Figure 1

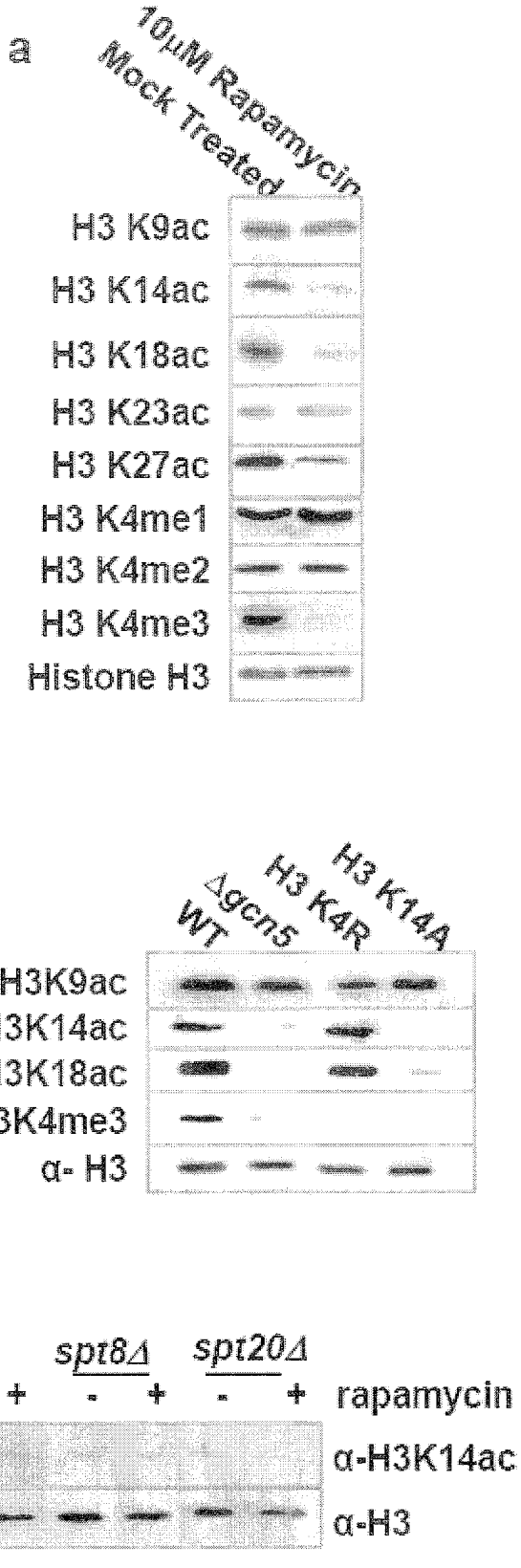
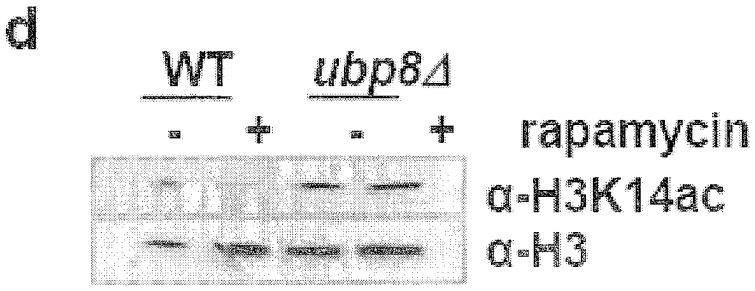
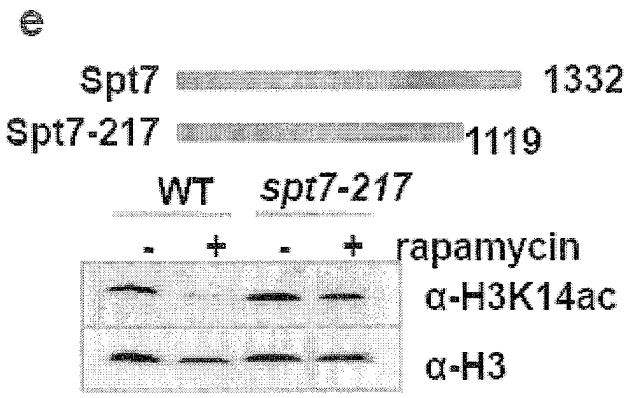

a
10μM Rapamycin
Mock Treated
H3 K9ac
H3 K14ac
H3 K18ac
H3 K23ac
H3 K27ac
H3 K4me1
H3 K4me2
H3 K4me3
Histone H3
b
WT
Δgcn5
H3 K4R
H3 K14A
α-H3K9ac
α-H3K14ac
α-H3K18ac
α-H3K4me3
α- H3
c
WT
spt8Δ
spt20Δ
- + - + - +
rapamycin
α-H3K14ac
α-H3

Figure 1 (cont)





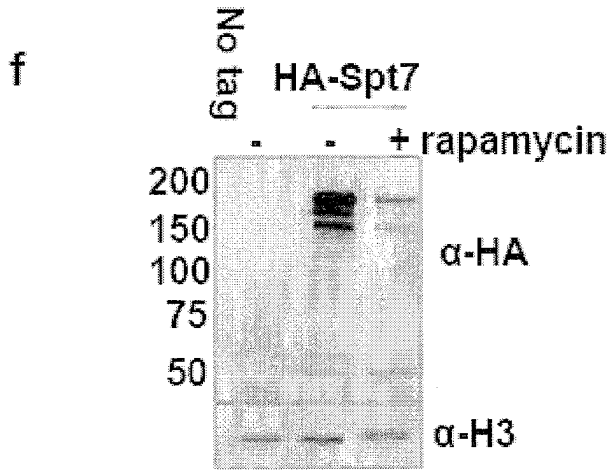


Figure 1 (cont)

