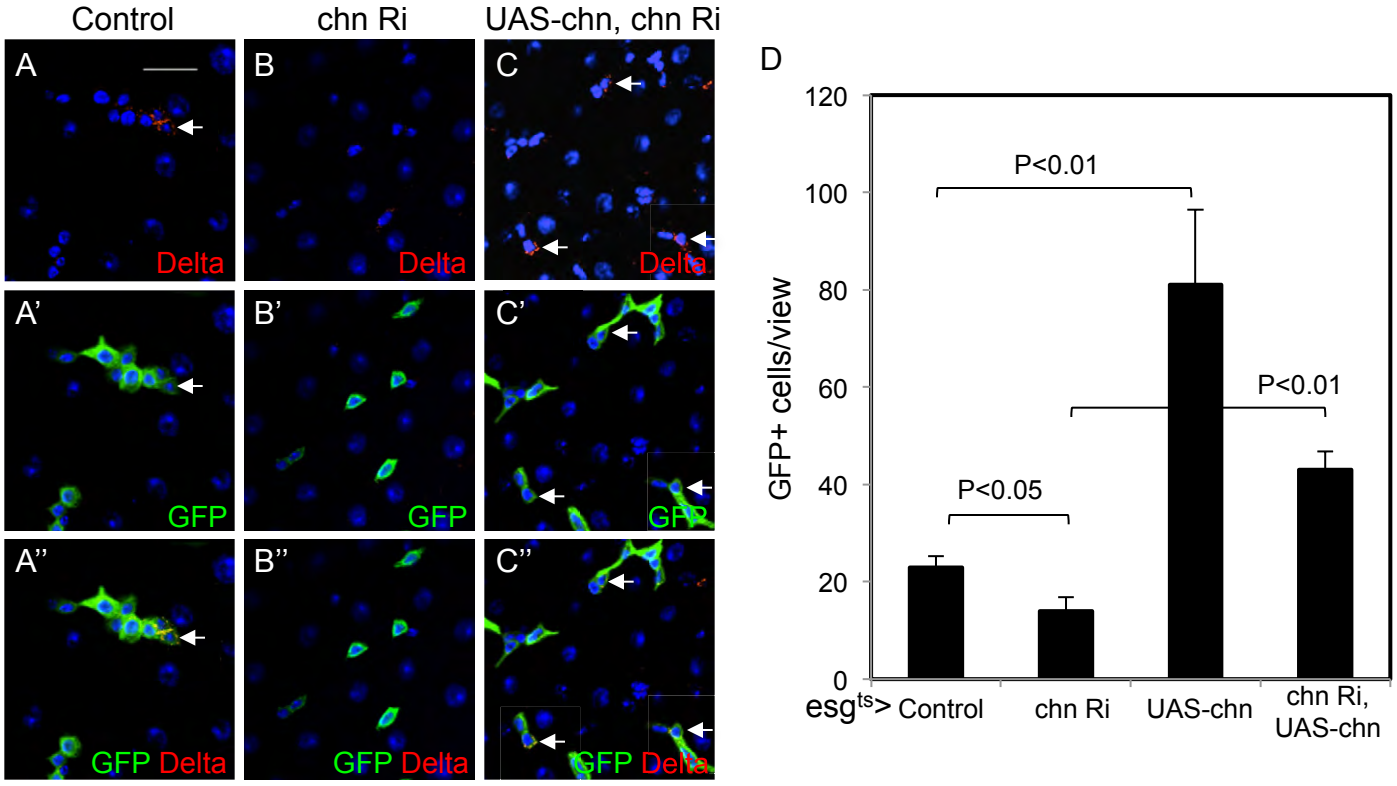
Fig. S1. Transgenic rescue of *chn* RNAi-induced phenotype and the expression of a JAK-STAT pathway reporter after *chn* RNAi. (A-C) The control flies were esg^{ts}>GFP crossed with *w-* flies, the chn Ri were esg^{ts}>GFP crossed with UAS-*chn*^{RNAi} flies, and the recue line also contained the UAS-Chn construct. Guts from 5 day old flies after placing at 29^{o}C for additional 3 days were dissected and used for Delta staining. (D) Quantification of GFP+ cell number for the flies with the indicated genotype as described above. Confocal images with 40X objective were taken from posterior midguts and the cells were counted. (E-J) The expression of the JAK-STAT pathway reporter gene 10XSTAT-GFP after *chn* RNAi. The reporter containing chromosome were crossed together with the esg^{ts}> driver without the UAS-GFP, and then crossed with the UAS-*chn*^{RNAi} construct. The flies were shifted to 29^{o}C for the days indicated and guts were dissected for imaging as shown.

