144	0.01023997
8 CA1 or CA3 Excitatory, Cpne7+	Csgalnact1	-0.173384	0.01033856
8 CA1 or CA3 Excitatory, Cpne7+	Tmem178c	-0.208473	0.01117984
8 CA1 or CA3 Excitatory, Cpne7+	Zfp629	0.259207	0.01182064
8 CA1 or CA3 Excitatory, Cpne7+	Prpf4b	0.241764	0.01339128
8 CA1 or CA3 Excitatory, Cpne7+	Slc9a2	-0.178123	0.01399453
8 CA1 or CA3 Excitatory, Cpne7+	Fkbp5	-0.167466	0.01403658
8 CA1 or CA3 Excitatory, Cpne7+	Pnma8b	-0.184726	0.01423953
8 CA1 or CA3 Excitatory, Cpne7+	Psmd12	-0.162881	0.01540162
8 CA1 or CA3 Excitatory, Cpne7+	Adcy9	-0.205488	0.01708749
8 CA1 or CA3 Excitatory, Cpne7+	Il6r	-0.223633	0.02016274
8 CA1 or CA3 Excitatory, Cpne7+	AABR0707	-0.214547	0.02061907
8 CA1 or CA3 Excitatory, Cpne7+	Dynlrb1	-0.143901	0.02169034

8 CA1 or CA3 Excitatory, Cpne7+	Actb	-0.178461	0.02326435
8 CA1 or CA3 Excitatory, Cpne7+	P3h2	-0.176728	0.03019909
8 CA1 or CA3 Excitatory, Cpne7+	Kif1c	-0.14691	0.03139181
8 CA1 or CA3 Excitatory, Cpne7+	Atp5f1b	-0.166002	0.03216702
8 CA1 or CA3 Excitatory, Cpne7+	Stmn4	-0.202354	0.03315601
8 CA1 or CA3 Excitatory, Cpne7+	Slc24a2	-0.299614	0.03335041
8 CA1 or CA3 Excitatory, Cpne7+	Ptprj	-0.16224	0.03459916
8 CA1 or CA3 Excitatory, Cpne7+	Ndufb9	-0.140444	0.03524522
8 CA1 or CA3 Excitatory, Cpne7+	Iqgap2	-0.203467	0.03716758
8 CA1 or CA3 Excitatory, Cpne7+	Eid1	-0.146797	0.0386314
8 CA1 or CA3 Excitatory, Cpne7+	Clybl	-0.204809	0.04170747
8 CA1 or CA3 Excitatory, Cpne7+	Vapa	-0.142395	0.04178277
8 CA1 or CA3 Excitatory, Cpne7+	Dlat	-0.150529	0.04249509
8 CA1 or CA3 Excitatory, Cpne7+	Ccn3	-0.214327	0.04252478
8 CA1 or CA3 Excitatory, Cpne7+	Zbtb20	-0.279333	0.04495587
8 CA1 or CA3 Excitatory, Cpne7+	Mal2	-0.171965	0.04550006
8 CA1 or CA3 Excitatory, Cpne7+	Pdgfc	-0.22362	0.04677076
8 CA1 or CA3 Excitatory, Cpne7+	Hmcn1	-0.278214	0.0486398
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Hsp90ab1	-0.438869	1.88E-14
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Actb	-0.441846	1.53E-12
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Calm1	-0.379237	8.28E-12
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Mbp	0.454767	6.02E-11
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tuba1a	-0.398527	1.33E-10
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ubb	-0.399661	2.24E-10
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	AY172581.	0.331373	5.58E-08
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Yeats2	0.223834	6.43E-08
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Plp1	0.375713	1.62E-07
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	ENSRNOG	0.252406	6.38E-07
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Gli3	0.293587	0.00000207
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tubb2a	-0.321697	0.00000561
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	AABR0705	0.285298	0.00000743
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tubb5	-0.365396	0.0000244
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Mrps6	0.204745	0.0000583
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Calm2.1	-0.305542	0.0000854
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tmsb4x	-0.347038	0.00016046
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tuba1b	-0.281864	0.00023716
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	5S-rRNA.1	-0.247302	0.0003594
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Myo18a	0.178538	0.00037394
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ywhab	-0.376166	0.00062028
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Nrgn	-0.349311	0.0008727
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ptgds	0.202187	0.0008836
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Cox6c	-0.358635	0.0009642
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ndfip1	-0.245011	0.00105732
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	H3f3a	-0.265303	0.00115996
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Zfat	0.168534	0.00119388
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Slc25a4	-0.310646	0.00123391
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	AABR0702	-0.210072	0.00124186

9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	LOC67989:	0.180841	0.0012806
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Slc24a5	0.203611	0.00181509
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Zfp61	0.196777	0.002778
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	lqcg	0.207822	0.00388058
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Uqcr11	-0.2468	0.00417281
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Pi4ka	0.148636	0.00568039
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Nefl	-0.285052	0.00666946
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Gpr137b	0.20935	0.00668022
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Kcnt1	0.15046	0.00675087
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	LOC10036:	-0.323786	0.00722661
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Pbx3	0.198112	0.00790686
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Anxa6	0.162148	0.01038532
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Kcnb1	0.15433	0.0108019
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Atp5mc1	-0.260185	0.013953
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Nav1	0.178388	0.01432918
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Mcf2l	0.179592	0.01481465
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ankrd61	0.175606	0.01703353
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tmem178:	0.235356	0.01749007
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Ckb	-0.238183	0.01765426
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Tnk2	0.147102	0.0177247
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Prpf4b	0.1661	0.02004108
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Bex3	-0.214168	0.02243864
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Atp13a2	0.150674	0.02666181
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Marchf3	-0.226841	0.02676652
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Srcin1	0.157152	0.02686369
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Atp5f1b	-0.306483	0.02764145
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Nfasc	0.150931	0.03042113
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	AABR0704	0.157058	0.03614184
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Atp6v0c	-0.214083	0.03630114
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Pebp1	-0.250981	0.03658316
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Cox6a1	-0.306539	0.037374
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Mtif2	-0.220609	0.04622428
9 CA1 or CA3 Excitatory, Cpne7+ Dcn+	Rab3a	-0.221921	0.04757244
10 CA1 or CA3 Excitatory, Cpne7+	Plp1	0.608798	7.82E-14
10 CA1 or CA3 Excitatory, Cpne7+	AY172581.	0.766463	3.26E-12
10 CA1 or CA3 Excitatory, Cpne7+	Ptgds	0.421451	1.22E-11
10 CA1 or CA3 Excitatory, Cpne7+	AY172581.	0.651314	2.75E-10
10 CA1 or CA3 Excitatory, Cpne7+	lqcg	0.386632	0.00000005
10 CA1 or CA3 Excitatory, Cpne7+	Yeats2	0.299797	0.00000157
10 CA1 or CA3 Excitatory, Cpne7+	Scg2	-0.395114	0.00000448
10 CA1 or CA3 Excitatory, Cpne7+	LOC10834:	-0.345511	0.00000635
10 CA1 or CA3 Excitatory, Cpne7+	Chst1	-0.326124	0.000016
10 CA1 or CA3 Excitatory, Cpne7+	5S-rRNA.1:	-0.279797	0.0000431
10 CA1 or CA3 Excitatory, Cpne7+	Gna14	-0.35555	0.00013552
10 CA1 or CA3 Excitatory, Cpne7+	Cox5b	-0.233931	0.00024431
10 CA1 or CA3 Excitatory, Cpne7+	Abcc2	-0.197908	0.00061124
10 CA1 or CA3 Excitatory, Cpne7+	LOC10036:	-0.264079	0.00103554

10 CA1 or CA3 Excitatory, Cpne7+	Ptk2b	0.315899	0.00166793
10 CA1 or CA3 Excitatory, Cpne7+	AABR0702	-0.251085	0.00194376
10 CA1 or CA3 Excitatory, Cpne7+	Cnr1	-0.265234	0.00237306
10 CA1 or CA3 Excitatory, Cpne7+	Slc24a5	0.305942	0.0024563
10 CA1 or CA3 Excitatory, Cpne7+	AABR0705	0.256017	0.00313762
10 CA1 or CA3 Excitatory, Cpne7+	Mast3	0.324345	0.00392745
10 CA1 or CA3 Excitatory, Cpne7+	Fermt1	-0.355204	0.00502442
10 CA1 or CA3 Excitatory, Cpne7+	Cmip	0.222714	0.00525197
10 CA1 or CA3 Excitatory, Cpne7+	Calm1	-0.251919	0.00528383
10 CA1 or CA3 Excitatory, Cpne7+	Tuba1b	-0.232467	0.00625853
10 CA1 or CA3 Excitatory, Cpne7+	H3f3a	-0.220585	0.00843052
10 CA1 or CA3 Excitatory, Cpne7+	Sptlc3	0.398795	0.0122693
10 CA1 or CA3 Excitatory, Cpne7+	Ndufa4	-0.209147	0.01294997
10 CA1 or CA3 Excitatory, Cpne7+	Ubb	-0.260945	0.0156116
10 CA1 or CA3 Excitatory, Cpne7+	Sync	0.250619	0.01599254
10 CA1 or CA3 Excitatory, Cpne7+	Eef1a2	-0.202665	0.01648199
10 CA1 or CA3 Excitatory, Cpne7+	Apod	0.223002	0.01711365
10 CA1 or CA3 Excitatory, Cpne7+	AABR0705	-0.166429	0.02295895
10 CA1 or CA3 Excitatory, Cpne7+	Rgs12	-0.25829	0.03776718
10 CA1 or CA3 Excitatory, Cpne7+	Ube3a	0.267655	0.0435107
11 Oligodendrocytes	Mbp	0.272259	5.59E-47
11 Oligodendrocytes	Zbtb16	-0.591412	6.17E-27
11 Oligodendrocytes	Rpe65	0.599181	8.18E-26
11 Oligodendrocytes	Plp1	0.280392	3.49E-25
11 Oligodendrocytes	Slc24a2	0.294289	1.46E-24
11 Oligodendrocytes	Megf10	0.547473	1.2E-21
11 Oligodendrocytes	Psat1	0.451598	2.46E-20
11 Oligodendrocytes	Car2	0.336854	8.29E-20
11 Oligodendrocytes	Jhy	-0.448209	9.59E-20
11 Oligodendrocytes	Hba-a1	0.573403	3.02E-19
11 Oligodendrocytes	AABR0704	0.439361	6.55E-19
11 Oligodendrocytes	Pex11a	-0.488442	4.6E-18
11 Oligodendrocytes	Cryab	0.474501	5.27E-18
11 Oligodendrocytes	Luzp2	0.371852	7.79E-18
11 Oligodendrocytes	Slc22a15	0.455882	3.38E-17
11 Oligodendrocytes	AY172581.	0.580211	3.66E-17
11 Oligodendrocytes	AABR0703	-0.34119	1.39E-16
11 Oligodendrocytes	Calm1	-0.450904	1.5E-16
11 Oligodendrocytes	Ddx5	0.335646	2.85E-16
11 Oligodendrocytes	Eml1	0.404473	3.6E-16
11 Oligodendrocytes	Srgap1	0.426273	4.09E-16
11 Oligodendrocytes	Sorcs1	0.343267	2.15E-15
11 Oligodendrocytes	Mobp	0.263329	3.4E-15
11 Oligodendrocytes	Cyp2j10	0.452301	7.25E-15
11 Oligodendrocytes	Fam13c	-0.403427	7.62E-15
11 Oligodendrocytes	Grm3	0.189117	9.78E-15
11 Oligodendrocytes	Tf	0.266111	2.38E-13