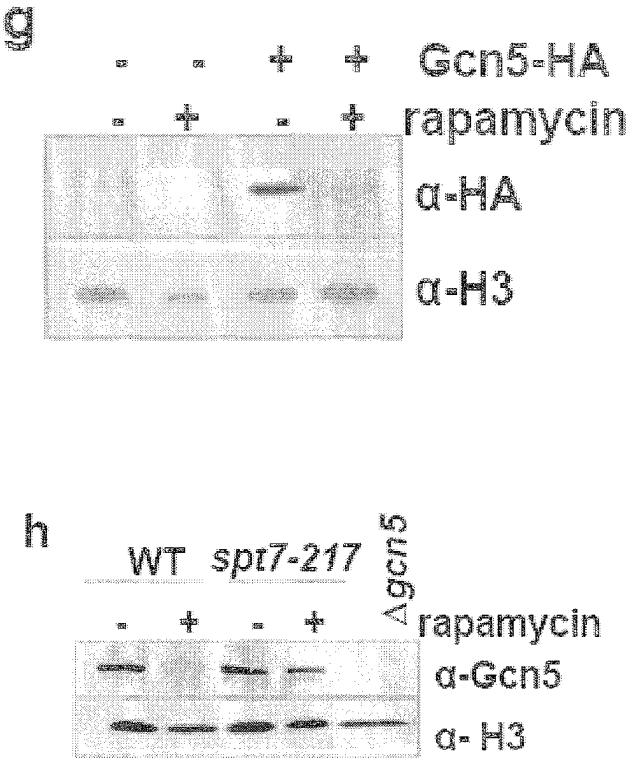


Figure 2

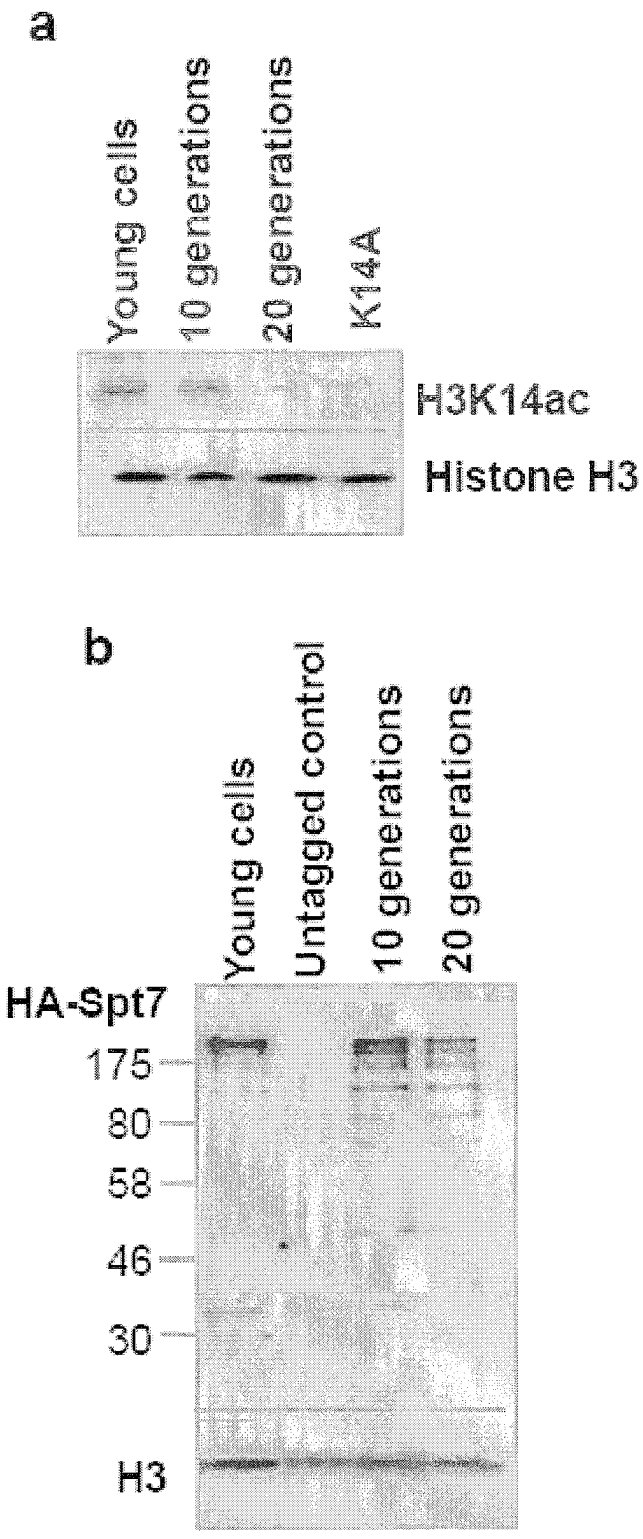

a
Young cells
10 generations
20 generations
K14A
H3K14ac
Histone H3
b
Young cells
Untagged control
10 generations
20 generations
HA-Spt7
175
80
58
46
30
H3

Figure 2 (cont)

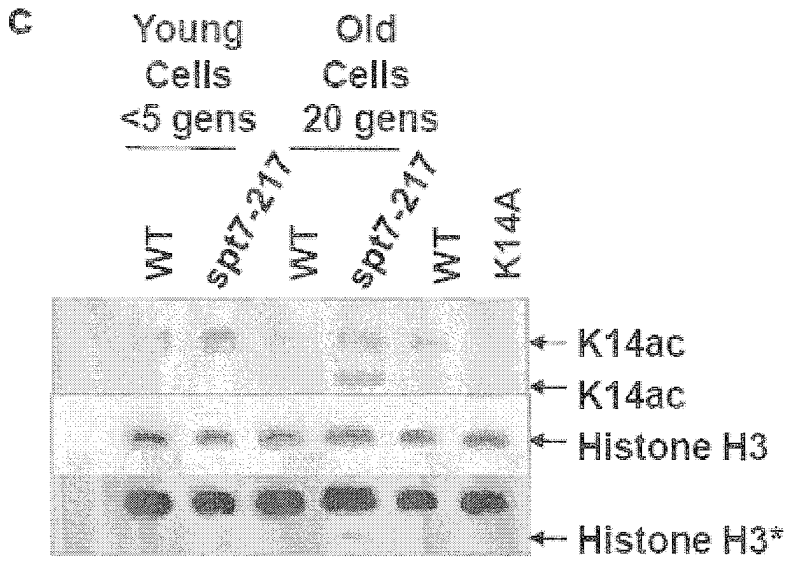


Figure 3

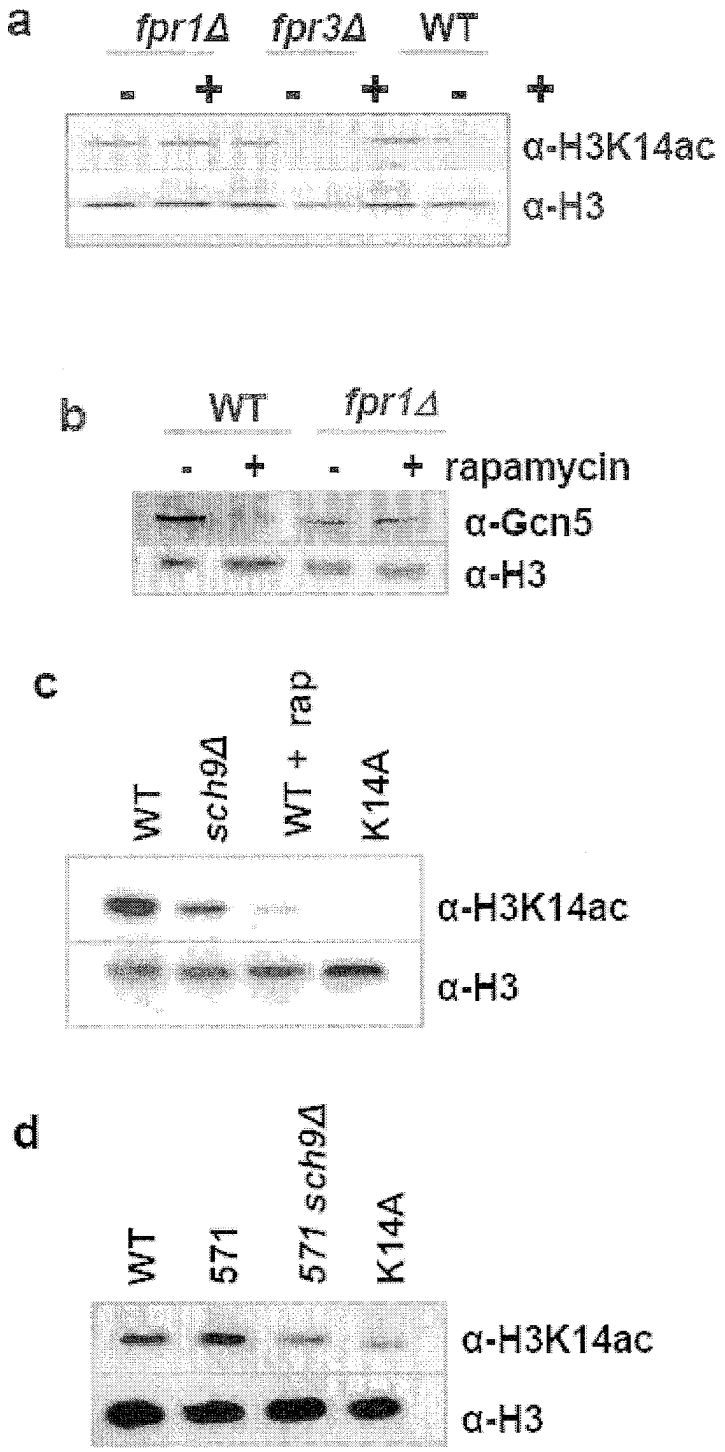
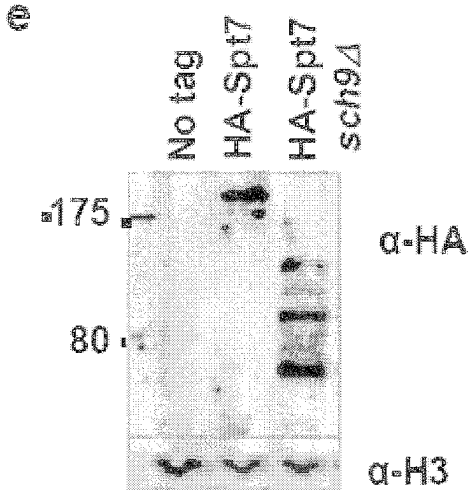

a
fpr1Δ
fpr3Δ
WT
- + - + - +
α-H3K14ac
α-H3
b
WT
fpr1Δ
- + - + rapamycin
α-Gcn5
α-H3
c
WT
sch9Δ
WT + rap
K14A
α-H3K14ac
α-H3
d
WT
571
571 sch9Δ
K14A
α-H3K14ac
α-H3

Figure 3 (cont)



