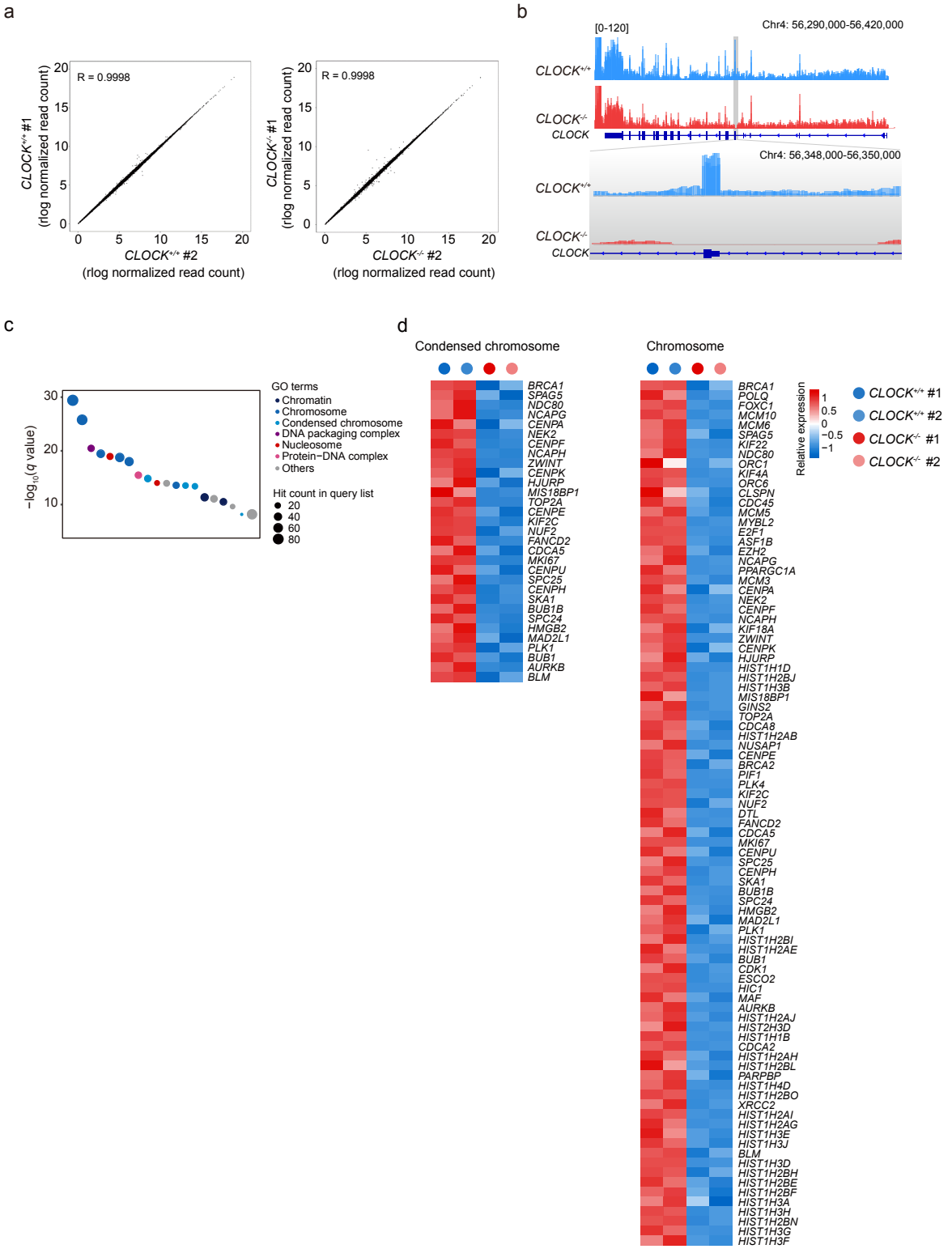
Figure S5


a
R = 0.9998
CLOCK+/+ #1 (rlog normalized read count)
CLOCK+/+ #2 (rlog normalized read count)
R = 0.9998
CLOCK-/- #1 (rlog normalized read count)
CLOCK-/- #2 (rlog normalized read count)
b
[0-120]
Chr4: 56,290,000-56,420,000
CLOCK+/+
CLOCK-/-
CLOCK
Chr4: 56,348,000-56,350,000
CLOCK+/+
CLOCK-/-
CLOCK
c
−log10(q value)
GO terms
Chromatin
Chromosome
Condensed chromosome
DNA packaging complex
Nucleosome
Protein−DNA complex
Others
Hit count in query list
20
40
60
80
d
Condensed chromosome
Chromosome
BRCA1
SPAG5
NDC80
NCAPG
CENPA
NEK2
CENPF
NCAPH
ZWINT
CENPK
HJURP
MIS18BP1
TOP2A
CENPE
KIF2C
NUF2
FANCD2
CDCA5
MKI67
CENPU
SPC25
CENPH
SKA1
BUB1B
SPC24
HMGB2
MAD2L1
PLK1
BUB1
AURKB
BLM
POLQ
FOXC1
MCM10
MCM6
KIF22
ORC1
KIF4A
ORC6
CLSPN
CDC45
MCM5
MYBL2
E2F1
ASF1B
EZH2
NCAPG
PPARGC1A
MCM3
CENPA
NEK2
CENPF
NCAPH
KIF18A
ZWINT
CENPK
HJURP
HIST1H1D
HIST1H2BJ
HIST1H3B
MIS18BP1
GINS2
TOP2A
CDCA8
HIST1H2AB
NUSAP1
CENPE
BRCA2
PIF1
PLK4
KIF2C
NUF2
DTL
FANCD2
CDCA5
MKI67
CENPU
SPC25
CENPH
SKA1
BUB1B
SPC24
HMGB2
MAD2L1
PLK1
HIST1H2BI
HIST1H2AE
BUB1
CDK1
ESCO2
HIC1
MAF
AURKB
HIST1H2AJ
HIST2H3D
HIST1H1B
CDCA2
HIST1H2AH
HIST1H2BL
PARPBP
HIST1H4D
HIST1H2BO
XRCC2
HIST1H2AI
HIST1H2AG
HIST1H3E
HIST1H3J
BLM
HIST1H3D
HIST1H2BH
HIST1H2BE
HIST1H2BF
HIST1H3A
HIST1H3H
HIST1H2BN
HIST1H3G
HIST1H3F
Relative expression
CLOCK+/+ #1
CLOCK+/+ #2
CLOCK-/- #1
CLOCK-/- #2

Supplementary information, Fig. S5 RNA-seq analysis of *CLOCK*$^{-/-}$ hMSCs. a Scatter plots showing the correlation between RNA-seq replicates from late-passage *CLOCK*$^{+/+}$ and *CLOCK*$^{-/-}$ hMSCs (P9). **b** Top, representative tracks showing the RNA level of *CLOCK* in late-passage *CLOCK*$^{+/+}$ and *CLOCK*$^{-/-}$ hMSCs (P9). Bottom, gene editing sites for *CLOCK* (exon 5) using CRISPR/Cas9-mediated HR with its flanking region zoomed. **c** Scatter plot showing the GO biological process terms enriched in downregulated genes in *CLOCK*$^{-/-}$ hMSCs compared to *CLOCK*$^{+/+}$ hMSCs at late-passage (P9). **d** Heatmap showing the Z-score normalized expression levels of genes associated with “Condensed chromatin” and “Chromosome” in *CLOCK*$^{-/-}$ hMSCs compared to *CLOCK*$^{+/+}$ hMSCs at late-passage (P9).