11 Oligodendrocytes	Kcnip1	-0.431823	3.13E-12
11 Oligodendrocytes	Gpd1	0.291458	3.25E-12
11 Oligodendrocytes	Tanc1	0.304079	5.99E-12
11 Oligodendrocytes	Fnbp1	0.20486	1.48E-11
11 Oligodendrocytes	Nsg2	-0.435721	1.58E-11
11 Oligodendrocytes	Oxr1	0.310036	3.99E-11
11 Oligodendrocytes	Atp6v0c	-0.397484	4.14E-11
11 Oligodendrocytes	Sult5a1	-0.400505	4.92E-11
11 Oligodendrocytes	Map7	0.193417	6.37E-11
11 Oligodendrocytes	Zbtb20	0.264212	6.76E-11
11 Oligodendrocytes	Basp1	-0.46987	7.26E-11
11 Oligodendrocytes	Erbin	0.348916	7.38E-11
11 Oligodendrocytes	Vmp1	0.27241	1.44E-10
11 Oligodendrocytes	Pak7	0.197102	1.56E-10
11 Oligodendrocytes	LOC100361	-0.435476	2.12E-10
11 Oligodendrocytes	Nt5e	0.421404	2.12E-10
11 Oligodendrocytes	Lap3	0.328675	2.73E-10
11 Oligodendrocytes	Crym	-0.359212	3.4E-10
11 Oligodendrocytes	Ccn3	-0.431681	2.34E-09
11 Oligodendrocytes	AY172581.1	0.622528	2.46E-09
11 Oligodendrocytes	Slco3a1	0.348029	4.04E-09
11 Oligodendrocytes	Usp54	0.174155	5.07E-09
11 Oligodendrocytes	Zeb2	0.175016	6.81E-09
11 Oligodendrocytes	LOC100134	0.360844	7.87E-09
11 Oligodendrocytes	Cdh20	0.345577	1.18E-08
11 Oligodendrocytes	Cck	-0.421475	1.67E-08
11 Oligodendrocytes	RGD15656	0.216671	1.67E-08
11 Oligodendrocytes	Arap2	-0.261728	1.97E-08
11 Oligodendrocytes	Chsy3	0.464577	0.00000002
11 Oligodendrocytes	Dock5	0.292215	3.27E-08
11 Oligodendrocytes	Serinc5	0.251759	3.6E-08
11 Oligodendrocytes	AABR0704	0.230341	4.26E-08
11 Oligodendrocytes	Itgb5	0.306418	6.3E-08
11 Oligodendrocytes	Chd3	-0.317931	7.02E-08
11 Oligodendrocytes	Snca	-0.374588	1.68E-07
11 Oligodendrocytes	Gap43	-0.340101	1.97E-07
11 Oligodendrocytes	LOC108351	0.251254	2.24E-07
11 Oligodendrocytes	Glul	0.315804	2.67E-07
11 Oligodendrocytes	Cpe	-0.384654	2.94E-07
11 Oligodendrocytes	Bcas1	0.167653	3.16E-07
11 Oligodendrocytes	LOC100361	0.336129	3.47E-07
11 Oligodendrocytes	Ly6h	-0.361587	4.49E-07
11 Oligodendrocytes	Tubb2a	-0.368818	7.61E-07
11 Oligodendrocytes	Fkbp5	-0.363393	7.62E-07
11 Oligodendrocytes	Mitf	0.233027	0.00000106
11 Oligodendrocytes	Nrgn	-0.381208	0.00000109
11 Oligodendrocytes	Gpm6a	-0.413669	0.00000168

11 Oligodendrocytes	Sqle	0.31761	0.0000021
11 Oligodendrocytes	Nnat	-0.314292	0.00000226
11 Oligodendrocytes	St18	0.213134	0.00000272
11 Oligodendrocytes	Pkp4	0.274402	0.00000437
11 Oligodendrocytes	Snap25	-0.353381	0.0000048
11 Oligodendrocytes	Efh1	0.260313	0.00000594
11 Oligodendrocytes	Cobl	-0.366354	0.00000668
11 Oligodendrocytes	Tesk2	0.235079	0.00000705
11 Oligodendrocytes	Tubb5	-0.438625	0.00000729
11 Oligodendrocytes	Fer	0.251301	0.00000779
11 Oligodendrocytes	Mvb12b	0.242073	0.0000114
11 Oligodendrocytes	Kcnab1	0.303351	0.0000174
11 Oligodendrocytes	Inpp5f	0.239863	0.0000188
11 Oligodendrocytes	Atp8a1	0.182047	0.0000192
11 Oligodendrocytes	Hipk2	-0.215048	0.0000196
11 Oligodendrocytes	Tuba1a	-0.266272	0.0000221
11 Oligodendrocytes	Klf9	0.257708	0.0000235
11 Oligodendrocytes	Ndfip1	-0.351232	0.0000267
11 Oligodendrocytes	Rcan2	0.231217	0.0000341
11 Oligodendrocytes	Uchl1	-0.357116	0.0000387
11 Oligodendrocytes	Tmem163	0.250246	0.0000441
11 Oligodendrocytes	Galnt5	0.253813	0.0000459
11 Oligodendrocytes	Piga	0.243871	0.0000506
11 Oligodendrocytes	Atrn	0.176348	0.000062
11 Oligodendrocytes	Pbx3	0.534395	0.0000634
11 Oligodendrocytes	Elovl7	0.243617	0.000069
11 Oligodendrocytes	Tecr	0.254038	0.0000726
11 Oligodendrocytes	Ywhab	-0.364268	0.0000784
11 Oligodendrocytes	Ldlr	0.25557	0.0000829
11 Oligodendrocytes	Slc22a23	0.228863	0.00010435
11 Oligodendrocytes	Anks1b	0.151973	0.00012647
11 Oligodendrocytes	AABR0702	-0.298949	0.00013305
11 Oligodendrocytes	Grik1	-0.327258	0.00016092
11 Oligodendrocytes	Dnm1	-0.330376	0.0001647
11 Oligodendrocytes	Samd4a	0.226156	0.00021501
11 Oligodendrocytes	Nptxr	-0.261106	0.0002763
11 Oligodendrocytes	Rtn1	-0.353387	0.00028745
11 Oligodendrocytes	Gfap	0.268446	0.00035388
11 Oligodendrocytes	Tmem229a	0.270369	0.00040411
11 Oligodendrocytes	Wnk1	0.175367	0.00040862
11 Oligodendrocytes	Nol4	-0.240185	0.00058839
11 Oligodendrocytes	Aatk	0.18058	0.00065283
11 Oligodendrocytes	Yeats2	0.22744	0.00068476
11 Oligodendrocytes	Galnt16	-0.312689	0.00074114
11 Oligodendrocytes	Ywhah	-0.313174	0.00096073
11 Oligodendrocytes	Ank2	0.168353	0.00098028
11 Oligodendrocytes	Ppp2r2b	0.229107	0.00106609

11 Oligodendrocytes	Ppia	0.181577	0.00114904
11 Oligodendrocytes	Camkv	-0.230432	0.00122012
11 Oligodendrocytes	Lrrc4c	0.227557	0.00130315
11 Oligodendrocytes	Atp5if1	-0.321418	0.00132033
11 Oligodendrocytes	AABR0700	0.186152	0.00144131
11 Oligodendrocytes	Cdc37l1	-0.256497	0.00151575
11 Oligodendrocytes	Timp2	-0.299081	0.00168765
11 Oligodendrocytes	Pafah1b1	-0.158517	0.00168989
11 Oligodendrocytes	Tle4	0.25807	0.00185059
11 Oligodendrocytes	Lrrtm3	0.219905	0.00204401
11 Oligodendrocytes	Apod	0.193084	0.00207715
11 Oligodendrocytes	Srd5a1	0.2101	0.00210928
11 Oligodendrocytes	Ninj2	0.194309	0.00215118
11 Oligodendrocytes	Padi2	0.202388	0.0021625
11 Oligodendrocytes	Bex2	-0.264557	0.00237804
11 Oligodendrocytes	Aldoa	-0.285347	0.00264283
11 Oligodendrocytes	Ppp3ca	0.169902	0.00270713
11 Oligodendrocytes	Acsc2	0.278028	0.00272203
11 Oligodendrocytes	Atp6v1e1	-0.274331	0.00277117
11 Oligodendrocytes	LOC10036	-0.373317	0.00278339
11 Oligodendrocytes	Asap2	0.244089	0.00302047
11 Oligodendrocytes	Mon2	0.208328	0.0030242
11 Oligodendrocytes	Tox	-0.242932	0.00311164
11 Oligodendrocytes	Syn2	-0.265313	0.00331912
11 Oligodendrocytes	Ranbp9	0.18241	0.00372043
11 Oligodendrocytes	B3galnt2	-0.304123	0.00438488
11 Oligodendrocytes	Faf1	0.187087	0.00442438
11 Oligodendrocytes	Ldha	-0.278846	0.00446543
11 Oligodendrocytes	Ptgds	0.203337	0.00507484
11 Oligodendrocytes	Prkca	0.184463	0.00518626
11 Oligodendrocytes	Grik4	0.164591	0.00526094
11 Oligodendrocytes	Mrps6	0.219282	0.0056961
11 Oligodendrocytes	Chgb	-0.352135	0.00569631
11 Oligodendrocytes	Myo9b	0.234931	0.00569773
11 Oligodendrocytes	Pja2	-0.292768	0.00624067
11 Oligodendrocytes	Zwint	-0.315882	0.00643574
11 Oligodendrocytes	LOC10017	0.212157	0.00708183
11 Oligodendrocytes	Map2	-0.268973	0.00761596
11 Oligodendrocytes	Uckl1	0.214533	0.00782251
11 Oligodendrocytes	Samd12	0.16942	0.00783165
11 Oligodendrocytes	Fdft1	0.255018	0.00811236
11 Oligodendrocytes	Nfib	0.222582	0.00827274
11 Oligodendrocytes	Spock3	0.158887	0.00844877
11 Oligodendrocytes	Stmn3	-0.330347	0.00873328
11 Oligodendrocytes	Nenf	-0.263243	0.00875298
11 Oligodendrocytes	Sema3e	-0.224193	0.00883553
11 Oligodendrocytes	Enpp6	0.183276	0.00931386

11 Oligodendrocytes	Chl1	-0.279211	0.00967671
11 Oligodendrocytes	AABR0704	0.185882	0.00968518
11 Oligodendrocytes	Ankub1	0.226614	0.01137836
11 Oligodendrocytes	AABR0705	0.144871	0.01214895
11 Oligodendrocytes	Atp6v0b	-0.228618	0.01291798
11 Oligodendrocytes	Dennd4c	-0.308968	0.01356219
11 Oligodendrocytes	Hint1	-0.27253	0.01393229
11 Oligodendrocytes	Tnk2	0.214445	0.01398192
11 Oligodendrocytes	Jakmip3	0.186992	0.01491084
11 Oligodendrocytes	Qdpr	0.205567	0.01507655
11 Oligodendrocytes	Zdhhc20	0.226556	0.01596179
11 Oligodendrocytes	Vps13c	0.148053	0.01716866
11 Oligodendrocytes	AABR0702	0.176015	0.01743033
11 Oligodendrocytes	Slc17a7	-0.251546	0.01816195
11 Oligodendrocytes	Stxbp5	0.206573	0.01907117
11 Oligodendrocytes	Igfbp5	-0.199744	0.02000693
11 Oligodendrocytes	AABR0703	0.245047	0.02005009
11 Oligodendrocytes	Mal	-0.213526	0.02084899
11 Oligodendrocytes	lqsec1	0.170436	0.02374392
11 Oligodendrocytes	Dlg1	0.148478	0.02710467
11 Oligodendrocytes	Cox8a	-0.278656	0.02773168
11 Oligodendrocytes	Atp10a	0.242026	0.02957022
11 Oligodendrocytes	AC096473.	0.1479	0.03268863
11 Oligodendrocytes	Elmo1	-0.154636	0.03376123
11 Oligodendrocytes	Lgi3	0.213707	0.0339392
11 Oligodendrocytes	Dhx57	0.191783	0.03467684
11 Oligodendrocytes	Nmnat1	0.203105	0.03469305
11 Oligodendrocytes	Fam135b	0.171798	0.03731448
11 Oligodendrocytes	AC126641.	-0.257507	0.03744398
11 Oligodendrocytes	Chn2	0.18447	0.03894855
11 Oligodendrocytes	Fa2h	0.168602	0.03973207
11 Oligodendrocytes	Dynll1	-0.310207	0.04452562
11 Oligodendrocytes	Tmbim6	0.216224	0.04484169
11 Oligodendrocytes	Ernn	0.184742	0.04574574
13 Oligodendrocyte precursor cells	Plp1	0.969367	2.09E-34
13 Oligodendrocyte precursor cells	AY172581.	0.799549	4.32E-28
13 Oligodendrocyte precursor cells	AY172581.	0.643796	2.83E-17
13 Oligodendrocyte precursor cells	Ptgds	0.776836	1.13E-15
13 Oligodendrocyte precursor cells	Kcnip1	-0.418451	4.9E-13
13 Oligodendrocyte precursor cells	Pdlim5	-0.361547	9.13E-11
13 Oligodendrocyte precursor cells	Mbp	0.767463	4.19E-10
13 Oligodendrocyte precursor cells	Zbtb16	-0.362267	2.26E-09
13 Oligodendrocyte precursor cells	Tmem132l	-0.356954	8.23E-09
13 Oligodendrocyte precursor cells	Nrgn	-0.433464	1.67E-08
13 Oligodendrocyte precursor cells	Tubb5	-0.404036	2.51E-08
13 Oligodendrocyte precursor cells	Calm2.1	-0.309233	0.00000885
13 Oligodendrocyte precursor cells	Calm1	-0.370302	0.00011603

