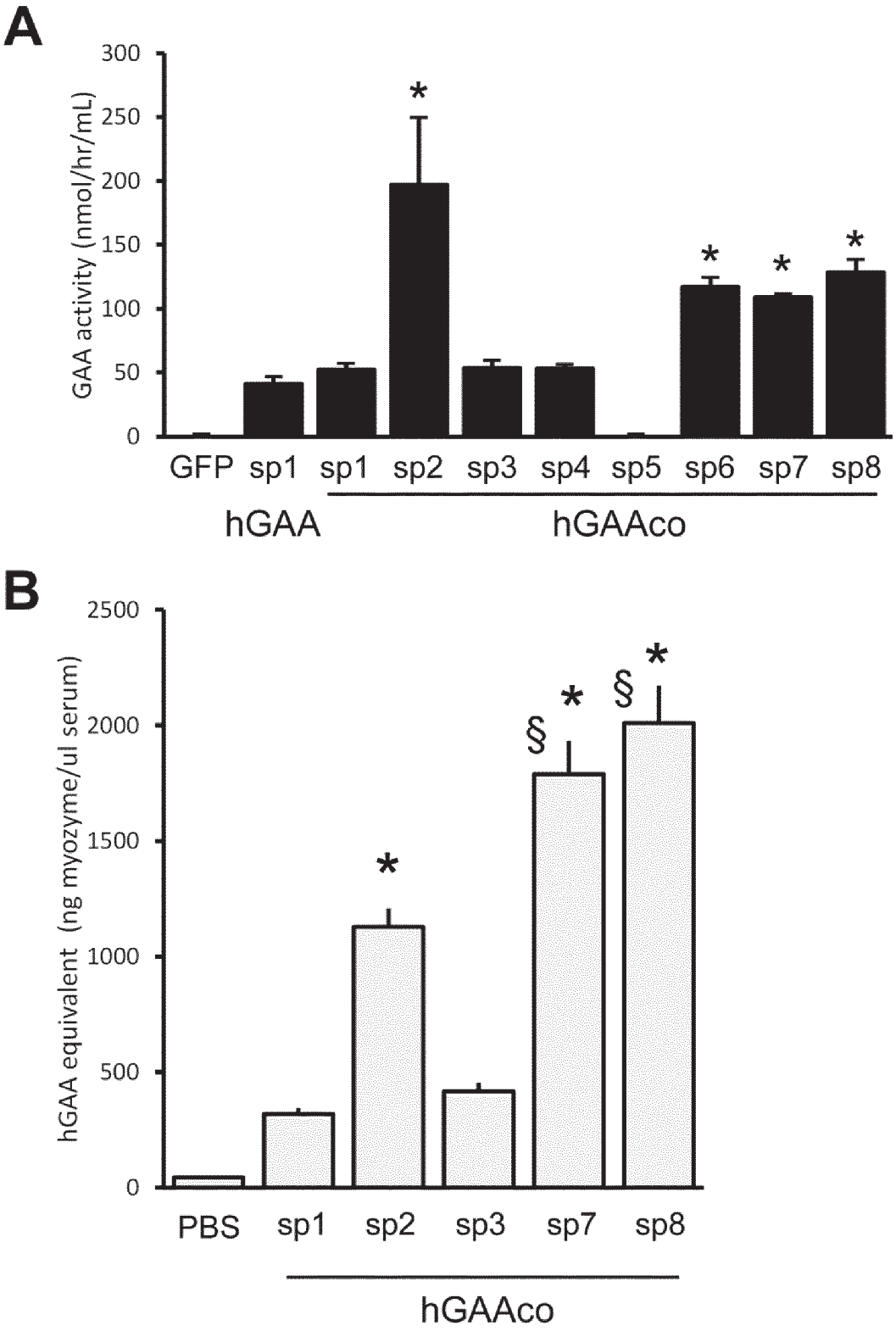

A
GAA activity (nmol/hr/mL)
300
250
200
150
100
50
0
*
*
*
*
GFP
sp1
sp1
sp2
sp3
sp4
sp5
sp6
sp7
sp8
hGAA
hGAAco
B
hGAA equivalent (ng myozyme/ul serum)
2500
2000
1500
1000
500
0
*
§
*
§
*
PBS
sp1
sp2
sp3
sp7
sp8
hGAAco