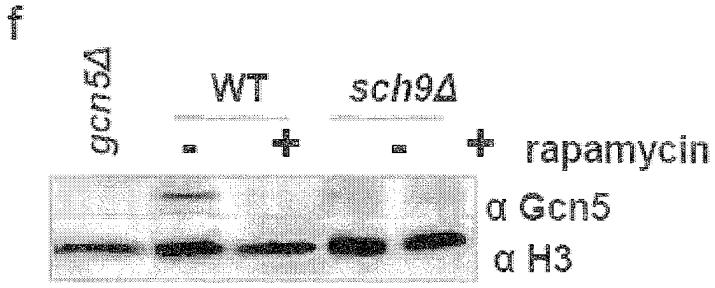
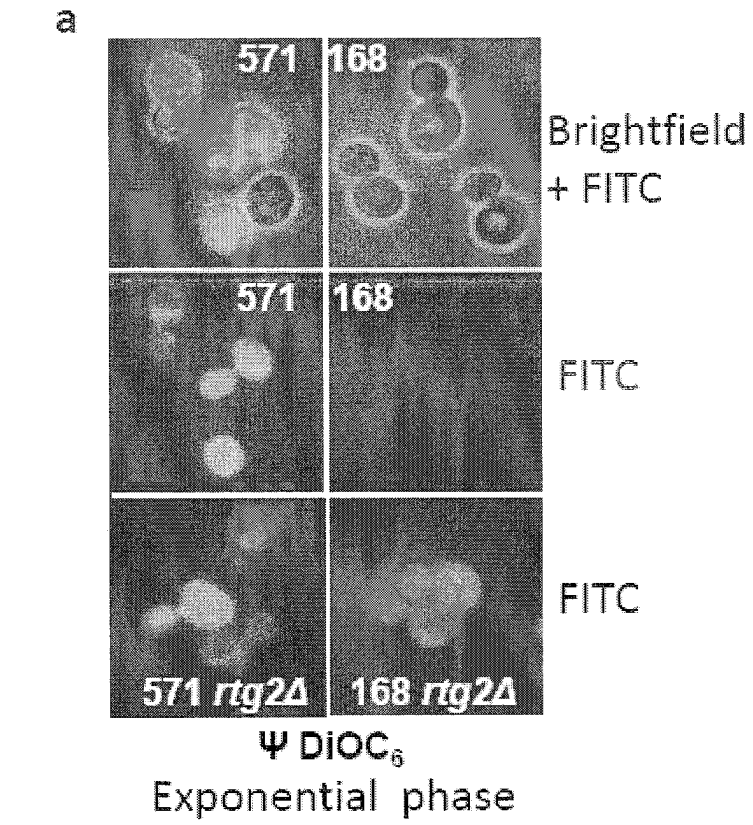


Figure 4


a
571
168
Brightfield
+ FITC
571
168
FITC
571 rtg2Δ
168 rtg2Δ
FITC
Ψ DiOC6
Exponential phase

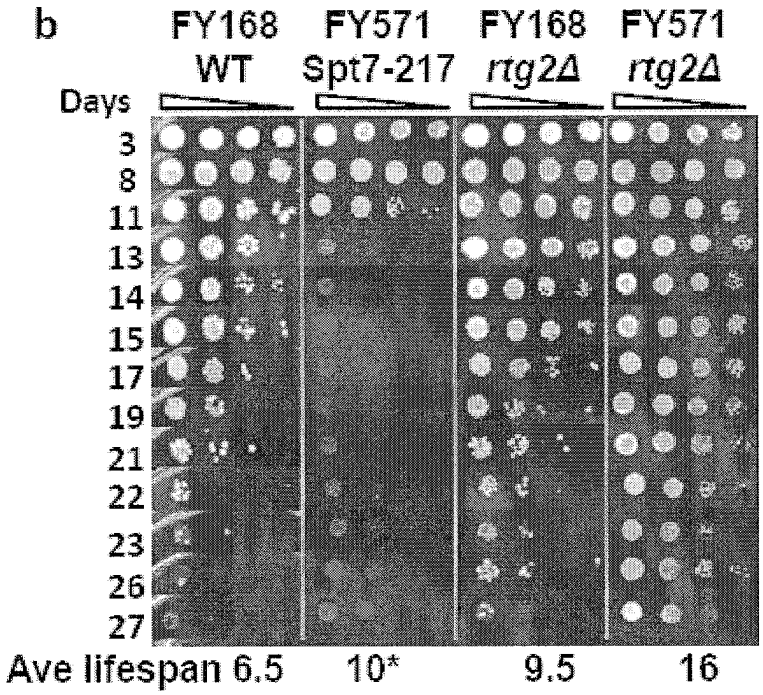

b
FY168
WT
FY571
Spt7-217
FY168
rtg2Δ
FY571
rtg2Δ
Days
3
8
11
13
14
15
17
19
21
22
23
26
27
Ave lifespan 6.5
10*
9.5
16

Figure 4 (cont)

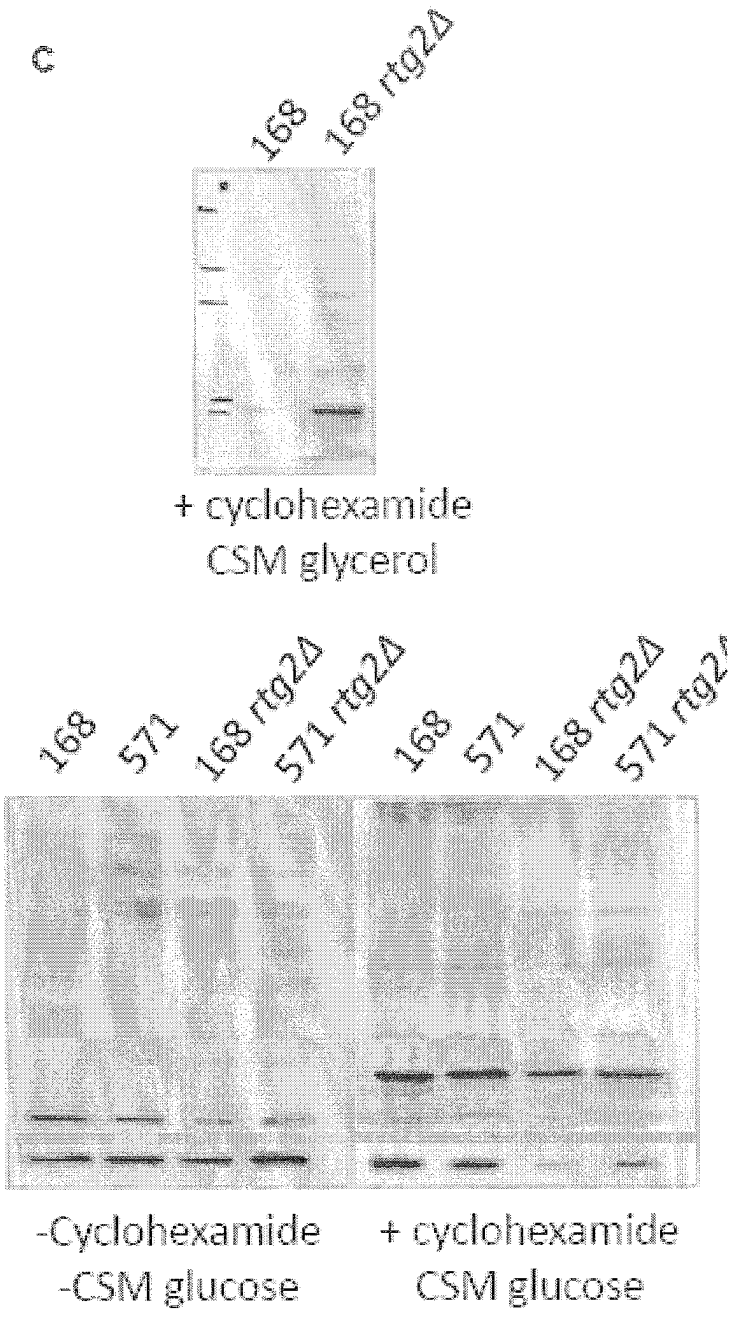


Figure 5

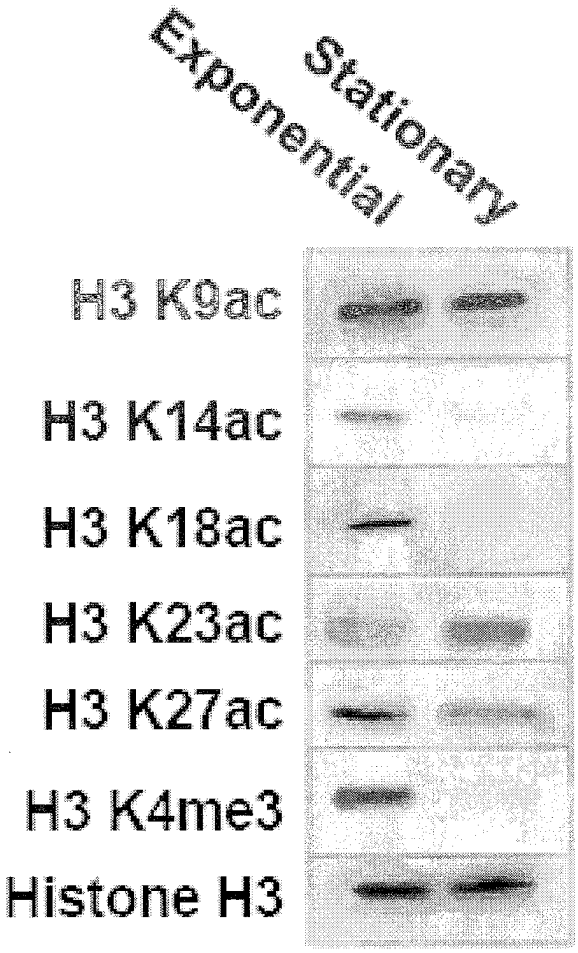

Exponential
Stationary
H3 K9ac
H3 K14ac
H3 K18ac
H3 K23ac
H3 K27ac
H3 K4me3
Histone H3