13 Oligodendrocyte precursor cells	LOC100364	-0.324465	0.00016596
13 Oligodendrocyte precursor cells	Hspa5	-0.22673	0.0001775
13 Oligodendrocyte precursor cells	Crym	-0.304027	0.00018428
13 Oligodendrocyte precursor cells	Rab3a	-0.304684	0.00031691
13 Oligodendrocyte precursor cells	Cycs	-0.264871	0.00042849
13 Oligodendrocyte precursor cells	Stx1b	-0.251845	0.00074003
13 Oligodendrocyte precursor cells	Cltb	-0.278527	0.00367465
13 Oligodendrocyte precursor cells	Ywhaz	-0.230911	0.00371423
13 Oligodendrocyte precursor cells	Actb	-0.268547	0.00378123
13 Oligodendrocyte precursor cells	Uchl1	-0.342473	0.00410678
13 Oligodendrocyte precursor cells	H3f3a	-0.265178	0.00426893
13 Oligodendrocyte precursor cells	Sp4	-0.241473	0.00861967
13 Oligodendrocyte precursor cells	Myo16	-0.232761	0.00862032
13 Oligodendrocyte precursor cells	Atp5if1	-0.301518	0.0096067
13 Oligodendrocyte precursor cells	Eif1	-0.188776	0.00968034
13 Oligodendrocyte precursor cells	Cldn11	0.325101	0.01421472
13 Oligodendrocyte precursor cells	Hsp90b1	-0.207168	0.01689839
13 Oligodendrocyte precursor cells	AABR0703	-0.175652	0.02017267
13 Oligodendrocyte precursor cells	Ubb	-0.269781	0.02110437
13 Oligodendrocyte precursor cells	Gabrb1	-0.193855	0.0246775
13 Oligodendrocyte precursor cells	Tpm1	-0.188467	0.02492475
13 Oligodendrocyte precursor cells	Tuba1b	-0.215173	0.02759801
13 Oligodendrocyte precursor cells	Blmh	-0.175649	0.03863159
13 Oligodendrocyte precursor cells	Nkain3	-0.216684	0.03929148
13 Oligodendrocyte precursor cells	Gatm	-0.225543	0.03930099
13 Oligodendrocyte precursor cells	LOC108341	-0.213829	0.04313109
13 Oligodendrocyte precursor cells	Snca	-0.249947	0.04641654
14 Astrocytes	Ptgds	1.081715	4.83E-29
14 Astrocytes	Plp1	0.931696	4.22E-24
14 Astrocytes	AC134224	0.359773	5.06E-18
14 Astrocytes	Cldn11	0.412088	3.03E-11
14 Astrocytes	Cpe	-0.314291	6.37E-11
14 Astrocytes	Scg3	-0.44486	8.41E-11
14 Astrocytes	Tf	0.586329	9.3E-11
14 Astrocytes	Slc1a3	-0.335382	3.45E-10
14 Astrocytes	Apod	0.4496	1.39E-09
14 Astrocytes	Cryab	0.442102	1.49E-09
14 Astrocytes	LOC100364	0.337077	5.39E-09
14 Astrocytes	Sparcl1	-0.438316	8.29E-09
14 Astrocytes	Mobp	0.726775	1.8E-08
14 Astrocytes	Zbtb16	-0.493716	3.41E-08
14 Astrocytes	Tubb5	-0.468383	1.03E-07
14 Astrocytes	LOC108351	0.29225	0.00000023
14 Astrocytes	Gja1	-0.351911	3.97E-07
14 Astrocytes	Hba-a2	0.317774	0.00000165
14 Astrocytes	Sptan1	-0.331107	0.00000386
14 Astrocytes	Kcnip1	-0.408718	0.00000413

14 Astrocytes	Mbp	1.273388	0.00000495
14 Astrocytes	Hsd11b1	-0.371211	0.00000636
14 Astrocytes	Nsg2	-0.409981	0.0000125
14 Astrocytes	Sptbn1	-0.426688	0.0000136
14 Astrocytes	LOC100134	0.469901	0.0000138
14 Astrocytes	Nrgn	-0.467958	0.0000161
14 Astrocytes	LOC100361	-0.28524	0.0000165
14 Astrocytes	Atp6v0c	-0.416557	0.0000167
14 Astrocytes	Samd12	0.479426	0.0000182
14 Astrocytes	Hba-a1	0.609659	0.0000266
14 Astrocytes	Calm1	-0.357702	0.0000493
14 Astrocytes	Mrps6	0.267935	0.0000567
14 Astrocytes	Ntrk2	-0.219154	0.0000604
14 Astrocytes	RGD13592	0.44134	0.00011524
14 Astrocytes	Mal	0.464854	0.00014773
14 Astrocytes	AABR0703	0.357868	0.00022823
14 Astrocytes	Ppp1r14a	0.260933	0.00027412
14 Astrocytes	Aplp2	-0.347012	0.00031657
14 Astrocytes	Sycp3	0.317343	0.00032971
14 Astrocytes	Cck	-0.439862	0.00033196
14 Astrocytes	Slc1a2	-0.227099	0.00034356
14 Astrocytes	Gpd1	0.221267	0.00039973
14 Astrocytes	Pdlim3	0.247856	0.00042067
14 Astrocytes	Gnas.1	0.210745	0.0006349
14 Astrocytes	Uchl1	-0.352911	0.00063507
14 Astrocytes	Cnp	0.325083	0.00064983
14 Astrocytes	Map1a	-0.374215	0.00099131
14 Astrocytes	Crym	-0.327235	0.0014025
14 Astrocytes	Zfhx4	0.201598	0.001477
14 Astrocytes	Ndufc1	0.172949	0.00149535
14 Astrocytes	Pamr1	-0.340661	0.00191194
14 Astrocytes	Slc6a9	0.308177	0.00192443
14 Astrocytes	Timp2	-0.34184	0.00219952
14 Astrocytes	Adcy8	0.365971	0.00220434
14 Astrocytes	lqcg	0.307105	0.00226723
14 Astrocytes	Il1rapl1	0.400398	0.00267862
14 Astrocytes	Pla2g1b	0.191786	0.0034312
14 Astrocytes	Mog	0.296463	0.0034698
14 Astrocytes	Ly6h	-0.302951	0.00369707
14 Astrocytes	Gsn	0.176312	0.00395061
14 Astrocytes	Hsp90ab1	-0.289067	0.00402746
14 Astrocytes	Apoe	-0.321721	0.00423903
14 Astrocytes	Rtn1	-0.342217	0.00518991
14 Astrocytes	Cabcoco1	0.304608	0.00546956
14 Astrocytes	AABR0703	0.242583	0.0064708
14 Astrocytes	Rpe65	0.184984	0.00688432
14 Astrocytes	Clu	-0.352099	0.00693018

14 Astrocytes	Rpl13	0.32418	0.00711931
14 Astrocytes	Zwint	-0.406797	0.00859416
14 Astrocytes	Ernm	0.259598	0.01039371
14 Astrocytes	Tenm4	-0.289738	0.01148428
14 Astrocytes	Map2	-0.20301	0.01181928
14 Astrocytes	Cst3	-0.337041	0.01227167
14 Astrocytes	AABR0704	0.165091	0.01262218
14 Astrocytes	Ppp2r3a	0.309483	0.01328334
14 Astrocytes	LOC10036	-0.359923	0.01396241
14 Astrocytes	Pik3r1	0.279456	0.01558793
14 Astrocytes	Tacc2	0.292249	0.01901192
14 Astrocytes	Mag	0.255581	0.01969828
14 Astrocytes	Galnt10	0.18649	0.02580852
14 Astrocytes	LOC68596	0.154906	0.03034459
14 Astrocytes	Gpr158	0.251059	0.03332737
14 Astrocytes	Mfge8	-0.255584	0.03676894
14 Astrocytes	Prxl2a	-0.354613	0.0420314
14 Astrocytes	Uckl1	0.257254	0.04222722
14 Astrocytes	Tuba1a	-0.337374	0.04351977
14 Astrocytes	Basp1	-0.320736	0.04382944
14 Astrocytes	Avil	0.158955	0.0453664
14 Astrocytes	Tuba1b	-0.392407	0.04766756
14 Astrocytes	Srgap1	0.276072	0.04892087
15 Endothelial	Ptgds	1.703745	2.85E-22
15 Endothelial	Adamts12	2.632646	1.13E-20
15 Endothelial	Bmp6	2.404878	1.55E-20
15 Endothelial	Clmp	1.804155	1.45E-18
15 Endothelial	Ust	1.927593	6.93E-18
15 Endothelial	Prkag2	2.04623	3.18E-17
15 Endothelial	Eya2	1.54555	5.76E-17
15 Endothelial	Robo1	2.157693	3.62E-15
15 Endothelial	Samd4a	1.684215	4.85E-15
15 Endothelial	Dtnb	1.602578	1.29E-14
15 Endothelial	Aldh1a2	1.734413	3.44E-14
15 Endothelial	Sned1	1.649275	2E-13
15 Endothelial	Trpm3	2.408979	5.5E-13
15 Endothelial	AABR0700	1.613207	6.31E-13
15 Endothelial	Notch2	1.147279	7.93E-13
15 Endothelial	Pdzn3	2.205821	8.73E-13
15 Endothelial	Itgbl1	1.902988	8.81E-13
15 Endothelial	Col1a1	1.078317	9.24E-13
15 Endothelial	Abi3bp	1.807104	9.47E-13
15 Endothelial	Dennd4a	2.130773	1.33E-12
15 Endothelial	Cxadr	1.434171	1.41E-12
15 Endothelial	Col3a1	1.423869	2.04E-12
15 Endothelial	Alcam	1.582861	8.33E-12
15 Endothelial	Ankrd55	1.52723	9.51E-12

15 Endothelial	Lpar1	1.118597	1.12E-11
15 Endothelial	Cp	1.841093	1.13E-11
15 Endothelial	Cped1	1.449989	1.45E-11
15 Endothelial	Bicc1	1.437861	1.89E-11
15 Endothelial	Lama2	1.427971	1.99E-11
15 Endothelial	Tgfbr3	1.237724	2.89E-11
15 Endothelial	Kcnk2	1.797421	4.22E-11
15 Endothelial	Flt1	-0.864703	9.43E-11
15 Endothelial	Kif13b	1.129204	1.18E-10
15 Endothelial	AABR0703	1.398492	1.59E-10
15 Endothelial	Synpo2	1.219207	1.61E-10
15 Endothelial	AABR0707	1.200179	2.08E-10
15 Endothelial	AABR0700	1.183071	3.39E-10
15 Endothelial	Eya1	1.226701	3.73E-10
15 Endothelial	Aebp1	0.934644	6.62E-10
15 Endothelial	Igfbp2	0.874312	8.12E-10
15 Endothelial	Cpq	1.170065	8.99E-10
15 Endothelial	Wls	1.085469	1E-09
15 Endothelial	Egfr	1.100535	1.23E-09
15 Endothelial	Acss3	1.102331	1.33E-09
15 Endothelial	Sh3pxd2b	0.932044	1.49E-09
15 Endothelial	Calm1	-0.856657	1.72E-09
15 Endothelial	Snx24	0.956962	2.43E-09
15 Endothelial	Fbln1	1.324713	3.08E-09
15 Endothelial	Errfi1	1.731188	3.15E-09
15 Endothelial	Prdm6	1.622176	3.24E-09
15 Endothelial	AABR0706	0.970992	3.35E-09
15 Endothelial	Lrig3	0.892837	3.77E-09
15 Endothelial	Pknox2	1.33558	4.09E-09
15 Endothelial	Cldn5	-0.847816	4.66E-09
15 Endothelial	Cpz	1.085905	5.66E-09
15 Endothelial	Tbx18	1.0118	5.96E-09
15 Endothelial	Clybl	1.124119	7.07E-09
15 Endothelial	Cst3	-0.67911	7.21E-09
15 Endothelial	Gpc6	1.825847	7.38E-09
15 Endothelial	Adamtsl4	0.873496	7.5E-09
15 Endothelial	Celf2	0.851086	9.96E-09
15 Endothelial	Ghr	0.862951	1.53E-08
15 Endothelial	Ptpn13	1.186418	1.78E-08
15 Endothelial	Dlg1	0.951157	1.81E-08
15 Endothelial	Hsp90ab1	-0.717119	2.22E-08
15 Endothelial	Dab2	1.464862	2.6E-08
15 Endothelial	Slc6a13	1.156216	3.6E-08
15 Endothelial	Rhpn1	0.83804	4.01E-08
15 Endothelial	Fkbp9	0.762053	4.23E-08
15 Endothelial	Gmds	1.14831	8.01E-08
15 Endothelial	Arhgap28	1.040964	9.67E-08