FIGURE 1

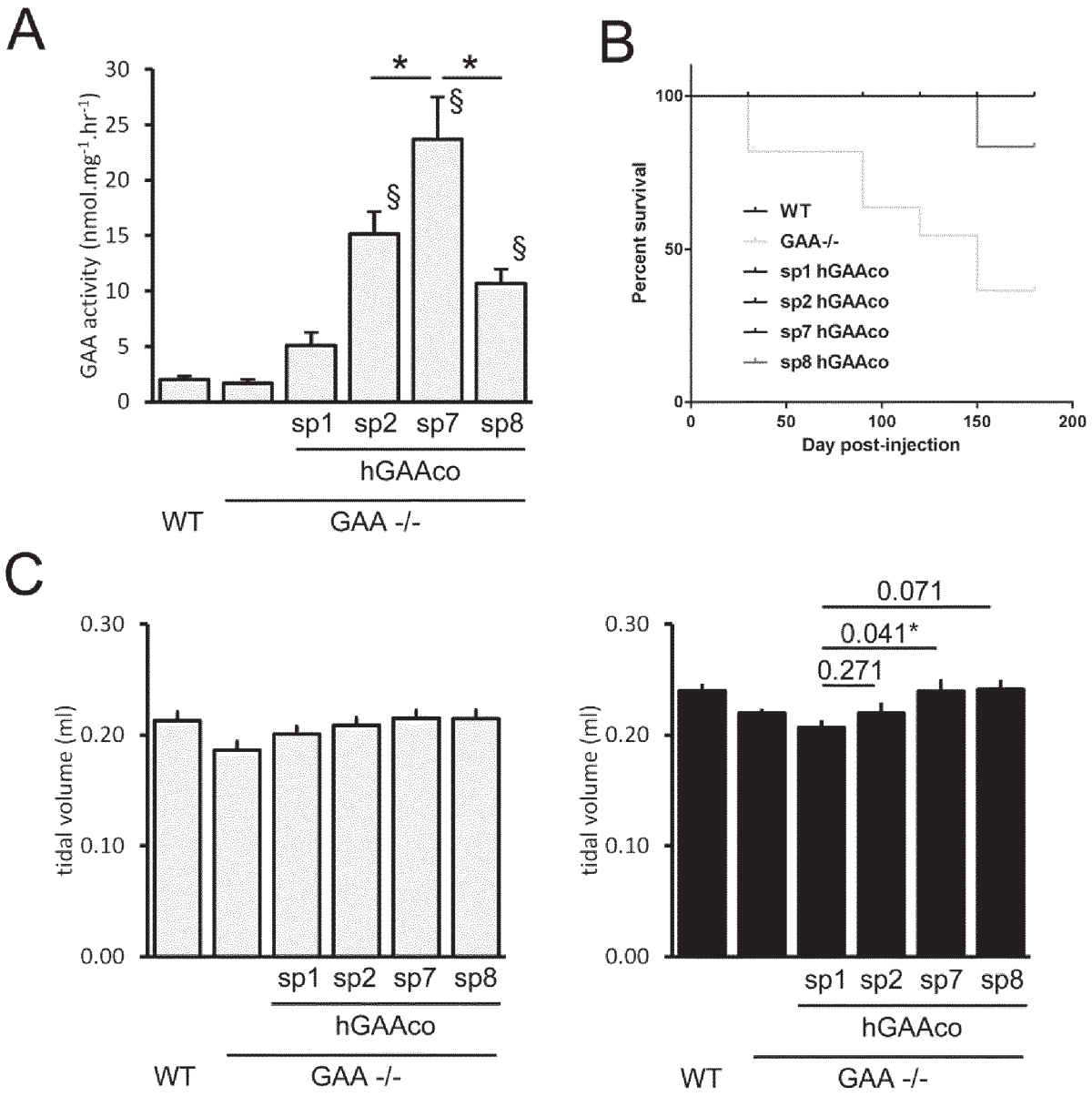

A
GAA activity (nmol.mg-1.hr-1)
30
25
20
15
10
5
0
*
*
§
§
§
sp1 sp2 sp7 sp8
hGAAco
WT
GAA -/-
B
Percent survival
100
50
0
0 50 100 150 200
Day post-injection
WT
GAA-/-
sp1 hGAAco
sp2 hGAAco
sp7 hGAAco
sp8 hGAAco
C
tidal volume (ml)
0.30
0.20
0.10
0.00
sp1 sp2 sp7 sp8
hGAAco
WT
GAA -/-
0.071
0.041*
0.271

