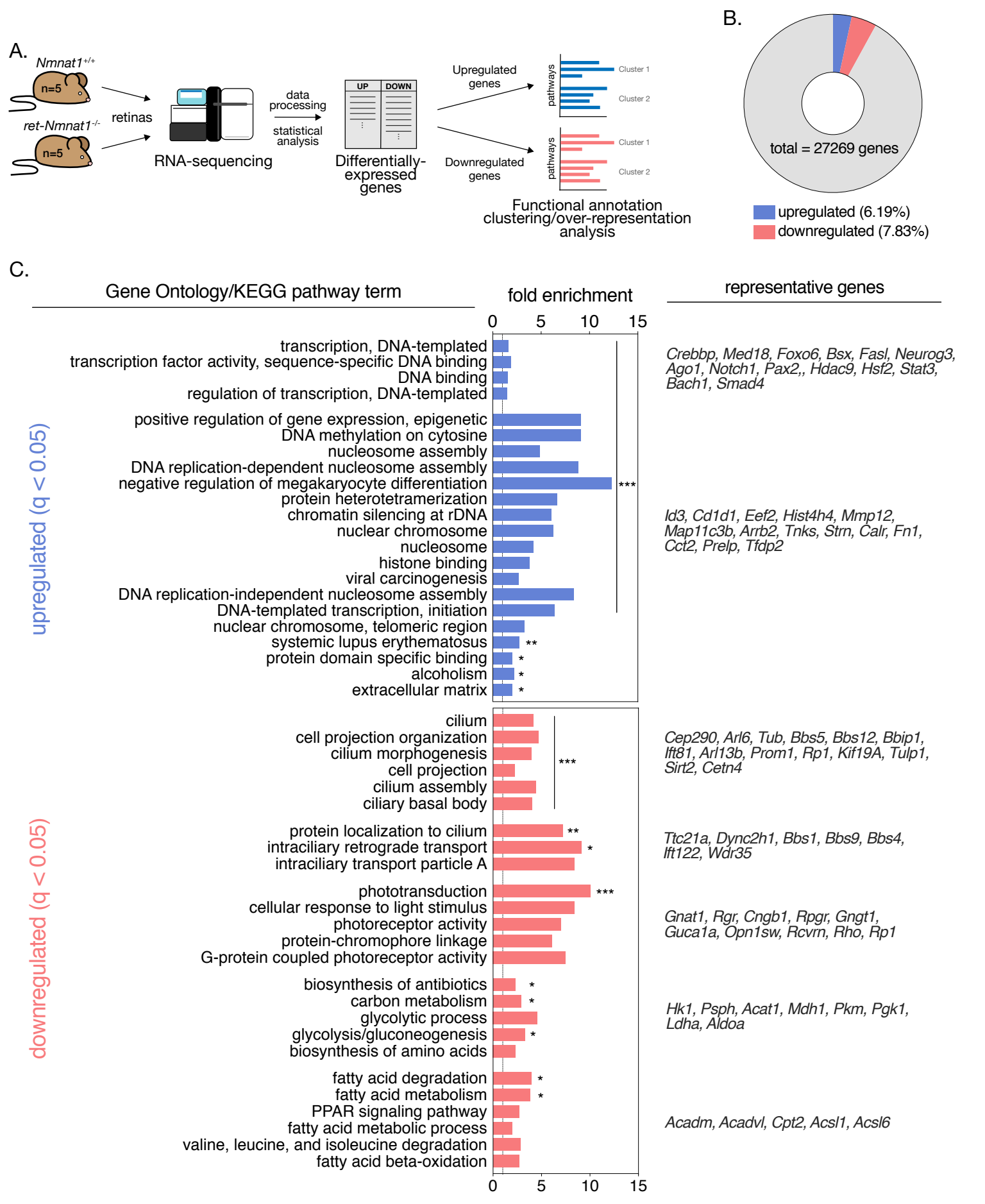
A.
Nmnat1+/+
n=5
ret-Nmnat1-/-
n=5
retinas
RNA-sequencing
data processing
statistical analysis
UP
DOWN
Differentially-expressed genes
Upregulated genes
Downregulated genes
pathways
Cluster 1
Cluster 2
Functional annotation clustering/over-representation analysis
B.
total = 27269 genes
upregulated (6.19%)
downregulated (7.83%)
C.
Gene Ontology/KEGG pathway term
fold enrichment
representative genes
upregulated (q < 0.05)
transcription, DNA-templated
transcription factor activity, sequence-specific DNA binding
DNA binding
regulation of transcription, DNA-templated
Crebbp, Med18, Foxo6, Bsx, Fasl, Neurog3, Ago1, Notch1, Pax2,, Hdac9, Hsf2, Stat3, Bach1, Smad4
positive regulation of gene expression, epigenetic
DNA methylation on cytosine
nucleosome assembly
DNA replication-dependent nucleosome assembly
negative regulation of megakaryocyte differentiation
protein heterotetramerization
chromatin silencing at rDNA
nuclear chromosome
nucleosome
histone binding
viral carcinogenesis
DNA replication-independent nucleosome assembly
DNA-templated transcription, initiation
nuclear chromosome, telomeric region
systemic lupus erythematosus
protein domain specific binding
alcoholism
extracellular matrix
Id3, Cd1d1, Eef2, Hist4h4, Mmp12, Map11c3b, Arrb2, Tnks, Strn, Calr, Fn1, Cct2, Prelp, Tfdp2
downregulated (q < 0.05)
cilium
cell projection organization
cilium morphogenesis
cell projection
cilium assembly
ciliary basal body
Cep290, Arl6, Tub, Bbs5, Bbs12, Bbip1, Ift81, Arl13b, Prom1, Rp1, Kif19A, Tulp1, Sirt2, Cetn4
protein localization to cilium
intraciliary retrograde transport
intraciliary transport particle A
Ttc21a, Dync2h1, Bbs1, Bbs9, Bbs4, Ift122, Wdr35
phototransduction
cellular response to light stimulus
photoreceptor activity
protein-chromophore linkage
G-protein coupled photoreceptor activity
Gnat1, Rgr, Cngb1, Rpgr, Gngt1, Guca1a, Opn1sw, Rcvrn, Rho, Rp1
biosynthesis of antibiotics
carbon metabolism
glycolytic process
glycolysis/gluconeogenesis
biosynthesis of amino acids
Hk1, Psph, Acat1, Mdh1, Pkm, Pgk1, Ldha, Aldoa
fatty acid degradation
fatty acid metabolism
PPAR signaling pathway
fatty acid metabolic process
valine, leucine, and isoleucine degradation
fatty acid beta-oxidation
Acadm, Acadvl, Cpt2, Acsl1, Acsl6
0
5
10
15