Figure 6

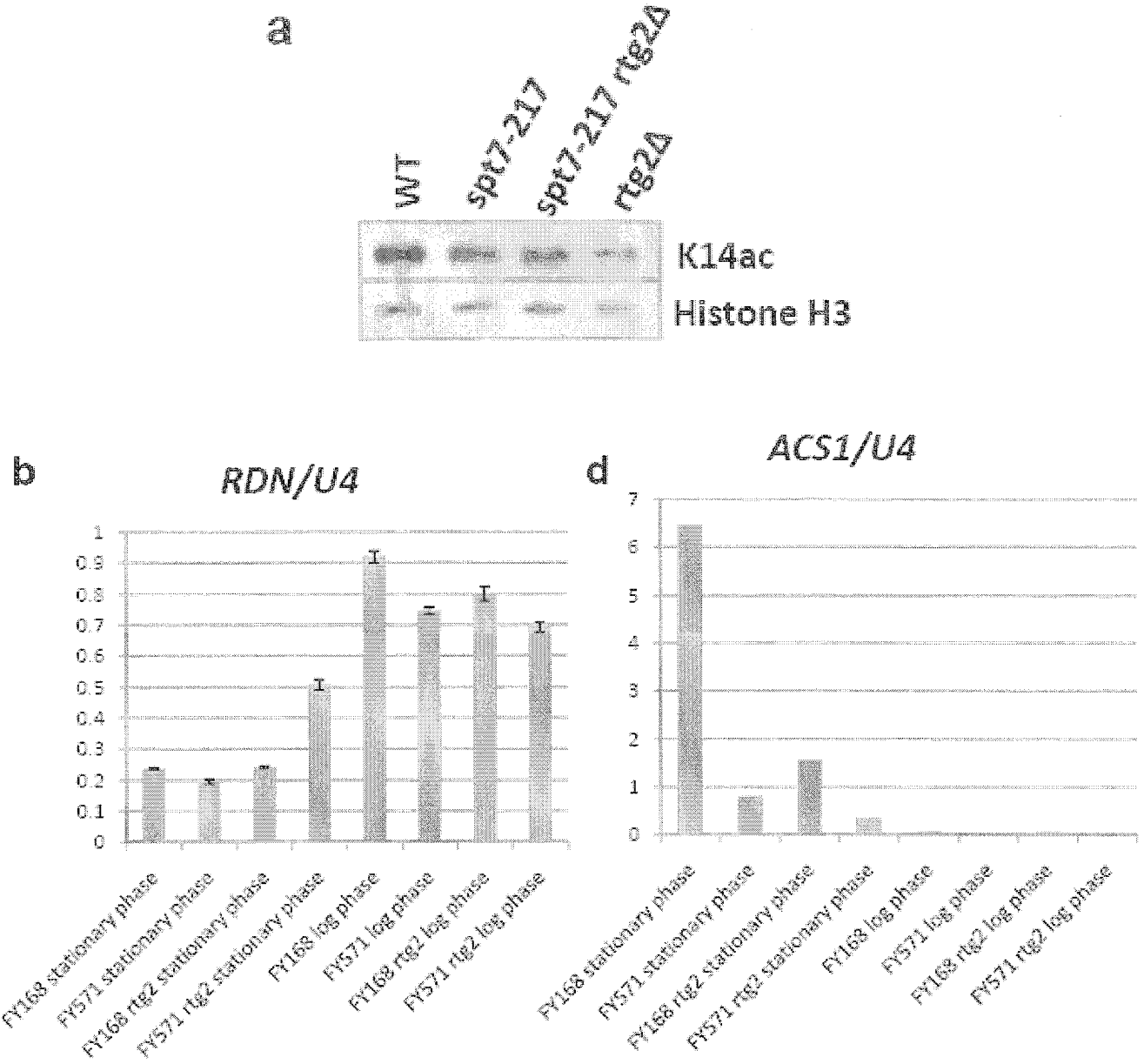

a
WT
spt7-217
spt7-217 rtg2Δ
rtg2Δ
K14ac
Histone H3
b
RDN/U4
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
FY168 stationary phase
FY571 stationary phase
FY168 rtg2 stationary phase
FY571 rtg2 stationary phase
FY168 log phase
FY571 log phase
FY168 rtg2 log phase
FY571 rtg2 log phase
d
ACS1/U4
7
6
5
4
3
2
1
0
FY168 stationary phase
FY571 stationary phase
FY168 rtg2 stationary phase
FY571 rtg2 stationary phase
FY168 log phase
FY571 log phase
FY168 rtg2 log phase
FY571 rtg2 log phase

Figure 6 (cont)

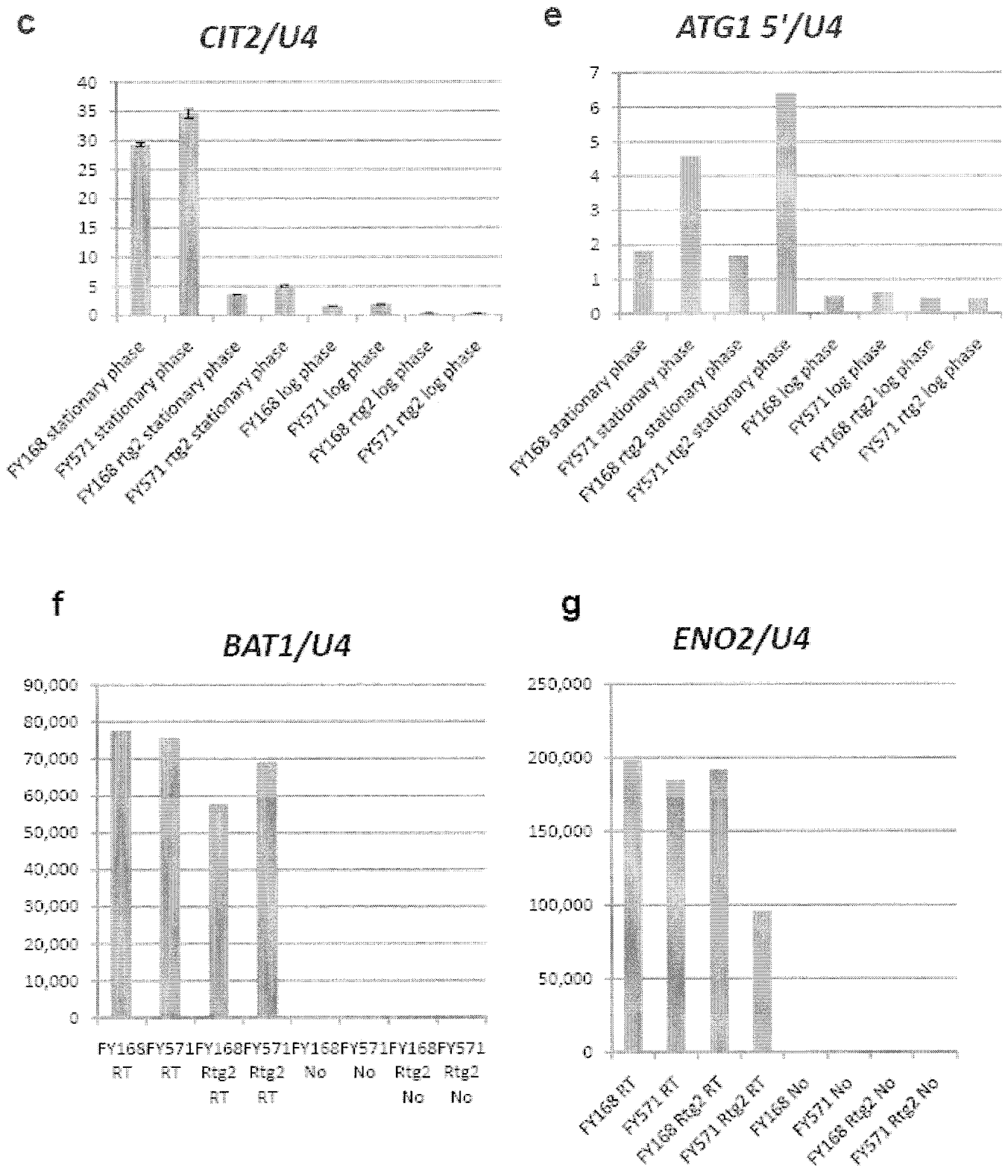


Figure 6 (cont)