15 Endothelial	Dock5	1.208817	1.01E-07
15 Endothelial	Angpt1	1.675073	1.28E-07
15 Endothelial	Aff3	1.182553	1.37E-07
15 Endothelial	Apod	0.957916	1.44E-07
15 Endothelial	Tmem164	0.924561	1.86E-07
15 Endothelial	Colec12	1.376913	1.93E-07
15 Endothelial	Pdgfra	0.968225	3.07E-07
15 Endothelial	Dcdc2	1.24569	4.61E-07
15 Endothelial	Dmpk	0.796574	4.85E-07
15 Endothelial	Boc	1.325281	5.71E-07
15 Endothelial	Col12a1	1.007794	5.74E-07
15 Endothelial	Ext1	1.082151	0.00000059
15 Endothelial	Timp3	0.751193	8.56E-07
15 Endothelial	Foxp2	1.135588	9.02E-07
15 Endothelial	Gli2	0.947623	9.74E-07
15 Endothelial	Slc20a2	1.050621	0.00000107
15 Endothelial	Gramd2b	0.959974	0.00000113
15 Endothelial	Ddr2	0.782395	0.00000123
15 Endothelial	Chst15	0.956841	0.00000125
15 Endothelial	Prkca	0.842944	0.00000139
15 Endothelial	Mitf	1.094056	0.00000151
15 Endothelial	Rab30	0.880966	0.00000154
15 Endothelial	Slc24a3	1.248779	0.00000165
15 Endothelial	Klhl29	1.20856	0.00000278
15 Endothelial	Afap1	0.947676	0.00000281
15 Endothelial	Mrc2	0.949231	0.00000313
15 Endothelial	Antxr2	0.824509	0.0000033
15 Endothelial	Ly6h	-0.968456	0.00000385
15 Endothelial	Adamts2	0.889708	0.00000391
15 Endothelial	Zbtb20	0.797491	0.00000427
15 Endothelial	Rin2	0.79089	0.0000045
15 Endothelial	Anxa2	0.7752	0.00000479
15 Endothelial	Grk5	0.849863	0.0000054
15 Endothelial	NEWGENE	0.688867	0.00000643
15 Endothelial	Slc2a1	-0.954021	0.00000674
15 Endothelial	Map4k5	0.942221	0.0000068
15 Endothelial	AC134224.	0.531119	0.00000709
15 Endothelial	Slc6a20	1.393498	0.00000772
15 Endothelial	Pgm2l1	-0.959326	0.00000778
15 Endothelial	Frk	0.66514	0.00000799
15 Endothelial	Antxr1	0.77914	0.000008
15 Endothelial	Lama1	0.844737	0.0000101
15 Endothelial	Lpp	0.860334	0.0000106
15 Endothelial	AABR0704	0.860802	0.0000126
15 Endothelial	Slc2a12	0.824083	0.0000139
15 Endothelial	Bmp5	0.714521	0.0000143
15 Endothelial	Slc13a3	0.870892	0.0000162

15 Endothelial	Chst11	0.728849	0.0000201
15 Endothelial	Rmdn1	0.709466	0.0000203
15 Endothelial	Sec24d	0.782026	0.0000223
15 Endothelial	Bnc2	2.308593	0.000024
15 Endothelial	Niban1	1.23805	0.000029
15 Endothelial	Plp1	0.933456	0.0000302
15 Endothelial	Itga8	1.158301	0.0000316
15 Endothelial	Slc7a2	0.983412	0.0000326
15 Endothelial	Kit	0.891197	0.0000331
15 Endothelial	Cdh11	1.208185	0.000039
15 Endothelial	Slc7a1	-1.139349	0.0000414
15 Endothelial	Svep1	0.74745	0.0000429
15 Endothelial	Lepr	0.660096	0.0000456
15 Endothelial	Atp6v0c	-0.722404	0.000049
15 Endothelial	Rbms3	0.882822	0.0000511
15 Endothelial	Zic4	0.382979	0.0000513
15 Endothelial	Slc7a5	-0.640965	0.0000518
15 Endothelial	Nxn	0.938593	0.0000558
15 Endothelial	Slc13a4	0.716419	0.0000579
15 Endothelial	Edar	1.000657	0.0000647
15 Endothelial	Col4a5	1.343794	0.0000698
15 Endothelial	Gulp1	0.786266	0.0000722
15 Endothelial	Nf1	0.676734	0.0000801
15 Endothelial	Add3	0.779039	0.0000884
15 Endothelial	Rarb	0.880149	0.0000972
15 Endothelial	Fbn1	0.576525	0.0000995
15 Endothelial	Col4a6	0.499402	0.0001254
15 Endothelial	Ddx5	0.574146	0.00012883
15 Endothelial	Zfp536	0.740053	0.00013357
15 Endothelial	Dkk3	0.59145	0.00013701
15 Endothelial	Asap3	0.631284	0.00014208
15 Endothelial	Mpp6	0.873564	0.00014384
15 Endothelial	Pld1	0.570918	0.0001443
15 Endothelial	Lhfp16	0.704611	0.00015147
15 Endothelial	Srpx	0.838315	0.00015878
15 Endothelial	Phkb	0.545682	0.00016181
15 Endothelial	Bsg	-0.611683	0.00016528
15 Endothelial	Ehbp1	0.766104	0.00016603
15 Endothelial	Wasl	0.672466	0.00017777
15 Endothelial	Akr1c19	0.658184	0.0001811
15 Endothelial	Aspa	0.653081	0.00018288
15 Endothelial	Fam20a	0.717915	0.00019143
15 Endothelial	Cdk14	0.840776	0.00019482
15 Endothelial	Ttc7a	0.588017	0.0001975
15 Endothelial	Abca5	0.57603	0.0002064
15 Endothelial	Aox3	1.151111	0.00021419
15 Endothelial	Mvp	0.550293	0.00022418

15 Endothelial	Fam174b	0.561375	0.00022519
15 Endothelial	Dach1	-1.148157	0.0002336
15 Endothelial	Apoe	-0.509874	0.00026645
15 Endothelial	Cubn	0.454557	0.00028263
15 Endothelial	Sfrp1	0.576714	0.00031586
15 Endothelial	Igf2	0.704906	0.0003314
15 Endothelial	Dse	0.584383	0.00033664
15 Endothelial	Adam19	0.716974	0.00036494
15 Endothelial	Deptor	0.839408	0.00036953
15 Endothelial	Pmp22	0.729388	0.00038755
15 Endothelial	Ano6	0.634743	0.00039464
15 Endothelial	Rassf2	0.769361	0.00039952
15 Endothelial	Sorbs3	0.772607	0.00043894
15 Endothelial	Fndc1	0.474025	0.00045017
15 Endothelial	Lmod1	0.651286	0.00048016
15 Endothelial	Vwf	-0.764329	0.00048855
15 Endothelial	P4ha1	0.494339	0.00049617
15 Endothelial	Abat	0.895346	0.00051766
15 Endothelial	Col5a1	0.458144	0.00055775
15 Endothelial	Lrrk1	0.731282	0.00055881
15 Endothelial	LOC100174	0.482138	0.00057302
15 Endothelial	Hs3st3a1	0.870882	0.00058433
15 Endothelial	Ebf2	0.837674	0.00059571
15 Endothelial	Sh3rf2	0.802402	0.00060492
15 Endothelial	Slc22a6	0.761907	0.00062363
15 Endothelial	Ubb	-0.724121	0.00062939
15 Endothelial	Slco1c1	-0.857605	0.00066056
15 Endothelial	Tec	0.9418	0.00067954
15 Endothelial	Plcx3	1.203224	0.00075386
15 Endothelial	Mamdc2	0.669455	0.00078024
15 Endothelial	Osr1	0.508693	0.00082739
15 Endothelial	Adgrl4	-0.787143	0.00084461
15 Endothelial	Mcu	0.687994	0.00085367
15 Endothelial	Pcca	0.608344	0.00085401
15 Endothelial	Cldn11	0.801621	0.00088099
15 Endothelial	Flrt2	0.593181	0.00088675
15 Endothelial	Arhgap42	0.681628	0.00097211
15 Endothelial	Adamts15	0.661778	0.00103765
15 Endothelial	Mob3b	0.663366	0.00105128
15 Endothelial	Zfp618	0.480816	0.00110327
15 Endothelial	Adpgk	0.628821	0.00117824
15 Endothelial	Zfand6	0.515206	0.00124619
15 Endothelial	Frs2	0.424425	0.00126668
15 Endothelial	Dock11	0.673966	0.00131682
15 Endothelial	Pard3	0.553834	0.00141503
15 Endothelial	Ror2	0.850566	0.00164217
15 Endothelial	Asap1	0.682753	0.00169329

15 Endothelial	Runx1t1	0.662697	0.00180367
15 Endothelial	Casp12	0.503392	0.00180747
15 Endothelial	Rin3	0.874973	0.00189478
15 Endothelial	Slc38a6	0.503152	0.00197803
15 Endothelial	Slc38a9	0.582077	0.00198328
15 Endothelial	Slco2a1	0.689318	0.00211039
15 Endothelial	Txnip	0.542142	0.00211828
15 Endothelial	Slc7a11	1.718205	0.00212372
15 Endothelial	Usp53	0.621201	0.00234014
15 Endothelial	Zic2	0.445524	0.00252677
15 Endothelial	Foxd1	0.623477	0.00256929
15 Endothelial	Tf	0.713228	0.00285666
15 Endothelial	Slc4a4	1.374526	0.00288777
15 Endothelial	Slc38a2	1.051518	0.0030243
15 Endothelial	Kank2	0.665405	0.00308297
15 Endothelial	Prom1	-0.737269	0.00317796
15 Endothelial	Rhpn2	0.591744	0.00322178
15 Endothelial	Thsd7a	0.963544	0.0036396
15 Endothelial	Prtfdc1	0.783477	0.0036902
15 Endothelial	Baz2b	0.607936	0.00378137
15 Endothelial	Gpcpd1	-0.938092	0.00408642
15 Endothelial	Slc6a12	0.486774	0.00412196
15 Endothelial	AABR0701	0.473688	0.00428327
15 Endothelial	Abcd3	0.556733	0.00471717
15 Endothelial	Loxl2	0.537132	0.00485869
15 Endothelial	Il1r1	0.431788	0.00509505
15 Endothelial	Kcnt1	0.440708	0.00550499
15 Endothelial	Ccn5	0.500137	0.00550867
15 Endothelial	AABR0703	0.662684	0.00591654
15 Endothelial	Atp8a1	0.81015	0.00594414
15 Endothelial	Tcf7l1	0.627117	0.00624036
15 Endothelial	Aox1	0.7023	0.00627265
15 Endothelial	Dock7	0.505386	0.0062731
15 Endothelial	Zic1	0.520601	0.00644114
15 Endothelial	Efemp2	0.548872	0.00667636
15 Endothelial	Ide	0.42048	0.00671179
15 Endothelial	Sh3gl1	0.439361	0.00696715
15 Endothelial	Mrvi1	0.732467	0.00698267
15 Endothelial	Dnah11	0.300818	0.00704684
15 Endothelial	Adam9	0.573118	0.00716042
15 Endothelial	Lipa	0.706879	0.00730629
15 Endothelial	Abca1	0.718245	0.00734195
15 Endothelial	Cpe	-0.563092	0.00770464
15 Endothelial	Pdpm	0.480777	0.00783936
15 Endothelial	Crtc3	0.633819	0.00790868
15 Endothelial	Arhgap20	0.618379	0.00799942
15 Endothelial	Nova1	0.786289	0.00848108