FIGURE 2

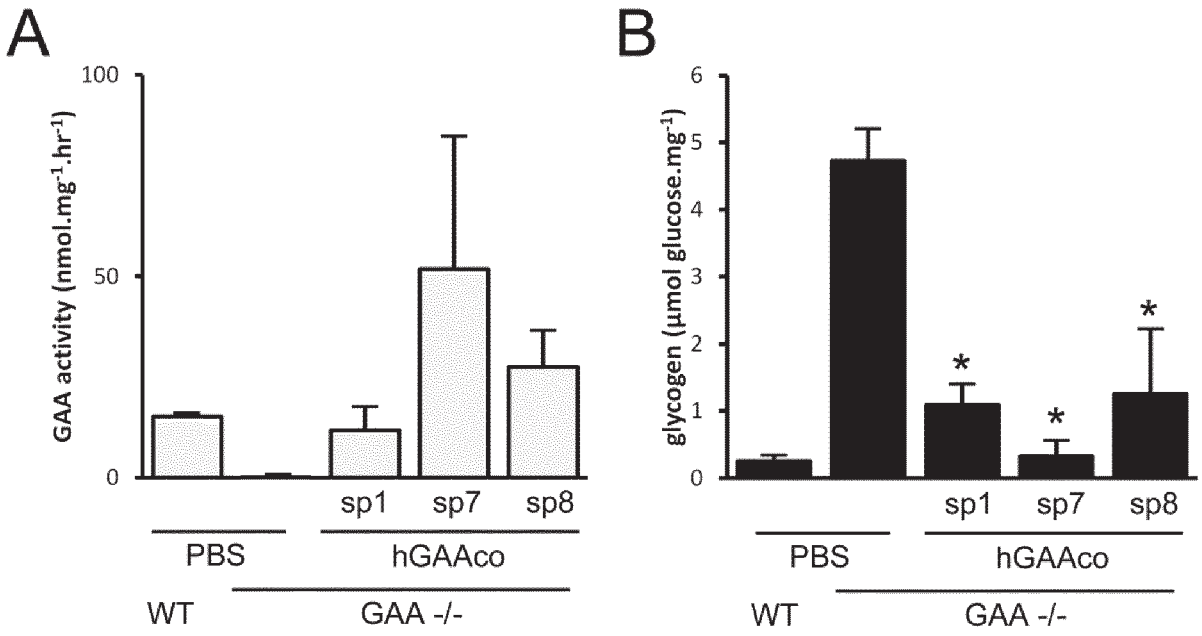

A
100
50
0
GAA activity (nmol.mg-1.hr-1)
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-
B
6
5
4
3
2
1
0
glycogen (µmol glucose.mg-1)
*
*
*
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-