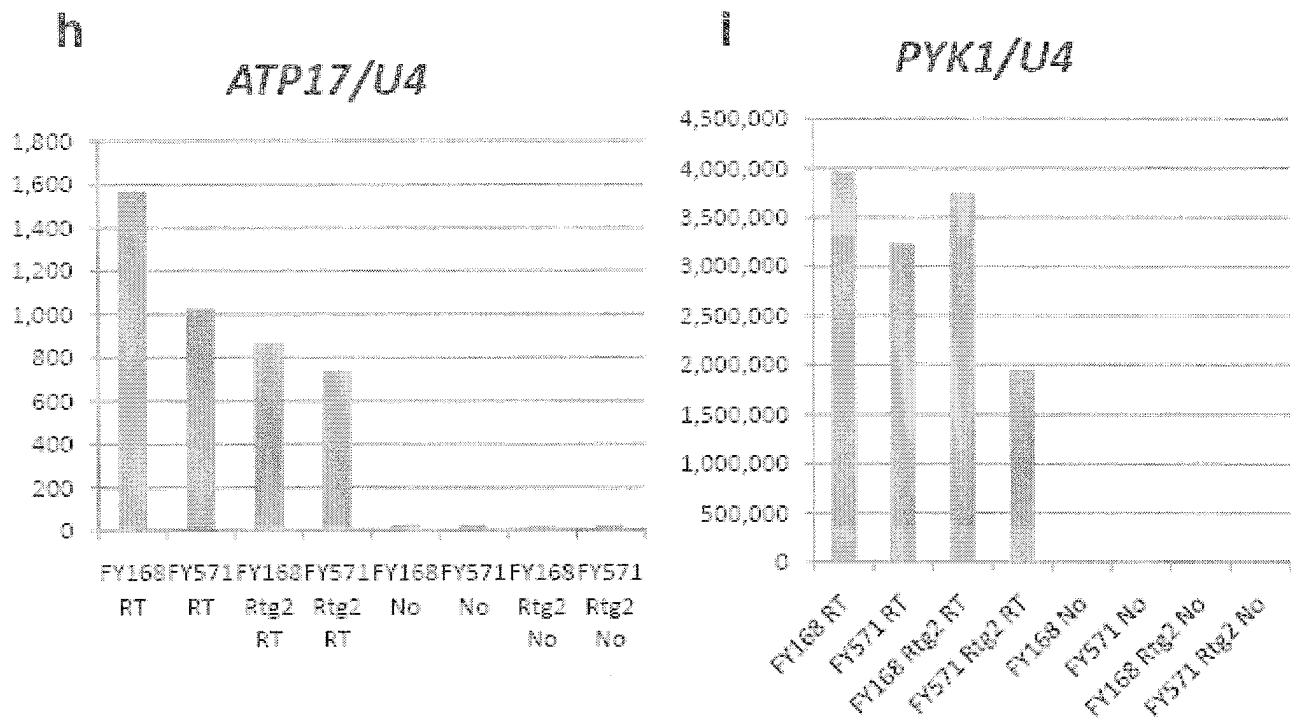


Figure 7

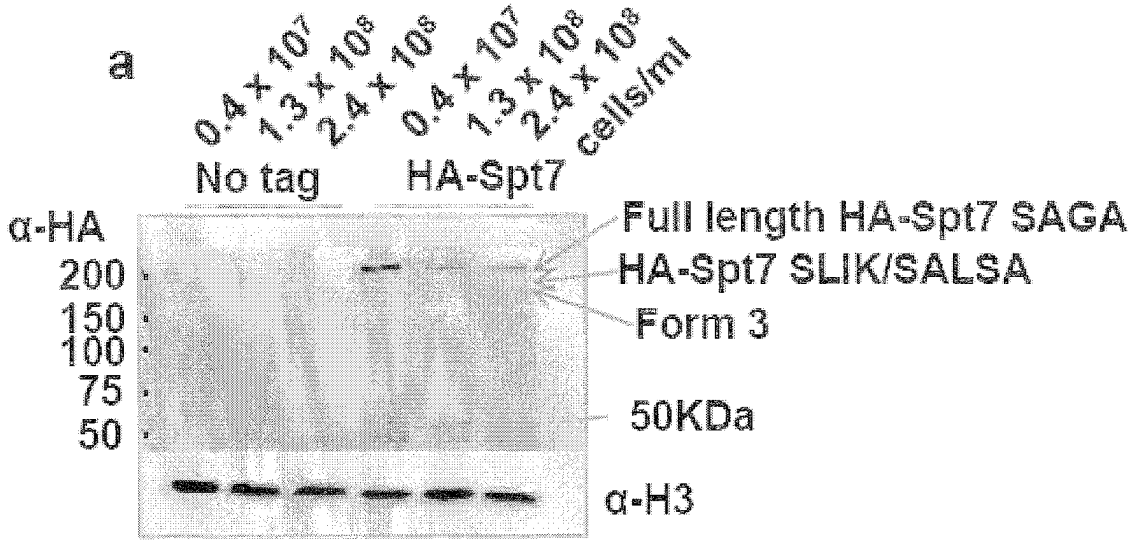


Figure 8

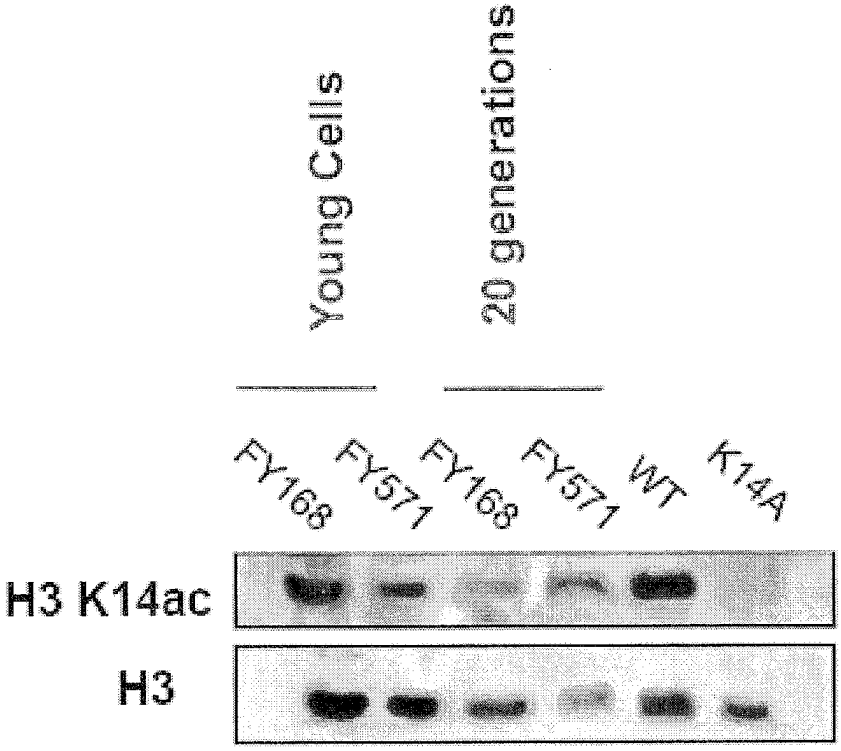

Young Cells
20 generations
FY168
FY571
FY168
FY571
WT
K14A
H3 K14ac
H3

Figure 9

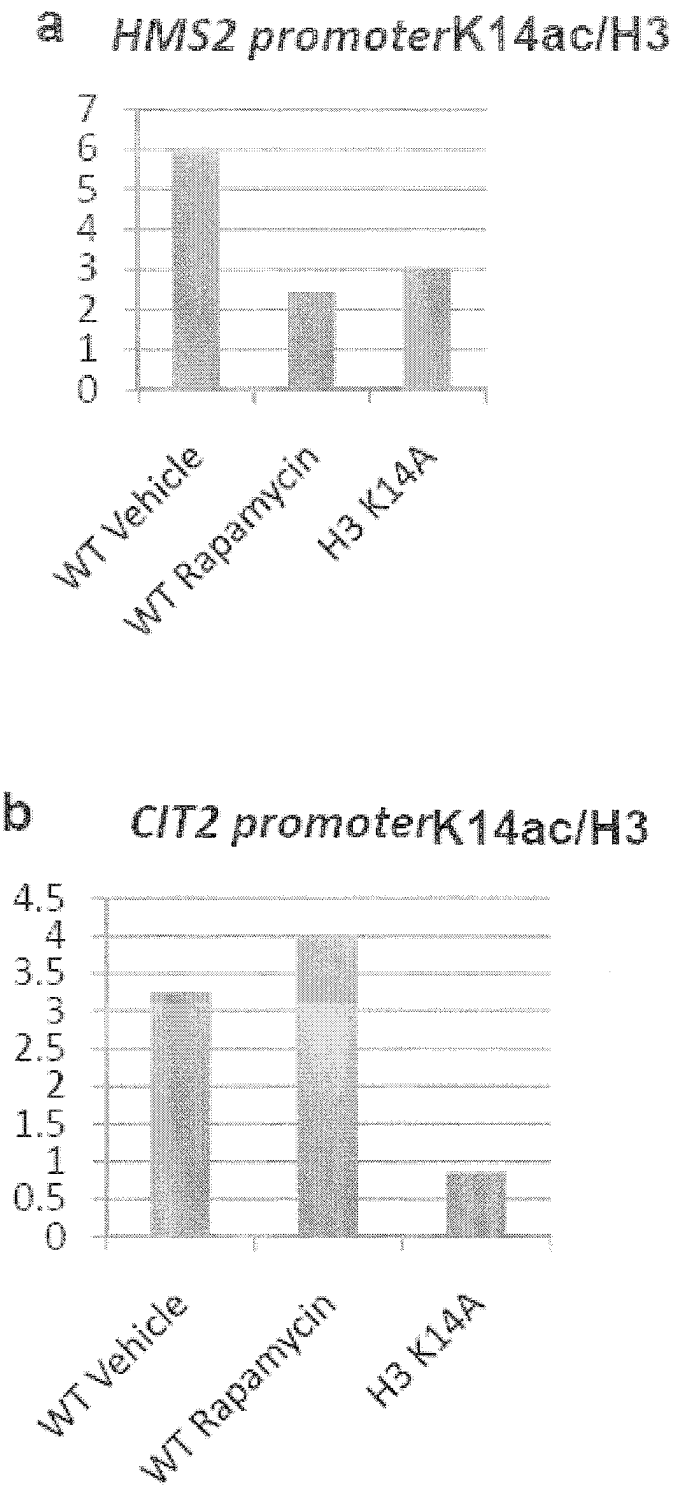

a
HMS2 promoterK14ac/H3
7
6
5
4
3
2
1
0
WT Vehicle
WT Rapamycin
H3 K14A
b
CIT2 promoterK14ac/H3
4.5
4
3.5
3
2.5
2
1.5
1
0.5