15 Endothelial	Thada	0.582313	0.00894042
15 Endothelial	Negr1	0.769422	0.00923252
15 Endothelial	Ccdc3	0.724649	0.00945348
15 Endothelial	Adamts10	0.579544	0.00962815
15 Endothelial	Lrrc49	0.747541	0.00971651
15 Endothelial	Appl2	0.517608	0.00989714
15 Endothelial	Zfp423	0.762619	0.01051236
15 Endothelial	Plekhh2	0.672813	0.01104558
15 Endothelial	Atp13a3	0.417754	0.0113278
15 Endothelial	Hlf	0.720806	0.01148957
15 Endothelial	Exoc6b	0.959731	0.01158425
15 Endothelial	Dennd2b	0.780169	0.01188574
15 Endothelial	Arhgap10	0.642302	0.01190952
15 Endothelial	Dpyd	0.693811	0.01213083
15 Endothelial	LOC108341	-0.692589	0.01247993
15 Endothelial	Lhfpl2	0.808819	0.01270604
15 Endothelial	AABR0704	0.438312	0.01290859
15 Endothelial	Kank1	0.572911	0.01291805
15 Endothelial	Oca2	0.8477	0.01433884
15 Endothelial	Cdk13	0.5227	0.01514025
15 Endothelial	Col26a1	0.617211	0.01620501
15 Endothelial	Adgrf5	-0.672509	0.01652161
15 Endothelial	Nid2	0.509221	0.01692842
15 Endothelial	Eef2k	0.452133	0.01714093
15 Endothelial	Cobll1	-0.874986	0.01756288
15 Endothelial	Slc39a10	-0.728587	0.01760126
15 Endothelial	AABR0706	0.59437	0.01791
15 Endothelial	Uaca	0.388171	0.01812689
15 Endothelial	Mal	0.543313	0.0190139
15 Endothelial	Lgr4	0.497103	0.01911435
15 Endothelial	Actb	-0.613998	0.01955688
15 Endothelial	Fry	-0.973043	0.01981672
15 Endothelial	Epas1	-0.626561	0.02023056
15 Endothelial	Kirrel1	0.586814	0.02122929
15 Endothelial	Ptprb	-0.619187	0.0219831
15 Endothelial	AABR0707	1.247492	0.02221347
15 Endothelial	Atp13a5	-0.681661	0.02231776
15 Endothelial	Rev1	0.571012	0.02241343
15 Endothelial	Cryab	0.637447	0.02364044
15 Endothelial	Thsd1	-0.780205	0.0236803
15 Endothelial	Efemp1	0.628891	0.02376602
15 Endothelial	Zcchc7	0.504321	0.02426912
15 Endothelial	Atp1b1	-0.515461	0.02457492
15 Endothelial	Nadk2	0.668266	0.02499838
15 Endothelial	Rtn1	-0.636147	0.02504641
15 Endothelial	Mpzl2	0.495046	0.02538163
15 Endothelial	Rgs5	-0.978252	0.02566835

15 Endothelial	Bmp2k	0.424563	0.02598046
15 Endothelial	Ano4	1.225489	0.02642297
15 Endothelial	Rgs16	0.354266	0.02754361
15 Endothelial	Mmp14	0.397806	0.02788764
15 Endothelial	Yap1	0.518919	0.02828869
15 Endothelial	Baiap2l1	0.570236	0.02987223
15 Endothelial	AABR0703	0.560905	0.02995579
15 Endothelial	Ltbp1	1.021066	0.0306746
15 Endothelial	Vstm4	0.562404	0.0307775
15 Endothelial	Abcb4	-0.546942	0.03110343
15 Endothelial	Prrx1	0.85622	0.03137366
15 Endothelial	Spidr	0.591292	0.03251651
15 Endothelial	Ccdc62	0.416288	0.03252969
15 Endothelial	Slc16a12	0.423849	0.03267523
15 Endothelial	Elovl1	0.32756	0.0330534
15 Endothelial	Adam12	1.054321	0.03386969
15 Endothelial	Nsg2	-0.868299	0.03396977
15 Endothelial	Atp1a3	-0.743293	0.03542533
15 Endothelial	Pltp	-0.556543	0.03549813
15 Endothelial	Zbtb7c	0.694539	0.03554149
15 Endothelial	Nars2	0.445409	0.03576574
15 Endothelial	Pard3b	0.505578	0.03743215
15 Endothelial	AC108574.	0.431049	0.0377851
15 Endothelial	Cpeb2	0.6938	0.03792511
15 Endothelial	Sh3pxd2a	0.547274	0.03862265
15 Endothelial	Loxl1	0.356183	0.03883013
15 Endothelial	Creb3l1	0.434497	0.03930274
15 Endothelial	Sncaip	0.646774	0.03979989
15 Endothelial	Myo9b	0.501304	0.04007788
15 Endothelial	Abcc9	-1.164769	0.04051653
15 Endothelial	Nid1	0.214786	0.04110144
15 Endothelial	Lcor	0.339534	0.04272757
15 Endothelial	Sparcl1	-0.554647	0.045123
15 Endothelial	Utrn	-0.767311	0.04576553
15 Endothelial	Fbln5	0.657678	0.04593637
15 Endothelial	Rgs4	-0.654662	0.04639019
15 Endothelial	Eng	-0.819818	0.0471376
15 Endothelial	Syn2	-0.816455	0.04840738
15 Endothelial	Glul	0.491079	0.0486421
17 Microglia	Plp1	1.08927	1.76E-41
17 Microglia	AY172581.	0.862057	2.71E-30
17 Microglia	AY172581.	0.831899	1.79E-26
17 Microglia	Ptgds	0.870101	2.13E-18
17 Microglia	Apod	0.695175	9.40E-12
17 Microglia	Cst3	-0.380925	1.28E-10
17 Microglia	Mbp	0.731026	4.60E-10
17 Microglia	Tubb5	-0.404443	1.28E-07

17 Microglia	Calm2.1	-0.413904	1.58E-06
17 Microglia	Hba-a1	0.523146	2.60E-06
17 Microglia	Cd300a	-0.370599	1.38E-05
17 Microglia	Oplah	-0.247175	4.18E-05
17 Microglia	AABR0703	-0.384842	5.29E-05
17 Microglia	Ptprm	0.463006	6.59E-05
17 Microglia	Fcgrt	-0.361327	0.00013777
17 Microglia	Nav3	0.192664	0.00039816
17 Microglia	Uchl1	-0.439636	0.00072141
17 Microglia	C1qa	-0.208014	0.00073772
17 Microglia	Pnma8b	-0.357631	0.00097383
17 Microglia	Fth1	0.477202	0.00127741
17 Microglia	Cldn11	0.423793	0.00222715
17 Microglia	Ankrd6	-0.240054	0.00440593
17 Microglia	Junb	-0.30623	0.005976
17 Microglia	Nrgn	-0.411813	0.00667938
17 Microglia	Npc2	-0.226675	0.01016392
17 Microglia	Cox5b	-0.292839	0.01132437
17 Microglia	Trim55	-0.30624	0.02206349
17 Microglia	Arf5	-0.315588	0.02336243
17 Microglia	Tmem119	-0.229659	0.02492627

Supplemental Table 3. Genes expressed in Fos+ cells

Fos+ (Fed)

Gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
AABR0700138	5.57E-18	0.3785697	0.903	0.735	1.47E-13
AABR0701714	5.76E-21	0.3316606	0.758	0.523	1.52E-16
AABR0702478	5.38E-22	0.33734541	0.712	0.479	1.42E-17
AABR0702680	1.01E-12	0.2722442	0.211	0.113	2.67E-08
AABR0703318	5.21E-11	0.28030132	0.499	0.349	1.38E-06
AABR0703388	7.65E-09	0.30795297	0.719	0.583	0.00020223
AABR0704284	7.44E-13	0.25330578	0.45	0.292	1.97E-08
AABR0704696	2.42E-10	-0.90311706	0.084	0.185	6.41E-06
AABR0704908	4.76E-13	0.38523223	0.388	0.247	1.26E-08
AABR0705657	2.08E-20	0.29328584	0.388	0.218	5.50E-16
AABR0705865	1.06E-14	0.28001281	0.124	0.05	2.80E-10
AABR0705966	8.16E-16	0.3280814	0.242	0.123	2.16E-11
Aak1	4.81E-15	0.27355024	0.894	0.714	1.27E-10
Acsl6	1.63E-17	0.38634234	0.694	0.478	4.30E-13
Adam11	6.48E-16	0.25592849	0.525	0.332	1.71E-11
Adgra1	1.05E-25	0.25274871	0.424	0.227	2.78E-21
Adgrl2	8.68E-16	0.25936268	0.441	0.273	2.29E-11
Adgrl3	3.35E-17	0.28329171	0.936	0.804	8.86E-13
Agap1	1.50E-10	-0.54190664	0.878	0.815	3.97E-06
Aifm3	2.03E-15	0.25568649	0.215	0.107	5.37E-11
Alkal2	1.16E-27	0.25958464	0.117	0.032	3.06E-23
Ankrd33b	4.59E-08	0.3532544	0.393	0.29	0.00121257
Apod	3.77E-08	-1.12705233	0.333	0.402	0.00099663
Aqp4	1.28E-08	0.34058361	0.202	0.12	0.00033887
Arhgef7	2.91E-21	0.28663976	0.734	0.49	7.68E-17
Baalc	7.85E-27	0.36821533	0.548	0.326	2.07E-22
Basp1	4.83E-16	0.25153005	0.796	0.582	1.28E-11
Bcas1	4.59E-09	-1.11961381	0.246	0.342	0.00012133
Bcr	2.95E-19	0.26886518	0.663	0.433	7.80E-15
Bicdl1	7.69E-21	0.28631753	0.668	0.445	2.03E-16
Brinp1	3.87E-12	0.42844837	0.769	0.613	1.02E-07
Btbd10	4.44E-12	0.25793308	0.714	0.532	1.17E-07
Cacna1a	3.07E-30	0.48368691	0.843	0.623	8.12E-26
Cacnb4	3.97E-13	0.25266864	0.696	0.524	1.05E-08
Cacng3	6.00E-16	0.32552619	0.53	0.356	1.59E-11
Cap2	3.09E-17	0.32112944	0.692	0.476	8.16E-13
Ccdc136	3.15E-21	0.28615454	0.568	0.358	8.34E-17
Ccdc180	1.00E-24	0.26858644	0.179	0.066	2.64E-20
Cdc14b	6.38E-23	0.30918998	0.568	0.35	1.69E-18
Celf2	3.79E-10	0.26139248	0.945	0.837	1.00E-05
Clip1	3.79E-18	0.2783581	0.816	0.595	1.00E-13