Fig. S2. Analysis of HP1, H3K4me3 and suppression by HDAC after *chn* RNAi. (A, B) Confocal images of HP1 and DAPI staining of midgut precursor cells after esg^{ts}> *chn* RNAi. The staining of DNA by DAPI reveals a mild concomitant change of chromatin and HP1 staining after *chn* RNAi (arrowheads). The scale bar in panel A is 10 μm. (C, D) Staining of another marker H3K4me3 showed slight reduction of this chromatin modification in *chn* RNAi fly gut precursor cells (arrowheads). (E) Flies were 5 days old and shifted to 29^{o}C for 3 days and then used for gut dissection and pH3 staining. The genotypes of the flies containing either *chn* RNAi or together with one of the *hdac* RNAi were as indicated. (F-H) The control and RNAi flies as indicated were used for gut dissection and HP-1 staining. The arrows indicate GFP+ cells with normal or rescued HP-1 staining and the arrowheads indicate GFP+ cells with weaker and less focused HP-1 staining.

Figure S1


Control
chn Ri
UAS-chn, chn Ri
A
B
C
Delta
A'
B'
C'
GFP
A''
B''
C''
GFP Delta
D
GFP+ cells/view
120
100
80
60
40
20
0
P<0.01
P<0.01
P<0.05
esg^ts> Control
chn Ri
UAS-chn
chn Ri, UAS-chn