FIGURE 3

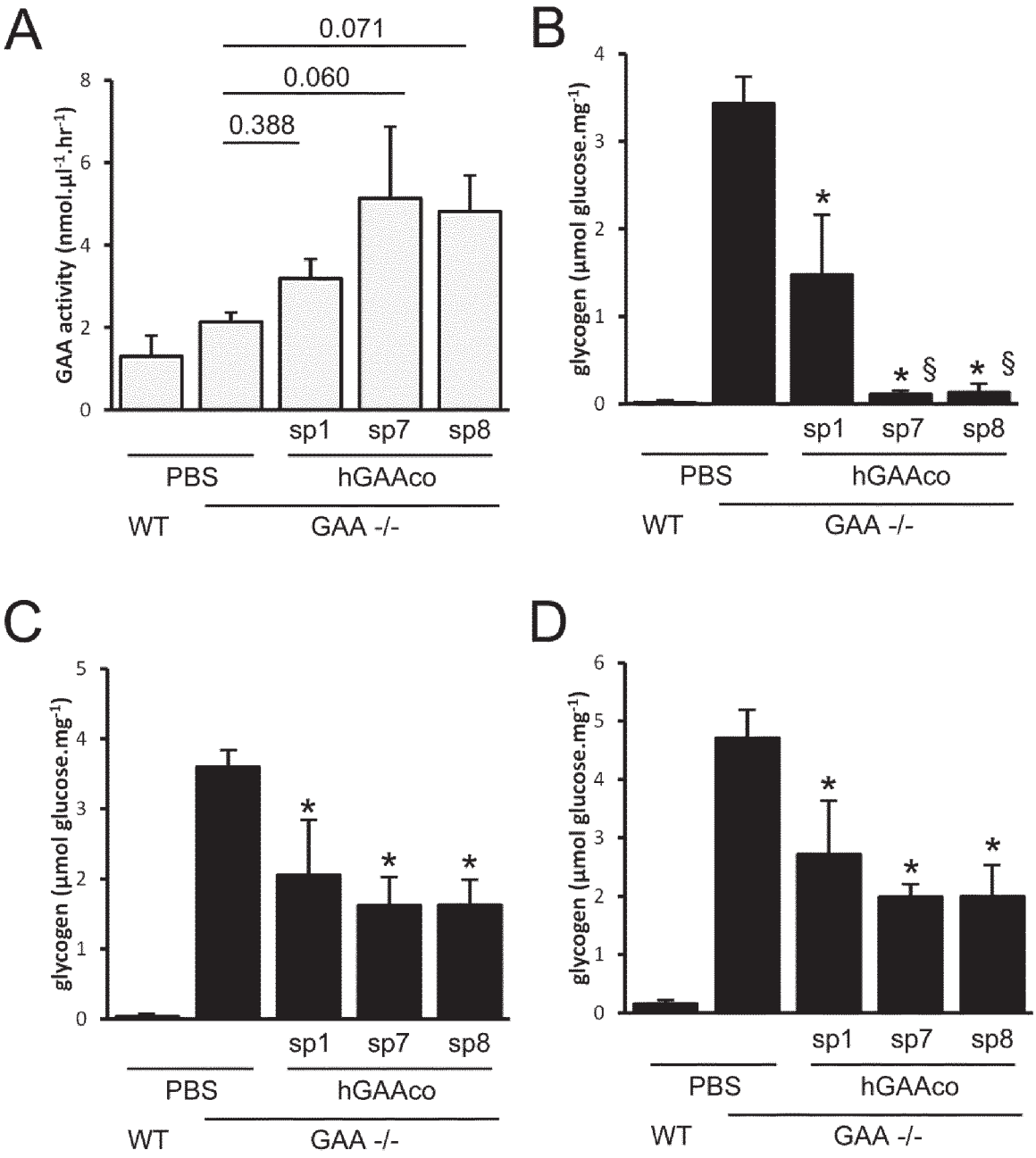

A
0.071
0.060
0.388
GAA activity (nmol.µl-1.hr-1)
0
2
4
6
8
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-
B
glycogen (µmol glucose.mg-1)
0
1
2
3
4
*
* §
* §
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-
C
glycogen (µmol glucose.mg-1)
0
1
2
3
4
5
*
*
*
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-
D
glycogen (µmol glucose.mg-1)
0
1
2
3
4
5
6
*
*
*
sp1
sp7
sp8
PBS
hGAAco
WT
GAA -/-

FIGURE 4

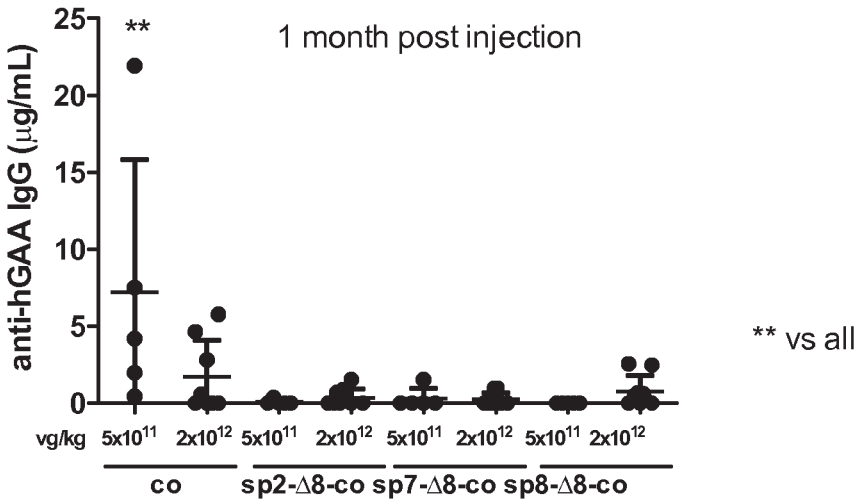

1 month post injection
anti-hGAA IgG (µg/mL)
25
20
15
10
5
0
**
vg/kg
5x10^11
2x10^12
5x10^11
2x10^12
5x10^11
2x10^12
5x10^11
2x10^12
co
sp2-Δ8-co
sp7-Δ8-co
sp8-Δ8-co
** vs all

FIGURE 5

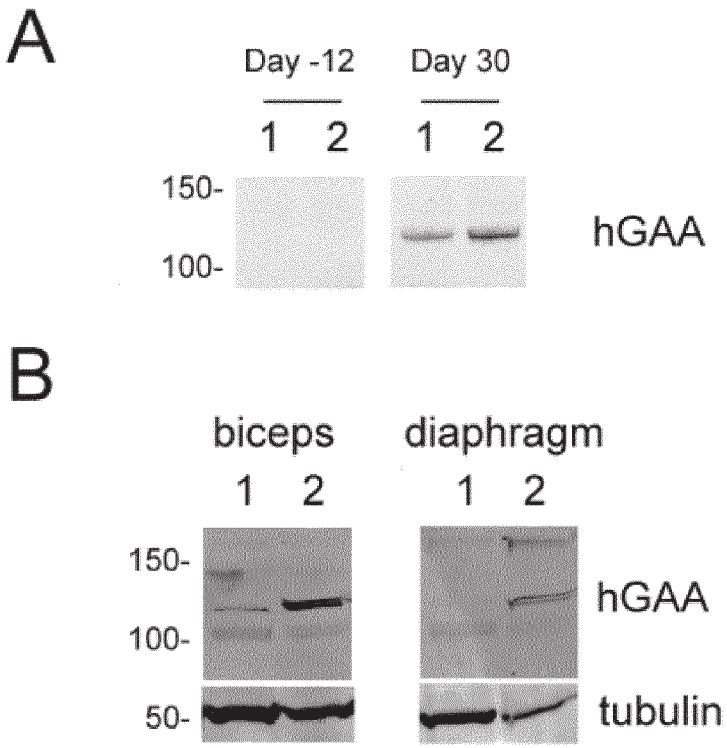

A
Day -12
Day 30
1 2 1 2
150-
100-
hGAA
B
biceps
diaphragm
1 2 1 2
150-
100-
50-
hGAA
tubulin