Cntn5	2.29E-10	0.26962487	0.63	0.465	6.05E-06
Cntnap5b	6.69E-08	0.583132	0.49	0.381	0.00176922
Col11a2	1.70E-08	0.32195938	0.137	0.073	0.00044941
Cpq	3.90E-20	0.28732861	0.242	0.113	1.03E-15
Cry2	4.20E-23	0.25825379	0.556	0.339	1.11E-18
Dab1	8.04E-11	0.26155657	0.818	0.638	2.12E-06
Dlgap1	1.01E-18	0.38090796	0.92	0.758	2.66E-14
Dlgap2	8.49E-26	0.40038121	0.625	0.408	2.25E-21
Dtna	7.42E-13	0.34740614	0.707	0.533	1.96E-08
Edil3	4.63E-14	-0.60367549	0.778	0.791	1.22E-09
Elfn1	2.67E-20	0.26832877	0.231	0.106	7.07E-16
Etnppl	1.37E-15	0.25793997	0.106	0.038	3.63E-11
Eya1	3.84E-09	0.31817724	0.129	0.066	0.00010162
Fa2h	1.27E-08	-0.68707701	0.122	0.215	0.00033532
Fam107a	2.40E-10	0.32829618	0.22	0.129	6.35E-06
Fam126b	8.45E-22	0.29372112	0.65	0.428	2.23E-17
Fam163a	5.05E-16	0.42728215	0.137	0.055	1.33E-11
Fam189a1	8.63E-12	0.29750953	0.763	0.565	2.28E-07
Fam49a	2.93E-21	0.29297099	0.778	0.536	7.76E-17
Fgf1	9.03E-39	0.25920251	0.333	0.131	2.39E-34
Fgf12	2.52E-16	0.36169569	0.894	0.715	6.65E-12
Foxn3	6.49E-15	-0.60197146	0.721	0.761	1.72E-10
Gab1	2.01E-07	-0.81608311	0.251	0.325	0.00531774
Gabbr1	1.11E-13	0.29127664	0.916	0.748	2.92E-09
Gabra1	1.23E-16	0.27590407	0.658	0.451	3.26E-12
Gabrb1	5.40E-14	0.31830475	0.88	0.702	1.43E-09
Gabrb2	2.08E-15	0.33019615	0.698	0.505	5.50E-11
Gabrg3	7.88E-13	0.28169669	0.641	0.48	2.08E-08
Gad1	2.14E-16	0.37090992	0.408	0.25	5.65E-12
Gpc6	6.28E-14	0.55252274	0.725	0.539	1.66E-09
Gpm6a	5.96E-09	0.2871123	0.942	0.803	0.00015762
Gramd2b	2.00E-07	0.4887635	0.162	0.096	0.00529838
Gria1	7.79E-11	0.30934889	0.869	0.664	2.06E-06
Grik1	5.93E-10	0.36166643	0.403	0.28	1.57E-05
Hdac9	4.20E-13	0.26592695	0.743	0.542	1.11E-08
Hs6st3	1.52E-08	0.36335553	0.55	0.406	0.00040282
Htr2a	1.32E-23	0.35319489	0.255	0.116	3.49E-19
Hunk	6.67E-15	0.28720083	0.248	0.131	1.76E-10
Igfbp7	2.75E-11	0.34971381	0.29	0.179	7.26E-07
Itga6	1.50E-36	0.26687682	0.439	0.2	3.97E-32
Itpr1	4.13E-15	0.25421471	0.729	0.523	1.09E-10
Kcnc1	1.92E-08	0.28896637	0.572	0.433	0.00050695
Kcnma1	4.02E-12	0.29742899	0.905	0.717	1.06E-07
Klhl3	7.98E-20	0.25320098	0.501	0.305	2.11E-15
Lgi4	7.32E-17	0.31554428	0.137	0.054	1.94E-12
LOC10012536	1.82E-15	0.2605278	0.415	0.256	4.82E-11
LOC304725	5.57E-09	0.37931757	0.41	0.291	0.00014716

Lpar1	1.03E-06	-0.57836413	0.137	0.214	0.02736409
Lrrc7	2.52E-12	0.32580753	0.863	0.698	6.66E-08
Lypd6b	2.76E-11	0.2811405	0.122	0.055	7.29E-07
Mag	1.77E-07	-1.0746753	0.195	0.27	0.00468994
Magi2	3.73E-11	0.26002002	0.936	0.807	9.87E-07
Man1a1	5.09E-12	0.42078179	0.421	0.288	1.35E-07
Man2a1	1.72E-14	0.25549656	0.556	0.37	4.56E-10
Map2	7.08E-21	0.33175874	0.944	0.805	1.87E-16
Mapk4	3.79E-16	0.29440562	0.33	0.188	1.00E-11
Mast2	2.01E-21	0.27516042	0.778	0.543	5.32E-17
Mat2a	9.35E-21	0.26007613	0.638	0.422	2.47E-16
Mbp	8.25E-07	-0.93952917	0.636	0.641	0.02180437
Mog	3.11E-07	-1.33217797	0.197	0.271	0.00821856
Moxd1	3.63E-22	0.33511012	0.239	0.106	9.60E-18
Myh10	2.03E-19	0.27062611	0.745	0.501	5.37E-15
Myrip	1.69E-20	0.27317621	0.592	0.366	4.47E-16
Ndst3	2.25E-14	0.41116835	0.514	0.348	5.94E-10
Nbl	6.63E-13	0.25777564	0.796	0.608	1.75E-08
Nell1	5.12E-09	0.32348232	0.658	0.504	0.00013535
Neto1	1.01E-12	0.25203843	0.76	0.589	2.67E-08
Ninj2	8.25E-09	-0.85064736	0.133	0.225	0.00021807
Nol4	2.50E-22	0.38370425	0.811	0.593	6.61E-18
Nwd1	4.36E-09	0.27186094	0.153	0.082	0.00011533
Nxn	7.08E-15	0.25484519	0.266	0.143	1.87E-10
Opalin	8.08E-07	-0.70664822	0.102	0.176	0.0213629
Pacs1	4.84E-15	0.28639766	0.756	0.574	1.28E-10
Pak3	8.04E-14	0.28959308	0.75	0.56	2.13E-09
Pdzn3	3.36E-18	0.45465084	0.383	0.219	8.89E-14
Per2	9.72E-32	0.25707332	0.512	0.265	2.57E-27
Pgm2l1	2.08E-17	0.25239993	0.709	0.494	5.49E-13
Pknox2	5.46E-20	0.2783424	0.638	0.417	1.44E-15
Pld5	7.09E-08	0.27125097	0.158	0.09	0.00187403
Plp1	4.32E-12	-1.38339028	0.703	0.723	1.14E-07
Ppargc1a	6.35E-17	0.27158887	0.519	0.336	1.68E-12
Prepl	1.27E-26	0.26597089	0.581	0.341	3.35E-22
Prkar1b	1.15E-31	0.35909729	0.572	0.332	3.04E-27
Prkcb	1.56E-19	0.35144683	0.683	0.467	4.13E-15
Prodh1	6.07E-20	0.2695431	0.138	0.05	1.61E-15
Psd2	4.88E-18	0.3624237	0.341	0.189	1.29E-13
Ptpn5	2.98E-20	0.27783445	0.699	0.476	7.88E-16
Ptpg	1.00E-20	0.4128327	0.811	0.58	2.64E-16
R3hdm2	1.12E-21	0.30214504	0.891	0.678	2.97E-17
Rab3c	1.76E-10	0.29205972	0.71	0.553	4.67E-06
Rab6a	1.18E-21	0.26802562	0.827	0.595	3.11E-17
Rabep1	2.09E-16	0.27149217	0.852	0.64	5.53E-12
Ralgapa1	1.99E-17	0.33058207	0.876	0.702	5.27E-13
Raly1	5.10E-11	0.34323076	0.729	0.566	1.35E-06

Rasgrp1	1.36E-20	0.28228045	0.383	0.212	3.59E-16
Rbms3	7.45E-16	0.37394412	0.463	0.294	1.97E-11
Reln	8.44E-09	0.70164377	0.288	0.186	0.00022323
RGD1560883	1.35E-12	0.2574382	0.842	0.642	3.58E-08
Rims1	3.13E-10	0.25494504	0.858	0.686	8.28E-06
Sat1	6.68E-11	0.29307432	0.466	0.32	1.77E-06
Satb1	6.43E-30	0.42209022	0.486	0.255	1.70E-25
Scn1a	2.70E-14	0.34303639	0.783	0.586	7.14E-10
Scn9a	1.78E-15	0.26521762	0.317	0.179	4.72E-11
Sema3a	4.29E-25	0.25869616	0.186	0.069	1.14E-20
Serpini1	9.76E-16	0.27538921	0.761	0.561	2.58E-11
Sfxn5	2.07E-15	0.38611962	0.454	0.291	5.48E-11
Shank1	1.85E-22	0.26150184	0.608	0.382	4.90E-18
Slc25a13	4.94E-07	-0.69351361	0.146	0.22	0.01305958
Slc25a3	7.55E-29	0.30500921	0.778	0.515	2.00E-24
Slc32a1	1.76E-13	0.26457094	0.257	0.143	4.67E-09
Slc38a1	2.95E-31	0.35500303	0.614	0.361	7.80E-27
Slc44a5	4.00E-15	0.298299	0.485	0.309	1.06E-10
Slc7a14	6.01E-16	0.26225429	0.661	0.452	1.59E-11
Slco1c1	7.45E-14	0.35650917	0.117	0.047	1.97E-09
Snx24	6.11E-07	-0.51901199	0.707	0.684	0.01615007
Sorcs2	5.19E-19	0.30218975	0.525	0.326	1.37E-14
Spag9	8.72E-18	0.25266598	0.931	0.778	2.31E-13
Spata13	1.32E-06	-0.41623567	0.093	0.163	0.03486759
Spred1	9.27E-20	0.27888841	0.801	0.583	2.45E-15
Sptbn2	1.75E-22	0.30187818	0.701	0.473	4.62E-18
St18	1.05E-11	-0.77132759	0.164	0.284	2.79E-07
Stac	2.50E-25	0.30591075	0.184	0.069	6.62E-21
Strbp	1.67E-19	0.29231811	0.783	0.565	4.41E-15
Stx1b	3.75E-22	0.25232041	0.665	0.42	9.92E-18
Stxbp1	3.14E-16	0.26067216	0.814	0.606	8.31E-12
Sun1	5.74E-21	0.27774195	0.727	0.489	1.52E-16
Sybu	1.96E-16	0.2968593	0.783	0.563	5.18E-12
Synpr	4.21E-09	0.41497421	0.428	0.316	0.00011136
Syt1	6.64E-16	0.34164322	0.931	0.826	1.76E-11
Tac1	1.71E-11	0.2980298	0.16	0.079	4.52E-07
Tacr3	1.04E-17	0.36800765	0.151	0.062	2.76E-13
Tafa2	2.27E-12	0.2664747	0.455	0.311	6.00E-08
Tbc1d5	1.03E-06	-0.30987834	0.909	0.841	0.02736247
Tenm2	5.36E-12	0.26884473	0.832	0.639	1.42E-07
Trim9	2.37E-19	0.4142182	0.821	0.614	6.26E-15
Trpc4	1.35E-09	0.30791204	0.515	0.38	3.58E-05
Tspan13	3.73E-21	0.27760977	0.601	0.387	9.85E-17
Ttc39b	5.71E-32	0.29694011	0.423	0.21	1.51E-27
Ugt8	2.18E-08	-0.76834445	0.164	0.253	0.00057602
Usp54	7.09E-07	-0.79699008	0.725	0.709	0.01873827
Utrn	3.70E-14	0.34595036	0.566	0.397	9.77E-10

Wnk2	1.21E-24	0.31981805	0.783	0.527	3.20E-20
Wwc1	1.32E-13	0.26140262	0.587	0.395	3.48E-09
Zdhhc2	1.37E-19	0.28177572	0.488	0.292	3.61E-15
Zfp385d	1.56E-17	0.52858175	0.377	0.22	4.14E-13
Zwint	3.89E-16	0.25668249	0.807	0.608	1.03E-11

Fos+ (Fasted)

Gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
AABR0702601	3.65E-20	0.31419153	0.187	0.074	9.65E-16
Adra1b	6.23E-18	0.26089418	0.128	0.044	1.65E-13
Ap2b1	1.81E-19	0.25132566	0.774	0.555	4.78E-15
Aplp2	8.27E-16	0.25677435	0.798	0.606	2.19E-11
Asap1	3.49E-18	0.26487306	0.693	0.473	9.23E-14
Atp1b2	1.55E-12	0.29722791	0.372	0.232	4.11E-08
Bach2	3.31E-21	0.34631905	0.743	0.506	8.76E-17
Bdh1	7.78E-19	0.29820495	0.572	0.368	2.06E-14
Btaf1	1.68E-13	0.26045784	0.712	0.525	4.44E-09
Cnr1	1.31E-14	0.2515382	0.609	0.406	3.48E-10
Cntn6	3.00E-11	0.2813321	0.438	0.289	7.93E-07
Disc1	1.01E-06	-0.58907378	0.165	0.249	0.02679614
Dlg1	1.42E-11	0.31225155	0.846	0.714	3.76E-07
Efnb2	2.64E-10	0.260494	0.558	0.405	6.98E-06
Egfm1	2.74E-08	0.25988112	0.486	0.352	0.00072427
Egr4	3.03E-52	0.27119392	0.136	0.023	8.00E-48
Ext1	2.50E-10	0.26677873	0.881	0.731	6.62E-06
Frmd3	1.15E-14	0.28978756	0.611	0.414	3.04E-10
Frmd4b	1.73E-06	-0.57856053	0.428	0.488	0.04564454
Garnl3	9.28E-11	0.29860187	0.572	0.423	2.45E-06
Gng4	7.87E-38	0.26468651	0.253	0.084	2.08E-33
Hcrtr2	2.25E-10	0.31275581	0.183	0.096	5.95E-06
Hs6st2	1.50E-12	0.30158585	0.481	0.319	3.96E-08
Kif1a	2.64E-24	0.29879686	0.85	0.609	6.98E-20
Kras	2.57E-24	0.31845253	0.644	0.419	6.79E-20
Mark1	4.55E-22	0.31221407	0.72	0.493	1.20E-17
Nck2	1.63E-10	0.29665252	0.66	0.507	4.32E-06
Notch2	1.86E-06	-0.3565253	0.208	0.293	0.0491055
Parm1	4.98E-09	0.28937814	0.418	0.289	0.00013159
Plk2	6.48E-31	0.30884269	0.457	0.23	1.71E-26
Plxdc2	1.25E-06	-0.57118058	0.753	0.769	0.03312516
Plxnc1	6.32E-25	0.33356622	0.564	0.331	1.67E-20
Resp18	1.04E-12	0.3794457	0.782	0.61	2.75E-08
Sh3gl2	8.05E-09	0.25705545	0.833	0.679	0.0002129
Slc1a4	1.16E-20	0.25156732	0.274	0.125	3.05E-16
Slc26a4	4.94E-07	0.25272792	0.259	0.173	0.01305611
Sox5	1.88E-18	0.3887511	0.735	0.498	4.96E-14
Sptbn1	7.00E-12	0.26445011	0.947	0.81	1.85E-07
St6gal2	1.74E-13	0.26677825	0.44	0.285	4.61E-09
Tacr3	7.92E-13	0.30609703	0.169	0.079	2.09E-08
Tanc1	1.38E-07	-0.63282152	0.401	0.464	0.00365522

Ywhag	3.66E-15	0.25189269	0.78	0.581	9.67E-11
-------	----------	------------	------	-------	----------

Fos+ (Fed and Fasted)

Gene	p_val	avg_log2FC	pct.1	pct.2	p_val_adj
AABR0700703	2.24E-20	0.29877002	0.685	0.457	5.93E-16
AABR0702181	1.13E-29	0.39259279	0.718	0.464	2.98E-25
AABR0702529	1.11E-10	0.36542581	0.406	0.276	2.95E-06
AABR0703153	2.75E-11	0.28759383	0.654	0.485	7.27E-07
AABR0704887	2.06E-10	0.52176087	0.581	0.457	5.45E-06
AABR0705289	2.35E-39	0.68642167	0.415	0.195	6.22E-35
AABR0705967	6.64E-14	0.47177367	0.26	0.143	1.76E-09
AABR0706013	6.52E-20	0.37589932	0.887	0.687	1.72E-15
AABR0706048	2.76E-28	0.60531489	0.845	0.614	7.29E-24
AABR0706816	1.16E-19	-0.86722167	0.515	0.626	3.06E-15
Abat	1.25E-30	0.2866219	0.557	0.309	3.31E-26
Abca8a	1.01E-12	-0.75161951	0.357	0.453	2.67E-08
Adamts13	2.90E-16	0.36192468	0.31	0.173	7.67E-12
Adcy8	8.07E-44	0.63704194	0.652	0.356	2.13E-39
Aff3	9.19E-12	0.29777249	0.814	0.616	2.43E-07
Ahi1	2.09E-21	0.38732022	0.878	0.702	5.52E-17
Alk	2.03E-20	0.53486439	0.355	0.195	5.36E-16
Anks1b	8.60E-11	0.28175848	0.922	0.879	2.27E-06
Arhgap26	1.85E-40	0.61058952	0.829	0.569	4.90E-36
Arhgef3	6.16E-24	0.27383249	0.474	0.267	1.63E-19
Arl5b	1.60E-39	0.42114254	0.37	0.159	4.24E-35
Arnt2	2.79E-13	0.27536201	0.738	0.56	7.36E-09
Arpp21	4.95E-10	0.42608266	0.663	0.558	1.31E-05
Asap2	7.48E-37	0.48921629	0.607	0.341	1.98E-32
Asic2	2.01E-18	0.303069	0.767	0.562	5.31E-14
Aspa	2.97E-09	-0.95608844	0.186	0.279	7.84E-05
Asph	3.56E-30	0.41865223	0.743	0.482	9.40E-26
Astn2	7.57E-39	0.66946565	0.774	0.506	2.00E-34
Atp1b2	6.21E-15	0.26181369	0.333	0.194	1.64E-10
Atxn1	1.17E-17	0.3005135	0.816	0.584	3.11E-13
Bcat1	1.06E-24	0.41120184	0.889	0.715	2.81E-20
Bdnf	1.28E-23	0.95848024	0.332	0.175	3.38E-19
Brinp3	9.17E-07	0.30097268	0.678	0.553	0.02425922
Btbd11	7.76E-27	0.48985911	0.341	0.164	2.05E-22
Btg2	2.34E-40	0.37447703	0.226	0.073	6.20E-36
Cacna2d3	3.15E-24	0.55587623	0.825	0.638	8.32E-20
Cadps	9.48E-24	0.4245713	0.854	0.661	2.51E-19
Caln1	1.88E-16	0.53543517	0.727	0.575	4.98E-12
Camk4	1.28E-26	0.54579987	0.605	0.385	3.39E-22
Carmil1	3.42E-25	0.35110674	0.676	0.44	9.04E-21
Cbs	5.55E-15	0.2881424	0.138	0.058	1.47E-10

Ccdc141	1.77E-24	0.36732493	0.169	0.061	4.68E-20
Ccn2	3.14E-18	0.40413608	0.124	0.045	8.31E-14
Cdh10	1.62E-24	0.47051845	0.725	0.489	4.29E-20
Cdh18	4.49E-17	0.45642733	0.565	0.369	1.19E-12
Cers6	1.55E-22	0.46730834	0.787	0.593	4.09E-18
Chst8	1.70E-13	0.42082952	0.352	0.224	4.49E-09
Chsy3	9.91E-10	0.47682035	0.749	0.595	2.62E-05
Cit	1.21E-36	0.58516219	0.537	0.288	3.19E-32
Clstn3	1.18E-30	0.35731559	0.741	0.482	3.11E-26
Clu	5.90E-12	0.40419476	0.694	0.52	1.56E-07
Clvs1	3.15E-21	0.33705907	0.659	0.447	8.32E-17
Cnnm1	2.13E-18	0.25626529	0.596	0.391	5.63E-14
Cntn4	3.96E-15	0.32786292	0.745	0.546	1.05E-10
Cntnap4	1.11E-41	0.75613379	0.503	0.249	2.94E-37
Cntnap5c	5.17E-17	0.46814117	0.581	0.388	1.37E-12
Col19a1	5.83E-33	0.63176403	0.364	0.165	1.54E-28
Cpe	1.83E-18	0.42079004	0.945	0.797	4.83E-14
Cpeb3	2.64E-17	0.30151373	0.862	0.653	6.99E-13
Cpne8	1.72E-21	0.43846242	0.383	0.21	4.56E-17
Ctnnd2	1.49E-41	0.62458632	0.922	0.744	3.95E-37
Cx3cl1	5.82E-30	0.33933682	0.59	0.347	1.54E-25
Cxadr	3.16E-19	0.30528074	0.667	0.46	8.36E-15
Dclk1	2.91E-42	0.68666704	0.882	0.718	7.69E-38
Dlc1	2.23E-21	0.41016195	0.63	0.409	5.90E-17
Dner	1.17E-17	0.35639373	0.749	0.538	3.08E-13
Dock3	7.24E-29	0.48663261	0.913	0.75	1.92E-24
Dok5	1.75E-42	0.48106365	0.381	0.161	4.62E-38
Dpp10	7.12E-25	0.41360567	0.623	0.392	1.88E-20
Efna5	2.90E-22	0.39442874	0.472	0.279	7.66E-18
Egfr	7.03E-11	0.27803606	0.262	0.158	1.86E-06
Egr1	2.74E-90	0.42404071	0.26	0.055	7.24E-86
Elavl2	6.97E-36	0.63990048	0.614	0.352	1.84E-31
Elavl4	8.10E-18	0.27700209	0.705	0.468	2.14E-13
Enpp2	1.82E-07	-0.83963683	0.188	0.266	0.00480755
Epha3	2.00E-14	0.42620954	0.59	0.421	5.30E-10
Epha5	2.18E-41	0.71815623	0.843	0.6	5.76E-37
Etl4	2.36E-52	1.13803831	0.647	0.36	6.25E-48
Etv5	5.96E-58	0.41130778	0.477	0.191	1.57E-53
Farp1	1.31E-32	0.44012513	0.825	0.571	3.45E-28
Fat3	2.72E-35	0.80708477	0.721	0.475	7.19E-31
Fbxo33	2.04E-25	0.38715663	0.51	0.289	5.40E-21
Fbxw7	1.44E-24	0.2923862	0.639	0.402	3.81E-20
Fhod3	3.37E-20	0.27735848	0.517	0.318	8.91E-16
Flrt2	5.34E-44	0.44221389	0.658	0.347	1.41E-39
Fnbp1l	2.65E-26	0.34939322	0.597	0.357	7.02E-22
Fndc3a	7.40E-15	0.26350408	0.74	0.547	1.96E-10
Fos	0	1.42979189	1	0	0

Fosb	4.17E-148	0.55925315	0.138	0.01	1.10E-143
Fosl2	1.27E-39	0.32927376	0.24	0.083	3.37E-35
Fras1	7.14E-10	0.55086598	0.408	0.295	1.89E-05
Fry	7.34E-25	0.45178204	0.874	0.648	1.94E-20
Fstl1	4.69E-21	0.34958644	0.495	0.298	1.24E-16
Fstl5	1.17E-15	0.47491902	0.466	0.301	3.10E-11
Fut9	8.60E-20	0.58630493	0.821	0.64	2.27E-15
Gad2	8.55E-20	0.55229554	0.403	0.235	2.26E-15
Galnt13	1.33E-10	0.2668593	0.694	0.537	3.50E-06
Galnt18	1.50E-18	0.33514491	0.75	0.535	3.98E-14
Gap43	2.11E-25	0.35469458	0.667	0.426	5.59E-21
Gfap	3.15E-11	0.48019016	0.22	0.124	8.32E-07
Gja1	2.54E-07	0.37798971	0.251	0.166	0.00671865
Gira2	3.41E-12	0.25653088	0.326	0.2	9.03E-08
Gls2	5.46E-32	0.28862112	0.477	0.246	1.44E-27
Gpr158	2.87E-22	0.49654618	0.794	0.562	7.59E-18
Gpr176	7.14E-24	0.42688058	0.497	0.297	1.89E-19
Gria3	5.51E-24	0.57178596	0.845	0.676	1.46E-19
Grik3	4.26E-18	0.42364072	0.432	0.268	1.13E-13
Grin1	4.02E-19	0.36215972	0.836	0.634	1.06E-14
Grin2b	2.23E-13	0.31788311	0.911	0.728	5.89E-09
Grin2c	2.61E-18	0.41982218	0.144	0.056	6.91E-14
Grip1	7.83E-31	0.56287418	0.763	0.529	2.07E-26
Grm5	2.82E-24	0.46654951	0.847	0.666	7.47E-20
Grm7	2.24E-11	0.33180723	0.8	0.652	5.92E-07
Grm8	3.31E-23	0.68216931	0.51	0.319	8.76E-19
Hcn1	1.24E-32	0.74033608	0.811	0.607	3.28E-28
Hectd2	1.64E-27	0.5121752	0.736	0.5	4.32E-23
Hecw1	4.15E-17	0.35528738	0.789	0.595	1.10E-12
Hmgcr	5.04E-31	0.2987813	0.625	0.354	1.33E-26
Hnrnp11	7.98E-22	0.40409381	0.557	0.353	2.11E-17
Homer1	1.24E-51	1.59780734	0.781	0.528	3.28E-47
Il1rapl2	4.11E-18	0.626526	0.346	0.195	1.09E-13
Ina	2.30E-33	0.45787268	0.638	0.378	6.09E-29
Inpp4b	1.64E-19	0.35664848	0.366	0.205	4.35E-15
Iqsec1	4.30E-22	0.31243326	0.696	0.465	1.14E-17
Iqsec3	1.21E-52	0.65081335	0.647	0.349	3.19E-48
Irs2	7.96E-33	0.36966988	0.435	0.218	2.11E-28
Itga8	2.87E-10	0.277613	0.341	0.224	7.59E-06
Itih3	1.51E-08	0.41069787	0.171	0.097	0.00039966
Junb	5.58E-67	0.48325552	0.337	0.103	1.48E-62
Kcnab1	1.10E-14	0.55761049	0.783	0.66	2.91E-10
Kcnc2	2.20E-20	0.93975427	0.579	0.399	5.83E-16
Kcnh7	7.22E-12	0.34511882	0.548	0.379	1.91E-07
Kcnip1	1.34E-14	0.33446999	0.497	0.325	3.55E-10
Khdrbs2	9.79E-14	0.4445143	0.769	0.627	2.59E-09
Kif5c	1.39E-27	0.40532946	0.896	0.682	3.68E-23