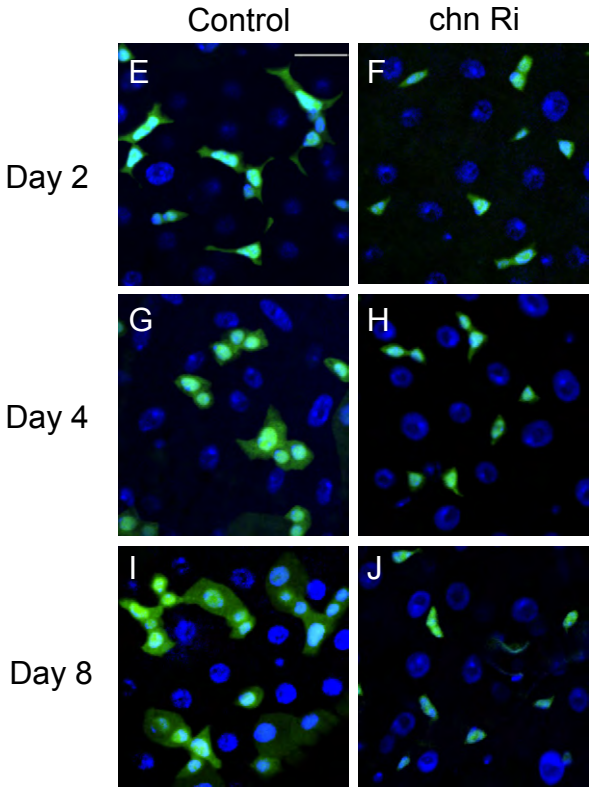
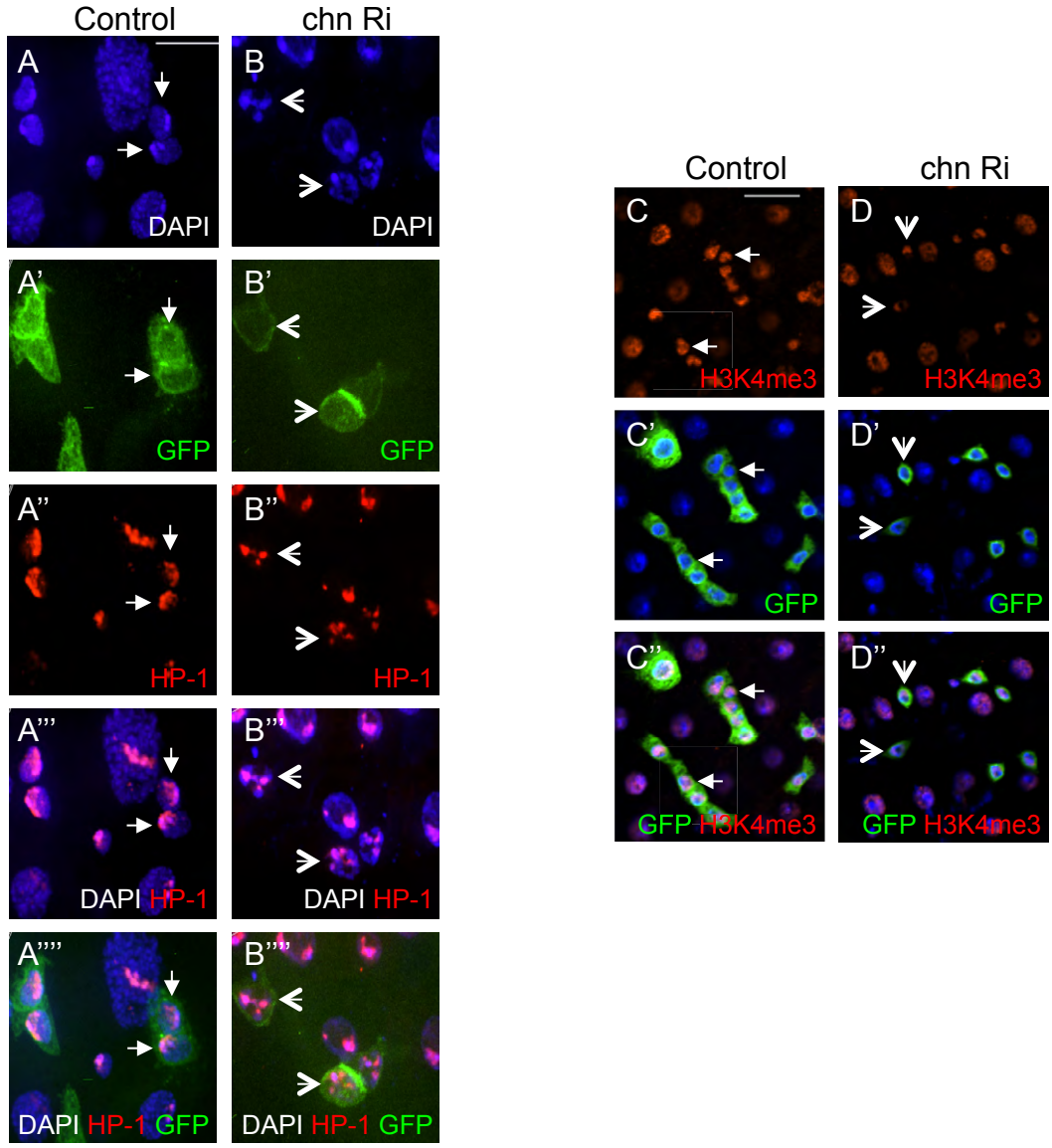
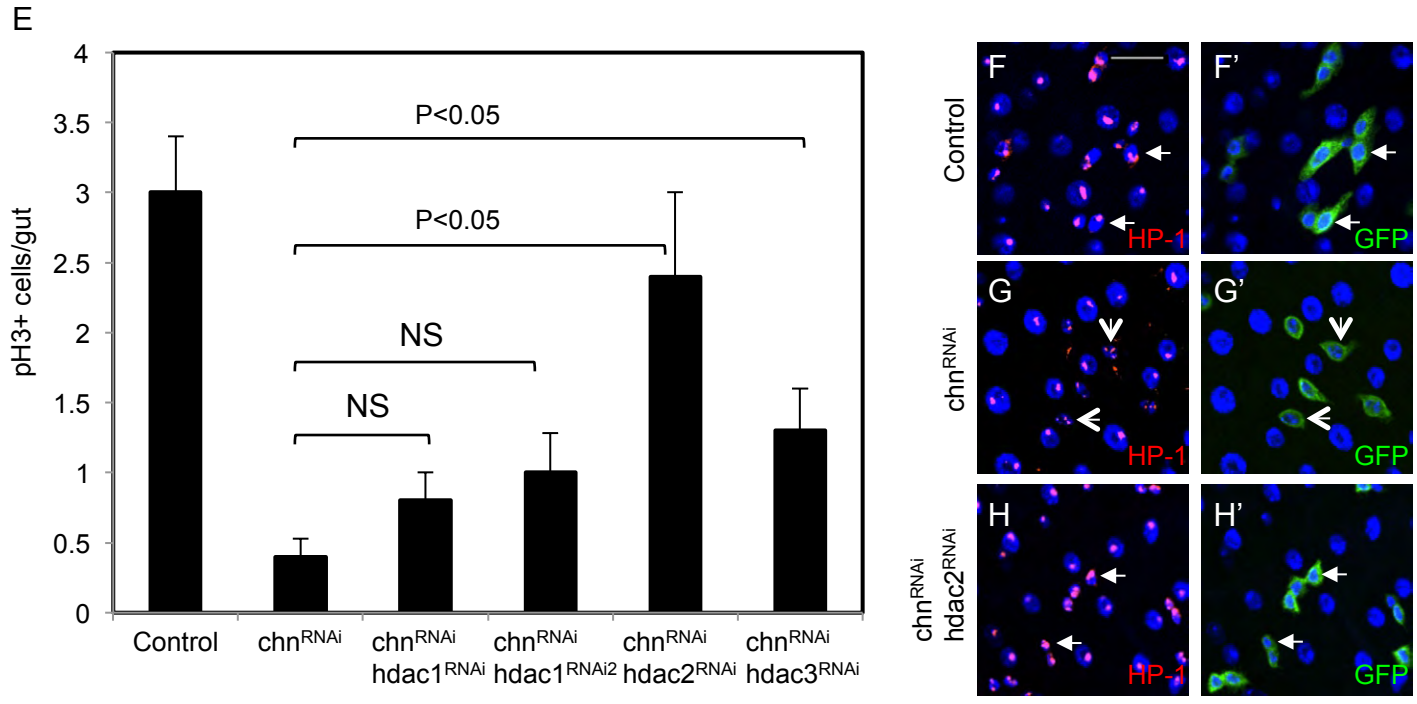

Control
chn Ri
E
F
Day 2
G
H
Day 4
I
J
Day 8
10XSTAT--GFP

Figure S2


Control
chn Ri
A
DAPI
B
DAPI
A'
GFP
B'
GFP
A''
HP-1
B''
HP-1
A'''
DAPI HP-1
B'''
DAPI HP-1
A''''
DAPI HP-1 GFP
B''''
DAPI HP-1 GFP
Control
chn Ri
C
H3K4me3
D
H3K4me3
C'
GFP
D'
GFP
C''
GFP H3K4me3
D''
GFP H3K4me3


E
pH3+ cells/gut
4
3.5
3
2.5
2
1.5
1
0.5
0
P<0.05
P<0.05
NS
NS
Control
chnRNAi
chnRNAi hdac1RNAi
chnRNAi hdac1RNAi2
chnRNAi hdac2RNAi
chnRNAi hdac3RNAi
Control
F
HP-1
F'
GFP
chnRNAi
G
HP-1
G'
GFP
chnRNAi hdac2RNAi
H
HP-1
H'
GFP