0
WT Vehicle
WT Rapamycin
H3 K14A

Figure 10

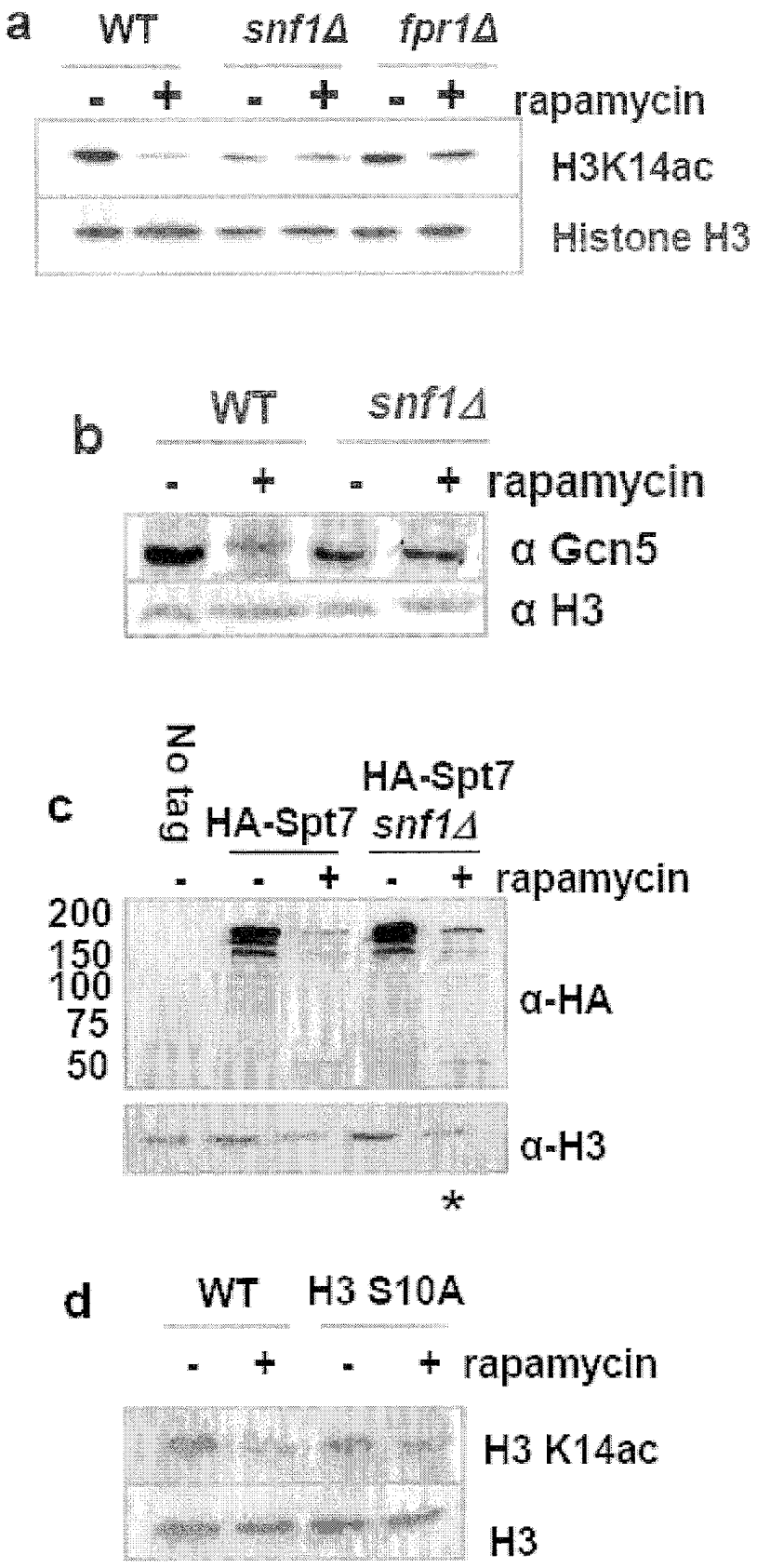
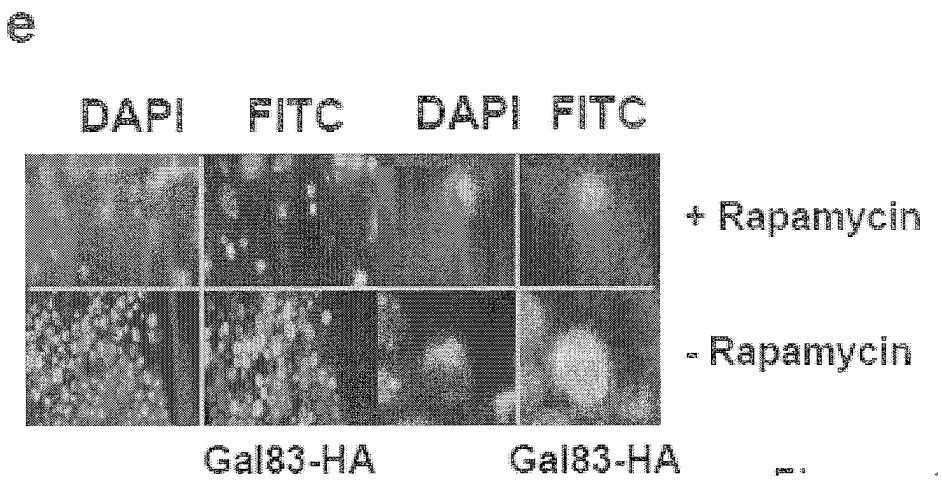
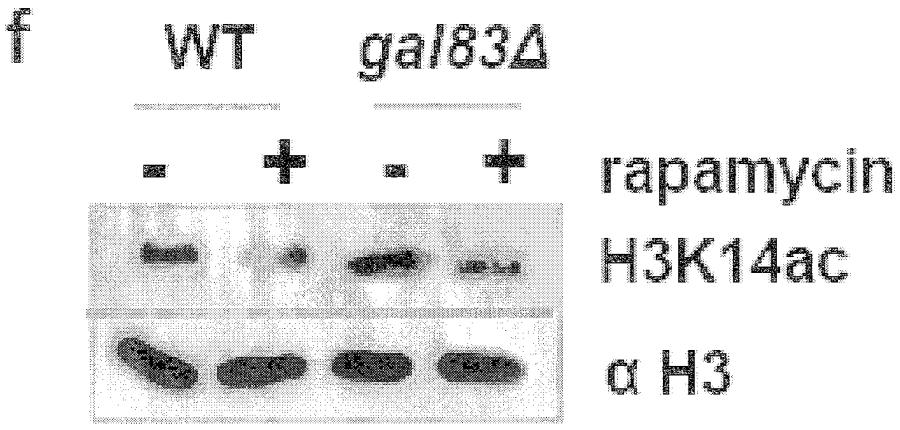

a
WT
snf1Δ
fpr1Δ
- + - + - + rapamycin
H3K14ac
Histone H3
b
WT
snf1Δ
- + - + rapamycin
α Gcn5
α H3
c
No tag
HA-Spt7
HA-Spt7
snf1Δ
- - + - + rapamycin
200
150
100
75
50
α-HA
α-H3
*
d
WT
H3 S10A
- + - + rapamycin
H3 K14ac
H3