FIGURE 6

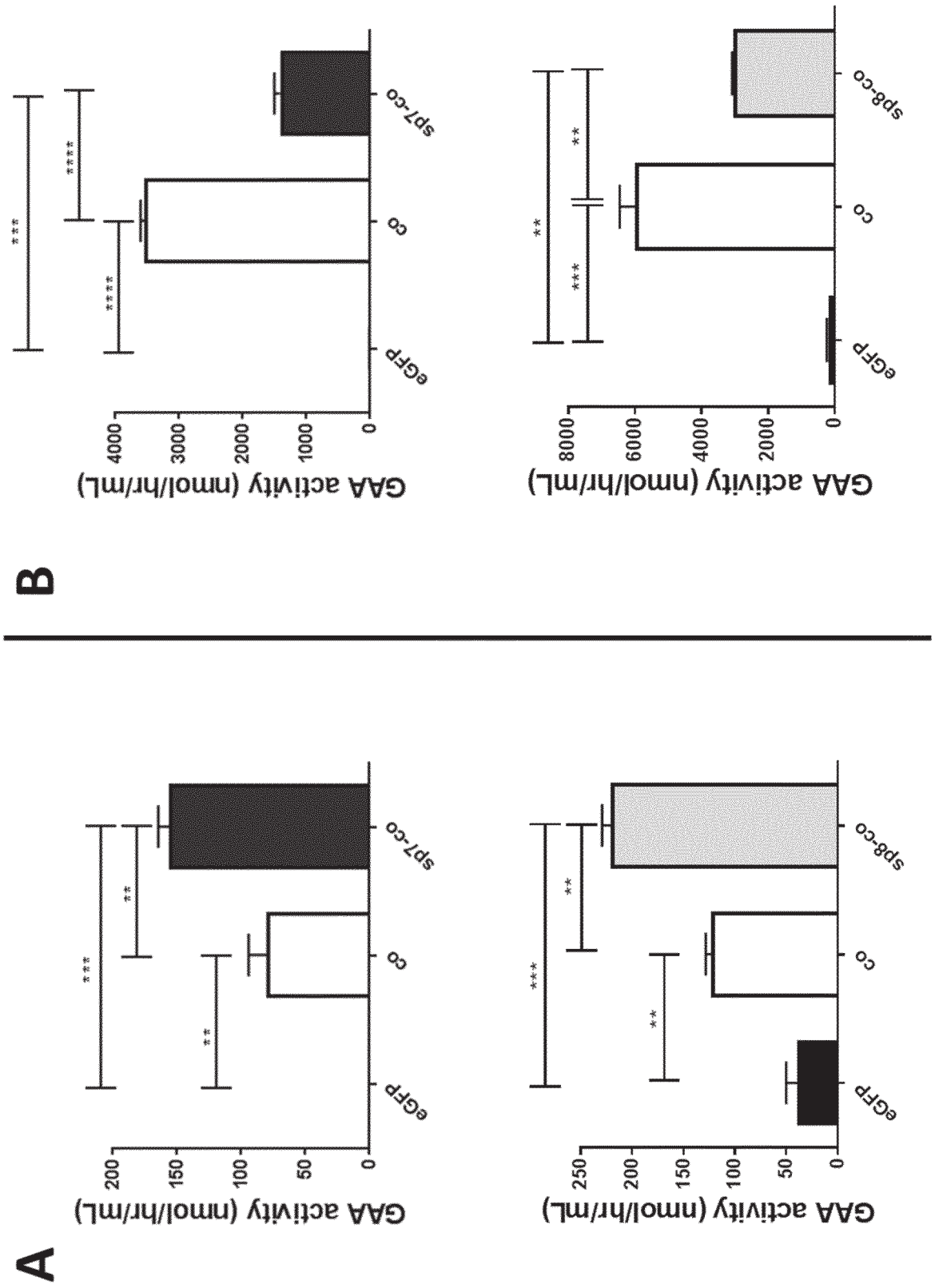

B
GAA activity (nmol/hr/mL)
0
1000
2000
3000
4000
eGFP
co
SP7-co
****
****
***
GAA activity (nmol/hr/mL)
0
2000
4000
6000
8000
eGFP
co
SP8-co
***
**
**
A
GAA activity (nmol/hr/mL)
0
50
100
150
200
eGFP
co
SP7-co
**
**
***
GAA activity (nmol/hr/mL)
0
50
100
150
200
250
eGFP
co
SP8-co
**
**
***

