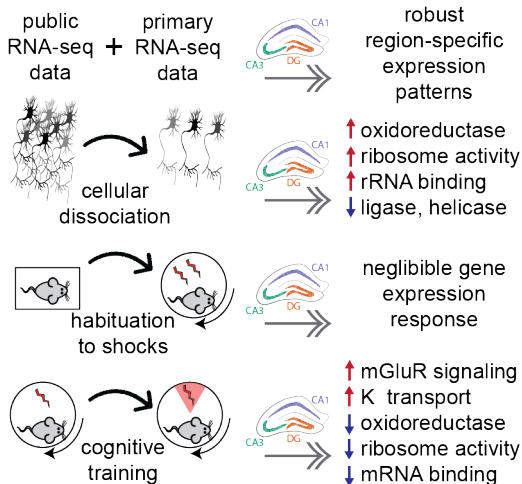


# Identifying and calibrating the effects of cellular dissociation for transcriptomics in neuroscience

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# Graphical Abstract



# Materials & Methods

## LEVELS OF ANALYSIS

TCCAACATG  
AACTCCTCG  
CGAATGGA  
CTCACCCAA  
AAGAGCTG



## HPC FOR RNA-seq

TACC  
FASTQC  
Cutadapt  
Kallisto

## STATISTICAL ANALYSES

DEseq2  
GO\_MWU

## RESEARCH SHARING

GitHub  
Zenodo  
GEO  
FigShare  
BioRxiv  
Peer Review  
Medium  
YouTube  
SlideShare  
Cirricula

## REPRODUCIBLE RESEARCH in R

reshape2  
dplyr  
plyr  
knitr

## DATA VIZUALIZATION

VennDiagram  
ggplot2  
cowplot  
pheatmap  
RColorBrewer  
Adobe Illustrator

# Figure 1

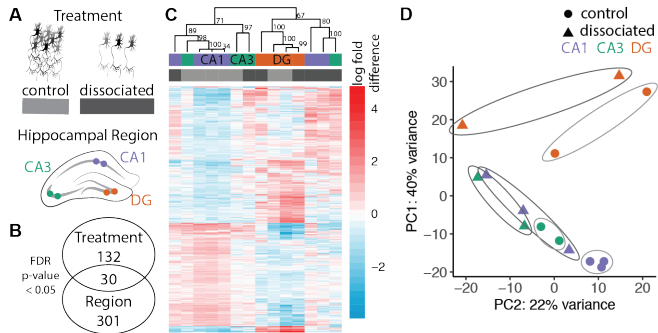


Figure 2

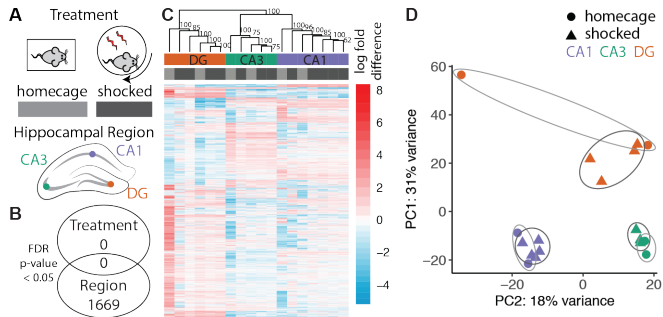
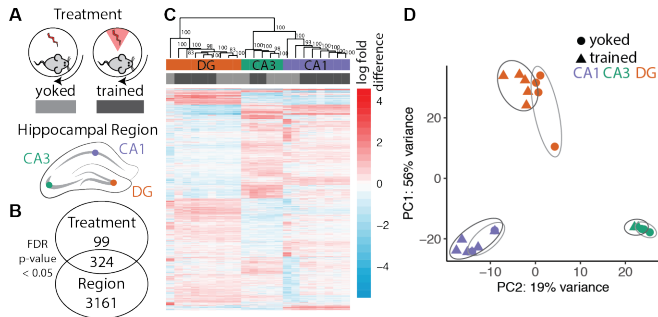
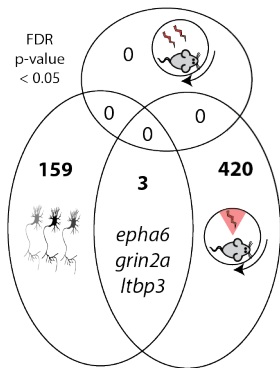


Figure 3



# Figure 4

## A. Treatment-induced gene expression changes



## B. Dissociation-induced molecular functions

74/325 structural molecule  
42/88 structural constituent of ribosome  
15/55 rRNA binding  
8/128 helicase  
19/245 ligase, forming carbon–nitrogen bonds  
32/433 ligase  
12/62 oxidoreductase, acting on NAD(P)H  
50/596 oxidoreductase  
10/36 oxidoreductase, acting on NAD(P)H, quinone or similar  
11/66 hydrogen ion transmembrane transporter

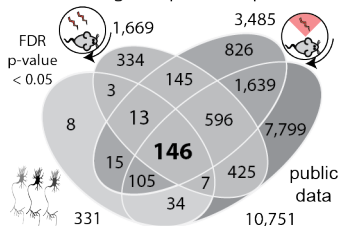
UP  
Down  
p < 0.00001  
p < 0.0001  
p < 0.001

## C. Cognitive training -induced molecular functions

180/801 poly(A) RNA binding  
20/87 structural constituent of ribosome  
10/38 oxidoreductase, acting on NAD(P)H, quinone or similar  
11/25 glutamate receptor  
128/801 signal transducer  
105/678 receptor  
13/68 hydrogen ion transmembrane transporter  
143/735 transmembrane transporter  
80/357 calcium ion binding

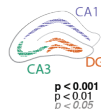
# Figure 5

## A. Shared region-specific expression



## B. Enriched region-specific cellular compartments and molecular functions

17/522 synapse part  
10/210 postsynaptic density  
28/1239 neuron part  
11/237 synaptic membrane  
15/506 synapse  
21/818 integral component of plasma membrane  
6/65 Rho guanyl-nucleotide exchange factor  
7/110 Ras guanyl-nucleotide exchange factor  
4/26 calcium channel regulator  
4/24 proteoglycan binding





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