Figure 10 (cont)





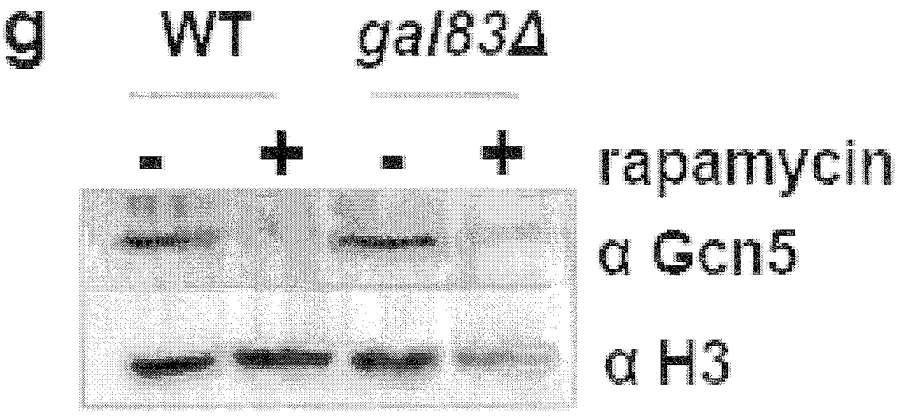


Figure 11

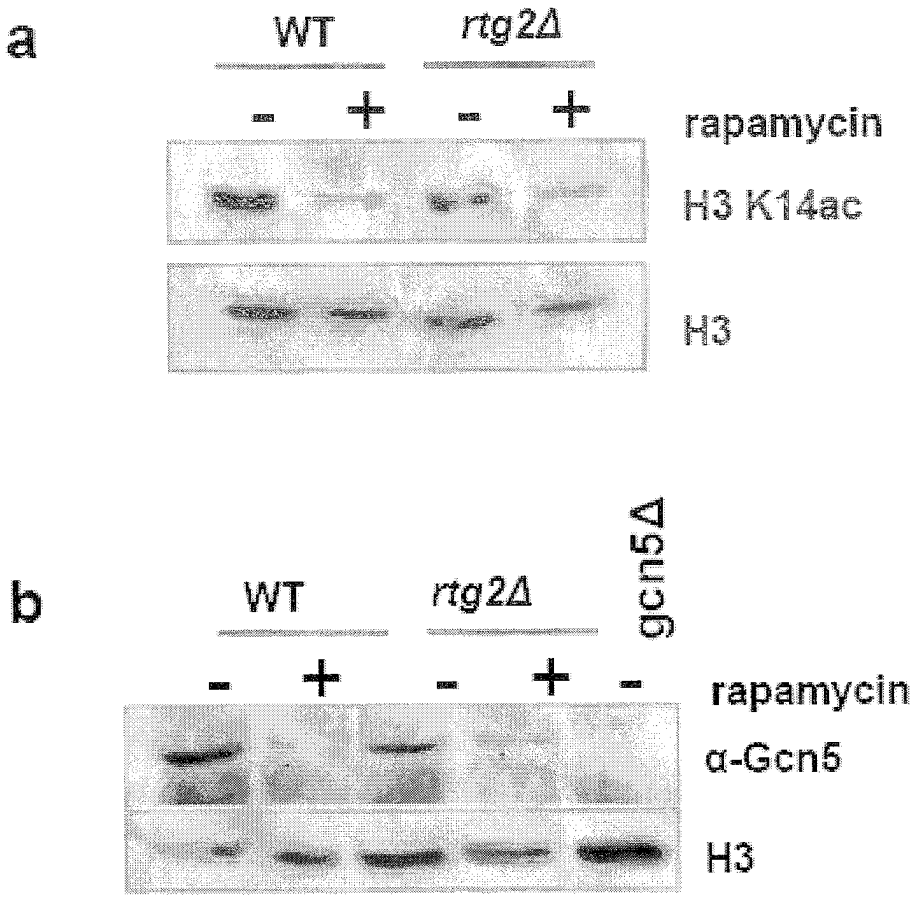

a
WT
rtg2Δ
- + - +
rapamycin
H3 K14ac
H3
b
WT
rtg2Δ
gcn5Δ
- + - + -
rapamycin
α-Gcn5
H3

Figure 12

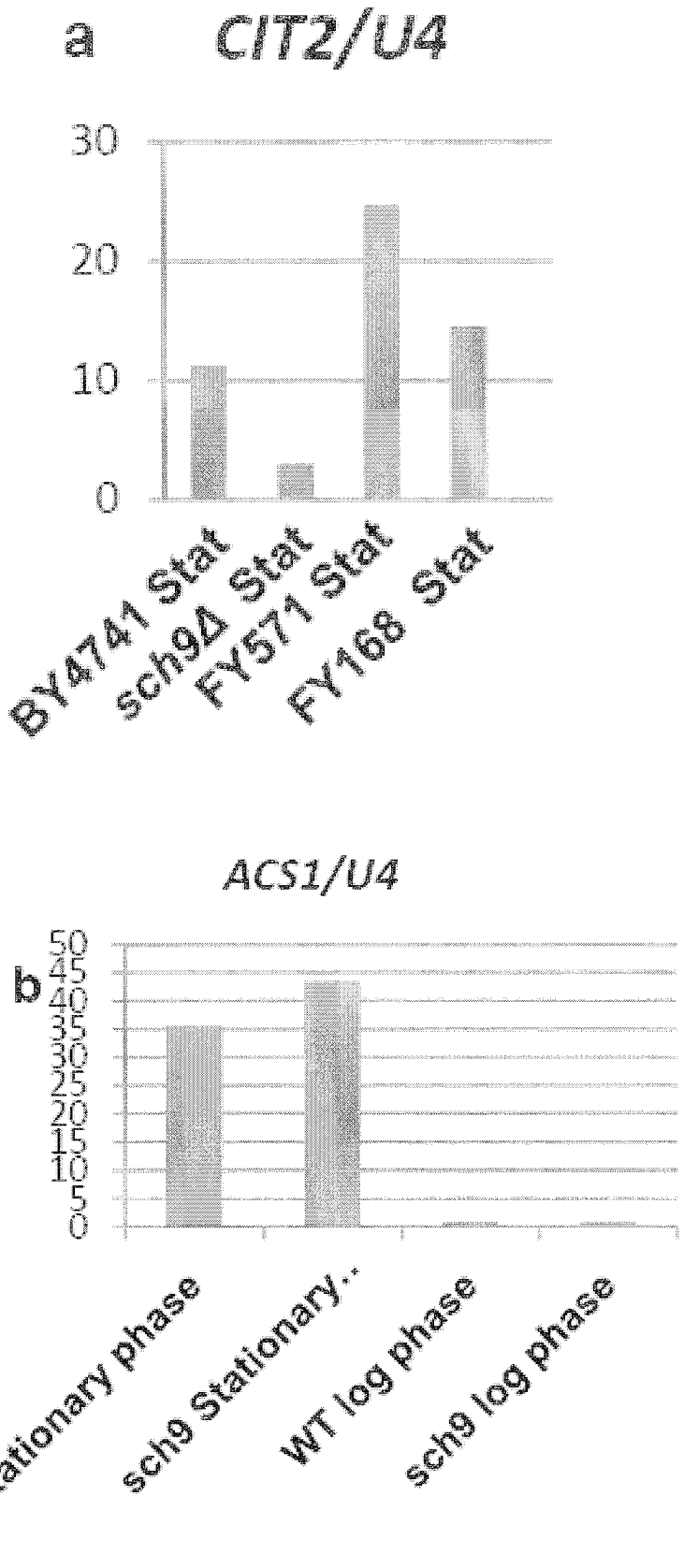

a
CIT2/U4
30
20
10
0
BY4741 Stat
sch9Δ Stat
FY571 Stat
FY168 Stat
ACS1/U4
b
50
45
40
35
30
25
20
15
10
5
0
WT stationary phase
sch9 Stationary..
WT log phase
sch9 log phase