FIGURE 7

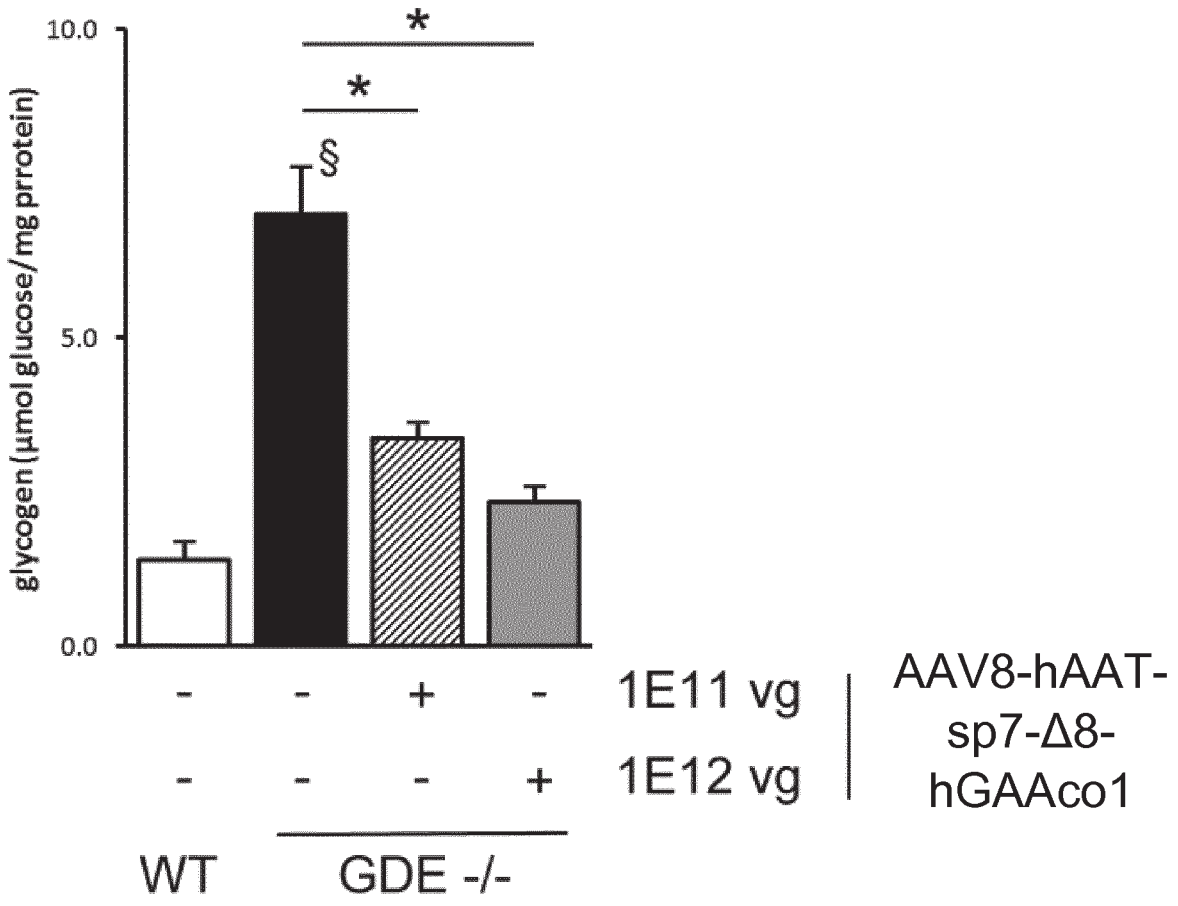

10.0
5.0
0.0
glycogen (µmol glucose/mg prrotein)
*
*
§
- - + - 1E11 vg
- - - + 1E12 vg
AAV8-hAAT-sp7-Δ8-hGAAco1
WT
GDE -/-