Klf12	1.23E-29	0.48744746	0.785	0.53	3.24E-25
Lamc1	5.91E-19	0.36601687	0.689	0.49	1.56E-14
Ldb2	2.27E-11	0.29760983	0.654	0.494	6.00E-07
Lrrc8c	1.70E-29	0.30183505	0.55	0.312	4.50E-25
Lrrk2	4.14E-19	0.2746873	0.539	0.341	1.09E-14
Magi3	7.89E-23	0.46223637	0.639	0.425	2.09E-18
Man1b1	1.38E-28	0.31149946	0.656	0.401	3.64E-24
Map7	1.70E-13	-0.84227449	0.634	0.66	4.48E-09
Mapk10	1.31E-26	0.51517736	0.863	0.675	3.47E-22
Mapk8	5.53E-20	0.36931378	0.736	0.527	1.46E-15
Mdga2	4.64E-21	0.36987317	0.903	0.745	1.23E-16
Mest	9.30E-31	0.81121065	0.45	0.241	2.46E-26
Mical2	7.36E-16	0.27968927	0.74	0.529	1.95E-11
Mmp16	4.64E-08	0.2530379	0.814	0.644	0.00122771
Msi2	1.46E-18	0.48581985	0.809	0.613	3.87E-14
Mtus2	7.54E-14	0.26134939	0.689	0.474	1.99E-09
Nap1l5	3.37E-33	0.36362895	0.503	0.26	8.90E-29
Nav1	1.00E-06	-0.44780908	0.772	0.724	0.02645114
Nedd4l	4.80E-12	0.25022214	0.842	0.639	1.27E-07
Nmt2	6.59E-23	0.33786591	0.772	0.54	1.74E-18
Nnat	1.56E-06	0.48954984	0.588	0.467	0.04134602
Npas2	8.91E-30	0.7009873	0.661	0.428	2.36E-25
Nr4a1	3.40E-149	0.76821543	0.392	0.079	8.98E-145
Nr4a2	3.32E-74	0.67953261	0.306	0.084	8.77E-70
Nr4a3	1.50E-77	1.5512595	0.468	0.179	3.97E-73
Nrcam	8.77E-17	0.35955564	0.94	0.775	2.32E-12
Nrxn1	3.82E-27	0.5069674	0.958	0.85	1.01E-22
Nrxn3	1.80E-26	0.62254831	0.909	0.763	4.76E-22
Nt5dc3	7.32E-17	0.32229516	0.441	0.281	1.94E-12
Ntm	7.28E-24	0.42061936	0.729	0.513	1.93E-19
Ntrk2	7.02E-80	0.90519329	0.923	0.716	1.86E-75
Nyap2	4.95E-13	0.34835247	0.594	0.417	1.31E-08
Osbpl10	5.83E-27	0.35118436	0.49	0.276	1.54E-22
Osbpl3	3.22E-33	0.27918444	0.302	0.126	8.50E-29
Osbpl6	1.03E-23	0.41608032	0.73	0.514	2.72E-19
Osbpl8	2.15E-18	0.33760069	0.791	0.592	5.69E-14
Oxr1	4.30E-17	0.43955163	0.898	0.818	1.14E-12
Pam	5.83E-36	0.79495373	0.805	0.593	1.54E-31
Pamr1	5.48E-33	0.27824821	0.215	0.074	1.45E-28
Pcdh15	1.37E-06	-0.39336661	0.373	0.259	0.03623242
Pclo	1.72E-20	0.37844853	0.903	0.725	4.56E-16
Pcsk5	8.23E-14	0.62574759	0.614	0.465	2.18E-09
Pde10a	8.28E-32	0.57523132	0.809	0.58	2.19E-27
Pde4d	9.90E-20	0.62626475	0.911	0.746	2.62E-15
Pde9a	3.03E-24	0.41308173	0.689	0.446	8.02E-20
Peg3	1.78E-28	0.45910695	0.829	0.608	4.71E-24
Peli1	1.79E-09	0.36139487	0.685	0.519	4.72E-05

Penk	6.00E-08	0.51043423	0.197	0.122	0.00158713
Pitpna	5.77E-29	0.3540504	0.73	0.47	1.53E-24
Pitpnm3	7.59E-35	0.27062582	0.424	0.199	2.01E-30
Plcb1	1.30E-30	0.47311161	0.827	0.584	3.43E-26
Plcxd3	3.24E-11	0.49312846	0.301	0.193	8.57E-07
Ppp2r2b	1.72E-15	0.32289798	0.929	0.791	4.54E-11
Ptchd4	3.53E-39	0.78770808	0.419	0.198	9.34E-35
Ptprm	1.23E-14	0.38521989	0.632	0.438	3.26E-10
Ptprn	8.65E-38	0.49630299	0.792	0.524	2.29E-33
Ptprn2	1.01E-29	0.5081794	0.863	0.647	2.68E-25
R3hdm1	7.32E-20	0.86327635	0.88	0.751	1.94E-15
Rap1gds1	3.01E-14	0.32380943	0.696	0.51	7.97E-10
Rasal2	9.72E-22	0.38628023	0.876	0.698	2.57E-17
Rasgrf1	5.93E-16	0.2726126	0.765	0.535	1.57E-11
Rgs17	7.45E-20	0.3400013	0.548	0.347	1.97E-15
Rgs20	3.86E-12	0.31009928	0.235	0.129	1.02E-07
Rgs7	8.70E-23	0.43145631	0.776	0.545	2.30E-18
Rheb	7.82E-45	0.42757474	0.639	0.345	2.07E-40
Rims2	1.66E-27	0.46845323	0.894	0.711	4.40E-23
Ripor2	5.30E-22	0.37302256	0.714	0.496	1.40E-17
Robo2	6.91E-27	0.58226266	0.842	0.637	1.83E-22
Rock2	1.01E-17	0.35577524	0.834	0.65	2.68E-13
Rorb	2.09E-20	0.59985691	0.255	0.122	5.53E-16
Rspo2	6.18E-16	0.3505097	0.384	0.226	1.63E-11
Rxfp1	5.61E-13	0.31494731	0.155	0.073	1.48E-08
Samd5	6.54E-29	0.44871705	0.659	0.4	1.73E-24
Satb2	1.58E-14	0.35799383	0.306	0.176	4.19E-10
Scg2	2.96E-35	0.78306866	0.712	0.447	7.81E-31
Scg3	1.76E-24	0.37540573	0.69	0.459	4.66E-20
Scube1	3.40E-27	0.28224817	0.282	0.125	8.99E-23
Sdk2	7.57E-11	0.33035304	0.532	0.38	2.00E-06
Sel1l3	1.77E-19	0.25412949	0.423	0.242	4.67E-15
Septin11	1.18E-30	0.3702783	0.714	0.45	3.13E-26
Serinc5	1.45E-13	-0.74406795	0.392	0.49	3.82E-09
Sgip1	2.10E-23	0.35539303	0.856	0.63	5.55E-19
Shc3	3.36E-58	0.58521752	0.663	0.337	8.87E-54
Slc1a2	2.04E-19	0.74894904	0.399	0.232	5.40E-15
Slc2a13	1.20E-14	0.29488453	0.778	0.569	3.18E-10
Slc35f1	3.10E-21	0.29100684	0.638	0.406	8.20E-17
Slc6a17	1.10E-37	0.4692239	0.674	0.417	2.90E-33
Slc7a1	1.68E-19	0.27577427	0.393	0.216	4.45E-15
Slc7a8	9.10E-53	0.78521715	0.725	0.434	2.41E-48
Slc8a3	8.74E-36	0.45703227	0.592	0.329	2.31E-31
Snap25	4.53E-33	0.58992904	0.911	0.758	1.20E-28
Snhg11	1.30E-32	0.57149802	0.831	0.614	3.43E-28
Sorbs1	7.94E-29	0.47819753	0.863	0.643	2.10E-24
Sorbs2	1.46E-15	0.43245409	0.838	0.649	3.85E-11

Sorcs3	1.79E-11	0.6757365	0.61	0.476	4.73E-07
Spire1	3.14E-28	0.43911966	0.858	0.633	8.31E-24
Spred2	1.28E-41	0.50385606	0.794	0.503	3.37E-37
Srrm4	5.10E-20	0.32728791	0.676	0.448	1.35E-15
St6galnac3	2.82E-08	-0.63826765	0.703	0.674	0.00074436
ST7	8.00E-14	0.33434335	0.763	0.566	2.12E-09
Syt4	8.32E-30	0.30650807	0.608	0.35	2.20E-25
Tbc1d9	6.83E-26	0.3798614	0.523	0.305	1.81E-21
Tcf12	1.14E-10	-0.44968889	0.885	0.858	3.01E-06
Tenm3	1.29E-41	0.63295204	0.648	0.374	3.42E-37
Thrb	1.38E-29	0.63667414	0.794	0.579	3.66E-25
Tiparp	3.89E-28	0.32069155	0.246	0.1	1.03E-23
Tmem130	2.87E-15	0.29474798	0.847	0.647	7.59E-11
Tmem178a	1.56E-34	0.58841255	0.636	0.388	4.12E-30
Tmem200a	1.25E-14	0.31755669	0.486	0.325	3.30E-10
Tmx4	9.97E-18	0.33673634	0.823	0.627	2.64E-13
Trank1	1.78E-23	0.46758841	0.663	0.458	4.72E-19
Trhde	2.22E-28	0.74745672	0.546	0.326	5.88E-24
Tshz3	5.64E-21	0.30693773	0.375	0.204	1.49E-16
Ttyh1	1.70E-15	0.32556088	0.678	0.481	4.49E-11
Unc13c	1.76E-08	0.29939105	0.142	0.077	0.00046418
Ust	2.05E-09	0.2809085	0.554	0.412	5.41E-05
Vgf	6.46E-78	0.72770722	0.521	0.194	1.71E-73
Vsnl1	2.50E-37	0.50907553	0.736	0.461	6.60E-33
Vwc2	2.71E-15	0.40877103	0.244	0.129	7.16E-11
Vwc2l	2.81E-15	0.42845898	0.262	0.141	7.42E-11
Xkr6	6.09E-23	0.31173593	0.548	0.336	1.61E-18
Zbtb20	8.22E-09	-0.3389025	0.679	0.733	0.00021733
Zdbf2	1.28E-42	0.78198357	0.475	0.243	3.37E-38
Zeb2	2.46E-11	-0.43190495	0.832	0.865	6.51E-07
Zfp385b	6.38E-24	0.4492987	0.736	0.511	1.69E-19