Figure 12 (cont)

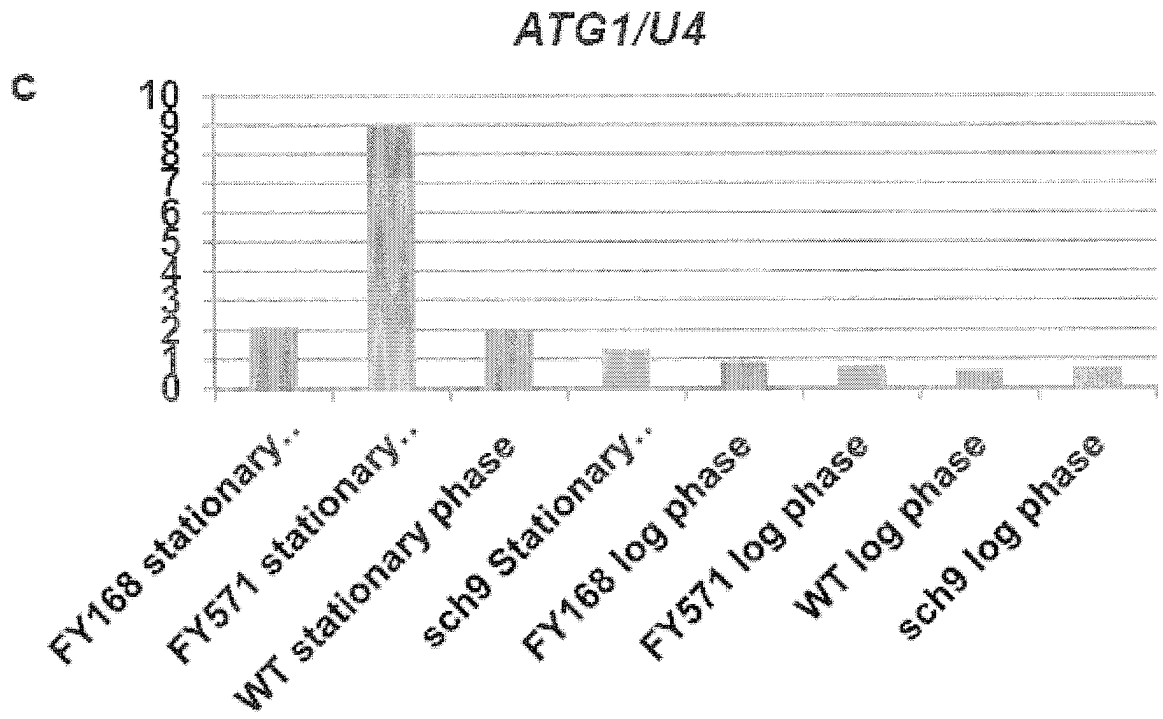


Figure 13

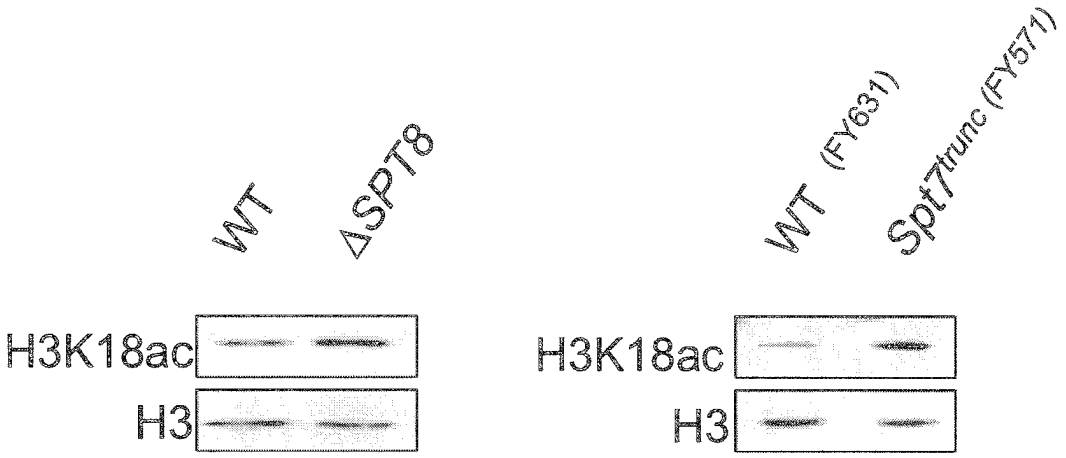


Figure 14

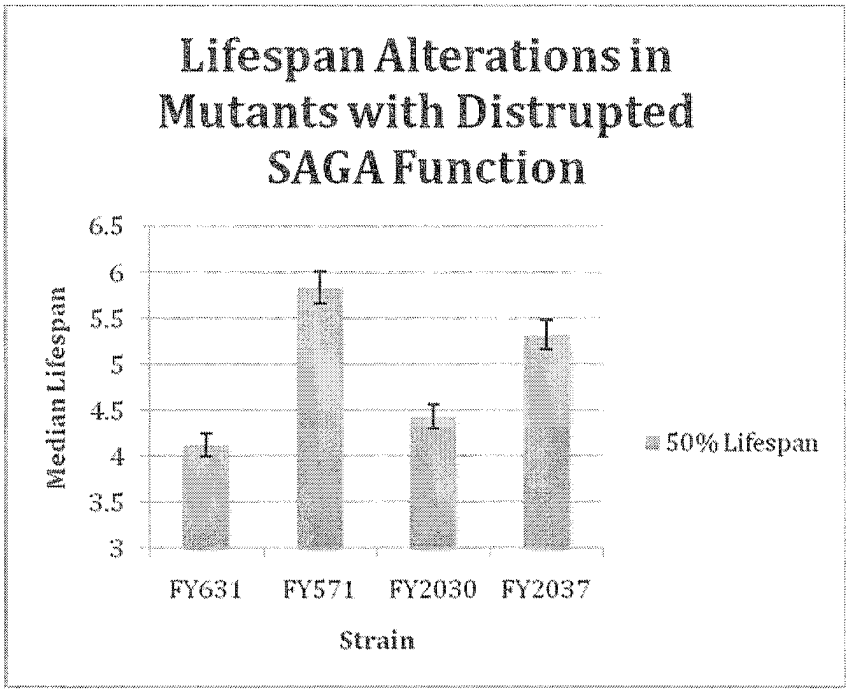
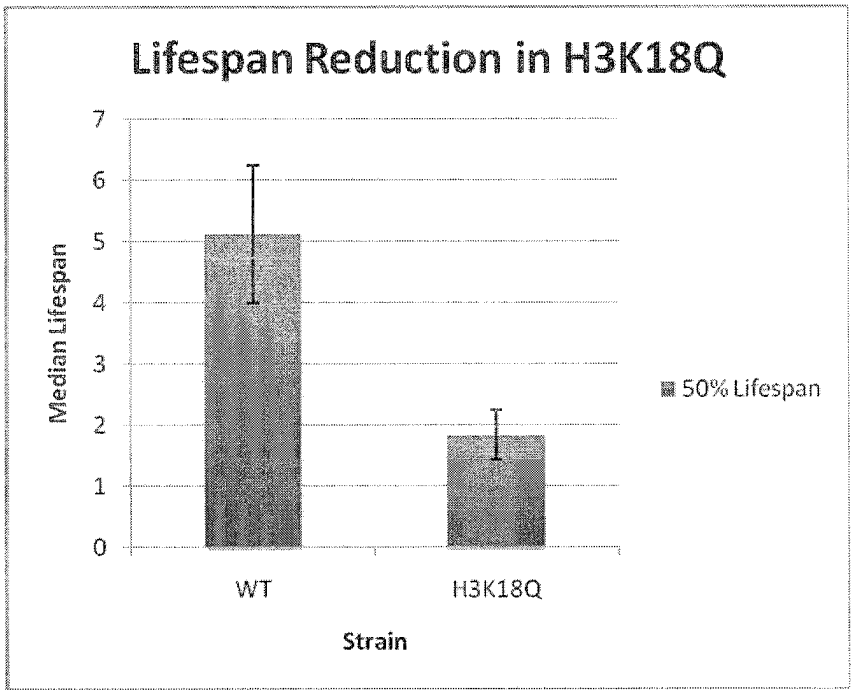


Figure 15


Lifespan Reduction in H3K18Q
Median Lifespan
7
6
5
4
3
2
1
0
WT
H3K18Q
Strain
50% Lifespan