FIGURE 8

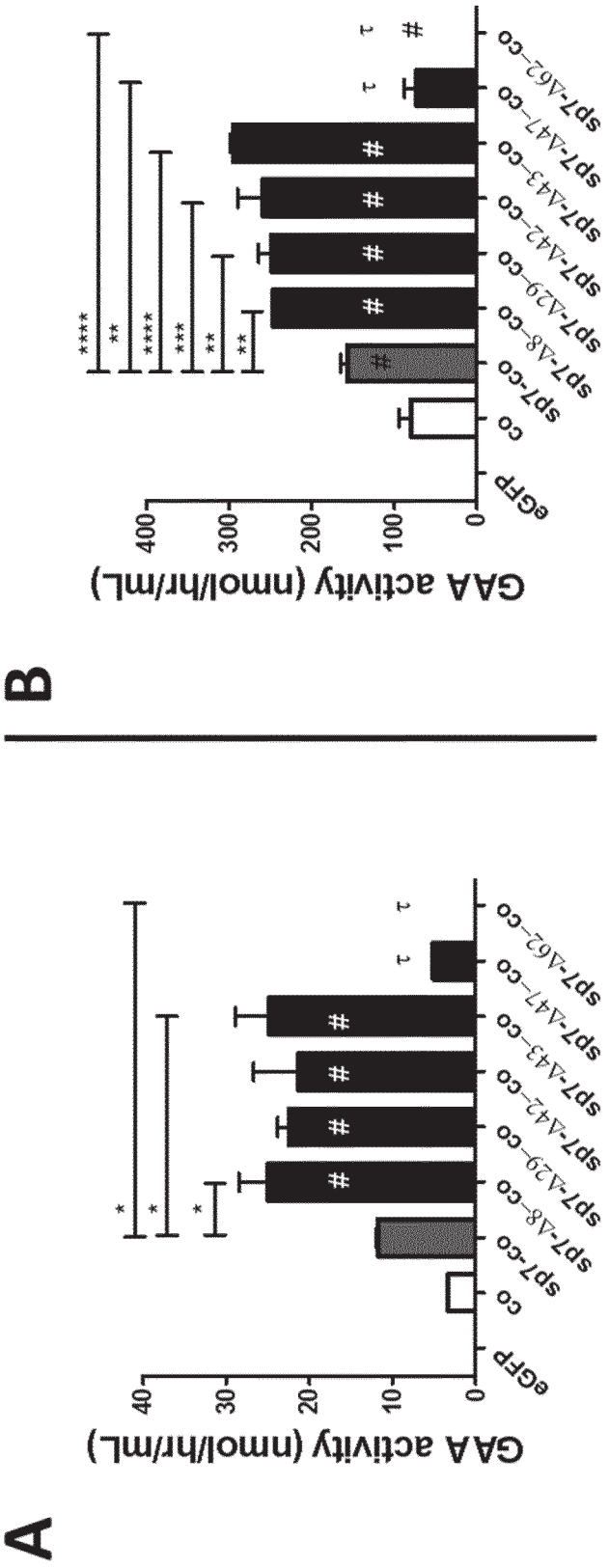

A
GAA activity (nmol/hr/mL)
0
10
20
30
40
eGFP
co
sp7-co
sp7-A8-co
sp7-A29-co
sp7-A42-co
sp7-A43-co
sp7-A47-co
sp7-A62-co
B
GAA activity (nmol/hr/mL)
0
100
200
300
400
eGFP
co
sp7-co
sp7-A8-co
sp7-A29-co
sp7-A42-co
sp7-A43-co
sp7-A47-co
sp7-A62-co

FIGURE 9

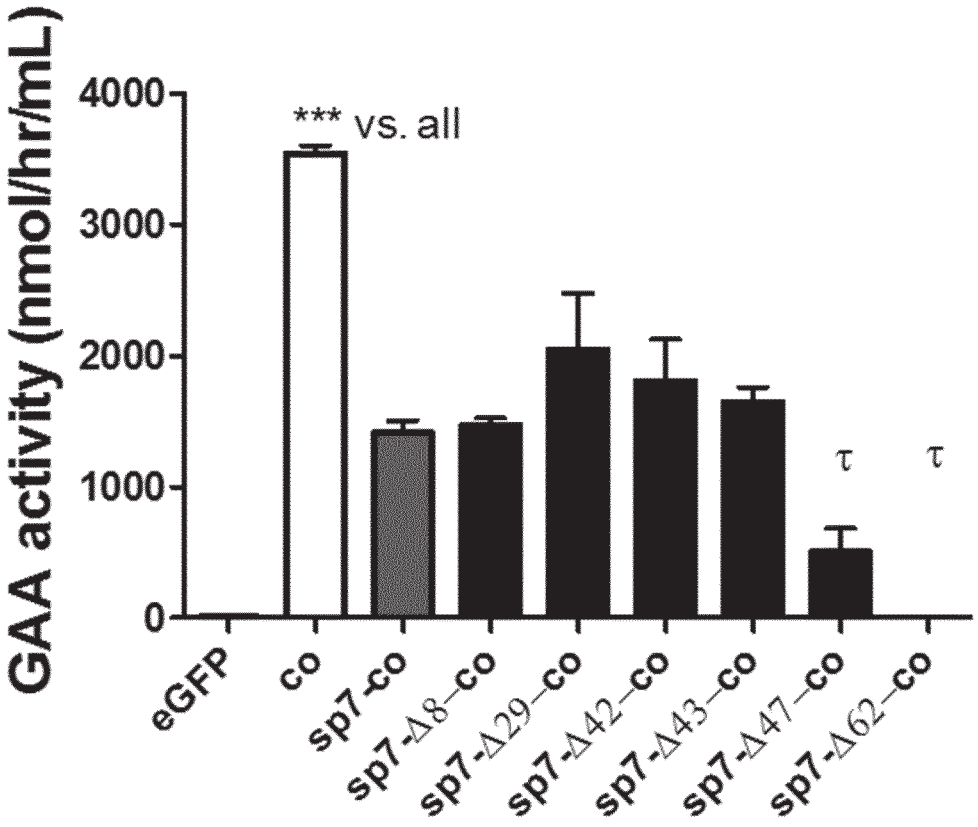

GAA activity (nmol/hr/mL)
4000
3000
2000
1000
0
*** vs. all
τ
τ
eGFP
co
sp7-co
sp7-Δ8-co
sp7-Δ29-co
sp7-Δ42-co
sp7-Δ43-co
sp7-Δ47-co
sp7-Δ62-co

FIGURE 10

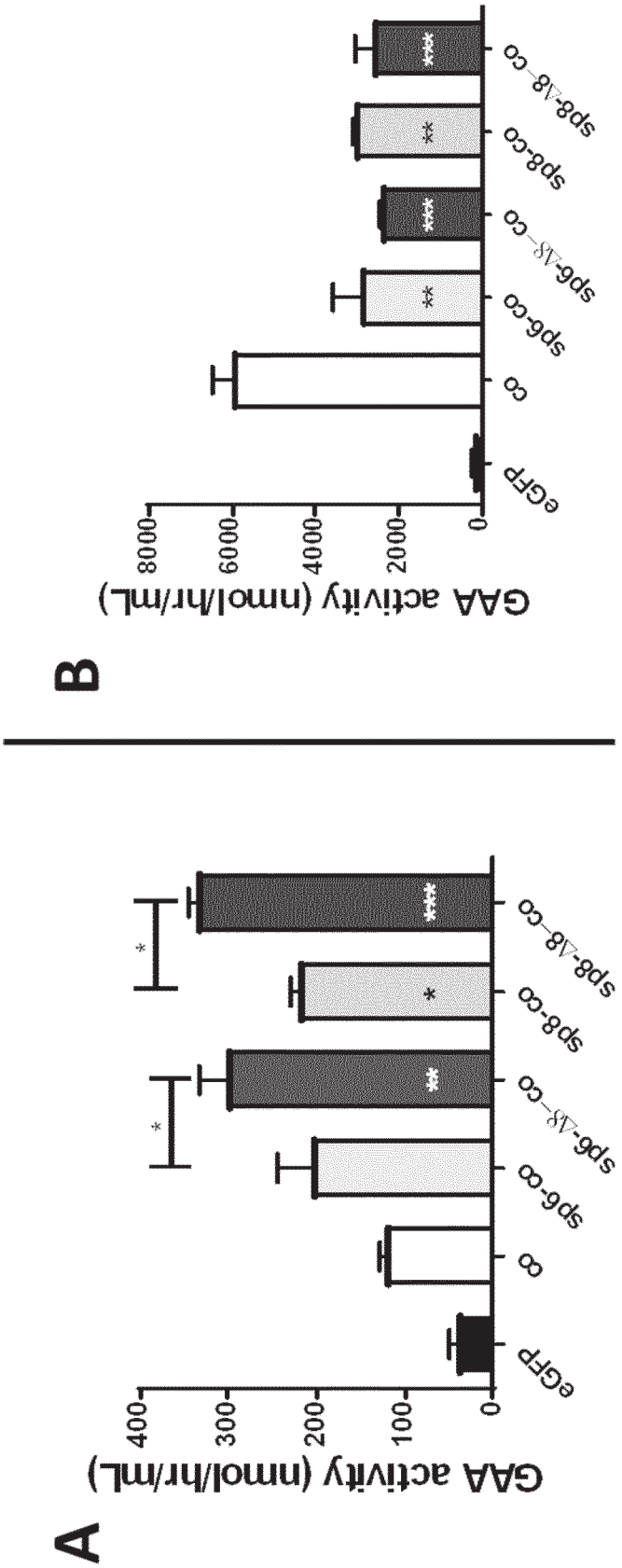

A
GAA activity (nmol/hr/mL)
0
100
200
300
400
eGFP
co
spB-co
spB-Δ8-co
spB-co
spB-Δ8-co
*
*
B
GAA activity (nmol/hr/mL)
0
2000
4000
6000
8000
eGFP
co
spB-co
spB-Δ8-co
spB-co
spB-Δ8-co

FIGURE 11